

# European Action Plan for Airspace Infringement Risk Reduction

Regulatory authorities  
(national and supranational)



# EAPAIRR

## European Action Plan for Airspace Infringement Risk Reduction


### Introduction



Airspace infringement, also known as “unauthorised penetration of airspace” is a major operational hazard that can result from the division of airspace into different classes and structures, with their associated procedures and services, and its joint use by different categories of users, often with competing objectives and different operational requirements and capabilities.

Infringements are not rare events in busy European airspaces and, without prompt action by air traffic controllers and pilots, could result in a loss of separation, or even mid-air collision. Recognising the severity of this threat to aircraft operations and the need to ensure the safe use of airspace and sustainable development of commercial, military and general aviation in the short, medium and long term, the major aviation stakeholder groups in Europe agreed that coordinated actions should be taken to control this aviation risk. The launch of the Airspace Infringement Safety Improvement Initiative in 2006 provided the vehicle for achieving this goal.

The first Action Plan was initiated in 2006, and was the key deliverable of the European Airspace Infringement Initiative. This initiative delivered an action plan in 2009, presenting a set of safety improvement measures and provides guidance on how they can best be implemented.



This action was partially adopted throughout the European Aviation Industry.

The plan was developed with the support of, and active contributions from, organisations representing the airspace users, service providers, regulatory and military authorities. Notable contributions were made by the International Council of Aircraft Owner and Pilot Associations (European region), Europe Air Sports, Association of European Airlines, International Air Transport Association, the European Commission and EUROCONTROL.

Ten years after that publication the issue of Airspace Infringements is still present, as is the associated risk. Many local and regional initiatives have been running for a number of years. These have resulted in the sharing of many best practices and have gone some way to reducing the risk slightly: but they have come nowhere near to eliminating it. With a further developed aviation industry which has seen increased traffic in both General Aviation and Commercial Aviation and flexible use of Airspace by the military, the environment has changed as well. Other developments like the evolution of Flight Information Service, 8.33kHz implementation, development of surveillance and detection equipment, changes in airspace structure and activations and last but not least the rapidly increasing professional and recreational drone activities may have an impact on the risk as well.

All the aforementioned elements and the open ends to the questions, demand a renewed European Airspace Initiative. Again the ultimate goal is to develop a risk reduction action plan and support airspace users, civil and military service providers and national authorities in implementing the recommended safety improvement measures for the timeframe 2020-2030. CANSO and EUROCONTROL chair the initiative which draws on the expertise and close support of a working group of stakeholders.

The recommendations have been divided in 5 domains: Airspace Design (AD), ANSPs (ANSP), Airspace Users (AU), AIM & Meteorology (AIM) and Regulators (REG). The document is available in a full version and in booklets per domain, and is complemented by a list of implemented best practices by the contributing stakeholders.

This document refers to the recommendations and best practices for Regulatory authorities (national & supranational). The information on the other domains, as well as the complete introduction and context can be found in the full version on <https://skybrary.aero/articles/european-airspace-infringement-action-plan>

# **EPAIRR v2.0**

# **Recommendations**

**Regulatory authorities  
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REF	Recommendation	Rationale
REG1	<p>Increase harmonisation for navigation and communication licensing requirements for private pilots, to include the use of VFR Moving Maps in PPL training.</p>	<p>Basic navigation and communication skills training requirements for all private pilot licences should be harmonised. Knowledge and use of GPS systems should be addressed as well. A minimum adequate level of pilot navigation and communication skills should be achieved and maintained by the introduction of mandatory refresher training. Competence checks should include exercises on basic navigation and communication exchange (e.g., requests for clearance to cross controlled airspace) irrespective of the pilot's qualification. The flight check should include "pass/fail" criteria and could include some basic theory as well. Oversight of the pilot training process should be improved by strengthening the regulatory oversight of flying schools, training, and licensing process. The competency and proficiency of instructors and examiners will need to be assessed and appropriate standards established. The currency of instructors' knowledge of aviation regulations should be ensured.</p> <p>Integrate the use of VFR Moving maps in PPL training curriculums. Enable pilots to use mobile devices like smartphones and tablets with VFR Moving maps effectively during training. By learning to use the devices and software in a training environment, pilots will be better prepared to use them in flight while not compromising lookout, scan, or pilot capacity.</p>
REG2	<p>Harmonise the licensing of FIS staff and ATC staff across the Europe in the use of Surveillance data to provide FIS.</p> <p>See also recommendation ANSP15</p>	<p>Harmonisation of FIS provided to VFR flights should be based on European IRs/AMCs/GMs, ICAO recommendations and existing best practices. Examples of best practices are i.e. the Low Airspace Radar Service provided in UK airspace and the radar information services provided in German airspace. Radar-derived information available at ATS units should be used to enhance the information passed to pilots. It should include, as appropriate, navigational assistance, coordination of controlled airspace entry/crossing clearance, passing traffic information and information about restricted airspace activation/deactivation and concerned traffic, as well as provision of other aeronautical information and information about potentially hazardous conditions. The service could include provision of warnings to pilots of any unfavourable factors including airspace infringement and traffic warnings. FIS level could be raised to enable proactive prevention of potential conflict situations. The scope of this action should include the harmonisation of services provided by civil and military FIS provider organisations.</p> <p>Other types of surveillance data (e.g., ADS-B) are now available in addition to Radar. The use of these new sources of available information can increase the situational awareness of the FISO or ATCO.</p> <p>To support the best practices and information sharing in this area, a working Group on FIS provision has been created.</p> <p>According EASA, at the time of writing, there is no initiative to establish a harmonised FISO licensing and training scheme.</p>



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		<p>Additionally, the qualification and training of ATCOs and FISOs is a national prerogative, with observed noteworthy differences.</p> <p>Moreover, the use of ATS surveillance in FIS provision is a subject for which various practices are observed throughout the EU Member States, and for which a thorough technical debate is being initiated.</p> <p>The proposed harmonization should be verified and addressed carefully.</p>
REG3	The National Regulator should form an Airspace Infringement Strategic Working Group to review airspace infringement risk dimensions and establish national safety improvement priorities.	<p>The responsible national authority should review in consultation with the concerned airspace user and service provider organisations the dimensions of airspace infringement risk in their particular operational environment and establish local safety measure implementation priorities. This will enable the identification of the most relevant (for the given operational environment) recommended and proposed actions contained in this plan for implementation at national and local level. Risk awareness should be raised by dedicated safety seminars and workshops with the participation of the service providers and all airspace user types. The safety related efforts of GA organisations should be supported. Strengthening the voice and influence of GA organisations and establishments will help proactively shape pilot safety culture by campaigning on different safety issues. Various means and best practices could be used to this effect: publications (safety letters, notices, magazines), dedicated safety evenings at flying clubs, participation at flight safety seminars, dedicated safety webpages, etc.</p> <p>This brings together GA Associations, ANSPs, Airport Operators, Weather Service Providers, and safety partners to develop strategies. It should be an ongoing and permanent process.</p> <p>Promote the establishment of Local Airspace Infringement Teams (LAITs).</p>
REG4	Ensure that airspace change processes take due account of the different airspace users' requirements.	<p>The applicable airspace change processes, methodology and practices should be reviewed and, as necessary, modified to ensure that the needs of the various airspace user categories are fairly considered in the process of designing and implementing changes to airspace organisation. All stakeholders affected by the intended change should be afforded the chance to (at best) influence the shapes and volumes of airspace structures, or (at least) to make change sponsors aware of airspace user requirements so that the impacts of an airspace change can be minimised or mitigated through, for example, operating arrangements (that in effect be in the spirit of the FUA concept). Changes to airspace structures should be introduced following consultation with GA user representatives and organisations. See also 6.50 below.</p> <p>It is important to have a transparent and comprehensive consultation/engagement process in line with national practices.</p>

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<b>REG5</b>	Harmonise airspace classification below FL195 in line with the strategic airspace design principles.	<p>An appropriate strategic design of the airspace is crucial in permitting the ATM System to provide the right services, at the right time and in the right places decreasing routine tasks and the requirement for tactical intervention. Harmonisation of airspace classification below FL195 should be based on the ICAO-defined airspace classes. It should aim for the establishment of common vertical limits, as far as practicable. It should also include harmonised application of associated rules, procedures, and air traffic services. It is highly recommended deploying airspace structures that provide a greater degree of strategic de-confliction with particular consideration of the cross-border operations.</p> <p>The design of airspace should be as simple as possible, whilst not compromising safety.</p> <p>Where possible, reduce the amount of controlled airspaces and mitigate risk through establishment of TMZ/RMZ.</p>
<b>REG6</b>	Establish a requirement for regular update of the on-board GPS systems database.	<p>It is recognised that there is no mandatory requirement for VFR pilots to have a GPS set in their aircraft. However, a considerable number of incidents occurred due to use of out-of-date GPS maps or due to other GPS use related issues (e.g., power failure). Therefore, aircraft operators and pilots, who intend to use a GPS set in the planning and execution phases of a flight, should be required to operate a GPS system with the correct database only. The suitability of placing appropriate requirements on GPS database providers could be considered in this context. See also 6.2.</p>
<b>REG7</b>	Review and harmonise requirements for the carriage and use of transponders and other conspicuity devices by light aircraft.	<p>To reduce the risk on a mid-air collision. The use of transponder equipment is recommended. It improves:</p> <ul style="list-style-type: none"> <li>• Situational awareness for pilots and FISOs/ATCOs</li> <li>• Occurrence reporting regarding airspace infringements</li> <li>• The ability to provide traffic information</li> </ul> <p>There are several options to be considered when reviewing the requirements for the use of transponders:</p> <ul style="list-style-type: none"> <li>• ADS-B</li> <li>• FLARM</li> <li>• Mode-S</li> </ul>

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<b>REG8</b>	Optimise and harmonise occurrence reporting requirements and taxonomy, including those related to airspace infringement.	<p>Regulation (EU) No. 376/2014 is clear in the ANSP and pilot reporting requirements.</p> <p>It is recommended to increase the scope to include ULMs, gliders and paragliders as reporting is currently not mandatory for these users. This type of airspace infringement is mainly notified if another pilot or ATC reports.</p>
<b>REG9</b>	Ensure updated maps and charts are made available to flying clubs and schools and encourage the use of VFR moving map technology.	<p>Updated VFR en-route charts should be available on-line. Frequent changes should be avoided. Sponsorship should be considered to ensure that as a minimum the GA clubs directly affected by airspace changes (located in the vicinity) obtain the updated maps and charts for use by their members.</p> <p>Both electronic and hard copy (paper) versions of maps/charts should be maintained in order to provide the preferred means of flight briefing to the different generations of GA pilots. Enabling downloads of current charts or sections thereof is an improved service requested by pilots. Further improvement could be achieved by alerting subscribers (users) to implemented changes/updates, for example by means of e-mail notification messages. In addition, site visits and seminars should be considered in the case of major airspace changes.</p> <p>Moving maps provide enhanced situational awareness and timely warnings of airspace and airspace activity. The safe use of moving maps is beneficial to minimizing the risk of airspace infringements. Regulators should encourage the use, and work with ATOs and flying clubs on a safe concept to operate the devices in flight.</p>
<b>REG10</b>	Undertake periodic reviews of airspace allocation and structures within the respective FIRs and improve oversight of airspace management.	<p>The action is designed to support the implementation of an optimised airspace organisation that takes into account, to the extent possible, the requirements of the different airspace user categories, while ensuring the safe use of airspace. Improved efficiency of airspace allocation and management will reduce the probability (hence the risk) of airspace infringements caused by the practice of ‘cutting the corners’ of controlled and restricted airspaces. It should include a review and optimisation of the number and volume of restricted airspace volumes according to their actual utilisation parameters. The regime of restricted airspaces should be reviewed, and tactical airspace management procedures improved, if needed. The review should include all airspace structures within the respective FIRs. It should be carried out in consultation with the concerned military organisations, airspace users and service providers. Given its scope and the amount of effort required, it is expected that the optimisation of the airspace structure will be performed in incremental steps over a number of years. Priorities may be established, as necessary (For example areas of dense VFR traffic may be reviewed first).</p>



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<b>REG11</b>	Promote membership of flying clubs and GA associations among private pilots.	Encouraging private pilots to become members of flying clubs, schools and/or GA associations (for example AOPA, FAI, etc.) would support an improved downward flow of aeronautical information (e.g., notification of airspace changes), guidance materials and information supply in general. It would improve availability and accessibility of education and awareness materials and thus contribute to raising pilots' general knowledge and awareness of risk. However, flying schools and clubs may have to accept that this will place additional responsibility on them.
<b>REG12</b>	Establish requirements for correct GPS equipment installation and maintenance.	Implementation of the action should reduce the probability of GPS system failure, in particular due to loss of power supply or signal.
<b>REG13</b>	Harmonise the regulation of flights by ultra-lights, microlights and gliders (including hang-gliders and para gliders).	<p>A minimum level of pilot navigation and communication skills should be achieved. While the operation and licensing of sailplane/glider pilots is under EASA's remit and action has already been taken, the other mentioned categories (e.g., micro-lights) are operated under national rules because they are Annex II aircraft.</p> <p>Subject to individual national air navigation orders/regulations.</p>
<b>REG14</b>	Introduce formal Just Culture and Human Factors training as part of all flight crew licensing training	By introducing a formal Just Culture and Human Factors training, as part of all flight crew licensing training, pilots will acquire information to help their performance in flight but also in briefing/debriefing. Topics to be included are: improved reporting, safety awareness, airmanship and Threat and Error Management.
<b>REG15</b>	Introduce a process for Regulatory post-Infringement review and action.	Conduct this process under a "Just Culture", where blame is not apportioned for an infringement. Instead, the facts are sought to fully-understand why the infringement occurred and actions are identified to prevent a repeat.
<b>REG16</b>	National Regulators to reassess requirements for obtaining a private pilot license.	<p>NSAs should consider other measures to enhance pilot skill levels. These measures are collated in the toolbox below. The necessity/applicability of these recommendations differs per country and therefore have no separate listing in the recommendations' list.</p> <ol style="list-style-type: none"> <li>1. NSA's to review the competencies required to maintain for their licenses. Evidence would be needed to justify changes.</li> <li>2. Pilot associations to encourage Pilots to consider voluntary hours with instructors to improve proficiency.</li> <li>3. Pilot associations to recommend/suggest a list of items for the mandatory annual flight with an instructor (refresher training). To include R/T communication and navigation.</li> </ol>

# **EAPAIRR v2.0**

# **Best Practices**

**Regulatory authorities  
(national & supranational)**

Section Reference	Best Practice	Source
REG3	<p>EApart from engaging with all relevant stakeholders on the national level, regulators can also participate in Local Airspace Infringement Teams (LAITs) locally, or promote their establishment if not yet formed.</p> <p>Local Airspace Infringement Teams (LAIT's) are run by the airspace owner (APT). Participants from ANSP's, airspace users (both GA and CA), local airports and regulator contribute to a successful working arrangement. Apart from reviewing specific incidents, also more general info on hotspots and way of communication is being shared. <b>Home - Airspace Safety</b></p>	UK CAA
REG4	<p>Alntended airspace changes will be announced to all airspace users in spring each year.</p> <p>Airspace users are involved at an early stage as soon as airspace change proposals are available.</p> <p>Formal Annual Airspace User Conference in autumn with Ministry of Transport, DFS, General Aviation, Commercial Aviation, Military.</p> <p>Airspace changes are implemented in March the following year (with depiction on ICAO VFR chart).</p>	DFS
	<p>It has become best practice over the years to apply clear and easy borders in the airspace design instead of landmarks (railways etc.). There is no general request by VFR users to use landmarks as airspace boundaries (Airspace C, D, TMZ, RMZ etc.). Clear and simple lines are preferred. However, landmark based boundaries are still used sometimes in special occasions (eg. Glider sectors).</p>	DFS
	<p>Formal Annual Airspace User Conference in autumn with Ministry of Transport, DFS, General Aviation, Commercial Aviation, Military.</p> <p>Catalogue of Criteria for the Establishment of Airspaces (Airspace Concept Germany), Ministry of Transport and Infrastructure: The aim of this catalogue is to determine generally applicable criteria for the establishment, modification and cancellation of airspaces, especially in the vicinity of IFR aerodromes, considering the interests of the various user groups as far as possible. On this basis, airspace measures can be implemented in a transparent and comprehensible way.</p>	DFS
REG6	<p>It could be recommended that in ramp inspections special attention is paid to oversighting the updating of the GA users data bases, and reminding and encouraging the pilots to keep them updated.</p>	AESA
REG8	<p>Although mandatory reporting doesn't apply to light aviation, encourage and to promote voluntary reporting for this type of aviation.</p>	AESA
REG10	<p>The National Regulator forms a National Airspace and Air Traffic Management Advisory Committee. Ensure all airspace users, including GA, take ownership and have a voice.</p>	UK CAA
	<p>Formal Annual Airspace User Conference in autumn with Ministry of Transport, DFS, General Aviation, Commercial Aviation, Military.</p> <p>Catalogue of Criteria for the Establishment of Airspaces (Airspace Concept Germany), Ministry of Transport and Infrastructure: The aim of this catalogue is to determine generally applicable criteria for the establishment, modification and cancellation of airspaces, especially in the vicinity of IFR aerodromes, considering the interests of the various user groups as far as possible. On this basis, airspace measures can be implemented in a transparent and comprehensible way.</p>	DFS

Section Reference	Best Practice	Source
REG11	<p>Encourage GA associations to offer to Wings Scheme for upskilling of pilots.</p> <p>To prevent skill fade and complacency and develop airmanship whilst remaining current with national regulations/changes.  <a href="#">AOPA Wings Scheme</a></p>	UK CAA
REG12	<p>AESA CS-STAN of EASA is developed to allow GA users to easily make modifications and repairs to aircrafts while meeting basic requirements (<a href="https://www.easa.europa.eu/document-library/certification-specifications/cs-stan-issue-3">https://www.easa.europa.eu/document-library/certification-specifications/cs-stan-issue-3</a>). In the specific case of GPS there's a requirement (CS-SC052c — Installation of VFR GNSS equipment) for the installation. The point is that CS-STAN applies only to EASA aircrafts, so a possible recommendation could be to evaluate the possibility of recommending its use to aviation out of EASA scope.</p>	AESA
REG15	<p>Treat those pilots who have infringed controlled airspace under a Just Culture through education/re-training with Regulatory oversight. <b>Just Culture - Airspace Safety</b></p>	UK CAA

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# Contributors

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