IRISH AVIATION AUTHORITY SAFETY REGULATION DIVISION

STATE SAFETY PLAN
2015-2018

Ryanair B737-800 at Cork Airport
Photo by Paul Daly

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ASL Airlines (ex Air Contractors) B757 at Shannon
Photo by Michael Kelly - michaelkelly@inbox.com

01 INTRODUCTION

Purpose of Plan

The State Safety Programme of Ireland aims to ensure the continuous improvement of safety standards in Ireland. This is achieved by focussing our resources in the areas that present the greatest risk to aviation safety and implementing actions that will best mitigate these risks. As part of the State Safety Programme the IAA produces the State Safety Plan (SSp).

The purpose of the SSp is to outline to all stakeholders where the IAA Safety Regulation Division will target resources in the next four years in order to fulfil the State Safety Programme objective of reducing accidents and incidents.

SSp 2015-2018 contains safety initiatives to address key safety risks in aviation. The key safety operational risks are identified based on analysis of safety outcomes (ie accidents and incidents) at both national and global level. In addition systemic risks (eg regulatory/policy issues) that underlie the operational performance of the civil aviation system are addressed.

State Safety Plan

The Annual Safety Review of Aviation in Ireland (see www.iaa.ie latest version 2014) provides a summary of the safety performance of the civil aviation system in Ireland. This review provides an analysis of fatal accidents, accidents and serious incidents involving Irish registered aircraft, as well as analysis of civil aviation occurrences reported under confidential occurrence reporting systems (mandatory and voluntary) in the State. The key safety priorities are established using a risk based approach in order to minimise the potential for fatalities, injuries and aircraft damage.

Aviation is a global business and lessons learned from across the globe may be equally applicable in Ireland, so the risk analysis is also informed by key safety issues identified by ICAO, the European Aviation Safety Agency (EASA), and other States national safety plans.

For example, the Plan includes the key safety risks of Runway Excursions, Runway Incursions, Controlled Flight Into Terrain, Loss of Control – Inflight, even though, thankfully, the IAA has not received many reports of incidents that fall under these categories.

The European Aviation Safety Agency issues an annual four year European State Safety Plan (EASp). The latest version EASp 2014 – 2017 is published and available on the EASA website www.easa.eu.int.

The IAA voluntarily adopts the provisions for Member States included in the EASp, as far as practicable. For ease of cross reference we have synergised the structure of our Plan as closely as possible to the EASp structure, whilst maintaining separate sections addressing systematic issues, issues pertinent to commercial air transport and issues pertinent to general aviation to better facilitate access to the Plan for Irish stakeholders.

Aer Lingus A320
Photo by Joe Heeney
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Structure of the Plan

The issues in the Plan are grouped into three sections – systemic, commercial air transport and general aviation.

Systemic issues impact across multiple sectors affecting the structural aspects of the aviation system, including items such as development of the State safety programme, the implementation of safety management systems, and the development of risk and performance based oversight.

The Commercial Air Transport section addresses safety issues at operational level which may be more directly related to accident and serious incident outcomes (Lagging Indicators) and concern all domains involved in commercial aviation including airlines, aerodromes, air navigation services, maintenance organisations and ground operations service providers. Likewise the General Aviation section also addresses operational issues but from the perspective of general aviation.

Chapter 2 provides an overall executive summary of the Plan with statistical information on the performance of the Plan and summary highlights of the actions contained therein.

Chapters 3, 4 and 5 provide details on the individual issues addressed under the systemic, commercial aviation and general aviation headers. A narrative is provided for each issue in the Plan, including a summary statement of the objectives and description of the actions taken to date and planned for the future. New actions in this version of the Plan are highlighted.

In keeping with the editorial practice employed thusfar, the action items closed in the preceding year (in this case 2014) are included in the Plan to record their closure. Action items closed prior to 2014 are deleted, however, this deletion does not affect the overall statistical information provided in the Plan.

Terminal 2 Dublin Airport
Photo by Michael Kelly
michaelkelly@inbox.com

02 EXECUTIVE SUMMARY OF THE PLAN

Overall Summary of the Plan

Since its inception in 2010 there have been a total of 41 issues addressed in the SSp with 144 associated actions. The individual action items in the Plan are aligned with the four pillars of the State Safety Programme for Ireland, namely Safety Policy, Safety Risk Management, Safety Assurance and Safety Promotion. Figure 1 below shows how the actions break down between the different SSP Pillar by section.

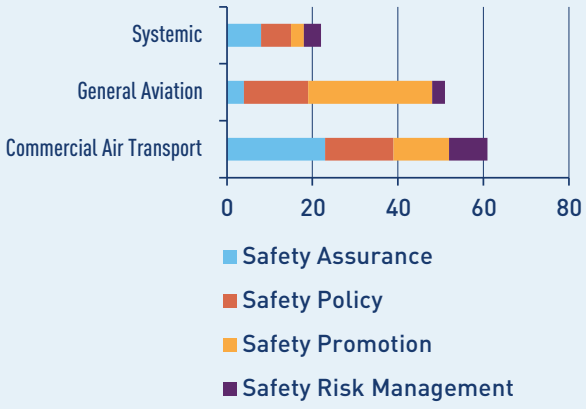


Figure 1: **Breakdown of SSP actions by Section and SSP framework**

At this time 61% of all actions included in the Plan since it's inception have been completed and 26% of the actions are open, with 13% of the actions having been designated as on-going actions but still tracked in the Plan.

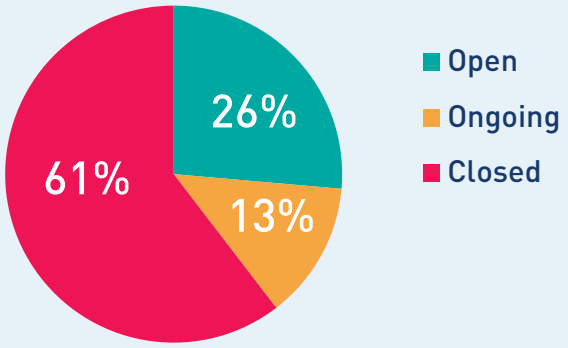


Figure 2: **Overall status of SSp actions**

Figure 3 shows the annual performance of the plan since 2011. It shows the number of actions closed (or closed and re-designated as on-going) per year to date, as well as showing the number of open actions due for completion in the forthcoming years.

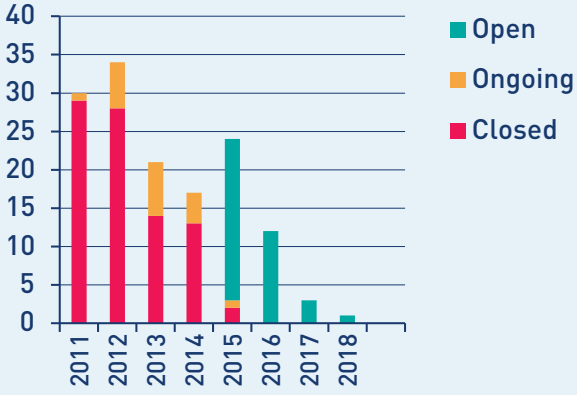


Figure 3: **Annual Status of the Plan**

The main issues addressed in the State Safety Plan are summarised in the infographics overleaf.

Summary of Systemic Issues

There are a total of 6 systemic issues included in the 2015-2018 Plan consisting of 24 action items, an increase of 2 actions since last year. 12 of the actions have been closed (in this and previous versions of the Plan), 4 of actions are ongoing and 8 actions are open. The systemic actions break down as shown in Figure 4.

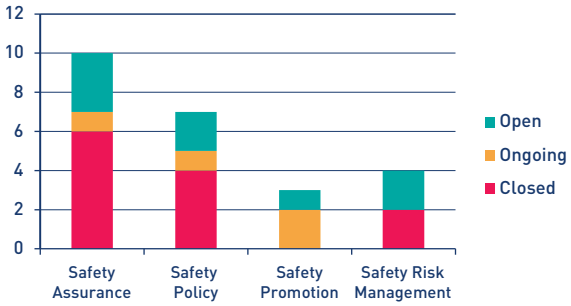


Figure 4: Systemic Actions by SSP pillar and Status

The IAA has successfully developed the framework and strategy for beginning the transition to performance based oversight in the Air Operations domain based on assessment of organisation risk and performance and the effectiveness of the organisations safety management system. New actions added to this version of the Plan address the deployment of these concepts to other domains.

Summary of Issues affecting Commercial Air Transport

There are a total of 11 issues affecting commercial air transport included in the 2015-2018 Plan addressing 67 action items. In total 38 of the action items have been closed (in this and previous versions of the Plan) and 8 actions have been designated as on-going. The actions related to commercial air transport break down as shown below in Figure 5.

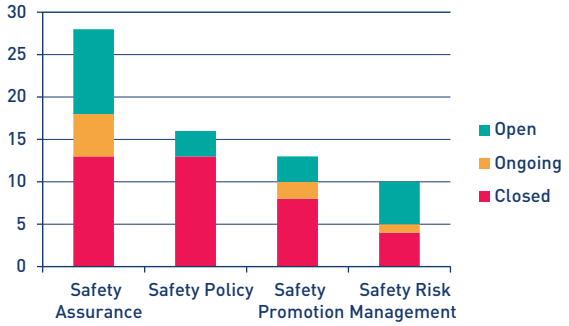


Figure 5: Breakdown of Commercial Air Transport Actions by SSP Pillar and Status

In addition to the development of mitigating actions to address these hazards, the IAA has included actions to ensure the optimum use of the service providers Safety Management Systems and the airlines Flight Data Monitoring systems to track and evaluate operational safety trends, identify risk precursors, and take the appropriate remedial action. Highlights of the new actions included in this version of the Plan are:

- The Runway Incursions Action Group will be reconstituted as a more general Runway Safety Group with extended scope to address ground collisions or near collisions in any part of the airport maneuvering areas (ramp, taxiways etc).
- Use of the EHFAG regulatory inspectors Human Factors competency framework in assessing training organisations implementing competency based training programmes.
- Review implementation of EAPPRE recommendations by regulated entities
- Detailed analysis of MAC related occurrences.
- Encourage ICAO actions on Birdstrikes

Summary of the Issues affecting General Aviation

Since it's inception the Plan has addressed 23 separate issues affecting General Aviation addressing 53 actions. In total 14 issues and 34 action items have been closed (in this and previous versions of the Plan) and 7 actions have been designated as ongoing.

There are 8 open actions reflected in the Plan this year. The actions related to general aviation break down as shown below in Figure 6.

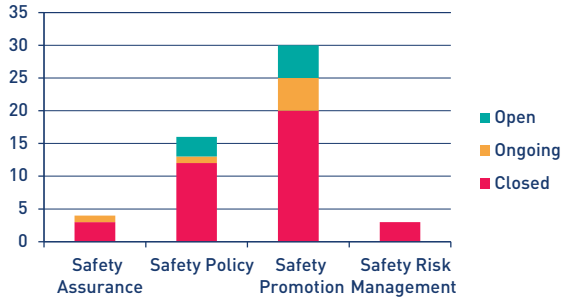


Figure 6: Breakdown of General Aviation Actions by SSP Pillar and Status

New actions in this version of the Plan include safety initiatives to address GA airspace infringements and mid-air collision in Class G airspace through review of airspace design, aeronautical charting, and communication frequency management.

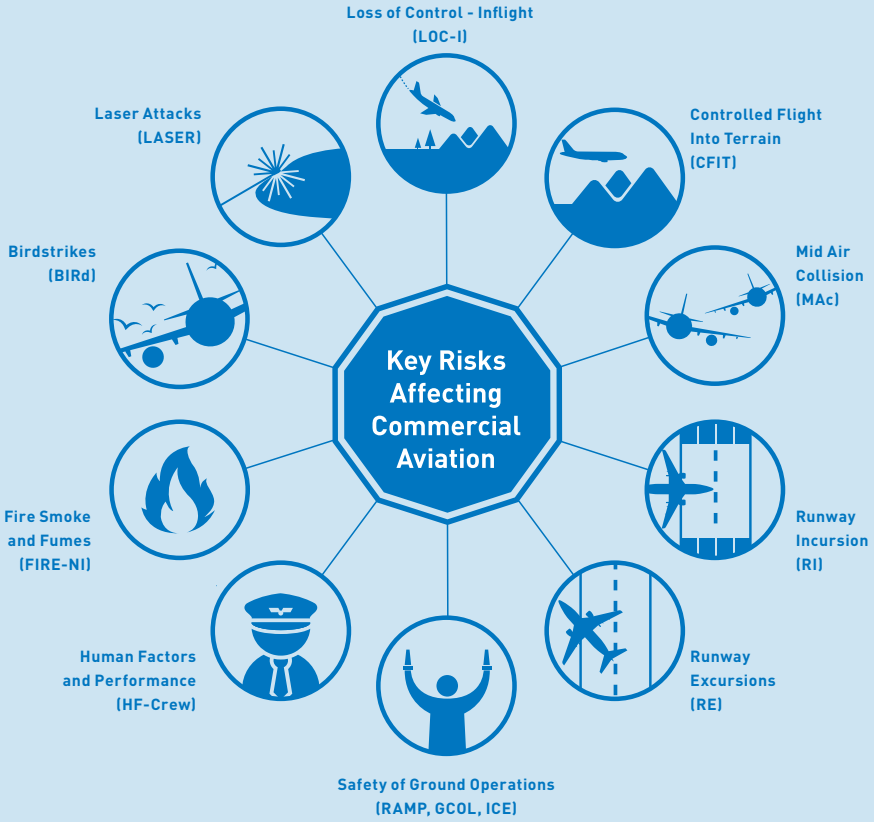
Systemic Issues

The six systemic issues are interdependent parts of the strategy to fully implement the ICAO Annex 19 State Safety Programme in Ireland.

The implementation target is 2017 consistent with the ICAO Global Aviation Safety Plan 2013.

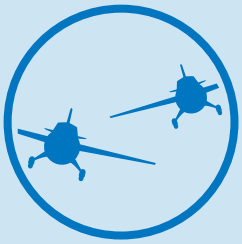
Key Risks Affecting Commercial Aviation

In addition to the development of mitigating actions to address these hazards, the IAA has included actions to ensure the optimum use of the service providers Safety Management Systems and the airlines Flight Data Monitoring systems to track and evaluate operational safety trends, identify risk precursors, and take the appropriate remedial action.



Key Risks Affecting General Aviation

Airspace Infringements by GA aircraft



Mid Air Collision by GA Aircraft

Paragliding Activities

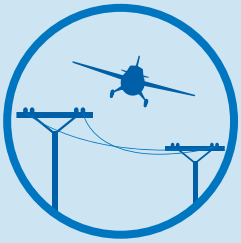
Risks in aircraft maintenance

RPAS/Drone

Low Level Loss of Control

In addition to addressing these key risks the Plan includes policy issues addressing use of third country aircraft, airworthiness review of Annex II Aircraft and GA Engine overhaul limits. There are also ongoing actions to continue to promote relevant international guidance material (eg EGAST, EHEST, IHST).

Key Risks Affecting General Aviation Closed in Previous Versions of the Plan



Wire Strike Hazards
(Closed in 2012)

Operation from Airstrips
(Closed in 2013)

Risk from obstacles at airfields
(Closed in 2011)

Measuring the success of the State Safety Plan

Whereas the summary data above gives an indication of the progress of the actions included in the State Safety Plan, the true evidence of the success of the Plan will be measured based on the safety outcomes, namely in the rate of accidents, serious incidents and incidents in the Irish civil aviation system.

The trend analyses of precursors to the key safety indicators identified in the service providers SMS/FDM systems will also provide evidence of success. The IAA will continue to publish measures of these key safety indicators in the Annual Safety Review as well as on the IAA website. In addition the IAA is an active participant in the EASA Network of Analysts which continues to identify key risks and measures for use as part of EU Member States safety management programmes.

The following chapters of this Plan include indicative trend analyses of the highest risk events based on initial mandatory occurrence report classification. Whereas it is too early to draw any specific conclusions based on these trends alone, they may at least provide early indication if the actions taken are having a positive effect.

CHC Ireland S92 at Cork Airport
Photo by Paul Daly

Photo by Joe Heeney
joedc29@hotmail.com

Dublin Tower
Photo by Pieter Van Velzen

03 SYSTEMIC ISSUES

Overall Summary of the Plan

State Safety Programme
The State Safety Programme (SSP) is an integrated set of regulations and activities aimed at improving safety in the State. The objective is to achieve an acceptable level of safety of aviation services and products delivered by aviation service providers. The actions in this plan are focused on ensuring that Ireland meets the targets established in the ICAO Global Aviation Safety Plan near term objectives for the implementation of SSP by 2017.

Safety Management Systems
A Safety Management System (SMS) provides aviation service providers with a systematic way to identify hazards and control risks while maintaining assurance that these risk controls are effective. This Plan targets the implementation of SMS across all domains in the Irish civil aviation system by the end of 2017, subject to the availability of SMS requirements in certain domains in accordance with the EASA rulemaking programme.

Safety Performance Indicators
Safety Performance Indicators are metrics used to express the level of safety performance achieved in the aviation system and are usually linked to safety performance targets. The expected benefits of the actions in this Plan are that a standardised list of SPI's will be developed for use in civil aviation in all EU Member States and implemented in Ireland by the end of 2016.

Occurrence Reporting
The IAA has implemented confidential occurrence reporting systems in the State for collection of both mandatory and voluntary occurrence reports. This action is mainly targeted at the reporting of occurrences by those involved in general aviation, such as private sports and leisure flying activities. The actions in this Plan also aim to ensure this community is fully aware of the new mandatory reporting obligations in Regulation (EU) 376/2014 as well as continuing to encourage the voluntary sharing of safety occurrences.

Implementation of Performance Based Oversight
A key feature of safety management at the State level is the use of performance based regulations and performance based oversight methodologies to compliment traditional prescriptive rulemaking and compliance based oversight activities. The IAA target is to implement performance based oversight in Ireland across all domains in civil aviation by the end of 2017

Implementation of ERP in IAA SRD
The implementation of the EMPIC system in the IAA is a key enabler of the performance based oversight approach the IAA wants to pursue. This system facilitates quick access to oversight audit results and trends which will be used, along with other measures, to develop the risk and performance profiles of the relevant service provider. The target is to implement EMPIC organisation oversight modules across all domains by the end of 2016, and the Plan is focused on the short term objectives in the phased implementation programme.

There have been no new systemic safety issues included in this version of the Plan, however, mitigating actions have been updated. Detailed summaries of the progress and actions for each of these Safety Issues are provided in the following sections.

M.002 Implementation of State Safety Programme

Issue Statement

ICAO Standards and Recommended Practices (SARPs) require the implementation of State Safety Programmes in Annex 19, effective since November 2013.

The State Safety Programme (SSP) is an integrated set of regulations and activities aimed at improving safety in the State. The objective is to achieve an acceptable level of safety of aviation services and products delivered by aviation service providers. The actions in this plan are focused on ensuring that Ireland meets the targets established in the ICAO Global Aviation Safety Plan near term objectives for the implementation of SSP by 2017.

Current Status

The State Safety Programme for Ireland is at an advanced stage of development. The IAA maintains an active role in development of the European Aviation Safety Programme (EASP) and the European Aviation Safety Plan (EASP) through it's participation in the European Aviation Safety Advisory Committee (EASAC) and the EASA EASp summit meetings.

The documentation of the SSP for Ireland was updated in 2014 and published in January 2015. The updated version provides a more comprehensive description of the programme using the latest guidance template provided in the ICAO Doc 9859 Safety Management Manual, Third Edition.

A gap analysis (included as Appendix to the SSP document) has been performed that identifies the elements of the SSP that are not yet fully implemented in Ireland. These elements are mainly found under the SSP pillars of Safety Risk Management and Safety Assurance and concern items such as the establishment of SMS requirements across all domains and the development of key safety indicators and Acceptable Level of Safety Performance (ALoSP) at State level. Much of this work is accomplished in conjunction with EASA.

In addition, Ireland has voluntarily adopted the European Aviation Safety Plan (EASp) and has co-ordinated the Irish State Safety Plan with the European plan. The IAA provides regular updates to EASA on the status of the national State Safety Programme, as well as the status of action items for NAA's identified in the EASA EASp and adopted by the IAA.No new actions were identified in this version of the Plan and one open action item was closed in 2014.

Existing Actions

a)
The IAA will continue to implement the elements of the EASA European Aviation Safety Plan that apply to national authorities.

EASA Reference: SYS 1.7

Target date On-going

c)
The IAA will work, in conjunction with EASA as appropriate, to ensure that the full implementation of the SSP for Ireland is accomplished in accordance with the ICAO GASP 2013 near term objectives

EASA Reference: SYS 1.7

Target date Q4 2017

Closed Actions

b)
The IAA will publish a revision to the State Safety Programme Document (including SSP Gap Analysis) using the template provided in the ICAO Doc 9859 Safety Management Manual, Edition 3.

EASA Reference: SYS 1.7

Target date Q2 2014

M.004 Safety Culture and Implementation of SMS

Issue Statement

Future safety improvements in commercial air transport require the adoption of ICAO standards for the implementation of Safety Management Systems (SMS) in aviation organisations.

An SMS provides aviation service providers with a systematic way to identify hazards and control risks while maintaining assurance that these risk controls are effective. This Plan targets the implementation of SMS across all domains in the Irish civil aviation system by the end of 2017, subject to the availability of SMS requirements in certain domains in accordance with the EASA rulemaking programme.

Current Status

ICAO has published standards and recommended practices concerning safety management systems in Annex 19, effective November 2013. This annex consolidates the SMS requirements for all aviation disciplines, including those previously contained in other Annexes (eg Annex 1, 6 etc).

EU regulations are being revised to implement the SMS standards in all organisations from Aerodromes to ANS providers to commercial air transport operators and maintenance organisations. The EU regulations containing Organisation Requirements for air crews and air operations have been adopted. The same approach is now being transposed to other domains of aviation (airworthiness, ATM/ANS and aerodromes). The IAA will work with EASA in order to meet the objectives of the ICAO GASP for the development of SMS requirements across all domains.

Best practice guidance in the area of safety management for commercial air transport operations has been published by ICAO in Doc 9859 Safety Management Manual. In Europe ECAST and EHEST have published guidance material on the implementation of SMS in the airborne domain. The IAA is an active participant in both ECAST and EHEST and uses the associated guidance to promote SMS best practice. The IAA provides SMS training (week long courses) for the benefit of both IAA staff and Irish industry. A link to the dedicated European Strategic Safety Initiative website http://www.easa.eu.int/essi/ is provided from the IAA website.

EASA has also identified in the European Aviation Safety Plan the need to support the implementation of SMS in ANSP's, including in the context of the development of the Functional Airspace Block (FAB). Regulation (EU) No 691/2010 (Performance Scheme for ANS) established, inter alia, requirements for the State to report on just culture, the effectiveness of Safety Management and the use of the RAT tool for the so called Reference Period 1 (2013-2015). This task was implemented in the IAA and the first annual report was submitted in 2013. Regulation (EU) 390/2013 establishes similar requirements for the Reference Period 2 (2015 – 2019) with the addition that the reporting will be accomplished at the level of the FAB. The IAA has already been engaged with it's FAB partner (UKCAA) on the harmonisation of SMS within the FAB and will continue to work with the UKCAA to plan the implementation of Regulation (EU) No 390/2013.

All actions remain on target with the exception of the availability of EU Implementing Rules in the area of design and production, which is now targeted for delivery by 2018 in EASA Rulemaking programme. This target is adjusted accordingly. The IAA continues to monitor the effectiveness of safety management in organisations in the State. The Effectiveness of Safety Management (EoSM) tool has been used in the ANS domain (ref also EASA Decision 2013/032/R and the associated AMC/GM). This tool has also been tailored to suit the Air Operators domain and used to assess the effectiveness of safety management of AOC holders. In addition the SMICG tool "SMS Compliance and Best Practices" has been distributed to Irish AOC's for their completion. A new action has been added to the Plan to develop and use appropriate EoSM tools for all other domains (New Action h) overleaf).

New Actions

h)
The IAA will develop suitable tools to measure the effectiveness of safety management by approved organisations in all domains

Target date Q4 2016

Existing Actions

b)
The IAA will include SMS promotional material developed by ECAST and EHEST in Annual SMS training delivered by the IAA.

EASA Reference: SYS 2.7

Target date On-going

f)
The IAA will promote the harmonisation of SMS approaches in the context of the FAB in consultation with the UK CAA and will work with UKCAA on the implementation of Regulation (Ec) No 390/2014

EASA Reference: SYS 2.9

Target date Q4 2015

g)
The IAA will work with EASA in order to meet the near term objectives of the ICAO GASP for the development of SMS requirements across all domains.

EASA Reference: SYS 2.9

Target date Q2 2018

M.003 Publication of Safety Performance Indicators (SPIs)

Issue Statement

The IAA in conjunction with EASA wishes to develop a standardised set of safety performance indicators (SPI) for use in Europe and worldwide, to facilitate the harmonisation of safety data analysis and associated risk management strategies.

Safety Performance Indicators are metrics used to express the level of safety performance achieved in the aviation system and are usually linked to safety performance targets. The expected benefits of the actions in this Plan are that a standardised list of SPI's will be developed for use in civil aviation in all EU Member States and implemented in Ireland by end of 2017.

Current Status

In 2011 EASA established a Network of Analysts (NoA) to help perform safety analysis and to help identify existing or emerging risks to be included in the European Aviation Safety Plan. The NoA has established a working group on SPIs with the primary aim of identifying common SPIs across Europe and to provide guidance material on the development of SPIs.

The work of the SPI working group will continue through 2015 and will be informed also by the related guidance emerging from the Safety Management International Collaboration Group (SM ICG). The IAA plays an active part in the work of the NoA, and this group provided the first edition of the EASA Member States Common Safety Performance Indicators in 2013 which identifies both Tier 1 and Tier 2 indicators to be monitored.

In the ATM domain, specific SPIs have been agreed and published in European regulation. The IAA has established SPI's at national level and publishes high level safety outcome based (tier 1 & 2) safety performance indicators in the Annual Safety Review and on the IAA website. More granular SPIs (tier 3) for various sectors of the industry and individual organisations are provided to the relevant stakeholders.

The IAA recognises the benefits of developing a common standardised list of SPI's at EU level and will continue to develop SPIs in line with EASA standards as they emerge. The ICAO GASP 2013 targets the full implementation of the State Safety Programme in developed States by 2017, which includes the development of SPI's as a key element.

No new or amended action items are required for this version of the Plan.

Existing Actions

a)
Participate in the development of standard safety performance indicators across Europe through participation in the EASA Network of Analysts working group.

EASA Reference: SYS 3.7

Target date Q3 2017

M.005 Safety and Hazard Reporting

Issue Statement

The IAA has implemented confidential occurrence reporting systems in the State for collection of both mandatory and voluntary occurrence reports. The voluntary reporting of occurrences, hazards and safety concerns in Europe and Ireland, particularly in the general aviation sector, is relatively low. The twin strands of regulation and promotion are widely used to help improve the reporting of hazards.

This action is mainly targeted at the reporting of occurrences by those involved in general aviation, such as private sports and leisure flying activities. The actions in this Plan aim to ensure this community are fully aware of the new mandatory reporting obligations in Regulation (EU) 376/2014 as well as continuing to encourage the voluntary sharing of safety occurrences.

Current Status

In April 2011 the IAA website was revised to provide additional guidance on confidential voluntary reporting and to allow the online submission of voluntary reports. The site provides for three types of reports from the general public, aviation industry personnel and the general aviation community. While the general public and industry personnel have made good use of the online confidential voluntary reporting system the general aviation community have not, with only 10% of the reports received from this community albeit there has been a noticeable growth in this area in 2014.

The General Aviation Safety Council of Ireland (GASCI) was established in 2012. The GASCI stakeholders, dedicated people from various GA communities and organisations, have set the aim of GASCI to 'promote the safety of General Aviation in Ireland'. To achieve this, GASCI seeks to identify flight safety risks and minimise them through education, training and shared experience amongst the Aviation Community. GASCI established a voluntary reporting portal on the GASCI website in 2013 and is now actively encouraging the general aviation community to share experiences using this portal.

Based on IAA survey of General Aviation in 2010 as well as advice from GASCI, the IAA is acutely aware that persons involved in general aviation may be reluctant to report safety occurrences to the IAA for fear they will be subject to punitive enforcement action. The IAA has published the Enforcement Policy (as an Appendix to the State Safety Programme document, January 2015), that clearly outlines how the IAA will process safety events in a just culture environment.

Regulation (EU) No 376/2014 of the European Parliament and of the Council on occurrence reporting in civil aviation was published April 2014 and becomes applicable on 15th November 2015. This regulation will have the effect of including the General Aviation community under the mandatory occurrence reporting system for the first time. The IAA continues to work with GASCI in order to provide guidance to the GA community on the new regulation.

One action has been closed and no new actions have been identified in this version of the Plan.

Existing Actions

c)
The IAA will work with GASCI to encourage the sharing of Safety information within the GA community, at GASCI safety evenings and Club Fly-in events and via GASCI website and facebook.

Target date On-going

E)
The IAA will work with GASCI to provide guidance to GA community on the requirements of the new EU Occurrence Reporting Regulation No. 376/2014.

Target date Q2 2016

Closed Actions

d)
Publish an enforcement policy which clearly outlines how the IAA will process safety events in a fair and just manner

EASA Reference: SYS 1.7

Target date Q4 2014

M.010 Implementation of Risk and Performance Based Oversight

Issue Statement

The IAA plans to implement risk and performance based oversight as a key element of safety management in Ireland.

A key feature of safety management at the State level is the use of performance (objective) based regulations and risk and performance based oversight methodologies to compliment traditional prescriptive rulemaking and compliance based oversight activities. The IAA target is to implement risk and performance based oversight in Ireland across all domains in civil aviation by end 2017.

Current Status

The concept of risk and performance based oversight provides greater flexibility for both the State and the service provider to target areas of greater concern. It is planned to compliment the compliance based oversight methods by targeting resources of both the State and the service provider towards areas of greatest risk to safety.

The full implementation of performance based oversight in the IAA is a medium term project which requires:

- Risk and performance measurement systems and structures
- Data collection and analysis systems
- Data quality verification processes
- Personnel training
- Roll-out planning
- Change management

Some of the core data collection and analysis elements are already in place in Ireland (eg mandatory occurrence reporting collection and analysis schemes) and this data is currently used to inform compliance based oversight approach in some cases. However a considerable amount of work is required to make the transformational changes (across people, process, systems, data and culture) to fully implement risk and performance based oversight.

Risk and performance based oversight is heavily dependent on the availability and use of appropriate measures of risk and performance data. A poor foundation in this area could lead to the inefficient targeting of resources in the wrong areas, or at worst, failure to identify critical safety concerns that might have prevented an accident or serious incident.

The main focus at this time is on the development of the safety performance measurement systems and structure necessary to enable risk and performance based oversight. Whereas the IAA has a mature measurement system in place for safety outcomes (ie lagging indicators of accidents, serious incidents and incidents) work is required in developing appropriate leading indicator measures at the service provider and regulatory levels (eg organisational performance, compliance findings, risk profiles, effectiveness measures for SSP/SMS performance, just culture etc) and the means to collect and analyse this data. Issue M.003 (Development of SPI's) above will help to identify what measures are appropriate in this area, however this task will focus on how, where and when to collect and analyse this data.

The successful implementation of risk and performance based oversight is also highly dependent on the maturity of the safety management system of the service providers involved. In recognition of this dependency, and in order to ensure greater chance of success, the IAA implementation strategy is to roll-out risk and performance based oversight on a phased basis beginning with the most mature service providers and gradually building on this experience working towards full implementation across all other service providers and domains.

It is envisaged that early implementation of performance based oversight will be conducted as a parallel process with the current compliance based oversight process in order to build confidence in the system before full implementation.

In 2014 the IAA established the measurement structure based on three pillars; organisation intrinsic risk profile, organisation compliance profile and organisation performance profile. Bespoke tools were used to establish the overall organisation risk and performance profile for all AOC Holders and the results were used as part of the AOC oversight planning function for 2015.

Whereas, more work is required to bring the system to full maturity the underlying concept based on the three pillars identified above has proven it's usefulness in the Air Operations domain and will be rolled out to other domains in the next few years (New Action c) below)

Two actions were closed and one new action was added in this version of the Plan.

New Actions

c)
The IAA will develop the tools to support risk and performance based oversight in all domains based on assessment of organisation risk profile, organisation compliance profile and organisation performance profile.

Target date Q4 2017

Closed Actions

a)
The IAA will develop the safety performance measurement structure and associated systems as a key enabler of performance based oversight.

Target date Q4 2014

b)
The IAA will target specific service providers, with mature safety management systems, for early implementation of performance based oversight, as a parallel process, in order to gain experience of, and build confidence in, the system prior to live roll-out.

Target date Q2 2015

M.006 Implementation of an Enterprise Resource Planning (ERP) System

Issue Statement

The IAA requires an integrated Information System to allow more effective and efficient management of safety related data and to improve the service provided to external customers. The EMPIC system was selected by the IAA.

The implementation of the EMPIC system in the IAA is a key enabler of the performance based oversight approach the IAA is implementing. This system will facilitate quick access to oversight audit results and trends which will be used, along with other measures, to develop the compliance profiles of the relevant service provider. The target is to implement EMPIC organisation oversight modules across all domains by end 2016, and the Plan is focused on the short term objectives in the phased implementation programme.

Current Status

The IAA is continuing with the phased implementation of the EMPIC system. It has now been extended to include all data related to aircraft registration and type certification, including continued airworthiness certification. The oversight management of approved organisations has commenced and will be rolled out to all approved organisation types in the forthcoming years. In addition the IAA has been delegated responsibility for Aviation Security and an EMPIC Module for this activity was developed in 2013.

The roll-out of EMPIC to include the certification of Air Operators has been delayed until end of 2015 to allow the update of the associated checklists to align with the new EU Air Operations regulation which became applicable in Oct 2014. Action item a) has been amended accordingly.

The IAA continue to strategically manage the roll-out process in-house and on a phased basis, ensuring the project does not impact on the external customers and the internal resource requirements for existing safety oversight programmes.

Closed Actions

a)
The IAA will implement the EMPIC modules applicable to Flight Operations.

Target date Q4 2015

Ramp at Dublin Airport
Photo by Micheal Kelly
michaelkelly@inbox.com

04 COMMERCIAL AIR TRANSPORT

Summary of objectives

The key safety risks included in the Plan reflect the highest risk category for fatal accidents both in Europe and worldwide. These risks are commonly found in many other States safety plans including the European Aviation Safety Plan. They are:

- Loss of Control -Inflight (LOC-I)
- Controlled Flight Into Terrain (CFIT)
- Mid Air Collision (MAc)
- Runway Incursion (RI)
- Runway Excursions (RE)
- Safety of Ground Operations (RAMP, GCOL, ICE)
- Human Factors and Performance (HF-Crew)
- Fire Smoke and Fumes(FIRE-NI)

The IAA Annual Safety Review reports on accidents, serious incidents and incidents pertinent to the Irish Civil Aviation system. In addition to the key safety risks identified above this review also helps identify other risks to Commercial Air Transport operators, that may not have caused accidents or serious incidents, but feature highly in mandatory occurrence reports received by the IAA. Two such key safety risks are Birdstrikes and Laser Attacks both of which are included in the Plan.

The key objectives of the actions included for these key safety risks is that there will be no accidents or serious incidents involving commercial air transportation in the Irish Civil Aviation System due to these key safety risks and that risk mitigation strategies are employed to reduce the number of precursor events to these risks. The Plan includes actions for the IAA to encourage the use by approved organisations of safety management systems and aircraft operators Flight Data Monitoring system to collect analyse and trend the precursors to the key safety risks identified in the Plan in order to develop mitigation actions to address these risks.

There were no new safety issues included for Commercial Air Transport in this version of the Plan, however new mitigating actions have been added and existing mitigating actions have been updated as described in the following chapters. System Component Failure (non-powerplant) is consistently one of the top ADREP occurrence categories assigned to Mandatory Occurrence Reports submitted to the IAA. The IAA is conducting a detailed analysis of these events during 2015 and the results of this analysis may lead to new safety issues or actions in future versions of this Plan.

FOD.001 Loss of Control in Flight

Issue Statement

Both ICAO and EASA have identified that although the loss of control of an aircraft in flight (LOC-I) is a relatively rare event, based on studies of accident data over the past 10 years, it has been found that the highest proportion of fatal accidents were attributed to LOC-I events across many different sectors in aviation.

Although LOC-I related accidents or serious incidents are thankfully rare in the Irish civil aviation system, LOC-I remains one of the key risks to fatal accidents in aviation and it is therefore included in this Plan. The expected benefits of these actions are that there will be no LOC-I related accidents or serious incidents involving Irish commercial aircraft. In addition the actions are focused on reducing the number of precursor events to a LOC-I occurrence, such as, underspeed, overspeed, stall warnings and unstable approach.

Current Status

Numerous studies of LOC-I related accidents have shown that the problem of LOC-I is a complex one to address. The most common causes leading to airplane upsets are inadvertent/unrecognised low airspeed/stalls, pilot disorientation, and system failures. The ICAO symposium on this topic was conducted in 2014 with the aim to provide a cohesive package of tools to pilots, operators, regulators and training organisations to address LOC-I.

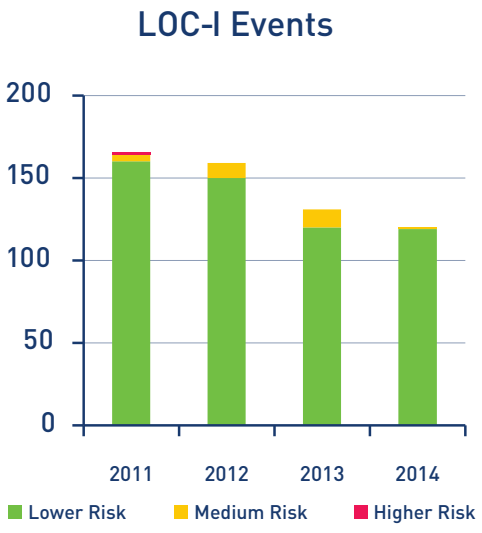
During 2014 improved SARPS to address training requirements were introduced in ICAO Annexes 1, 6 and PANS-TRG (DOC 9868). ICAO developed Doc 10011 "Manual on aeroplane Upset Prevention and Recovery Training (UPRT)", currently draft, to support these new provisions and is applicable to the training of aeroplane pilots. ICAO Doc 10011 incorporates the previous work of the International Committee for Aviation Training in Extended Envelopes (ICATEE) and the Loss of Control and Recovery Training (LOCART) initiatives.

In the interim, the IAA has been working with individual operators to improve training (including instructor training) in areas such as approach to stall and stall recovery, subject to the limitations of the flight simulator training devices. Action c) below is closed and Action d) below is amended accordingly.

In addition EASA is pursuing a number of rulemaking and guidance initiatives to address operational and technical issues attributed to LOC-I accidents (refer to EASp 2014-2017 for details). In particular an EASA NPA (RMT.0581) concerning UPRT is due to be issued in the early part of 2015.

The IAA has implemented an operational oversight process with associated procedures and checklist to target LOC-I events for Irish AOC Holders, including review of the AOC holders SMS activities (ie SPI analysis/trends, mitigation actions) to address the precursors to LOC-I occurrences. The IAA continues to share information on LOC-I events with EASA. In addition the IAA monitors the implementation of guidance contained in related EASA SIB's on an on-going basis (Action e) below updated accordingly).

There is a decreasing trend evident for LOC-I precursor events reported to the IAA under the Mandatory Occurrence Reporting scheme in the past four years, both in terms of quantity and risk.



Existing Actions

a)
The IAA will target LOC-I and pre-cursor events as part of AOC Holder SMS/FDM oversight.

Target date
On-going

d)
The IAA will review the outcomes of the ICAO Loss of Control Symposium in May 2014 and the ICAO Doc 10011 "Manual on aeroplane upset prevention and recovery training" and implement the recommendations and guidance for regulators contained therein.

Target date Q4 2016

e)
The IAA will review and promulgate latest EASA publications (policies/SIB's) concerning LOC-I and monitor the implementation of recommendations applicable to the Irish civil aviation system.

EASA Reference:
AER 4.6, 4.7, 4.8

Target date On-going

Closed Actions

c)
The IAA will implement EASA endorsed initiatives, such as ICATEE (incorporated in ICAO Doc 10011 – see action d) above) revising and promoting upset recovery guidance material.

Target date Q4 2014

FOD.003 Controlled Flight into Terrain

Issue Statement

Both ICAO and EASA have identified Controlled Flight Into Terrain (CFIT) as one of the main contributory causes to fatal and non-fatal accidents across all sectors of civil aviation. The EU States wish to reduce the level of controlled flight into terrain (CFIT) events in Europe.

CFIT is an event where an airworthy aircraft under the complete control of the flight crew is inadvertently flown into terrain, water or an obstacle. CFIT related accidents or serious incidents are thankfully rare in the Irish civil aviation system, nevertheless CFIT remains one of the common causes of fatal accidents in aviation and it is therefore included in this Plan. The expected benefits of these actions are that there are no CFIT related accidents or serious incidents involving Irish commercial aircraft. In addition the actions are focused on reducing the level of CFIT precursor events, such as TAWS ground proximity warnings, deviations below the glideslope and descent below decision/safety altitudes without the required visual reference.

Current Status

The majority of fatal CFIT accidents occur during the approach phase of flight (nearly 70% for global fatal CFIT accidents), and most of these involve the aircraft being lined up with the runway but incorrectly positioned in the vertical plane. Of the fatal CFIT accidents that occur during the approach phase of flight, more than half involve non-precision, visual/circling or user-defined approaches.

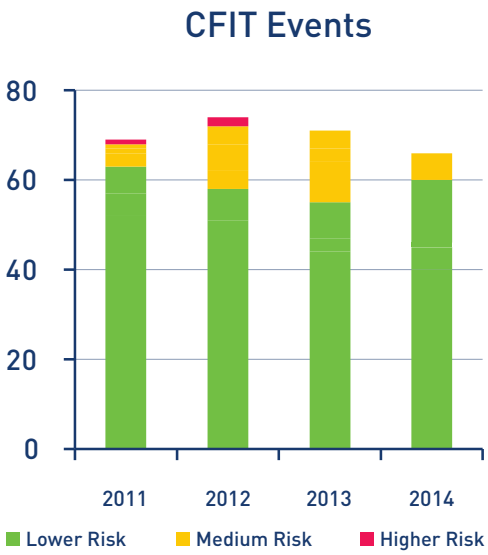
The majority of fatal CFIT accidents involve aircraft not equipped with functioning Terrain Awareness Warning Systems. In addition, TAWS effectiveness is dependent on use of accurate position information. EASA is currently focussed on introducing new regulation to mandate installation of TAWS on commercial transport aircraft currently not mandated (ie on aircraft less than 5700 kgs MTOM that are able to carry 6 to 9 passengers (due 2016)).

In Ireland, the IAA provides Electronic Terrain And Obstacle Data (ETOD), for use by industry stakeholders, such as GPS and FMS database suppliers. The ETOD helps to eliminate database transfer errors in on-board TAWS equipment and thereby helps minimise CFIT occurrences.

The IAA has implemented an operational oversight process with associated procedures and checklist to target CFIT for Irish AOC Holders, including review of the AOC holders SMS activities (ie SPI analysis/trends, mitigation actions) to address the precursors to CFIT occurrences. The IAA also continues to participate in EASA Survey's of Member States to share information on actions and measures in use in the State to address CFIT.

The chart opposite shows the relatively low level of reports of CFIT events received under the Mandatory Occurrence Reporting scheme and the slight declining trend evident since 2012. ICAO has recommended the implementation of area navigation and approach procedures with vertical guidance for all Instrument runway ends, either as the primary approach or as a back-up for a precision approach, by 2016.

A (PBN) Implementation Plan for Ireland has been developed that aims to provide APV/LPV approaches in all Irish airports licenced for commercial air transport operations (including non-State airports) by the end of 2016. The first APV approach at an Irish airport was approved in early 2014.



Existing Actions

a)
The IAA will target CFIT and precursor events as part of AOC Holder SMS/FDM oversight.

Target date
On-going

c)
The IAA will work with service providers to ensure that all Irish airports licensed for commercial air transport provide non-precision instrumented approaches that contain vertical guidance.

Target date Q4 2016

ASD.001 Mid-Air Collisions

Issue Statement

Mid-Air Collisions (MAC) are accidents where two or more aircraft come into contact with each other in the air. While the likelihood of an event is low the consequences of any event are extremely high (major loss of life) and therefore the aim is to reduce the level of safety incidents that may be a contributory factor in a mid-air collision event.

A MAC occurrence is a loss of aircraft separation event that has escalated into an accident. The expected benefits of these actions are that there will be no MAC related accidents or serious incidents, due to failures in the Irish Civil Aviation system and involving Irish commercial operators or any operator flying in Irish airspace. In addition the actions are focused on reducing the level of MAC precursor events such as TCAS RA, airprox, loss of separation, level bust, airspace infringements and ATC issues.

Current Status

MAC events are a common reported occurrence category by Irish operators (including those related to TCAS RA activation). The vast majority of these reports do not have any potential accident outcome; however MAC is included in this plan based on the catastrophic consequences of an actual mid-air collision.

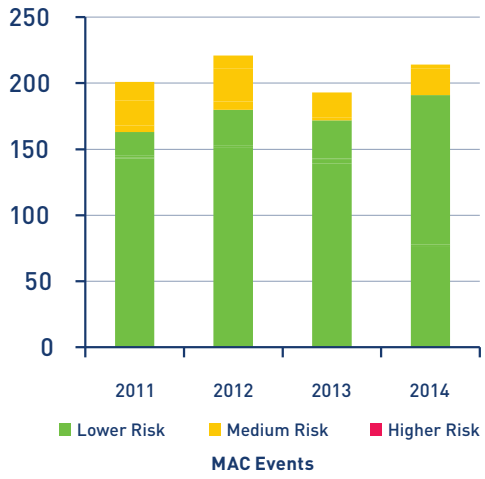
The European Action Plan for Airspace Infringement Risk Reduction (EAPAIRR) was developed in 2009 to reduce the number of airspace infringements which, in the worst case scenario, could end in a mid-air collision. The plan contains action items for the main stakeholders – the airspace users, regulators, military, training organisations, Eurocontrol, the air navigation service providers and related services such as metrological data. The IAA has completed all of the thirteen recommended and proposed actions for regulators included in the plan. The IAA promotes the implementation of EAPAIRR recommendations for service providers in the States and is currently reviewing the level of implementation.

The IAA has implemented an operational oversight process with associated procedures and checklist to target MAC events for Irish AOC Holders, including review of the AOC holders SMS activities (ie SPI analysis/trends, mitigation actions) to address the precursors to MAC occurrences and will continue to do so. The IAA also continues to participate in EASA Survey's of Member States to share information on actions and measures in use in the State to address MAC.

The graph opposite shows that the number of MAC related events reported to the IAA under the Mandatory Occurrence Reporting scheme is relatively stable albeit with a slight increasing trend between 2013 and 2014. Based on a seven year analysis conducted by the IAA, MAC is one of the main causes attributed to serious incidents involving Irish operators.

The IAA will perform a detailed analysis of MAC related events reported to the IAA under mandatory occurrences reporting systems in order to identify the main causes and consequences and to help develop further means to mitigate against this hazard (new action d) below).

Specific actions (ref FOD.017, FOD.020) to address the risks of MAC for general aviation (including airspace infringements by GA aircraft) are included in the next Chapter of this Plan.



New Actions

d)
The IAA will perform a detailed analysis of MAC related events reported under the MOR scheme in order to identify the main causes and consequences and to help develop further means to mitigate against this hazard

Target date Q2 2016

Existing Actions

b)
The IAA will review the level of implementation of recommendations for service providers contained in the EAPAIRR as part of the oversight cycle.

EASA Reference: AER 2.1, GA 1.5

Target date Q4 2015

c)
The IAA will target MAC and precursor events as part of AOC Holder SMS/FDM oversight.

EASA Reference: AER 2.1

Target date On-going

M.007 Runway Incursions

Issue Statement

Runway Incursions have been recognised for some time as a key risk in aviation safety and led to publication of the European Action Plan for the Prevention of Runway Incursions. The EU States wish to reduce the level of runway incursion events in Europe.

A runway incursion (RI) is any occurrence at an aerodrome involving the incorrect presence of an aircraft vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft. The expected benefits of these actions are that there will be no RI related accidents or serious incidents attributed to Irish commercial operators or at Irish runways. In addition the actions are focused on reducing the level of RI precursor events such as stopbar violations, inadequate airport markings, complex runway operations, ATC issues and loss of situational awareness.

Current Status

A great deal of work has been performed on runway incursions over the years and the focus on this key risk has contributed towards improvements in the global rate of Runway Incursion related safety events in recent years, as reported by ICAO and EASA.

One of the key EU initiatives was the development of the European Action Plan for the prevention of Runway Incursions (EAPPRI) which contains several recommendations for all stakeholders (ie regulators and service providers) to help mitigate the risk of an RI event. The EU research into RI related safety events has also highlighted that the risk of a runway incursion in highly dependent on the local characteristics of each individual airport.

The actions in this Plan mainly derive from the recommendations of the EAPPRI. The IAA has implemented all of the nine recommendations for regulators included in Section 1.7 of the EAPPRI, and is currently monitoring the implementation of EAPPRI recommendations for service providers (eg Air Operators, ANSP, Aerodromes etc) during oversight activities.

One of the key elements of the Plan was the establishment of Local Runway Safety Teams in all certified airports and these have now been established at certified aerodromes in Ireland. The IAA audits the effectiveness of the Local Runway Safety Teams in reducing RI events as part of the annual oversight programme and this task (see action item b) below) is now changed to on-going.

The Runway Incursions Action Group led by IAA SRD will be re-constituted in 2015 to deal with the broader issue of aerodrome movements and consequently broaden stakeholder involvement to include airport authorities. New action item d) below refers.

This reconstituted group will enhance the ability to investigate runway incursion incidents. This group will have an extended remit to investigate ground collisions or near collision events that occur anywhere in the aerodrome (ref also to Issue FOD.004 in this Plan).

The IAA Annual Safety Review 2014 also shows that the trends for higher severity RI related events at Irish airports has shown a slight increase in 2014 however it can also be seen that occurrences reported are mostly of low severity (eg minor stopbar violations).

Runway Incursion Events

New Actions

d)
The Runway Incursions Action Group, tasked (inter alia) withperforming detailed investigation of RI events, will be reconstituted and enhanced to include involvement of airportauthorities

Target date Q4 2015

Existing Actions

b)
The IAA will audit the effectiveness of the local runway safety teams (including effectiveness of SMS in reducing RI precursor events).

EASA Reference: AER 5.1

Target date Ongoing

c)
The IAA will review the level of implementation of recommendations for service providers contained in the EAPRRI as part of the oversight cycle

EASA Reference: AER 5.2

Target date Q4 2015

Landing at Dusk in Dublin Airport
Photo by Micheal Kelly
michaelkelly@inbox.com

FOD.002 Runway Excursions

Issue Statement

Runway Excursions (RE) have been identified by both ICAO and EASA as one of the most common causes of accidents reported annually, in the European region and worldwide. The EU States wish to reduce the level of runway excursion events in Europe through greater coordination of existing efforts.

RE related accidents or serious incidents are thankfully rare in the Irish civil aviation system, nevertheless RE remains one of the common causes of accidents in aviation and it is therefore included in this Plan. The expected benefits of these actions are that there will be no RE related accidents or serious incidents involving Irish commercial aircraft. In addition the actions are focused on improving the reporting of precursor events for RE, such as contaminated runways, deep landing, high speed touchdown and unstable approaches.

Current Status

A runway excursion (RE) is an event in which an aircraft veers off or overruns the runway surface during either take-off or landing.

The European Action Plan for the Prevention of Runway Excursions (EAPPRE), was published on 1st January 2013. The Action Plan contains detailed recommended actions and associated guidance material intended for implementation by the relevant stakeholder organisations (including regulators, aircraft and airport operators, ANSP's etc) with the aim of reducing the rate of runway excursions.

The IAA has implemented all the recommendations for regulators of the EAPPRE, albeit, the implementation of joint training exercises involving operatives at ANS, AED and Flight Operations remains challenging in view of the limited number of RE events that actually occur in the State. The IAA will monitor the implementation of EAPPRE recommendations for operators and other service providers during oversight audits. New Action j) below.

The IAA has reviewed available EASA guidance in this area. EASA SIB 2013-20 addresses bounced landings recognition and recovery training and the IAA will monitor the implementation of the recommendations of this SIB by Irish operators and training organisations.

The IAA receives a very low level of MOR's categorised as RE and this is an issue the IAA continues to research in more detail with the AOC Holders. Specifically the IAA is reviewing with Irish operators SMS the reporting of certain RE precursor events (eg contaminated runway, deep landing, high speed touchdown, unstable approaches) as well as the categorisation of these events using the common ADREP taxonomy.

New Actions

j)
The IAA will monitor the implementation of EAPPRE recommendations for service providers during oversight audits.

Target date Q4 2016

Existing Actions

b)
Share actions and measures in use at national level to address this safety issue and participate in EASA initiatives to share best practice and coordinate actions.

Target date Ongoing

f)
Where practicable, the IAA will ensure that specific joint training and familiarisation in the prevention of runway excursions, is provided to Pilots, Air Traffic Controllers and Aerodrome Operator staff (EAPPRE 3.1.4).

Target date Q4 2016

h)
The IAA will meet with Irish operators and review the reporting and classification of certain RE precursor events (eg deep landing, high speed touchdown, unstable approaches).

Target date Q4 2015

i)
The IAA will review and promulgate latest EASA publications (policies/SIb) concerning RE and monitor the implementation of recommendations applicable to the Irish civil aviation system

Target date Q4 2015

FOD.004 Safety of Ground Operations

Issue Statement

Analysis of global accidents has shown that there has been a steady rise in accidents caused either during or as a result of ground operations. EASA has reported that this is the second highest category for CAT accidents between 2003 and 2012. The IAA wishes to improve the safety of ground operations in Ireland.

Ground operations involve all aspects of aircraft handling at the airport as well as aircraft movement around the aerodrome, except when on active runways. The expected benefits of these actions are that there will be no ground related accidents or serious incidents at Irish international airports. In addition the actions are focused on reducing the level of ground operations related events such as unreported damage, loading errors, inadequate de-icing, fuelling issues and dangerous goods issues.

Current Status

Damage from ground-related occurrences implies both safety risk and economic cost for all organisations involved. In the European Aviation Safety Plan 2014-2017, EASA points out that safety of ground operations is not an outcome category however events that occur during ground operations can lead to other outcomes already addressed in the Plan (eg LOC-I). This point is well understood by the IAA however, the State Safety Plan for Ireland will continue to use the "Safety of Ground Operations" as a convenient header for this issue for combining a number of action items aimed at mitigating risks during ground operations.

The IAA has been targeting this area for specific focus for the past few years, including targeted oversight of the key risk areas, establishment of quarterly safety review meetings with ground operations post holders etc. The chart opposite shows that the level of reports of Ground Operations related occurrences has actually increased but thankfully the vast majority of events were classified as low risk. The chart also reflects the improved reporting culture for ground related events consequent to the increased focus in this area in the past few years.

As discussed in topic M.007 (Runway Incursions) above, the Runway Incursions Action Group led by IAA SRD will be re-constituted in 2015 to deal with the broader issue of aerodrome movements and consequently broaden stakeholder involvement to include airport authorities. New action item e) below refers. This reconstituted group will provide greater focus on ground collisions or near miss events on the apron or taxiways as well as examining and promoting mitigating measures including structural, technological, operational and training.

De-icing of aircraft has also been an area of recent focus. The IAA consulted with industry to identify their primary concerns in this area and attended the EASA Ground De-icing workshop in April 2013 where a number of EASA initiatives to improve safety, raise standards and improve availability of de-icing fluids were reviewed. The IAA has appointed focal points for EASA on this subject and a de-icing workshop for industry is planned for the third quarter of 2015.

New Actions

e)
The IAA will review ramp and taxiway events (collisions and near collisions) and develop/promote mitigating measures, including structural, technological, operational and training.

Target date Q4 2016

Existing Actions

a)
The IAA will implement a detailed audit schedule with focus on the three key risk factors: loading error, undetected/unreported aircraft damage and inadequate de-icing procedures

Target date Ongoing

d)
Following from EASA Icing Workshop, the IAA airworthiness department will review and update de-icing guidance and will conduct briefing sessions with airport authorities to review aerodrome best practices.

Target date Q3 2015

De-icing at Dublin Airport
Photo by Micheal Kelly
michaelkelly@inbox.com

M.009 Fire Smoke and Fumes

Issue Statement

Uncontrolled fire on board an aircraft, especially when it is in flight, represents one of the most severe hazards in aviation. This issue was added by EASA as one of the six risk areas for commercial transport in EASp 2014-2017.

Whereas much work has been done to mitigate against this hazard over the past two decades the issue has been brought back into focus in recent years due to increasing reports of fire and smoke related events (eg due to lithium battery fires). The expected benefits of these actions are that there will be no smoke/fire related accidents or serious incidents involving Irish AOC holders.

Current Status

In-flight fire can ultimately lead to loss of control, either as a result of structural or control system failure, or again as a result of crew incapacitation. Fire on the ground can take hold rapidly and lead to significant casualties if evacuation and emergency response is not swift enough. Smoke or fumes, whether they are associated with fire or not, can lead to passenger and crew incapacitation.

In 2013 the Royal Aeronautical Society paper "Smoke, Fire and Fumes in Transport Aircraft" was updated. The paper serves as a reference document on current risk and proposed mitigations for smoke and fire events on commercial transport aeroplanes. In the updated edition a new section on lithium batteries, composite materials and predictive technologies has been added together with new recommendations to reflect the current risks.

The recommendations to reduce the severity and effects of in-flight fires focus on:

i. Equipment design and airworthiness;

ii. Protective equipment;

iii. Maintenance;

iv. Pilot procedures;

v. Flight and cabin crew training.

The level of occurrences of Fire-NI reported under the mandatory occurrence reporting system is relatively low and most events are categorized as low risk. Nevertheless the IAA will provide a renewed focus on this hazard during compliance oversight activity. The review of latest updated RAeS guidance is ongoing and the associated action is delayed to end 2015.

Existing Actions

a)

The IAA will provide specific focus on the compliance with regulations related to smoke and fire during the current two year oversight audit cycle.

Target date Q4 2015

b)

The IAA will review the updated guidance in RAeS document "Smoke, Fire and Fumes in Transport Aircraft" and address any areas of concern for the civil aviation system in Ireland.

EASA Reference: AER 5.1

Target date Q4 2015

FOD.011 Human Factors and Performance

Issue Statement

Analysis of occurrences, reported to the IAA, show that human factors and performance were a contributing factor in a number of risk-bearing events. Likewise EASA recognise the importance of human factors and performance to the future development of the aviation system in the European Aviation Safety Plan.

Human factors (HF) and performance in aviation is concerned with how people at front line operations, as well as those at all other levels in the aviation system are required to communicate, apply judgments and make decisions and, in doing so, are constantly exposed to the risk of error. The expected benefits of these actions are that there will be no HF related accidents or serious incidents involving Irish approved organisations. In addition the actions are focused on reducing the level of HF contributory events such as breach of or poor execution of procedures, interface with technology and communication failures.

Current Status

Human factors and performance of individuals and organisations affect all aspects of aviation and is an important element for consideration in the future development of the aviation system.

In Europe, a European Strategy for human factors in civil aviation was developed by the European Human Factors Advisory Group (EHFAG) for EASA and published on the EASA website in 2012. In September 2014 the EHFAG published the Regulatory Inspector Human Factors Competency Framework. The Human Factors Competency Framework has been designed to create a standard for regulatory inspectors that can be used in the development of training and assurance and includes HF competencies associated with safety management.

The framework may be used to determine a set of relevant competencies (a competency profile) for a particular role that best enhances the performance of an individual in relation to the required task. The IAA will review the EHFAG document and use the regulatory inspector HF competency framework when assessing training organisations implementing competency based training programmes (New Action d) below).

In 2013 the IAA conducted a detailed analysis of the Human Factors flight crew related higher risk bearing occurrence reports received during 2012. The analysis identified amongst others, the number of contributory factors involved in each event, the safety barriers breached and the consequences of each event. Detailed analysis reports were completed and the results were shared with Irish operators. In addition, as part of it's oversight activities the IAA has been reviewing with each Irish AOC holder the mitigation actions being taken to address the most common contributing factors to HF Crew related occurrences, such as breach of or poor execution of procedures, interface with technology and lack of or poor communication both on the flight deck and between the flight crew and ATC.

New Actions

d)
The IAA will use the EHFAG regulatory inspectors HF competency framework in assessing training organisations implementing competency based training programmes.

Target date Q4 2016

Existing Actions

b)
The IAA will implement any action items arising from the EHFAG action plan for human factors and performance applicable to NAAs

EASA Reference: HFP 1.2

Target date Q2 2016

c)
The IAA will meet and review with each Irish AOC holder the mitigation actions being taken to address the most common contributing factors to high risk bearing HF Crew occurrences

Target date Q4 2015

AED.002 Bird Strike Hazard

Issue Statement

Bird strikes may cause significant damage to an aircraft structure or flight controls, and aircraft engines (especially jet-engines) are vulnerable to the loss of thrust which can follow the ingestion of birds into engine air intakes which may lead to an accident.

This Plan addresses the hazards to aviation from bird strikes particularly during take-off, initial climb, approach and landing phase of flight, in and around the vicinity of airports. The expected benefits of these actions are that there will be no bird strike related accidents or serious incidents involving commercial aircraft operating in Ireland. Additionally, Ireland will work with EASA to establish pan-European actions to address this hazard.

Current Status

ICAO Annex 14 requires States to collect and collate reports of bird strikes on aircraft and to report the annual statistics to the ICAO bird strike information system (IBIS). The IAA chairs the National Bird Hazard Committee in Ireland which reviews bird strike analysis reports and assesses the effectiveness of mitigation measures in use in the State.

Analysis has shown that Bird strikes may occur during any phase of flight but are most likely during the take-off, initial climb, approach and landing phases because of the greater numbers of birds in flight at lower levels. Bird strikes can cause significant damage to aircraft and although thankfully fatal accidents due to bird strikes are a rare event, the Bird Strike Committee USA www.birdstrike.org has reported that over 250 fatalities were caused by this hazard worldwide since 1988.

Although aircraft build standards and operational procedures provide a number of defences against the hazard of bird strike, the opportunities to mitigate the risk of bird strikes are centred on airports, where the greatest overall volume of conflict occurs, and where management and control of the hazard is most easily achieved.

In Ireland Bird Strikes is one of the top reported occurrence in the mandatory occurrence reporting system, albeit with a slight reduction in the overall number of occurrences in 2014. (ref IAA Annual Safety Review 2014).

Thankfully the vast majority of these reports led to only superficial or minor damage to the aircraft involved. An Irish operator suffered a non-fatal hull loss accident in 2010 following loss of both engines due to bird ingestion, during approach to an airport in Italy.

Ireland's aerodromes are required to conduct risk assessments on the bird hazard in the airport's environs and mitigate any bird hazards through a wildlife management and control procedure. The IAA performs an annual analysis of bird strikes at Irish Aerodromes.

One of the main findings of this analysis has shown that the number of confirmed bird strikes is significantly higher from June to October (inclusive), which coincides with the breeding season. There was no apparent increase in bird strike rate in line with increasing traffic levels.

One of the key issues the IAA addressed in 2013 is the threat caused by man-made hazards such as mass release of birds (eg racing pigeons).

The IAA has been actively seeking greater global action to address this problem. In particular the IAA would like to see more global statistics published from the ICAO IBIS system and is actively supporting the requests for an ICAO symposium on the subject (new Action c) below).

The IAA has raised the hazard of Birdstrikes at the European Aviation Safety Advisors Committee (EASAC) in order to encourage a pan European approach to the problem. Whereas, EASA has already published guidance leaflets on this subject (eg EGAST Safety Leaflet GA6) the subject is under consideration in EASA for other possible safety initiatives.

New Actions

c)
The IAA will encourage ICAO (via ABIS representative at ICAO) to provide global statistics from the ICAO IBIS system and to host a global symposium on Birdstrike hazards

Target date Q4 2016

Existing Actions

b)
The IAA will raise the issue of Birdstrikes at EU safety forums (eg EASAC and other EASA Safety Meetings) in order to gain support for the development of safety measures in relation to the hazard of bird strikes to aircraft on a pan European level (eg by including specific measures in the European Aviation Safety Plan).

Target date Q4 2015

FOD.019 Laser Attacks

Issue Statement

There has been a noticeable increase of malicious laser attacks on aircraft pilots both in Ireland and across Europe and the rest of the world. More serious laser attacks can cause eye injury to pilots or flash blindness in the cockpit thereby endangering the pilot's ability to properly operate an aircraft during critical flight phases.

The effects of laser strikes on aircraft pilots can range from low risk distractions to higher risk flash blindness in the cockpit and possibly temporary or permanent eye damage to crews. The expected benefits of these actions are that there will be no laser related accidents or serious incidents involving Irish AOC holders and that the number of reported laser attacks on aircraft in Ireland is reduced.

Current Status

Under certain conditions, laser lights directed at aircraft can be a hazard. The most likely scenario is when a bright visible laser light causes distraction or temporary flash blindness to a pilot, during a critical phase of flight such as landing or takeoff. It is far less likely, though still possible, that a visible or invisible beam could cause permanent harm to a pilot's eyes.

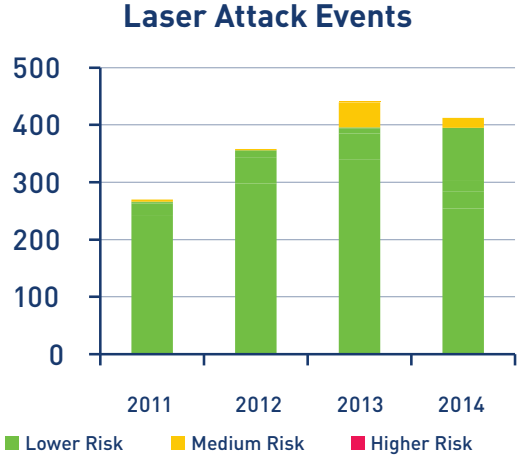
The severity of the risk is also greater as the aircraft gets closer to the source of the attack on the ground. The increasing trend in laser attacks reported to the IAA under mandatory reporting schemes has been reversed slightly in 2014 (ref also IAA Annual Safety Review 2014). Note that fixed lasers or temporary laser shows related to entertainment events can also be hazardous to aircraft in flight however this hazard is not included in the Plan because it is largely controlled through normal IAA approval and oversight activities.

Aviation hazards from laser attacks can be minimized or eliminated in two primary ways. First, the pointing of lasers at aircraft by members of the public needs to be an offence under law. Second, pilots should have awareness of laser/aviation hazards and knowledge of basic recovery procedures in case of laser or bright light exposure.

Pointing a laser at an aircraft has resulted in arrests, trials and jail sentences in some jurisdictions. The legal provisions were enacted in Ireland in 2014 enabling the prosecution of offenders who intentionally point a laser at an aircraft during flight. Accordingly action a) below is closed.

The IAA also continues to address Pilot/aircrew hazard reduction measures such as education and training. In 2011 the IAA issued a General Advisory Memorandum (GAM 01/11) that provided guidance to industry of this emerging and growing threat. In the USA, the SAE G-10T Laser Hazards Subcommittee is working on Aerospace Recommended Practice document 5598, "Laser Visual Interference - Pilot Operational Procedures."

This document will provide information for pilots on recognising and recovering from a laser attack. In advance of the availability of specific guidance, the IAA is working with Irish AOC Holders to ensure that their flight SOP's and associated crew training plans address the hazard of laser attacks.



Existing Actions

b)
The IAA will meet with Irish AOC Holders to review and ensure that their flight SOP's and associated crew training plans address the hazard of laser attacks during the current oversight audit cycle.

Target date Q4 2015

Closed Actions

a)
The IAA will support the work of DTTAS to ensure that legal provisions are provided under Irish law to criminalise laser attacks on aircraft.

Target date Q4 2014

Cityjet Avro 146 – RJ85
Photo by Joe Heeney
joedc29@hotmail.com

FOD.013 Flight Data Monitoring Programmes

Issue Statement

Flight data monitoring programmes should consider operational issues in particular precursor events to the high risk safety outcomes included in this Plan and at European level.

Flight Data Monitoring (FDM) is the pro-active use of digital flight data from routine operations to improve aviation safety and is mandatory for aeroplanes with a maximum certificated take-off mass (MCTOM) in excess of 27,000 kg. The expected benefits of these actions are that the Irish AOC holders will use their FDM system to measure, analyse and trend the precursors to the key safety risks in their operation and to ensure that the key risks identified in both Ireland and the EU are included in the FDM system in a standardised EU format.

Current Status

FDM is now being used by aircraft operators throughout the world to inform and facilitate corrective actions in a range of operational areas. It offers the ability to track and evaluate operational safety trends, identify risk precursors, and take the appropriate remedial action.

All Irish airlines operating aircraft over 27,000kg have implemented flight data monitoring programmes and are actively utilising the data to identify risk precursors and implement mitigating action.

The European Authorities Coordination Group on Flight Data Monitoring (EAFDM) is an expert group of authorities dedicated to the promotion of Flight Data Monitoring. In October 2012 EAFDM published guidance to NAA's on setting up a national FDM Forum which guides the current FDM oversight activities by the IAA. In December 2013 the EAFDM provided standardised FDM-based indicators to address the key safety risks of runway excursions (RE), controlled flight into terrain CFIT), loss of control inflight (LOC-I) and mid-air collisions (MAc).

Although the IAA has already established that these key risk areas are being monitored under previous action items in this plan, it was up to each operator to decide which indicators they monitored and what appropriate trigger logic was applied under the FDM. The new EAFDM standardised list will ensure all EU operators are using the FDM in the same manner.

The IAA will work with Irish operators to ensure the EAFDM standardised indicators are being monitored under the FDM.

The IAA continues to publish aggregated information based on mandatory occurrence reports related to the key risks identified above, in the Annual Safety Review and directly to EASA. Whereas the IAA reviews aggregated data (eg trends analyses) provided by operators based on data obtained from the FDM system, it is important to note that the IAA neither collects nor distributes any data relating to specific events contained within an operators FDM system.

Bombardier CS100 cockpit
Photo by Michael Kelly michaelkelly@inbox.com

Existing Actions

b)
The IAA will provide annual summary updates to EASA on occurrences related to RE, MAC, CFIT and LOC-I.

Target date On-going

c)
The IAA will meet with Irish operators to ensure the EAFDM standardised indicators are being monitored under the FDM

EASA Reference: SYS 3.11

Target date Q4 2015

Stobart Air Atr72
Photo by Michael Kelly michaelkelly@inbox.com

Team raven Air Display
Photo by Frank Grealish
Frank Grealish/IrishAirPics.com

05 GENERAL AVIATION

Summary of objectives

The General Aviation community includes wide ranging and diverse recreation and sporting activities across a wide spectrum of aircraft types and operations (including light fixed wing aeroplanes, light helicopters, microlights, gyroplanes, gliders, balloons etc).

The key risks for general aviation are identified from the safety analysis of accidents and incidents in the State as well as from issues that emerge during regulatory oversight activities. The IAA Annual Safety Review includes performance reports on the GA community and this review contributes to the identification of the key safety risks included in this Plan.

The relatively low level of safety data in this area means that it is not possible at this time to develop safety performance targets for General Aviation and consequently the objectives of the actions in the Plan are aimed at providing better awareness and training to GA pilots in order to minimize the risks of having accidents or serious incidents due to the hazards identified.

The risks at the safety outcomes level (ie based on accident/serious incident reports) addressed in this version of the Plan includes the following:

- Low level loss of control (Closed in 2015)
- Airspace Infringements by GA aircraft
- Mid Air Collision of GA aircraft in Class G airspace (newly added 2015)
- Paragliding activities
- RPAS/Drones operations (emerging risk)
- Risks in aircraft maintenance

Two on-going tasks included in the Plan concern the promotion of safety information developed by EASA safety teams EGAST and EHEST to the Irish GA community.

The Plan also addresses some policy issues affecting GA, including, the use of third country aircraft, acceptance of foreign pilot licenses and engine overhaul limits. The objectives of these actions are to ensure Ireland applies the highest European safety standards in these areas.

Full details of each of these safety issues are provided in the following chapters.

FOD.018 Low Level Loss of Control

Issue Statement

A number of accidents, involving GA aircraft, were caused by loss of control of the aircraft following loss of power at low level. The IAA is seeking ways in conjunction with the General Aviation Safety Council of Ireland (GASCI) to address this issue.

The loss of control of an aircraft at low level, typically as a result of loss of power, is a common contributory factor to an accident involving general aviation aircraft. The actions in this Plan focus on the prevention of loss of control following an in-flight upset at low level. The expected benefits of these actions are that GA pilots will be provided with guidance and training in this area in order to reduce the risks of low level loss of control accidents in Ireland.

Current Status

Loss of Control – Inflight was the number one cause of fatal accidents by EU MS registered GA aircraft below 2250 between 2009 and 2013 as reported by EASA Safety Review 2013. Some of the main contributory factors for these types of accident (eg fuel starvation, carburettor icing etc) have been addressed in various safety guidance material (eg IAA and EGAST Safety Leaflets).

The General Aviation Safety Council of Ireland has been reviewing the issue of low level loss of control of an aircraft following engine failure, on foot of an Irish Air Accident Investigation Unit Safety Recommendation. As part of this review GASCI examined the published guidance on this issue.

One specific risk area that GASCI discussed was the common practice for private pilots to fly different types and variants of aircraft, and experienced pilots noted that these aircraft (even variants) can behave quite differently under similar circumstances. These differences will become more pronounced at low level following upset (eg loss of an engine).

During GA safety evenings in 2014 and early 2015 GASCI provided detailed guidance in this respect. The presentations also emphasised the importance of angle of attack awareness and the increased risk of unrecoverable stall in cases where turn-back is attempted following engine failure on take-off. Detailed information is also available on GASCI website www.GASCI.weebly.com and GASCI facebook

Closed Actions

a)
The IAA will work with GASCI to provide guidance to GA pilots, taking into consideration appropriate means of communication, on the importance of being fully aware of their own capabilities and differences between different aircraft types and variants they fly, emphasising the importance of angle of attack awareness.

Target date Q4 2014

FOD.017 Airspace Infringement by GA Aircraft

Issue Statement

The general risk area of a mid-air collision (MAC) is addressed in the Commercial Air Transport section above under issue ASD.001. The specific issue of airspace infringement by GA aircraft is addressed here as it is one of the main causes for MAC events reported under mandatory occurrence reporting systems. The IAA would like to see a reduction in the level of airspace infringements by GA aircraft in Irish airspace.

An airspace infringement occurs when an aircraft enters controlled airspace without receiving the appropriate ATC clearance. The expected benefit of these actions is that there will be no accidents or serious incident in Irish airspace as a result of an airspace infringement by GA traffic and that the level of lower risk occurrences (eg cutting corners) is reduced.

Current Status

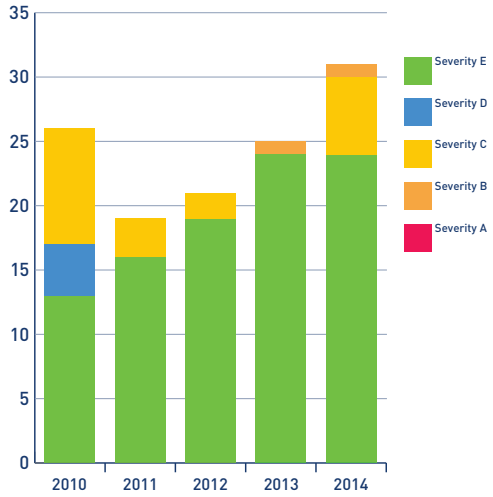
The problem of airspace infringement is a serious risk to aviation safety and the risk is particularly serious when the infringing aircraft involved is a GA light aircraft as the majority of these aircraft are not required to carry appropriate transponder equipment. This means that major surveillance safety nets (eg ATC control, TCAS) that help prevent mid-air collisions are ineffective.

As discussed in ASD.001 (MAC) above the IAA has implemented the recommendation of the European Action Plan for Airspace Infringement Risk Reduction (EAPAIRR) and some of these recommendations address this specific risk.

The graph opposite (ref IAA Annual Safety Performance Review 2014) shows the number of air-space infringement events, involving both commercial and private aircraft, reported in Irish controlled air-space over the past four years. Thankfully the number of occurrences is relatively low and most are of low severity, such as minor un-intentional infringements at the boundaries of Class C/G airspace, albeit with an increasing trend evident in recent years.

Following detailed analysis of three years data, the IAA published an Airspace Infringement (hotspot) Map for Dublin CTA in early 2014.

The General Aviation Safety Council of Ireland (GASCI) is also considering measures to address this risk issue. One particular action in the GASCI plan is to explore the opportunities to address specific airspace design issues (including opportunities for re-design or introduction of VFR corridors) at the margins of Class C airspace subject to increased levels of GA traffic.



Airspace Infringement Events

Existing Actions

a)
The IAA will work with the General Aviation Safety Council of Ireland to review airspace design issues at airspace infringement hot-spots with a view to implementing measures to reduce airspace infringements by GA VFR aircraft.

EASA Reference GA 1.5

Target date Q4 2015

Stampe SV4C
Photo by Frank Grealish
Frank Grealish/IrishAirPics.com

FOD.020 Mid-Air Collisions by GA Aircraft in Class G Airspace

Issue Statement

Mid-Air Collisions (MAC) are accidents where two or more aircraft come into contact with each other in the air. Whereas thankfully a mid-air collision event in Ireland is quite rare, it is included in this Plan because the consequences of a mid-air collision between GA aircraft often lead to loss of life.

The expected benefit of these actions is that there will be no accidents or serious incidents in Irish airspace due to mid-air collision between GA aircraft flying in Class G airspace.

Current Status

Although there have been no accidents in Irish airspace between GA aircraft operating in Irish airspace in the recent past (ref IAA Annual Safety Review 2014) the issue is included in this Plan due to the broader European experience. Recent EASA Annual Safety Reviews show that mid-air collisions are among the main contributors to fatal accidents involving GA aircraft in Europe.

For historical reasons there is insufficient data on the numbers of serious incidents (eg near miss) involving GA aircraft for analysis purposes, due to the lack of voluntary reporting of these events throughout Europe.

The new EU Regulation 376/2014 on occurrence reporting aims to address this deficiency by making it mandatory for those involved in GA to report such events from 15th November 2015.

The General Aviation Safety Council of Ireland has been discussing this hazard with a view to identifying possible mitigating actions for GA in Ireland. Issues under discussion include potential improvements to existing Aeronautical Charts (eg identification of Air Traffic Zones) and measures to improve communications frequency management in un-controlled airspace (eg common frequency zones and improved AIP guidance for VFR traffic at unattended airfields).

New Actions

a)
The IAA will work with the General Aviation Safety Council of Ireland to assist in the development of Common Frequency Zones in appropriate sections of Class G airspace and improved AIP guidance for VFR traffic at unattended airfields.

Target date Q4 2016

b)
The IAA will work with the General Aviation Safety Council of Ireland (GASCI) to introduce improved symbology in Aeronautical Charts (eg ATZ) for GA airfields and high density GA activity areas.

EASA Reference GA 1.5

Target date Q2 2016

FOD.016 Paragliding Safety

Issue Statement

The IAA is seeking ways in conjunction with the General Aviation Safety Council of Ireland (GASCI) to reach out to those involved in paragliding activities in Ireland to increase their safety awareness of this activity.

Recent accidents causing serious injury involving paragliding activities in Ireland have brought this leisure activity into focus. The expected benefits of the actions in this Plan are that there will be no fatal accidents in Ireland caused by lack of appropriate training and safety awareness of those involved.

Current Status

Paragliding in Ireland has been self-regulated since it started. While there are no EASA/NAA licences available, standards similar to those used for PPLs and Gliding Licences may be applied. The IAA strongly recommends that no person should fly or attempt to fly these aircraft without receiving an appropriate course of training provided or approved by the relevant sport aviation association covering this activity. During investigation of recent accidents involving paragliding in Ireland it has become apparent that the personnel involved in some cases, although experienced, had not received recognised training and were not affiliated to any of the relevant Irish sport aviation associations.

Whereas, the IAA cannot issue approvals for organisations involved in un-regulated activities, paraglider associations are nevertheless encouraged to develop procedures in conjunction with international best practices, including a pilot rating system. Considerable work has already been accomplished by one such organisation in Ireland.

The IAA will work with GASCI in order to assist paragliding organisations in this regard and will issue guidance material to clarify it's role. Action Item a) below is amended accordingly.

The IAA is working with the paragliding associations and GASCI in order to identify measures that may be taken to improve the safety awareness among those involved in this leisure activity. One of the challenges is to reach out to foreign visitors who may not be aware of the existing structures in place governing this activity in Ireland.

Existing Actions

a)
The IAA will issue updated guidance material in respect of paraglider flying in Ireland.

Target date Q4 2015

b)
The IAA and GASCI will develop methods to improve safety awareness to those involved in paragliding activities in Ireland, including foreign visitors.

Target date Q4 2015

AWSD.006 Safety Information for GA Maintenance

Issue Statement

Analysis of accidents in general aviation shows that system component failures, including power plant and non-power plant components, feature very highly in the accident category list. The IAA intends to provide safety information to those involved in flying and maintaining general aviation aircraft to address technical issues.

One of the top causal factors for both fatal and non-fatal accidents involving GA aircraft is system component failures (SCF), whether it be the engine itself or other system component failures critical to safety of flight (eg fuel, oil, landing gear etc). The objectives of this particular section of the Plan is to ensure that lessons learned (eg following investigation of accidents and serious incidents) are promulgated to persons involved in maintaining and repairing aircraft, in order to reduce the rate of occurrence.

Current Status

In many cases the problem of system component failure is exacerbated by poor decision making by either pilots or maintenance personnel in reaction to the failure. Sadly the circumstances of some component failure related aircraft accidents are remarkably similar to previous accidents so it seems that lessons are not being learned as a result of accident reports to help prevent similar tragedies.

The IAA airworthiness department reviews accident reports received from the Air Accident Investigation Unit in Ireland and acts on any safety recommendations and lessons learned from these.

The airworthiness department also reviews safety information provided by other States air accident investigation authorities (eg US NTSB and UK AAIB) for issues affecting aircraft equipment or maintenance. In 2013 the IAA promulgated Safety Alerts issued by the US NTSB concerning risk management in maintenance and decision making and awareness in respect of mechanical problems via the IAA website.

Existing Actions

a)
The IAA will review accident reports and safety information provided by air accident investigation authorities and develop safety information (based on effective communication of key messages) concerning aircraft equipment failure and maintenance for dissemination to the Irish general aviation community.

Target date Ongoing

Royal Aircraft Factory SE5 Photo by Frank Grealish
Frank Grealish/IrishAirPics.com

FOD.009 Remotely Piloted Aircraft Systems/Drones

Issue Statement

The popularity and application of remotely piloted aircraft systems (RPAS) or drones continues to grow. Clear guidance is needed on the applicable regulations and best practice when using RPAS/Drones either for leisure activities or aerial work.

The proliferation of the use of RPAS/Drones represents an emerging risk to both commercial and general aviation. The expected benefits of the actions in this Plan are that the operation of RPAS/Drones is properly integrated into the Irish Civil Aviation System to ensure that there will be no accidents or serious incidents as a result of conflict between a UAV/RPAS device and an aircraft in Irish airspace.

Current Status

ICAO and EASA are addressing future Standards and Recommended Practices (SARPS) for the use of RPAS/Drones. ICAO established a UAS study group in 2008 to recommend appropriate SARPS to be applicable worldwide. Some SARPs in the areas of Annex 7 - Aircraft Nationality and Registration Marks and Annex 2 - Rules of the Air became applicable in 2012 and ICAO will continue to develop further SARPS for all aspects of RPAS/Drones operation. In addition an ICAO iKIT on RPAS contains latest regulatory and guidance material from a number of contracting States.

EASA are also working on providing guidance in this area including certification of the aircraft and ground station, integration into controlled airspace, communication requirements and remote pilot training. In Europe the Joint Authorities for Rulemaking of Unmanned Systems Group (JARUS) was established to recommend a single set of technical, safety and operational requirements in this area. The IAA is actively involved in three working groups of JARUS (CONOPS, Airworthiness and Licencing). The JARUS plenary session was hosted by the IAA in 2015.

In 2012 the IAA issued OAM 02/2012 which details the IAA policy to be applied when assessing an application by an Operator to operate any RPAS/Drones within the territorial confines and airspace of the State and a Safety Leaflet IGA 5 in 2014.

The purpose of these documents is to set out the requirements that will have to be met, in terms of airworthiness and operational standards, before any RPAS/Drones, irrespective of its mass, can be operated in Ireland.

The IAA has been actively encouraging the development of RPAS/Drones training schools and there are now three registered training facilities (RTF) in Ireland.

The IAA continues to receive reports that RPAS/Drones have been operated without the appropriate approvals in place and in inappropriate locations such as controlled airspace. In many cases the operators of the device are completely unaware of the safety risks they are imposing or of the legal requirements.

IAA presentations covering current and planned regulatory initiatives as well as operational and technical aspects were provided to both the RPAS industry and Irish Air Navigation Service Providers during 2014. In addition IAA representatives participated in public radio interviews to highlight the safety concerns. This level of engagement with the public and RPAS sector is expected to continue into the next two years as the European regulatory framework and associated guidance evolves. Action f) below is updated accordingly.

Existing Actions

c)
The IAA will continue to participate in the development of an appropriate regulatory framework to govern the operation of RPAS/Drones through its collaboration in the Joint Authorities for Rulemaking of Unmanned Systems Group (JARUS).

Target date Ongoing

f)
The IAA will provide relevant guidance to raise awareness of the regulatory requirements and safety hazards associated with operating RPAS/Drones devices.

Target date Q4 2016

Closed Actions

d)
The IAA will encourage and facilitate the development of RPAS/Drones Flight Training Schools

Target date Q4 2014

RPAS at Weston Aerodrome
Photo by Pieter Van Velzen

FOD.014 Safety Information for General Aviation

Issue Statement

The European General Aviation Safety Team (EGAST) is a voluntary safety partnership between General Aviation associations and authorities from across Europe. EGAST creates a forum for sharing best practices, improving data sources, and promoting safety.

The aim of EGAST is to promote and initiate best practices and awareness in order to improve safety for all sectors of General Aviation in order to help reduce accidents. The objectives of the actions in this Plan are to adapt this safety information to the Irish environment (where appropriate) and ensure widespread promotion of this information.

Current Status

EGAST produces safety promotion material based on lessons learned throughout the European General Aviation system.

This material is provided in the form of Safety Leaflets, Safety Presentations and Safety Videos any or all of which can be used as training aids by Approved Training Organisations and Registered Training
Facilities or can be distributed directly to those involved in private flying for their own personal use. The IAA is an active participant in EGAST.

The IAA has published EGAST Leaflets on the IAA website in the past; however, more recently the IAA has been working closely with the General Aviation Safety Council of Ireland (GASCI) in order to ensure more effective promulgation of this information. EGAST Leaflets have been formally adopted and endorsed by both the IAA and GASCI (see adjacent example) and disseminated via IAA and GASCI website with printed handbooks distributed to flying schools and associations and at GASCI Safety Evenings.

Recently published EGAST Leaflets on "In-Flight Icing" and "Flight Information Service" are under review.

Existing Actions

a)
The IAA will work with GASCI to develop and promote EGAST Safety Material to general aviation community in Ireland.

Target date Ongoing

b)
The IAA will work with GASCI to organise/facilitate regular general aviation safety events, during which EGAST safety material will be promoted.

Target date Ongoing

FOD.015 Safety Information for Helicopters

Issue Statement

Analysis of accident and occurrences involving helicopters over the past decade has shown that helicopter operations are exposed to specific risks. In Europe, the European Helicopter Safety Team was developed to provide a focus for helicopter safety initiatives to address the safety concerns.

The aim of EHEST is to promote and initiate best practices and awareness in order to improve safety for helicopter operators in order to help reduce accidents. The objectives of the actions in this Plan are to adapt this safety information to the Irish environment (where appropriate) and ensure widespread promotion of this information.

Current Status

The European Helicopter Safety Team (EHEST) was launched in November 2006 and brings together manufacturers, operators, research organisations, regulators, accident investigators and a few military operators from across Europe. EHEST is the helicopter branch of the ESSI, and also the European component of the International Helicopter Safety Team (IHST). The IAA is an active participant in EHEST.

The EHEST/IHST work in collaboration to develop risk awareness, safety promotion and training material. The EHEST website contains videos addressing major helicopter specific issues like loss of control in degraded visual environment (DVE) as well as leaflets with safety considerations for helicopter pilots. There are currently 8 EHEST Leaflets published on the EHEST website addressing different safety issues. The IAA has promulgated EHEST Leaflets on the IAA website in the past but more recently has been trying to find a more effective means of promulgating this information via the General Aviation Safety Council of Ireland (GASCI).

Helicopter operator representative groups are represented in GASCI and safety information in respect of helicopters are included in GASCI safety evenings. In some cases EHEST Safety Material has been directly distributed by the IAA to licenced helicopter pilots in Ireland. Specific helicopter safety events are planned at a frequency that takes into account the relatively low level of helicopter activity in the state.

Existing Actions

a)
The IAA will work with GASCI to develop and promote EHEST/IHST Safety Material to GA community in Ireland.

Target date Ongoing

b)
The IAA will organise specific helicopter safety events and will work with GASCI to organise/facilitate regular general aviation safety events, during which EHEHST/IHST safety material will be promoted.

EASA Reference: HE 1.3

Target date Ongoing

AWSD.003 Time Between Overhaul (TBO) for GA Aircraft Engines

Issue Statement

Requirements and guidance material for private aircraft engine overhaul and manufacturers specified time between overhaul (TBO) requirements are not consistent across Europe and need to be updated.

Engine failure is a particular risk to GA operators the majority of whom fly single piston engine aircraft, and the consequences of the failure is a forced landing, possibly with no airfield available to land in. The objectives of the actions of this Plan are to ensure that the engines used on Irish registered aircraft are maintained to the highest safety standards.

Current Status

The IAA Aeronautical Notice A.43, last updated in 2011, details the requirements in Ireland for complying with engine manufacturer's specified overhaul intervals, however, this aeronautical notice does not take account of the new airworthiness oversight regime in place, namely, that most certificate of airworthiness aircraft are maintained in a controlled environment by a Part M organisation.

The 20 year engine life limit currently imposed does not take account of the operational environment of each aircraft or the failure rate of newly overhauled engines.

EASA issued amendments to Part M (Decision 2013/025) in Sep 2013 to address this issue but following inputs on the implications of the decision to the GA industry from several States, EASA withdrew this amendment under (Decision 2013/034/R). The IAA has established that 25 aircraft used in Irish approved training facilities would have been affected by EASA Decision 2013/025.

The EASA Decision on this subject was still not available in 2014 or early 2015. The IAA has decided that the update to Aeronautical Notice A.43 will be proceeded with in advance of this final EASA Decision, based on current best practice in Europe. The action item and target date is updated accordingly.

Existing Actions

a)
The IAA will revise IAA Aeronautical notice A.43 to align with the best European practice pending final EASA Regulation in this area.

Target date Q4 2015

FOD.006 Operation of N Registered Aircraft and FAA Airman Certificate Holders in Ireland

Issue Statement

American (N) registered aircraft and holders of FAA issued pilot licenses have been involved in a high percentage of aircraft accidents and serious incidents in Ireland.

The FAA have limited opportunity to perform safety oversight checks of American registered aircraft and US licence holders outside the USA and it is also possible that neither EU nor Irish operational and airworthiness safety requirements are being addressed by the "N-Reg" community. The expected benefits of the actions of this Plan are that all those involved in the "N-reg" community will meet or exceed the safety standards applicable in Ireland.

Current Status

All aircraft registered in the United States of America have registration markings beginning with the letter N followed by a sequence of numbers or letters. Previous analysis of accident and serious incident data in Ireland showed a large percentage involved N-registered aircraft.

An ICAO Article 83 Bis agreement between the USA and Ireland was signed in 2013 to provide for the transfer of ICAO Annex 1, 2, 6 and 8 State responsibilities for N-registered general aviation aircraft. This in effect transfers oversight responsibilities from the FAA to IAA for affected N-registered aircraft.

The FAA have also taken action on this subject by amending their code of federal regulations CFR 47 – Aircraft Registration introducing a requirement for all aircraft owners to re-register their aircraft on a three year basis and by introducing changes to who can register and where the aircraft may be based. New EASA regulation on pilot licensing also impacts on the automatic acceptance of US pilot licences in Europe which require pilots of EASA type certified aircraft in EU Member States to be compliant with EU pilot licence requirements. In addition, new EU regulations which will require third country (non-EU States) operators to seek a specific approval before operating in Europe will also help address this issue.

The IAA has actively promoted the requirements of the new EU Regulations with Irish Industry including the specific issues relating to validation of non-EASA Member State licences. Work is on-going to progress the conversion of US pilot licences and accordingly the available derogation until April 2016 is being implemented in Ireland. The target date for completion is adjusted accordingly.

Existing Actions

a)
The IAA will implement and promote the requirements for the conversion of third country pilot licences to licences issued or validated iaw EASA Part FCL.

Target date Q2 2016

06 GLOSSARY OF TERMS

Summary of objectives

A

AAIU Air Accident Investigation Unit
ANSD Air Navigation Services Department
AOC Air Operators Certificate
ARMS Aviation Risk Management Solutions
ATC Air Traffic Control
ATS Air Traffic Service

C

CAST Commercial Aviation Safety Team
CFIT Controlled Flight Into Terrain

E

EASA European Aviation Safety Agency
EASA MS EASA Member States (28 EU Member States plus Iceland, Liechtenstein, Norway and Switzerland)
EASp European Aviation Safety Plan
EC European Commission
ECR European Central Repository
EGAST European General Aviation Safety Team
EHEST European Helicopter Safety Team
ERC Event Risk Classification
EU European Union

F

FAB Functional Airspace Block
FDM Flight Data Monitoring

G

GA General Aviation
GASCI General Aviation Safety Council of Ireland

I

IAA Irish Aviation Authority
ICAO International Civil Aviation Organisation

K

KSI Key Safety Indicators

L

LOC-I Loss of control in flight

M

MAC Mid air collision
MOR Mandatory Occurrence Report
MTOM Maximum Take-Off Mass

N

NoA Network of Analysts

P

PBN Performance Based Navigation

R

RI Runway Incursion
RE Runway Excursion
RIAG Runway Incursion Action Group
RST Runway Safety Team
RPAS Remotely Piloted Aircraft System

S

SAR Search and rescue
SMS Safety Management system
SOTS Safety Occurrence Tracking System

U

UAS Unmanned Aerial Systems
UN United Nations

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