UK-Ireland – Functional Airspace Block

UK-Ireland FAB Report 2009

Final 30th April

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1. Background of this document

As part of the UK-Ireland FAB, the ANSPs are required to provide the National Supervisory Authorities (NSAs) and Governments of Ireland and the UK with an annual report. The Irish Aviation Authority and NATS have therefore produced this UK-Ireland FAB Report 2009 to meet this objective.

The document covers four parts:

- Progress against the delivery of the previous UK-Ireland FAB Plan 2009-12
- Progress against the delivery of original high level goals and near-term objectives
- Performance Management update
- Progress against various supporting FAB activities

The UK-Ireland FAB Report 2010 has been released with the approval of the FAB Management Board following its sixth meeting on 22nd April 2010.

The participants of the UK-Ireland FAB are proud of the work which was successfully implemented during the early stages of the FAB and are confident that during 2010 significant further progress will be made including the implementation of the next FAB Plan.

2. Progress against the delivery of the previous UK-Ireland FAB Plan 2009-12

The UK-Ireland FAB has now completed its first full year of operations. A substantial amount of work has been undertaken by ANSPs, the Airlines and Military participants. During this difficult trading period, the UK-Ireland FAB has endeavoured to react quickly to meet customer needs and expectations.

During 2009, many projects contained in the first UK-Ireland FAB Plan 2009-12 were completed on time, including the implementation of:

- Airspace Design Working Group: Eight of the initial 16 ADWG activities scheduled for 2009, including: ENSURE; NTFSR (first part); P600; and MNPS in SOTA.

- Services Provision Working Group: Four of the initial 12 SPWG activities scheduled for 2009, with an increased focus on the development of single planning documents and procedures.

- Safety Working Group: Four out of the 6 initial SWG FAB activities scheduled for 2009, including: Common En-route Safety Significant Events Scheme; Safety Culture measurement; and Common Operational Safety Methodology.

Furthermore, in the initial FAB Plan 2009-12, the ANSPs outlined the activities planned to deliver various supporting FAB activities, including:

- Formal Performance Management and internal metrics,
- FAB Reporting requirements for 2009 (to NSAs, Governments),
- FAB Meeting Schedule,
- Coordination between Working Groups,
- Interaction with other FABs,
- Progress Monitoring of FAB initiatives,
- Communications Strategy.

During 2009, successful progress was made in relation to all of the above, as well as some additional areas [Please see Section 5 for a detailed outline of “Progress against Supporting FAB Activities”].

3. Progress against the delivery of original high level goals and near-term objectives

Ultimately, the IAA and NATS are jointly implementing activities through an operationally driven FAB, with the objective of delivering airspace user benefits by enhancing operational efficiency and improving safety.

In our original proposal document, the ANSPs set out five headline goals for the FAB which would be delivered through the implementation of eight near-term objectives, as follows;

5 Headline Goals:

- Safety enhanced
- Financial savings:
  - By 2013: €12m p.a.
  - By 2018: €40m p.a.
- Environmental benefits
- Minimise Delays
- Technology co-ordination

Goals delivered via 8 Near-Term Objectives:

1. Safety
2. Performance Management and Reporting
3. Airspace Design Optimisation
4. Oceanic Transition
5. Airspace Management Optimisation – Civil/MIL Co-Op
6. Capacity/Service Delivery
7. Environment
8. Interaction with other FABs

The UK-Ireland FAB Plan 2009-12 referred to over 30 different FAB activities. The FMB, the SPWG, SWG and ADWG took responsibility for delivering these objectives.

Table 1 outlines progress against the delivery of the UK-Ireland FAB Plan 2009-12 and collated these FAB initiatives against the eight near-term objectives.

Table 1: Progress against UK-Ireland FAB Plan 2009-12

(Linked to Near-Term Objectives)

Near Term Objective	Ref Code	Ref Name	Achieved in 2009 / Status
1. Safety	SWG-1	Use of a common en-route Safety Significant Event (SSE) scheme	Implemented in full by Dec 2009 – including completion of the first FAB SSE Report.
	SWG-2	Safety Culture/climate measurement	Implemented in full by Nov 2009 – including Risk Conference and development and "Action Plan for Safety Improvement".
	SWG-3	Interface between IAA and NATS sectors	Implemented in full during 2009 – including completion of "Day to Day Observations Report"
	SWG-4	Standardising procedures	Commenced in 2009 and initial changes in MATS by Q1 2010. Subject to agreement by Regulators, 7 changes identified and 11 others to be agreed.
	SWG-5	SMS convergence	Commenced in 2009. IAA and NATS to converge SMS process at Level 1 and Level 2; IAA to revise IAA SMM by Q4 2011.
	SWG-6	Safety priority areas	Implemented in full during 2009.

Near Term Objective	Ref Code	Ref Name	Achieved in 2009 / Status
2. Performance Management and Reporting	No specific code.	Agreed approach for providing effective performance metrics. Interim report produced July 2009.	▪ Please see Section 4 for 2009 Performance Report. ▪ The UK-Ireland FAB intends on developing National Performance Plans for the SESII first Reference Period. ▪ In due course, the newly established joint Performance Advisory Group will ensure that the UK-Ireland FAB performance plan will be consistent with Community-wide performance targets for safety, environment, capacity and cost efficiency.
	SPWG-4	Demand Modelling	Due to the traffic downturn, the model does not adequately support the needs of the FAB; therefore activity closed and moved to Opportunities Register until further notice.
3. Airspace Design Optimisation	ADWG-6	Removal of MNPS requirement in NOTA and SOTA	Implemented in full in May 2009.
	ADWG-7	P600	Implemented in full in May 2009.
	ADWG-10	Enhanced Night Time Overflight Routes	Implemented across London UIR Dec 2009 and Scottish UIR Mar 2010
	ADWG-15	Deliver Plans for Long Term Operations for Dublin, Manchester and Belfast TMAs	3 meetings held with major stakeholders during 2009; plan of action finalised Mar 2010.
	ADWG-16	Dublin TMA Development	Work ongoing to introduce offload route and to change airspace in support of Point Merge at Dublin; airspace change implementation Mar 2011

Near Term Objective	Ref Code	Ref Name	Achieved in 2009 / Status
4. Oceanic Transition	ADWG-4	Jointly owned Oceanic Domestic Interface Roadmap	Completed Mar 2009.
	ADWG-5	Oceanic Domestic Interface Management System (ODIMS)	R&D commenced; work with NAV Canada proceeding well. Next requirement is for sims – targets: NAV Canada summer 2010, autumn 2010 for Swanwick and Shannon
	ADWG-8	ENSURE Project	Implemented in full in Dec 2009 with removal of routes in Shannon UIR.
	ADWG-9	Development of an Oceanic Domestic Interface CONOPS	Development work conducted during 2009; on target for completion Mar 2010.
	ADWG-11	Use of Operational Research Techniques to Design Fuel Efficient Organised Track Structures	Project delayed by lack of availability of key resources. Likely implementation in late 2010 now as part of AIRE2 Programme. Benefits will come from optimised profile on the Ocean.
	ADWG-12	Early Morning Arrival Management for London (Heathrow)	Phase one operational trial completed – Nov 2009. Final version trial report published and distributed – Dec 2009.
	ADWG-13	Optimised Routing from the NAT to Continuous Descent Approach for MAN Arrivals	Successful trial conducted 11 Nov 09 to 10 Mar 10; became full permanent procedure 11 Mar for flights crossing LIFFY between 2300 and 0630.
	ADWG-14	Reduced Longitudinal Separation on NAT	Project work continued throughout 2009, with implementation still on target for May 2010.

Near Term Objective	Ref Code	Ref Name	Achieved in 2009 / Status
5. Airspace Management Optimisation (including Civil/Military Co-Op)	SPWG-5	ASM Interaction Between the States	Activity closed: work being developed by ODNET through JFADT initially.
	SPWG-6	CDR Improvements	Activity closed; superseded by ENSURE project.
	SPWG-7	Development of Cross Border Areas (CBAs)	Activity closed: agreement that F/UIR boundaries no longer constraint to airspace/service provision development.
	SPWG-8	ASM Improvements - Joint Airspace Management System (JAMS)	Complete and closed: IAA will consider same JAMS (Joint Airspace Management System) solution as NATS
	SPWG-10	Integrated AMC Activity	Merged with SPWG-5 above.
6. Capacity/ Service Delivery	ADWG-1	FAB ADWG Attendance on West End Tiger Team	Completed in Q1 2009.
	ADWG-2	Miles In Trail – between Dublin & Swanwick	Completed assessment process in 2009.
	SPWG-1	Single FAB RAD	Commenced in 2009 –FAB RAD Group to determine new implementation date as soon as possible.
	SPWG-2	Single Pre-Tactical Plan Publication	Completed with the publication of the daily “FAB Pre-tactical Network Brief” in place in April 2010.
	SPWG-3	Single Strategic FMP Planning Process	Commenced in 2009 – due for implementation in Q2 2010.
	SPWG-9	Single Pre-Tactical Planning Process	Merged with SPWG-2 above.
	SPWG-11	TOMS Utilisation in FAB	Commenced in 2009 – implementation by Dec 2010.
	SPWG-12	Enable Tactical Delegation of Sectors Between ANSPs	Decision made not to continue this activity.

Near Term Objective	Ref Code	Ref Name	Achieved in 2009 / Status
7. Environment	ADWG-3	Environmental Best Practice	IAA adopted NATS 'Environment by Design' best practice in 2009.
8. Interaction with other FABs	No Specific Code	Approach for providing effective interaction with other FABs.	NATS continues as Associate member of FABEC; IAA member of NEAP; NATS member from Mar 2010; main interaction through EC FAB Focal Point Group meetings.

4. Performance Management update

Traffic growth rates and baseline growth

Traffic: Traffic growth rates were sourced from Eurocontrol STATFOR forecasts. 2009 and 2010 growth rates for IFR movements were sourced from the Eurocontrol STATFOR short-term forecast, issued in February 2009. It is now recognised that these traffic figures are over optimistic based on the outturn for 2009 for both the UK and Ireland -9.6% and -12% respectively, being lower than that shown in the table 2 below. Growth rates from 2011 until 2015 were taken from the Eurocontrol medium-term forecast (base), issued in February 2009. Traffic growth for 2016 and beyond was taken from the long-term forecast, issued in November 2008. The traffic growth rates for Ireland and the UK are presented below. The latest Eurocontrol STATFOR forecasts published in Feb 2010 show a further decline in forecast traffic growth.

Table2: Traffic growth rates for Ireland and the UK

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
UK	-4.4%	3.0%	3.4%	3.4%	2.2%	3.1%	2.8%	2.2%	2.2%	2.2%	2.2%
Ireland	-3.0%	3.6%	4.8%	4.5%	3.7%	4.3%	4.2%	3.0%	3.0%	3.0%	3.0%

Baseline figures

Figures from the PRU on total distance for UK and Ireland in 2007 are 757,288,986 km and 186,584,481 km, respectively (total of 943.8m km). Each is grown using annual traffic growth rates for UK and Ireland, as presented in table 2 above, to give the total distance for UK and Ireland for 2008 up to 2019. The sum gives the total distance in the FAB and a flight inefficiency of 3.14%; this is applied to the total distance for the FAB in order to calculate the excess distance per year. The flight inefficiency of 3.14% has been derived from PRU analysis for 2007, which estimates that 2.82% of the total distance is excess routing within the state and 0.31% of the total distance is excess routing within FAB.

The PRU calculates the baseline CO2 emissions for 2007 from the baseline excess route distance by assuming that 18.54kg of CO2 is emitted per NM of excess distance. The PRU has assumed an average of 5.89kg of fuel is burnt per NM for each flight and that 3.15kg of CO2 is emitted per kg of fuel burnt. We have used similar assumptions to extrapolate baseline figures for CO2 emissions and fuel burn from 2008 to 2019.

The corresponding baseline figures are shown in the benefits tables 3, 4 and 5.

Benefits tables

Many of the FAB activities commenced in 2009 and listed in Table 1 above are enablers for other projects or examples of best practice being adopted across the FAB; therefore only those proposals with measurable benefits are included in the tables below. The annual benefits in terms of excess route distance saved, CO2 emissions saved and excess fuel burn saved and the baseline for each year up to 2015 are shown in the tables below. The benefit as a percentage of the baseline is also shown for each year. The first year of benefits for each initiative is highlighted in green. Due to the further decline in actual and forecast traffic growth (against the original Feb 2009 Stratfor Forecast) the benefits realised may be lower than those stated. However the planned capacity benefits whether utilised or not still remain. In order to re-estimate the benefits a further analysis of the impact would be required.

Table 3: Annual reduction in CO2 emissions from each initiative

CO_2 emissions (tonnes)		2009	2010	2011	2012	2013	2014	2015
Baseline (UK/Ireland)		**281,226**	**290,005**	**300,694**	**311,599**	**319,427**	**330,135**	**340,360**
ADWG7	**P600 saving (Implemented)**	**4,531**	**7,041**	**7,379**	**7,711**	**7,996**	**8,340**	**8,691**
		2%	2%	2%	2%	3%	3%	3%
ADWG6	**MNPS saving**		**10,481**	**10,985**	**11,479**	**11,903**	**12,416**	**12,937**
			4%	4%	4%	4%	4%	4%
ADWG8	**ENSURE saving**		**46,776**	**49,022**	**51,228**	**53,123**	**55,407**	**57,734**
			16%	16%	16%	17%	17%	17%
ADWG10	**Enhanced night time overflight routes[1]**		**18,100**	**18,100**	**18,100**	**18,100**	**18,100**	**18,100**
			6%	6%	6%	6%	5%	5%
ADWG11	**Design fuel efficient track structures[1]**			**12,800**	**12,800**	**12,800**	**12,800**	**12,800**
				4%	4%	4%	4%	4%
ADWG13	**Continuous descent for EGCC arrivals[1]**			**3,000**	**3,000**	**3,000**	**3,000**	**3,000**
				1%	1%	1%	1%	1%
ADWG16	**Point Merge saving**			**35,542**	**37,142**	**38,516**	**40,172**	**41,860**
				12%	12%	12%	12%	12%
SPWG13	**Reduced longitudinal separation on NAT**			**10,900**	**10,900**	**10,900**	**10,900**	**10,900**
				3%	3%	3%	3%	3%
Annual Total		**4,531**	**82,398**	**147,728**	**152,360**	**156,338**	**161,135**	**166,022**
Annual Percentage of baseline		1.6%	28.4%	49.1%	48.9%	48.9%	48.8%	48.8%

[1] **Further analysis in years after implementation to be carried out.**

Table 4: Annual reduction in route distance from each initiative

Route distance (000s km)		2009	2010	2011	2012	2013	2014	2015
Baseline (UK/Ireland)		28,092	28,969	30,037	31,126	31,908	32,978	33,999
ADWG7	**P600 saving**	**28**	**44**	**46**	**48**	**50**	**52**	**54**
		0%	0%	0%	0%	0%	0%	0%
ADWG8	**ENSURE saving**		**2,200**	**2,306**	**2,409**	**2,499**	**2,606**	**2,716**
			8%	8%	8%	8%	8%	8%
ADWG10	**Enhanced night time overflight routes** [1]		**305**	**305**	**305**	**305**	**305**	**305**
			1%	1%	1%	1%	1%	1%
Annual Total		**28**	**2,549**	**2,657**	**2,762**	**2,854**	**2,963**	**3,075**
Percentage of baseline		0.1%	8.8%	8.8%	8.9%	8.9%	9.0%	9.0%

[1] **Further analysis in years after implementation to be carried out.**

Table 5: Annual reduction in fuel burn from each initiative

Fuel burn (tonnes)		2009	2010	2011	2012	2013	2014	2015
Baseline (UK/Ireland)		89,278	92,065	95,458	98,920	101,405	104,805	108,051
ADWG7	**P600 saving**	**1,438**	**2,235**	**2,343**	**2,448**	**2,539**	**2,648**	**2,759**
		2%	2%	2%	2%	3%	3%	3%
ADWG6	**MNPS saving**		**3,327**	**3,487**	**3,644**	**3,779**	**3,942**	**4,107**
			4%	4%	4%	4%	4%	4%
ADWG8	**ENSURE saving**		**14,850**	**15,562**	**16,263**	**16,864**	**17,590**	**18,328**
			16%	16%	16%	17%	17%	17%
ADWG10	**Enhanced night time overlfight routes[1]**		**5,700**	**5,700**	**5,700**	**5,700**	**5,700**	**5,700**
			4%	4%	4%	4%	4%	4%
ADWG11	**Design fuel efficient track structures[1]**			**4,000**	**4,000**	**4,000**	**4,000**	**4,000**
				4%	4%	4%	4%	4%
ADWG13	**Continuous descent for EGCC arrivals[1]**			**1,000**	**1,000**	**1,000**	**1,000**	**1,000**
				1%	1%	1%	1%	1%
ADWG16	**Point Merge saving**			**11,283**	**11,791**	**12,227**	**12,753**	**13,289**
				12%	12%	12%	12%	12%
SPWG13	**Reduced longitudinal separation on NAT**			**3,400**	**3,400**	**3,400**	**3,400**	**3,400**
				3%	3%	3%	3%	3%
Annual Total		**1,438**	**26,112**	**46,775**	**48,246**	**49,509**	**51,033**	**52,583**
Percentage of baseline		1.6%	28.4%	49.0%	48.8%	48.8%	48.7%	48.7%

[1] **Further analysis in years after implementation to be carried out.**

In presenting these benefits it is assumed that those resulting from each FAB initiative are additive. In reality, they may not necessarily be so, as changes to route structure or airspace for one initiative may substantially reduce excess route distance and thus remove opportunities for further reductions from other initiatives. Further detailed analysis on the impact on particular sets of flights would be required to identify how the aggregate benefits would differ from the sum of the benefits from individual initiatives. However, it would appear that for the most part, the initiatives bring benefits to largely non-overlapping sets of users, and therefore to a first approximation they could be regarded as additive.

By 2013 when many of the initiatives are operational, it is estimated that the total distance saved by these initiatives will be 2,854,000 km, which is around 9% of the total excess distance within the UK-Ireland FAB. The initiatives achieve a CO_2 emissions reduction of 156,338 tonnes and fuel burn savings of 49,509 tonnes, around 49% of the CO_2 emissions and fuel burn in UK and Irish airspace.

5. Progress against various supporting FAB activities

There are a number of activities which support the implementation of the FAB Plan and day-to-day management of the FAB. During 2009, the ANSPs made substantial progress in relation to the following:

- ANSP/NSA Coordination: A joint workshop was held in June during which a wide number of FAB and Regulatory topics were discussed and objectives agreed, including the establishment of a joint Performance Advisory Group (PAG). It was agreed that a further workshop would be held during 2010. National Supervisory Authorities (NSAs) and ANSPs also worked well together in the European forum – see below.

- Staff engagement: Trade Union representatives from the IAA and NATS were invited to all Working Group meetings by the end of 2009, with several briefings being held in addition to these meetings. Procedures were also agreed through which any operational staff could make suggestions for FAB activities through the WGs.

- Airline engagement: Airline engagement for 2009 was carried out through the SPWG Co-Chairs, Grant Worsley (bmi) and Aidan Fox (Aer Lingus). Aidan was replaced in Nov 09 by Nick Rhodes (Flybe) with Grant's tenure scheduled to cease in 2010 when a suitable replacement is found. The FMB wishes to record its great thanks for the essential role that Grant and Aidan played during 2009. it is intended that a joint FAB briefing session for Airline customers will be held during 2010.

- Military engagement: The UK MOD and Irish Air Corps have been integral members of all WGs and the FMB. Relations between all parties have strengthened during 2009; civil/military aspects of the FAB will be particularly key with ASM aspects of the new core project contained in the next FAB Plan known as "ODNET" (Optimisation of Domestic, North Atlantic and European Traffic). Military participants have continued to be extremely positive in taking the FAB forward.

- European stakeholder engagement. FAB cooperation developed to the extent of the IAA and NATS being happy to have single FAB representation at some meetings such as the EuroControl Periodical Information Meeting, although it was agreed that this forum did not have a worthwhile role and has been disbanded accordingly. The FAB Focal Points meetings have been a good example of the NSAs and ANSPs working as a team, with single representatives agreed from each party. During 2009, the UK-Ireland team has made a significant contribution to this EC forum and has also influenced discussion on the impending Performance IR.

- External communications. Press releases were circulated widely when the FAB report for 2008 and the FAB Plan for 2009-2012 were published in May 2009. Communications were also circulated on implementation of P600 in

May, MNPS into SOTA in July and ENSURE and Night Time Fuel saving routes in December. However, it was decided that a formal newsletter and DVD would not be progressed until 2010.

- Technology and SESAR IP1. Technology teams from the IAA and NATS first got together in the latter part of 2009, although it has been decided that a formal Technology WG would not be formed. Projects are to be coordinated through a Project Alignment Review Team (PART) which would form in 2010, but Technology coordination discussions made good progress, with more structured collaboration agreed by the Dec FMB to commence in 2010. Subject areas considered during 2009 to be taken forward during 2010 included the following:

    - Surveillance data sharing (including Dublin Radar proposals, ADS-B infrastructure and Wide Area Multilateration over the Irish Sea.
    - R/T site sharing.
    - IP Networks (PENS & Da Vinci).
    - ATS Message Handling System (AMHS).
    - Dublin Arrival Manager Data.
    - Voice Comms switches.
    - Datalink.
    - Navigation.
    - International representation.

- Performance Management. Both IAA and NATS appointed Performance Managers who worked together to produce a Performance Report in July 2009 that articulated the benefits of the ongoing activities at that time. An updated report is found at Section 4.

- Meetings. Governance of the FAB continues as per the original Report and Plan, with FMB meetings taking place 3 times a year – Working Group meetings take place generally during the month before each FMB. A cross-WG workshop took place in Sep 2009 to consider new proposals for the new FAB Plan period 2010-2013; this led to a joint-WG meeting the same month. In order to progress proposals, it was agreed that a new joint project ODNET (Optimisation of Domestic (UK/Irish), North Atlantic and European Traffic) would be commenced in 2010, initially through a Task Force to scope the work to be considered.