AMC1 ORO.AOC.100 Application for an air operator certificate (AOC)

APPLICATION TIME FRAMES

The application for the initial issue of an AOC should be submitted at least 90 days before the intended start date of operation. The operations manual may be submitted later, but in any case not later than 60 days before the intended start date of operation.

AMC1 ORO.AOC.110 Leasing agreement

GENERAL

The operator intending to lease-in an aircraft should provide the competent authority with the following information:

(a) the aircraft type, registration markings and serial number;

(b) the name and address of the registered owner;

(c) a copy of the valid certificate of airworthiness;

(d) a copy of the lease agreement or description of the lease provisions, except financial arrangements;

(e) duration of the lease; and

(f) in case of wet lease-in a copy of the AOC of the third country operator and the areas of operation.

The information mentioned above should be accompanied by a statement signed by the lessee that the parties to the lease agreement fully understand their respective responsibilities under the applicable regulations.

AMC1 ORO.AOC.110(c) Leasing agreement

WET LEASE-IN

If the operator is not intending to apply EU safety requirements for air operations and continuing airworthiness when wet leasing-in an aircraft registered in a third country, it should demonstrate to the competent authority that the standards complied with are equivalent to the following requirements:

(a) for commercial air transport (CAT) operations, Annex IV (Part–CAT);

(b) Part-ORO:

(1) ORO.GEN.110 and Section 2 of Subpart GEN;

(2) ORO.MLR, excluding ORO.MLR.105;

(3) ORO.FC;

(4) ORO.CC, excluding ORO.CC.200 and ORO.CC.210(a);

(5) ORO.TC;

(6) ORO.FTL, including related CS-FTL; and

(7) ORO.SEC;

(c) Annex V (Part-SPA), if applicable;

(d) for continuing airworthiness management of the third country operator, Part-M[5] Subpart-B, Subpart-C and Subpart-G, excluding M.A.707, and M.A.710;

(e) for the maintenance organisation used by the third country operator during the lease period: Part-145[6]; and

(f) the operator shall provide the competent authority with a full description of the flight time limitation scheme(s), operating procedures and safety assessment demonstrating compliance with the safety objectives set out in points (b) (1)-(6).

AMC2 ORO.AOC.110(c) Leasing agreement

WET LEASE-IN

The lessee should maintain a record of occasions when lessors are used, for inspection by the State that issued its AOC.

GM1 ORO.AOC.110(c) Leasing agreement

SHORT TERM WET LEASE-IN

In anticipation of an operational need the operator may enter into an framework agreement with more than one third country operator provided that these operators comply with ORO.AOC.110 (c). These third country operators should be placed in a list maintained by the lessee.

AMC1 ORO.AOC.110(f) Leasing agreement

WET LEASE-OUT

When notifying the competent authority. the operator intending to wet lease-out an aircraft should provide the competent authority with the following information:

(a) the aircraft type, registration markings and serial number;

(b) the name and address of the lessee;

(c) a copy of the lease agreement or description of the lease provisions, except financial arrangements; and

(d) the duration of the lease agreement.

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5 Commission Regulation (EC) No 2042/2003 of 20 November 2003 on the continuing airworthiness of aircraft and aeronautical products, parts and appliances, and on the approval of organisations and personnel involved in these tasks (OJ L 315, 28.11.2003, p. 1). Regulation as last amended by Commission Regulation (EU) No 1149/2011 of 21 October 2011 (OJ L 298, 16.11.2011, p. 1).

6 Commission Regulation (EC) No 2042/2003 of 20 November 2003 on the continuing airworthiness of aircraft and aeronautical products, parts and appliances, and on the approval of organisations and personnel involved in these tasks (OJ L 315, 28.11.2003, p. 1). Regulation as last amended by Commission Regulation (EU) No 1149/2011 of 21 October 2011 (OJ L 298, 16.11.2011, p. 1).

AMC1 ORO.AOC.115(a)(1) Code share agreements

INITIAL VERIFICATION OF COMPLIANCE

(a) In order to verify the third country operator's compliance with the applicable ICAO standards, in particular ICAO annexes 1, 2, 6, Part I and III, as applicable, 8 and 18, the EU operator should conduct an audit of the third country operator, including interviews of personnel and inspections carried out at the third country operator's facilities.

(b) The audit should focus on the operational, management and control systems of the operator.

AMC1 ORO.AOC.115(b) Code share arrangements

CODE-SHARE AUDIT PROGRAMME

(a) Operators should establish a code-share audit programme for monitoring continuous compliance of the third country operator with the applicable ICAO standards. Such code-share audit programme should include:

(1) the audit methodology (audit report + compliance statements);

(2) details of the specific operational areas to audit;

(3) criteria for defining satisfactory audit results;

(4) a system for reporting and correcting findings;

(5) A continuous monitoring system;

(6) auditor qualification and authorisation; and

(7) the frequency of audits.

(b) The third country code-share operator should be audited at periods not exceeding 24 months. The beginning of the first 24-month oversight planning cycle is determined by the date of the first audit and should then determine the start and end dates of the recurrent 24-month planning cycle. The interval between two audits should not exceed 24 months.

(c) The EU operator should ensure a renewal audit of each third country code-share operator prior to the audit expiry date of the previous audit. The audit expiry date for the previous audit becomes the audit effective date for the renewal audit provided the closing meeting for the renewal audit is within 150 days prior to the audit expiry date for the previous audit. If the closing meeting for the renewal audit is more than 150 days prior to the audit expiry date from the previous audit, then the audit effective date for the renewal audit is the day of the closing meeting of the renewal audit. Renewal audits are valid for 24 consecutive months beginning with the audit effective date and ending with the audit expiry date.

(d) A code-share audit could be shared by several operators. In case of a shared audit the report should be made available for review by all duly identified sharing operators by any means.

(e) After closure of all findings identified during the audit, the EU operator should submit an audit compliance statement to the competent authority demonstrating that the third country operator meets all the applicable safety standards.

AMC2 ORO.AOC.115(b) Code share agreements

THIRD PARTY PROVIDERS

(a) The initial audit and/or the continuous monitoring may be performed by a third party provider on behalf of the EU operator when it is demonstrated that:

(1) a documented arrangement has been established with the third party provider;

(2) the audit standards applied by the third party provider addresses the scope of the regulation in sufficient detail;

(3) the third party provider uses an evaluation system, designed to assess the operational, management and control systems of the third country code-share operator;

(4) independence of the third party provider, its evaluation system as well as the impartiality of the auditors is ensured;

(5) the auditors are appropriately qualified and have sufficient knowledge, experience and training, including on-the-job training, to perform their allocated tasks;

(6) audits are performed on-site;

(7) access to the relevant data and facilities is granted to the level of detail necessary to verify compliance with the applicable requirements;

(8) access to the full audit report is granted to the EU operator;

(9) procedures have been established for monitoring continued compliance of the third country code-share operator with the applicable requirements, taking into account the timelines in AMC1 ORO.AOC.115(b)(b) and (c);

(10) procedures have been established to notify the third country code-share operator of any non-compliance with the applicable requirements, the corrective actions to be taken, the follow up of these corrective actions and closure of findings;

(b) The use of a third party provider for the initial audit or the monitoring of continuous compliance of the third country code-share operator does not exempt the EU operator from its responsibility under ORO.AOC.115.

(c) The EU operator should maintain a list of the third country code-share operators monitored by the third party provider. This list and the full audit report prepared by the third party provider should be made available to the competent authority upon request.

AMC1 ORO.AOC.130 Flight data monitoring - aeroplanes

FLIGHT DATA MONITORING (FDM) PROGRAMME

(a) The safety manager, as defined under AMC1-ORO.GEN.200(a)(1), should be responsible for the identification and assessment of issues and their transmission to the manager(s) responsible for the process(es) concerned. The latter should be responsible for taking appropriate and practicable safety action within a reasonable period of time that reflects the severity of the issue.

(b) An FDM programme should allow an operator to:

(1) identify areas of operational risk and quantify current safety margins;

(2) identify and quantify operational risks by highlighting occurrences of non-standard, unusual or unsafe circumstances;

(3) use the FDM information on the frequency of such occurrences, combined with an estimation of the level of severity, to assess the safety risks and to determine which may become unacceptable if the discovered trend continues;

(4) put in place appropriate procedures for remedial action once an unacceptable risk, either actually present or predicted by trending, has been identified; and

(5) confirm the effectiveness of any remedial action by continued monitoring.

(c) FDM analysis techniques should comprise the following:

(1) Exceedance detection: searching for deviations from aircraft flight manual limits and standard operating procedures. A set of core events should be selected to cover the main areas of interest to the operator. A sample list is provided in Appendix 1 to AMC1 ORO.AOC.130. The event detection limits should be continuously reviewed to reflect the operator's current operating procedures.

(2) All flights measurement: a system defining what is normal practice. This may be accomplished by retaining various snapshots of information from each flight.

(3) Statistics - a series of data collected to support the analysis process: this technique should include the number of flights flown per aircraft and sector details sufficient to generate rate and trend information.

(d) FDM analysis, assessment and process control tools: the effective assessment of information obtained from digital flight data should be dependent on the provision of appropriate information technology tool sets.

(e) Education and publication: sharing safety information should be a fundamental principle of aviation safety in helping to reduce accident rates. The operator should pass on the lessons learnt to all relevant personnel and, where appropriate, industry.

(f) Accident and incident data requirements specified in CAT.GEN.MPA.195 take precedence over the requirements of an FDM programme. In these cases the FDR data should be retained as part of the investigation data and may fall outside the de-identification agreements.

(g) Every crew member should be responsible to report events. Significant risk-bearing incidents detected by FDM should therefore normally be the subject of mandatory occurrence reporting by the crew. If this is not the case then they should submit a retrospective report that should be included under the normal process for reporting and analysing hazards, incidents and accidents.

(h) The data recovery strategy should ensure a sufficiently representative capture of flight information to maintain an overview of operations. Data analysis should be performed sufficiently frequently to enable action to be taken on significant safety issues.

(i) The data retention strategy should aim to provide the greatest safety benefits practicable from the available data. A full dataset should be retained until the action and review processes are complete; thereafter, a reduced dataset relating to closed issues should be maintained for longer-term trend analysis. Programme managers may wish to retain samples of de-identified full-flight data for various safety purposes (detailed analysis, training, benchmarking etc.).

(j) The data access and security policy should restrict information access to authorised persons. When data access is required for airworthiness and maintenance purposes, a procedure should be in place to prevent disclosure of crew identity.

(k) The procedure to prevent disclosure of crew identity should be written in a document, which should be signed by all parties (airline management, flight crew member representatives nominated either by the union or the flight crew themselves). This procedure should, as a minimum, define:

(1) the aim of the FDM programme;

(2) a data access and security policy that should restrict access to information to specifically authorised persons identified by their position;

(3) the method to obtain de-identified crew feedback on those occasions that require specific flight follow-up for contextual information; where such crew contact is required the authorised person(s) need not necessarily be the programme manager or safety manager, but could be a third party (broker) mutually acceptable to unions or staff and management;

(4) the data retention policy and accountability including the measures taken to ensure the security of the data;

(5) the conditions under which advisory briefing or remedial training should take place; this should always be carried out in a constructive and non-punitive manner;

(6) the conditions under which the confidentiality may be withdrawn for reasons of gross negligence or significant continuing safety concern;

(7) the participation of flight crew member representative(s) in the assessment of the data, the action and review process and the consideration of recommendations; and

(8) the policy for publishing the findings resulting from FDM.

(l) Airborne systems and equipment used to obtain FDM data should range from an already installed full quick access recorder (QAR), in a modern aircraft with digital systems, to a basic crash-protected recorder in an older or less sophisticated aircraft. The analysis potential of the reduced data set available in the latter case may reduce the safety benefits obtainable. The operator should ensure that FDM use does not adversely affect the serviceability of equipment required for accident investigation.

GM1 ORO.AOC.130 Flight data monitoring – aeroplanes

DEFINITION OF AN FDM PROGRAMME

For the purposes of this Guidance Material, an FDM programme may be defined as a proactive and non-punitive programme for gathering and analysing data recorded during routine flights to improve aviation safety.

(a) FDM analysis techniques

(1) Exceedance detection

(i) FDM programmes are used for detecting exceedances, such as deviations from flight manual limits, standard operating procedures (SOPs), or good airmanship. Typically, a set of core events establishes the main areas of interest to operators.

Examples: high lift-off rotation rate, stall warning, ground proximity warning system (GPWS) warning, flap limit speed exceedance, fast approach, high/low on glideslope, and heavy landing.

(ii) Trigger logic expressions may be simple exceedances such as redline values. The majority, however, are composites that define a certain flight mode, aircraft configuration or payload related condition. Analysis software can also assign different sets of rules dependent on airport or geography. For example, noise sensitive airports may use higher than normal glideslopes on approach paths over populated areas. In addition,

it might be valuable to define several levels of exceedance severity (such as low, medium and high).

(iii) Exceedance detection provides useful information, which can complement that provided in crew reports.

Examples: reduced flap landing, emergency descent, engine failure, rejected take-off, go-around, airborne collision avoidance system (ACAS) or GPWS warning, and system malfunctions.

(iv) The operator may also modify the standard set of core events to account for unique situations they regularly experience, or the SOPs they use.

Example: to avoid nuisance exceedance reports from a non-standard instrument departure.

(v) The operator may also define new events to address specific problem areas.

Example: restrictions on the use of certain flap settings to increase component life.

(2) All-flights measurements

FDM data are retained from all flights, not just the ones producing significant events. A selection of parameters is retained that is sufficient to characterise each flight and allow a comparative analysis of a wide range of operational variability. Emerging trends and tendencies may be identified and monitored before the trigger levels associated with exceedances are reached.

Examples of parameters monitored: take-off weight, flap setting, temperature, rotation and lift-off speeds versus scheduled speeds, maximum pitch rate and attitude during rotation, and gear retraction speeds, heights and times.

Examples of comparative analyses: pitch rates from high versus low take-off weights, good versus bad weather approaches, and touchdowns on short versus long runways.

(3) Statistics

Series of data are collected to support the analysis process: these usually include the numbers of flights flown per aircraft and sector details sufficient to generate rate and trend information.

(4) Investigation of incidents flight data

Recorded flight data provide valuable information for follow-up to incidents and other technical reports. They are useful in adding to the impressions and information recalled by the flight crew. They also provide an accurate indication of system status and performance, which may help in determining cause and effect relationships.

Examples of incidents where recorded data could be useful:

- high cockpit workload conditions as corroborated by such indicators as late descent, late localizer and/or glideslope interception, late landing configuration;
- unstabilised and rushed approaches, glide path excursions, etc.;
- exceedances of prescribed operating limitations (such as flap limit speeds, engine overtemperatures); and

– wake vortex encounters, turbulence encounters or other vertical accelerations.

It should be noted that recorded flight data have limitations, e.g. not all the information displayed to the flight crew is recorded, the source of recorded data may be different from the source used by a flight instrument, the sampling rate or the recording resolution of a parameter may be insufficient to capture accurate information.

(5) Continuing airworthiness

Data of all-flight measurements and exceedance detections can be utilized to assist the continuing airworthiness function. For example, engine-monitoring programmes look at measures of engine performance to determine operating efficiency and predict impending failures.

Examples of continuing airworthiness uses: engine thrust level and airframe drag measurements, avionics and other system performance monitoring, flying control performance, and brake and landing gear usage.

(b) FDM equipment

(1) General

FDM programmes generally involve systems that capture flight data, transform the data into an appropriate format for analysis, and generate reports and visualisation to assist in assessing the data. Typically, the following equipment capabilities are needed for effective FDM programmes:

(i) an on-board device to capture and record data on a wide range of in-flight parameters;

(ii) a means to transfer the data recorded on board the aircraft to a ground-based processing station.

(iii) a ground-based computer system to analyse the data, identify deviations from expected performance, generate reports to assist in interpreting the read-outs, etc.; and

(iv) optional software for a flight animation capability to integrate all data, presenting them as a simulation of in-flight conditions, thereby facilitating visualisation of actual events.

(2) Airborne equipment

(i) The flight parameters and recording capacity required for flight data recorders (FDR) to support accident investigations may be insufficient to support an effective FDM programme. Other technical solutions are available, including the following:

(A) Quick access recorders (QARs). QARs are installed in the aircraft and record flight data onto a low-cost removable medium.

(B) Some systems automatically download the recorded information via secure wireless systems when the aircraft is in the vicinity of the gate. There are also systems that enable the recorded data to be analysed on board while the aircraft is airborne.

(ii) Fleet composition, route structure and cost considerations will determine the most cost-effective method of removing the data from the aircraft.

(3) Ground replay and analysis equipment

(i) Data are downloaded from the aircraft recording device into a ground-based processing station, where the data are held securely to protect this sensitive information.

(ii) FDM programmes generate large amounts of data requiring specialised analysis software.

(iii) The analysis software checks the downloaded flight data for abnormalities.

(iv) The analysis software may include: annotated data trace displays, engineering unit listings, visualisation for the most significant incidents, access to interpretative material, links to other safety information and statistical presentations.

(c) FDM in practice

(1) FDM process

Typically, operators follow a closed-loop process in applying an FDM programme, for example:

(i) Establish a baseline: initially, operators establish a baseline of operational parameters against which changes can be detected and measured.

Examples: rate of unstable approaches or hard landings.

(ii) Highlight unusual or unsafe circumstances: the user determines when non-standard, unusual or basically unsafe circumstances occur; by comparing them to the baseline margins of safety, the changes can be quantified.

Example: increases in unstable approaches (or other unsafe events) at particular locations.

(iii) Identify unsafe trends: based on the frequency and severity of occurrence, trends are identified. Combined with an estimation of the level of severity, the risks are assessed to determine which may become unacceptable if the trend continues.

Example: a new procedure has resulted in high rates of descent that are nearly triggering GPWS warnings.

(iv) Mitigate risks: once an unacceptable risk has been identified, appropriate risk mitigation actions are decided on and implemented.

Example: having found high rates of descent, the SOPs are changed to improve aircraft control for optimum/maximum rates of descent.

(v) Monitor effectiveness: once a remedial action has been put in place, its effectiveness is monitored, confirming that it has reduced the identified risk and that the risk has not been transferred elsewhere.

Example: confirm that other safety measures at the aerodrome with high rates of descent do not change for the worse after changes in approach procedures.

(2) Analysis and follow-up

(i) FDM data are typically compiled every month or at shorter intervals. The data are then reviewed to identify specific exceedances and emerging undesirable trends and to disseminate the information to flight crews.

(ii) If deficiencies in pilot handling technique are evident, the information is usually de-identified in order to protect the identity of the flight crew. The information on specific exceedances is passed to a person (safety manager, agreed flight crew representative, honest broker) assigned by the operator for confidential discussion with the pilot. The person assigned by the operator provides the necessary contact with the pilot in order to clarify the circumstances, obtain feedback and give advice and recommendations for appropriate action. Such appropriate action could include re-training for the pilot (carried out in a constructive and non-punitive way), revisions to manuals, changes to ATC and airport operating procedures.

(iii) Follow-up monitoring enables the effectiveness of any corrective actions to be assessed. Flight crew feedback is essential for the identification and resolution of safety problems and could be collected through interviews, for example by asking the following:

(A) Are the desired results being achieved soon enough?

(B) Have the problems really been corrected, or just relocated to another part of the system?

(C) Have new problems been introduced?

(iv) All events are usually archived in a database. The database is used to sort, validate and display the data in easy-to-understand management reports. Over time, this archived data can provide a picture of emerging trends and hazards that would otherwise go unnoticed.

(v) Lessons learned from the FDM programme may warrant inclusion in the operator's safety promotion programmes. Safety promotion media may include newsletters, flight safety magazines, highlighting examples in training and simulator exercises, periodic reports to industry and the competent authority. Care is required, however, to ensure that any information acquired through FDM is de-identified before using it in any training or promotional initiative.

(vi) All successes and failures are recorded, comparing planned programme objectives with expected results. This provides a basis for review of the FDM programme and the foundation for future programme development.

(d) Preconditions for an effective FDM programme

(1) Protection of FDM data

The integrity of FDM programmes rests upon protection of the FDM data. Any disclosure for purposes other than safety management can compromise the voluntary provision of safety data, thereby compromising flight safety.

(2) Essential trust

The trust established between management and flight crew is the foundation for a successful FDM programme. This trust can be facilitated by:

(i) early participation of the flight crew representatives in the design, implementation and operation of the FDM programme;

(ii) a formal agreement between management and flight crew, identifying the procedures for the use and protection of data; and

(iii) data security, optimised by:

(A) adhering to the agreement;

(B) the operator strictly limiting data access to selected individuals;

(C) maintaining tight control to ensure that identifying data is kept securely; and

(D) ensuring that operational problems are promptly addressed by management.

(3) Requisite safety culture

Indicators of an effective safety culture typically include:

(i) top management's demonstrated commitment to promoting a proactive safety culture;

(ii) a non-punitive operator policy that cover the FDM programme;

(iii) FDM programme management by dedicated staff under the authority of the safety manager, with a high degree of specialisation and logistical support;

(iv) involvement of persons with appropriate expertise when identifying and assessing the risks (for example, pilots experienced on the aircraft type being analysed);

(v) monitoring fleet trends aggregated from numerous operations, not focusing only on specific events;

(vi) a well-structured system to protect the confidentiality of the data; and

(vii) an efficient communication system for disseminating hazard information (and subsequent risk assessments) internally and to other organisations to permit timely safety action.

(e) Implementing an FDM programme

(1) General considerations

(i) Typically, the following steps are necessary to implement an FDM programme:

(A) implementation of a formal agreement between management and flight crew;

(B) establishment and verification of operational and security procedures;

(C) installation of equipment;

(D) selection and training of dedicated and experienced staff to operate the programme; and

(E) commencement of data analysis and validation.

(ii) An operator with no FDM experience may need a year to achieve an operational FDM programme. Another year may be necessary before any

safety and cost benefits appear. Improvements in the analysis software, or the use of outside specialist service providers, may shorten these time frames.

(2) Aims and objectives of an FDM programme

(i) As with any project there is a need to define the direction and objectives of the work. A phased approach is recommended so that the foundations are in place for possible subsequent expansion into other areas. Using a building block approach will allow expansion, diversification and evolution through experience.

Example: with a modular system, begin by looking at basic safety-related issues only. Add engine health monitoring, etc. in the second phase. Ensure compatibility with other systems.

(ii) A staged set of objectives starting from the first week's replay and moving through early production reports into regular routine analysis will contribute to a sense of achievement as milestones are met.

Examples of short-term, medium-term and long-term goals:

(A) Short-term goals:

- establish data download procedures, test replay software and identify aircraft defects;
- validate and investigate exceedance data; and
- establish a user-acceptable routine report format to highlight individual exceedances and facilitate the acquisition of relevant statistics.

(B) Medium-term goals:

- Produce an annual report — include key performance indicators;
- add other modules to the analysis (e.g. continuing airworthiness); and
- plan for the next fleet to be added to programme.

(C) Long-term goals:

- Network FDM information across all of the operator's safety information systems;
- ensure FDM provision for any proposed alternative training and qualification programme (ATQP); and
- use utilisation and condition monitoring to reduce spares holdings.

(iii) Initially, focusing on a few known areas of interest will help prove the system's effectiveness. In contrast to an undisciplined 'scatter-gun' approach, a focused approach is more likely to gain early success.

Examples: rushed approaches, or rough runways at particular aerodromes. Analysis of such known problem areas may generate useful information for the analysis of other areas.

(3) The FDM team

(i) Experience has shown that the 'team' necessary to run an FDM programme could vary in size from one person for a small fleet, to a dedicated section for large fleets. The descriptions below identify various functions to be fulfilled, not all of which need a dedicated position.

(A) Team leader: it is essential that the team leader earns the trust and full support of both management and flight crew. The team leader acts independently of others in line management to make recommendations that will be seen by all to have a high level of integrity and impartiality. The individual requires good analytical, presentation and management skills.

(B) Flight operations interpreter: this person is usually a current pilot (or perhaps a recently retired senior captain or instructor), who knows the operator's route network and aircraft. This team member's in-depth knowledge of SOPs, aircraft handling characteristics, aerodromes and routes is used to place the FDM data in a credible context.

(C) Technical interpreter: this person interprets FDM data with respect to the technical aspects of the aircraft operation and is familiar with the power plant, structures and systems departments' requirements for information and any other engineering monitoring programmes in use by the operator.

(D) Gate-keeper: this person provides the link between the fleet or training managers and flight crew involved in events highlighted by FDM. The position requires good people skills and a positive attitude towards safety education. The person is typically a representative of the flight crew association or an 'honest broker' and is the only person permitted to connect the identifying data with the event. It is essential that this person earns the trust of both management and flight crew.

(E) Engineering technical support: this person is usually an avionics specialist, involved in the supervision of mandatory serviceability requirements for FDR systems. This team member is knowledgeable about FDM and the associated systems needed to run the programme.

(F) Replay operative and administrator: this person is responsible for the day-to-day running of the system, producing reports and analysis.

(ii) All FDM team members need appropriate training or experience for their respective area of data analysis. Each team member is allocated a realistic amount of time to regularly spend on FDM tasks.

Appendix 1 to AMC1 ORO.AOC.130 Flight data monitoring - aeroplanes

TABLE OF FDM EVENTS

The following table provides examples of FDM events that may be further developed using operator and aeroplane specific limits. The table is considered illustrative and not exhaustive.

Event Group	**Description**
Rejected take-off	High speed rejected take-off
Take-off pitch	Pitch rate high on take-off
	Pitch attitude high during take-off
Unstick speeds	Unstick speed high
	Unstick speed low
Height loss in climb-out	Initial climb height loss 20 ft above ground level (AGL) to 400 ft above aerodrome level (AAL)
	Initial climb height loss 400 ft to 1 500 ft AAL
Slow climb-out	Excessive time to 1 000 ft AAL after take-off
Climb-out speeds	Climb-out speed high below 400 ft AAL
	Climb-out speed high 400 ft AAL to 1 000 ft AAL
	Climb-out speed low 35 ft AGL to 400 ft AAL
	Climb-out speed low 400 ft AAL to 1 500 ft AAL
High rate of descent	High rate of descent below 2 000 ft AGL
Missed approach	Missed approach below 1 000 ft AAL
	Missed approach above 1 000 ft AAL
Low approach	Low on approach
Glideslope	Deviation under glideslope
	Deviation above glideslope (below 600 ft AGL)
Approach power	Low power on approach
Approach speeds	Approach speed high within 90 seconds of touchdown
	Approach speed high below 500 ft AAL
	Approach speed high below 50 ft AGL
	Approach speed low within 2 minutes of touchdown
Landing flap	Late land flap (not in position below 500 ft AAL)
	Reduced flap landing
	Flap load relief system operation
Landing pitch	Pitch attitude high on landing

Event Group	Description
	Pitch attitude low on landing
Bank angles	Excessive bank below 100 ft AGL
	Excessive bank 100 ft AGL to 500 ft AAL
	Excessive bank above 500 ft AGL
	Excessive bank near ground (below 20 ft AGL)
Normal acceleration	High normal acceleration on ground
	High normal acceleration in flight flaps up (+/- increment)
	High normal acceleration in flight flaps down(+/- increment)
	High normal acceleration at landing
Abnormal configuration	Take-off configuration warning
	Early configuration change after take-off (flap)
	Speed brake with flap
	Speed brake on approach below 800 ft AAL
	Speed brake not armed below 800 ft AAL
Ground proximity warning	Ground proximity warning system (GPWS) operation - hard warning
	GPWS operation - soft warning
	GPWS operation – windshear warning
	GPWS operation - false warning
Airborne collision avoidance system (ACAS II) warning	ACAS operation – Resolution Advisory
Margin to stall/buffet	Stick shake
	False stick shake
	Reduced lift margin except near ground
	Reduced lift margin at take-off
	Low buffet margin (above 20 000 ft)
Aircraft flight manual limitations	Maximum operating speed limit (V_{MO}) exceedance
	Maximum operating speed limit (M_{MO}) exceedance

Event Group	Description
	Flap placard speed exceedance
	Gear down speed exceedance
	Gear selection up/down speed exceedance
	Flap/slat altitude exceedance
	Maximum operating altitude exceedance

GM2 ORO.AOC.130 Flight data monitoring - aeroplanes

FLIGHT DATA MONITORING

Additional guidance material for the establishment of flight data monitoring can be found in UK Civil Aviation Authority CAP 739 (Flight Data Monitoring).

AMC1 ORO.AOC.135(a) Personnel requirements

NOMINATED PERSONS

(a) The person may hold more than one of the nominated posts if such an arrangement is considered suitable and properly matched to the scale and scope of the operation.

(b) A description of the functions and the responsibilities of the nominated persons, including their names, should be contained in the operations manual.

(c) The holder of an AOC should make arrangements to ensure continuity of supervision in the absence of nominated persons.

(d) The person nominated by the holder of an AOC should not be nominated by another holder of an AOC, unless agreed with the competent authorities concerned.

(e) Persons nominated should be contracted to work sufficient hours to fulfil the management functions associated with the scale and scope of the operation.

AMC2 ORO.AOC.135(a) Personnel requirements

COMBINATION OF NOMINATED PERSONS RESPONSIBILITIES

(a) The acceptability of a single person holding several posts, possibly in combination with being the accountable manager, should depend upon the nature and scale of the operation. The two main areas of concern should be competence and an individual's capacity to meet his/her responsibilities.

(b) As regards competence in different areas of responsibility, there should not be any difference from the requirements applicable to persons holding only one post.

(c) The capacity of an individual to meet his/her responsibilities should primarily be dependent upon the scale of the operation. However the complexity of the organisation or of the operation may prevent, or limit, combinations of posts which may be acceptable in other circumstances.

(d) In most circumstances, the responsibilities of a nominated person should rest with a single individual. However, in the area of ground operations, it may be acceptable for responsibilities to be split, provided that the responsibilities of each individual concerned are clearly defined.

GM1 ORO.AOC.135(a) Personnel requirements

NOMINATED PERSONS

The smallest organisation that can be considered is the one-man organisation where all of the nominated posts are filled by the accountable manager, and audits are conducted by an independent person.

GM2 ORO.AOC.135(a) Personnel requirements

COMPETENCE OF NOMINATED PERSONS

(a) Nominated persons in accordance with ORO.AOC.135 should be expected to possess the experience and licensing provisions that are listed in (b) to (f). Exceptionally, in particular cases, the competent authority may accept a nomination that does not meet these provisions in full. In that circumstance, the nominee should have comparable experience and also the ability to perform effectively the functions associated with the post and with the scale of the operation.

(b) Nominated persons should have:

(1) practical experience and expertise in the application of aviation safety standards and safe operating practices;

(2) comprehensive knowledge of:

(i) the applicable EU safety regulations and any associated requirements and procedures;

(ii) the AOC holder's operations specifications; and

(iii) the need for, and content of, the relevant parts of the AOC holder's operations manual;

(3) familiarity with management systems preferably in the area of aviation;

(4) appropriate management experience, preferably in a comparable organisation; and

(5) 5 years of relevant work experience of which at least 2 years should be from the aeronautical industry in an appropriate position.

(c) Flight operations. The nominated person should hold or have held a valid flight crew licence and the associated ratings appropriate to a type of operation conducted under the AOC. In case the nominated person’s licence and ratings are not current, his/her deputy should hold a valid flight crew licence and the associated ratings.

(d) Crew training. The nominated person or his/her deputy should be a current type rating instructor on a type/class operated under the AOC. The nominated person should have a thorough knowledge of the AOC holder’s crew training concept for flight, cabin and when relevant other crew.

(e) Ground operations. The nominated person should have a thorough knowledge of the AOC holder’s ground operations concept.

(f) Continuing airworthiness. The nominated person should have the relevant knowledge and appropriate experience requirements related to aircraft continuing airworthiness as detailed in Part-M.