STATE OF LIBYA
GOVERNMENT OF LIBYA
MINISTRY OF TRANSPORT
CIVIL AVIATION AUTHORITY

دولة ليبيا
الحكومة الليبية
وزارة المواصلات
مصلحة الطيران المدني

LIBYA CIVIL AVIATION REGULATIONS - AIRCREW

AMC (**A**cceptable **M**eans of **C**ompliance) and **GM** (**G**uidance **M**aterial)

Part ORA
ORGANISATION REQUIREMENTS FOR AIRCREW

Amendment 2 – February 2020

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INTRODUCTION

AMC & GM to LYCAR – Aircrew Part ORA - Amendment 2

1. The LyCAA has adopted associated guidance material to Part ORA of EASA Aircrew Regulations. This document is based on EASA Guidance Materials (GMs).
2. This is Amendment 2 of AMC & GM to LYCAR – Aircrew Part ORA, it includes all relevant EASA amendments to date.
3. Unless specifically stated otherwise, clarification will be based on this material or other EASA documentation, therefore, reference to EASA in this document may still be used for clarification and guidance.
4. The information contained herein is subject to constant review in the light of changing regulations and requirements. No subscriber or other reader should act on the basis of any such information without also referring to the applicable laws and regulations and/or without taking appropriate professional advice when/as indicated/required. Although, every effort has been made to ensure accuracy, the Libyan Civil Aviation Authority, shall not be held responsible for loss or damage caused by errors, omissions, misprints or misinterpretation of the contents hereof.
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Signed on 9th February 2020, by:

State of Libya / Ministry of Transport
Civil Aviation Authority
Director General

Capt. Nasereddin Shaebelain
Director General

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Amendment 2 Changes highlights

1.	GM1 ORA.GEN.130(a)	amended
2.	GM1 ORA.GEN.130(c)	Added
3.	AMC1 ORA.ATO.305(b)	Added
4.	AMC1 ORA.ATO.230(a)	amended
5.	AMC2 to ORA.ATO.230(a)	Added
6.	AMC3 to ORA.ATO.230(a)	Added
7.	AMC4 to ORA.ATO.230(a)	Added
8.	GM1 ORA.ATO.230(a)	Added
9.	GM2 ORA.ATO.230(a)	Added
10.	GM3 ORA.ATO.230(a)	Added
11.	GM4 ORA.ATO.230(a)	Added
12.	GM5 ORA.ATO.230(a)	Added
13.	AMC1 ORA.ATO.300	amended
14.	AMC2 ORA.ATO.125	amended
15.	GM1 ORA.ATO.125	Added

SUBPART GEN – GENERAL REQUIREMENTS

SECTION I - GENERAL

GM1 ORA.GEN.005

The following provides a list of acronyms used throughout this Part:

(A) aeroplane

(H) helicopter

ACAS airborne collision avoidance system

AD airworthiness directive

AIS aeronautical information service

AM accountable manager

AMC Acceptable Means of Compliance

ATA Air Transport Association

ATC air traffic control

ATO approved training organisation

ATPL airline transport pilot licence

BITD basic instrument training device

BPL balloon pilot licence

CBT computer-based training

CFI chief flying instructor

CM compliance monitoring

CMP compliance monitoring programme

CMS compliance monitoring system

COP code of practice

CRM crew resource management

CS-FSTD(A) Certification Specifications for aeroplane flight simulation training devices

CS-FSTD(H) Certification Specifications for helicopter flight simulation training devices

CTKI chief theoretical knowledge instructor

DG dangerous goods

EC European Community

ERP emergency response plan

ETOPS extended range operations with twin-engined aeroplanes

FATO final approach and take-off area

FFS full flight simulator

FMGC flight management and guidance computer

FMS flight management system

FNPT flight navigation and procedures trainer FSTD flight simulation training device

FTD flight training device

FTE full-time equivalent

FTI flight test instructor
GM Guidance Material
GMP general medical practitioner

HEMS helicopter emergency medical service
HHO helicopter hoist operation
HT head of training
IFR instrument flight rules
IMC instrument meteorological conditions
IOS instructor operation station
IR Implementing Rule
LAPL light aircraft pilot licence
LIFUS line flying under supervision
LVO low visibility operation
MCC multi-crew cooperation
MMEL master minimum equipment list MPA multi-pilot aeroplane
MPL multi-crew pilot licence
NVIS night vision imaging system
OPC operator proficiency check
ORA organisation requirements for aircrew
OSD operational suitability data
OTD other training device
PBN performance-based navigation
PF pilot flying
PIC pilot-in-command
PPL private pilot licence
QTG qualification test guide
SMM safety management manual
SOP standard operating procedure
SPL sailplane pilot licence
TAWS terrain awareness warning system
TRE type rating examiner
TRI type rating instructor
VDR validation data roadmap
ZFTT zero flight-time training

AMC1 ORA.GEN.120(a) Means of compliance

DEMONSTRATION OF COMPLIANCE

In order to demonstrate that the Implementing Rules are met, a risk assessment should be completed and documented. The result of this risk assessment should demonstrate that an equivalent level of safety to that established by the Acceptable Means of Compliance (AMC) adopted by the LyCAA is reached.

AMC1 ORA.GEN.125 Terms of approval and privileges of an organisation

MANAGEMENT SYSTEM DOCUMENTATION

The management system documentation should contain the privileges and detailed scope of activities for which the organisation is certified, as relevant to the applicable requirements. The scope of activities defined in the management system documentation should be consistent with the terms of approval.

AMC1 ORA.GEN.130 Changes to organisations

APPLICATION TIME FRAMES

(a) The application for the amendment of an organisation certificate should be submitted at least 30 days before the date of the intended changes.

(b) In the case of a planned change of a nominated person, the organisation should inform the LyCAA at least 10 days before the date of the proposed change.

(c) Unforeseen changes should be notified at the earliest opportunity, in order to enable the LyCAA to determine continued compliance with the applicable requirements and to amend, if necessary, the organisation certificate and related terms of approval.

GM1 ORA.GEN.130(a) Changes to organisations

GENERAL

(a) Typical examples of changes requiring prior approval which may affect the certificate or the terms of approval are listed below:

(1) the name of the organisation;

(2) the organisation's principal place of business;

(3) the organisation's scope of activities;

(4) additional locations of the organisation;

(5) the accountable manager;

(6) any of the persons referred to in ORA.GEN.210 (a) and (b);

(7) the organisation's documentation as required by this Part, safety policy and procedures;

(8) the facilities.

(d) Prior approval by the LyCAA is required for any changes to the organisation's procedure describing how changes not requiring prior approval will be managed and notified to the LyCAA.

(e) Changes requiring prior approval may only be implemented upon receipt of formal approval by the LyCAA.

GM2 ORA.GEN.130(a) Changes to organisations

CHANGE OF NAME OF THE ORGANISATION

A change of name requires the organisation to submit a new application as a matter of urgency.

Where this is the only change to report, the new application can be accompanied by a copy of the documentation previously submitted to the LyCAA under the previous name, as a means of demonstrating how the organisation complies with the applicable requirements.

GM1 ORA.GEN.130(c) Changes to organisations

GENERAL

Typical examples of changes not requiring prior approval are to the following items:

(a) medical equipment (e.g. electrocardiograph (ECG), ophthalmoscope);

(b) flight simulation training device (FSTD) operator's technical personnel;

(c) change in schedule of preventive maintenance; and

(d) list of instructors.

It is recommended that all information on changes not requiring prior approval be included as annexes to the approved training organisation (ATO)'s, FSTD operator's, as well as aeromedical centre's documentation.

AMC1 ORA.GEN.150(b) Findings

GENERAL

The corrective action plan defined by the organisation should address the effects of the non-conformity, as well as its root-cause.

GM1 ORA.GEN.150 Findings

GENERAL

(a) Corrective action is the action to eliminate or mitigate the root cause(s) and prevent recurrence of an existing detected non-compliance or other undesirable condition or situation.

(b) Proper determination of the root cause is crucial for defining effective corrective actions.

AMC1 ORA.GEN.160 Occurrence reporting

GENERAL

(a) The organisation should report all occurrences defined in LYCAA-AC-GEN-003, and as required by the applicable LYCARs.

(b) In addition to the reports required by LYCAA-AC-GEN-003, the organisation should report volcanic ash clouds encountered during flight.

SECTION II –MANAGEMENT

AMC1 ORA.GEN.- 200(a)(1);(2);(3);(5) Management system

NON-COMPLEX ORGANISATIONS - GENERAL

(a) Safety risk management may be performed using hazard checklists or similar risk management tools or processes, which are integrated into the activities of the organisation.

(b) The organisation should manage safety risks related to a change. The management of change should be a documented process to identify external and internal change that may have an adverse effect on safety. It should make use of the organisation's existing hazard identification, risk assessment and mitigation processes.

(c) The organisation should identify a person who fulfils the role of safety manager and who is responsible for coordinating the safety management system. This person may be the accountable manager or a person with an operational role in the organisation.

(d) Within the organisation, responsibilities should be identified for hazard identification, risk assessment and mitigation.

(e) The safety policy should include a commitment to improve towards the highest safety standards, comply with all applicable legal requirements, meet all applicable standards, consider best practices and provide appropriate resources.

(f) The organisation should, in cooperation with other stakeholders, develop, coordinate and maintain an emergency response plan (ERP) that ensures orderly and safe transition from normal to emergency operations and return to normal operations. The ERP should provide the actions to be taken by the organisation or specified individuals in an emergency and reflect the size, nature and complexity of the activities performed by the organisation.

AMC1 ORA.GEN.200(a)(1) Management system

COMPLEX ORGANISATIONS - ORGANISATION AND ACCOUNTABILITIES

The management system of an organisation should encompass safety by including a safety manager and a safety review board in the organisational structure.

(a) Safety manager

(1) The safety manager should act as the focal point and be responsible for the development, administration and maintenance of an effective safety management system.

(2) The functions of the safety manager should be to:

(i) facilitate hazard identification, risk analysis and management;

(ii) monitor the implementation of actions taken to mitigate risks, as listed in the safety action plan;

(iii) provide periodic reports on safety performance;

(iv) ensure maintenance of safety management documentation;

(v) ensure that there is safety management training available and that it meets acceptable standards;

(vi) provide advice on safety matters; and

(vii) ensure initiation and follow-up of internal occurrence/accident investigations.

(f) Safety review board

(3) The Safety review board should be a high level committee that considers matters of strategic safety in support of the accountable manager's safety accountability.

(4) The board should be chaired by the accountable manager and be composed of heads of functional areas.

(5) The safety review board should monitor:

(i) safety performance against the safety policy and objectives;

(ii) that any safety action is taken in a timely manner; and

(iii) the effectiveness of the organisation's safety management processes.

(g) The safety review board should ensure that appropriate resources are allocated to achieve the established safety performance.

(h) The safety manager or any other relevant person may attend, as appropriate, safety review board meetings. He/she may communicate to the accountable manager all information, as necessary, to allow decision making based on safety data.

GM1 ORA.GEN.200(a)(1) Management system

SAFETY MANAGER

(a) Depending on the size of the organisation and the nature and complexity of its activities, the safety manager may be assisted by additional safety personnel for the performance of all safety management related tasks.

(b) Regardless of the organisational set-up it is important that the safety manager remains the unique focal point as regards the development, administration and maintenance of the organisation's safety management system.

GM2 ORA.GEN.200(a)(1) Management system

COMPLEX ORGANISATIONS - SAFETY ACTION GROUP

(a) A safety action group may be established as a standing group or as an ad-hoc group to assist or act on behalf of the safety review board.

(b) More than one safety action group may be established depending on the scope of the task and specific expertise required.

(c) The safety action group should report to and take strategic direction from the safety review board and should be comprised of managers, supervisors and personnel from operational areas.

(d) The safety action group should:

(1) monitor operational safety;

(2) resolve identified risks;

(3) assess the impact on safety of operational changes; and

(4) ensure that safety actions are implemented within agreed timescales.

(i) The safety action group should review the effectiveness of previous safety recommendations and safety promotion.

AMC1 ORA.GEN.200(a)(2) Management system

COMPLEX ORGANISATIONS - SAFETY POLICY

(a) The safety policy should:

(1) be endorsed by the accountable manager;

(2) reflect organisational commitments regarding safety and its proactive and systematic management;

(3) be communicated, with visible endorsement, throughout the organisation; and

(4) include safety reporting principles.

(j) The safety policy should include a commitment:

(5) to improve towards the highest safety standards;

(6) to comply with all applicable legislation, meet all applicable standards and consider best practices;

(7) to provide appropriate resources;

(8) to enforce safety as one primary responsibility of all managers; and

(9) not to blame someone for reporting something which would not have been otherwise detected.

(k) Senior management should:

(10) continually promote the safety policy to all personnel and demonstrate their commitment to it;

(11) provide necessary human and financial resources for its implementation; and

(12) establish safety objectives and performance standards.

GM1 ORA.GEN.200(a)(2) Management system

SAFETY POLICY

The safety policy is the means whereby the organisation states its intention to maintain and, where practicable, improve safety levels in all its activities and to minimise its contribution to the risk of an aircraft accident as far as is reasonably practicable.

The safety policy should state that the purpose of safety reporting and internal investigations is to improve safety, not to apportion blame to individuals.

AMC1 ORA.GEN.200(a)(3) Management system

COMPLEX ORGANISATIONS - SAFETY RISK MANAGEMENT

(a) Hazard identification processes

(1) Reactive and proactive schemes for hazard identification should be the formal means of collecting, recording, analysing, acting on and generating feedback about hazards and the associated risks that affect the safety of the operational activities of the organisation.

(2) All reporting systems, including confidential reporting schemes, should include an effective feedback process.

(l) Risk assessment and mitigation processes

(3) A formal risk management process should be developed and maintained that ensures analysis (in terms of likelihood and severity of occurrence), assessment (in terms of tolerability) and control (in terms of mitigation) of risks to an acceptable level.

(4) The levels of management who have the authority to make decisions regarding the tolerability of safety risks, in accordance with (b)(1), should be specified.

(m) Internal safety investigation

(5) The scope of internal safety investigations should extend beyond the scope of occurrences required to be reported to the LyCAA.

(n) Safety performance monitoring and measurement

(6) Safety performance monitoring and measurement should be the process by which the safety performance of the organisation is verified in comparison to the safety policy and objectives.

(7) This process should include:

(i) safety reporting;

(ii) safety studies, that is, rather large analyses encompassing broad safety concerns;

(iii) safety reviews including trends reviews, which would be conducted during introduction and deployment of new technologies, change or implementation of procedures, or in situations of structural change in operations;

(iv) safety audits focussing on the integrity of the organisation's management system, and periodically assessing the status of safety risk controls; and

(v) safety surveys, examining particular elements or procedures of a specific operation, such as problem areas or bottlenecks in daily operations, perceptions and opinions of operational personnel and areas of dissent or confusion.

(o) The management of change

The organisation should manage safety risks related to a change. The management of change should be a documented process to identify external and internal change that may have an adverse effect on safety. It should make use of the organisation's existing hazard identification, risk assessment and mitigation processes.

(p) Continuous improvement

The organisation should continuously seek to improve its safety performance. Continuous improvement should be achieved through:

(8) proactive and reactive evaluations of facilities, equipment, documentation and procedures through safety audits and surveys;

(9) proactive evaluation of individuals' performance to verify the fulfilment of their safety responsibilities; and

(10) reactive evaluations in order to verify the effectiveness of the system for control and mitigation of risk.

(q) The emergency response plan (ERP)

(11) An ERP should be established that provides the actions to be taken by the organisation or specified individuals in an emergency. The ERP should reflect the size, nature and complexity of the activities performed by the organisation.

(12) The ERP should ensure:

(i) an orderly and safe transition from normal to emergency operations;

(ii) safe continuation of operations or return to normal operations as soon as practicable; and

(iii) coordination with the emergency response plans of other organisations, where appropriate.

GM1 ORA.GEN.200(a)(3) Management system

INTERNAL OCCURRENCE REPORTING SCHEME

(a) The overall purpose of the scheme is to use reported information to improve the level of safety performance of the organisation and not to attribute blame.

(r) The objectives of the scheme are to:

(1) enable an assessment to be made of the safety implications of each relevant incident and accident, including previous similar occurrences, so that any necessary action can be initiated; and

(2) ensure that knowledge of relevant incidents and accidents is disseminated, so that other persons and organisations may learn from them.

(s) The scheme is an essential part of the overall monitoring function and it is complementary to the normal day-to-day procedures and 'control' systems and is not intended to duplicate or supersede any of them. The scheme is a tool to identify those instances where routine procedures have failed.

(t) All occurrence reports judged reportable by the person submitting the report should be retained as the significance of such reports may only become obvious at a later date.

GM3 ORA.GEN.200(a)(3) Management system

APPROVED TRAINING ORGANISATIONS - RISK MANAGEMENT OF FLIGHT OPERATIONS WITH KNOWN OR FORECAST VOLCANIC ASH CONTAMINATION

(a) Responsibilities

The ATO is responsible for the safety of its operations, including within an area with known or forecast volcanic ash contamination.

The ATO should complete this assessment of safety risks related to known or forecast volcanic ash contamination as part of its management system before initiating operations into airspace forecast to be or aerodromes/operating sites known to be contaminated with volcanic ash.

This process is intended to ensure the ATO takes into account the likely accuracy and quality of the information sources it uses in its management system and to demonstrate its own competence and capability to interpret data from different sources in order to achieve the necessary level of data integrity reliably and correctly resolve any conflicts among data sources that may arise.

In order to decide whether or not to operate into airspace forecast to be or aerodromes/operating sites known to be contaminated with volcanic ash, the ATO should make use of the safety risk assessment within its management system as required by ORA.GEN.200.

The ATO's safety risk assessment should take into account all relevant data including data from the type certificate holders (TCHs) regarding the susceptibility of the aircraft they operate to volcanic cloud-related airworthiness effects, the nature and severity of these effects and the related pre-flight, in-flight and post- flight precautions to be observed by the ATO.

The ATO should ensure that personnel required to be familiar with the details of the safety risk assessments receives all relevant information (both pre-flight and in- flight) in order to be in a position to apply appropriate mitigation measures as specified by the safety risk assessments.

(u) Procedures

The ATO should have documented procedures for the management of operations into airspace forecast to be or aerodromes/operating sites known to be contaminated with volcanic ash.

These procedures should ensure that, at all times, flight operations remain within the accepted safety boundaries as established through the management system allowing for any variations in information sources, equipment, operational experience or organisation. Procedures should include those for flight crew and any other relevant personnel such that they are in a position to evaluate correctly the risk of flights into airspace forecast to be contaminated by volcanic ash and to plan accordingly.

Continuing airworthiness personnel should be provided with procedures allowing them to correctly assess the need for and to execute relevant maintenance or continuing airworthiness interventions.

The ATO should retain sufficient qualified and competent staff to generate well supported operational risk management decisions and ensure that its staff are appropriately trained and current. It is recommended that the ATO make the necessary arrangements for its relevant staff to take up opportunities to be involved in volcanic ash exercises conducted in their areas of operation.

(v) Volcanic activity in formation and the ATO's potential response

Before and during operations, information valuable to the ATO is generated by various volcano agencies worldwide. The ATO's risk assessment and mitigating actions need to take account of and respond appropriately to the information likely to be available during each phase of the eruptive sequence from pre-eruption through to end of eruptive activity. It is nevertheless noted that eruptions rarely follow a deterministic pattern of behaviour. A typical ATO's response may consist of the following:

(1) Pre-eruption

The ATO should have in place a robust mechanism for ensuring that it is constantly vigilant for any alerts of pre-eruption volcanic activity relevant to its operations. The staff involved need to understand the threat to safe operations that such alerts represent.

An ATO whose areas of activity include large, active volcanic areas for which immediate International Airways Volcano Watch (IAVW) alerts may not be available, should define its strategy for capturing information about increased volcanic activity before pre-eruption alerts are generated. For example, an ATO may combine elevated activity information with information concerning the profile and history of the volcano to determine an operating policy, which could include re-routing or restrictions at night. This would be useful when dealing with the 60% of volcanoes which are unmonitored.

Such an ATO should also ensure that its crews are aware that they may be the first to observe an eruption and so need to be vigilant and ready to ensure that this information is made available for wider dissemination as quickly as possible.

(2) Start of an eruption

Given the likely uncertainty regarding the status of the eruption during the early stages of an event and regarding the associated volcanic cloud, the ATO's procedures should include a requirement for crews to initiate re-routes to avoid the affected airspace.

The ATO should ensure that flights are planned to remain clear of the affected areas and that consideration is given to available aerodromes/operating sites and fuel requirements.

It is expected that the following initial actions will be taken by the ATO:

(i) determine if any aircraft in flight could be affected, alert the crew and provide advice on re-routing as required;

(ii) alert management;

(iii) for flight departures, brief flight crew and revise flight and fuel planning in accordance with the safety risk assessment;

(iv) alert flight crew to the need for increased monitoring of information (e.g. special air report (AIREP), volcanic activity report (VAR), significant weather information (SIGMET), NOTAMs and company messages);

(v) initiate the gathering of all data relevant to determining the risk; and

(vi) apply mitigations identified in the safety risk assessment.

(3) On-going eruption

As the eruptive event develops, the ATO can expect the responsible Volcanic

Ash Advisory Centre (VAAC) to provide volcanic ash advisory messages

(VAA/VAGs) defining, as accurately as possible, the vertical and horizontal extent of areas and layers of volcanic clouds. As a minimum, the ATO should monitor, and take account of, this VAAC information as well as of relevant SIGMETs and NOTAMs.

Other sources of information are likely to be available such as VAR/AIREPs, satellite imagery and a range of other information from State and commercial organisations. The ATO should plan its operations in accordance with its safety risk assessment taking into account the information that it considers accurate and relevant from these additional sources.

The ATO should carefully consider and resolve differences or conflicts among the information sources, notably between published information and observations (pilot reports, airborne measurements, etc.).

Given the dynamic nature of the volcanic hazards, the ATO should ensure that the situation is monitored closely and operations adjusted to suit changing conditions.

The ATO should require reports from its crews concerning any encounters with volcanic emissions. These reports should be passed immediately to the appropriate air traffic services (ATS) unit and to the authority.

For the purpose of flight planning, the ATO should treat the horizontal and vertical limits of the temporary danger area (TDA) or airspace forecast to be contaminated by volcanic ash as applicable, to be over-flown as it would mountainous terrain, modified in accordance with its safety risk assessment. The ATO should take account of the risk of cabin depressurisation or engine failure resulting in the inability to maintain level flight above a volcanic cloud. Additional minimum Equipment List (MEL) provisions, if applicable, should be considered in consultation with the TCHs.

Flying below a volcanic ash contaminated airspace should be considered on a case by case basis. It should only be planned to reach or leave an aerodrome/operating site close to the boundary of this airspace or where the ash contamination is very high and stable. The establishment of Minimum Sector Altitude(MSA) and the availability of aerodromes/operating sites should be considered.

(w) Safety risk assessment

When directed specifically at the issue of intended flight into airspace forecast to be or aerodromes/operating sites known to be contaminated with volcanic ash, the process should involve the following:

(4) Identifying the hazards

The generic hazard, in the context of this document, is airspace forecast to beor aerodromes/operating sites known to be contaminated with volcanic ash, and whose characteristics are harmful to the airworthiness and operation of the aircraft.

This GM is referring to volcanic ash contamination since it is the most significant hazard for flight operations in the context of a volcanic eruption. Nevertheless, it might not be the only hazard and therefore the operator should consider additional hazards which could have an adverse effect on aircraft structure or passengers safety such as gases.

Within this generic hazard, the ATO should develop its own list of specific hazards taking into account its specific aircraft, experience, knowledge and type of operation, and any other relevant data stemming from previous eruptions.

(5) Considering the severity and consequences of the hazard occurring (i.e. the nature and actual level of damage expected to be inflicted on the particular aircraft from exposure to that volcanic ash cloud).

(6) Evaluating the likelihood of encountering volcanic ash clouds with characteristics armful to the safe operation of the aircraft.

For each specific hazard within the generic hazard, the likelihood of adverse consequences should be assessed, either qualitatively or quantitatively.

(7) Determining whether the consequent risk is acceptable and within the ATO's risk performance criteria.

At this stage of the process, the safety risks should be classified as acceptable or unacceptable. The assessment of tolerability will be subjective, based on qualitative data and expert judgement, until specific quantitative data are available in respect of a range of parameters.

(8) Taking action to reduce the safety risk to a level that is acceptable to the ATO's management.

Appropriate mitigation for each unacceptable risk identified should then be considered in order to reduce the risk to a level acceptable to the ATO's management.

(x) Procedures to be considered when identifying possible mitigations actions

When conducting a volcanic ash safety risk assessment, the ATO should consider the following non-exhaustive list of procedures and processes as mitigation:

(9) Type certificate holders

Obtaining advice from the TCHs and other engineering sources concerning operations in potentially contaminated airspace and/or aerodromes/operating sites contaminated by volcanic ash.

This advice should set out:

(i) the features of the aircraft that are susceptible to airworthiness effects related to volcanic ash;

(ii) the nature and severity of these effects;

(iii) the effect of volcanic ash on operations to/from contaminated aerodromes/operating sites, including the effect on take-off and landing aircraft performance;

(iv) the related pre flight, in-flight and post-flight precautions to be observed by the ATO including any necessary amendments to aircraft operating manuals, aircraft maintenance manuals, master minimum equipment list/dispatch deviation or equivalents required to support the ATO; and

(v) the recommended inspections associated with inadvertent operations in volcanic ash contaminated airspace and operations to/from volcanic ash contaminated aerodromes/operating sites; this may take the form of instructions for continuing airworthiness or other advice.

(10) ATO/ contracted organisations' personnel

Definition of procedures for flight planning and operations ensuring that:

(i) flight crews are in a position to evaluate correctly the risk of encountering volcanic ash contaminated airspace, or aerodromes/operating sites, and can plan accordingly;

(ii) flight planning and operational procedures enable crews to avoid areas and aerodromes/operating sites with unacceptable volcanic ash contamination;

(iii) flight crew are aware of the possible signs of entry into a volcanic ash cloud and execute the associated procedures;

(iv) continuing airworthiness personnel are able to assess the need for, and to execute, any necessary maintenance or other required interventions; and

(v) crews are provided with appropriate aircraft performance data when operating to/from aerodromes/operating sites contaminated with volcanic ash.

(11) Provision of enhanced flight watch

This should ensure:

(i) close and continuous monitoring of VAA, VAR/AIREP, SIGMET, NOTAM and ASHTAM and other relevant information, and information from crews, concerning the volcanic ash cloud hazard;

(ii) access to plots of the affected areas from SIGMETs, NOTAMs and other relevant information for crews; and

(iii) communication of the latest information to crews in a timely fashion.

(12) Flight planning

Flexibility of the process to allow re-planning at short notice should conditions change.

(13) Departure, destination and alternate aerodromes

For the airspace to be traversed, or the aerodromes/operating sites in use, parameters to evaluate and take account of:

(i) the probability of contamination;

(ii) any additional aircraft performance requirements;

(iii) required maintenance considerations;

(iv) fuel requirements for re-routeing and extended holding.

(14) Routing policy

Parameters to evaluate and take account of:

(i) the shortest period in and over the forecast contaminated area;

(ii) the hazards associated with flying over the contaminated area;

(iii) drift down and emergency descent considerations;

(iv) the policy for flying below the contaminated airspace and the associated hazards.

(15) Diversion policy

Parameters to evaluate and take account of:

(i) maximum allowed distance from a suitable aerodrome/operating site;

(ii) availability of aerodromes/operating sites outside the forecast contaminated area;

(iii) diversion policy after an volcanic ash encounter.

(16) Minimum equipment list

Additional provisions in the MEL, if applicable, for dispatching aircraft with unserviceabilities that might affect the following non-exhaustive list of systems:

(i) air conditioning packs;

(ii) engine bleeds;

(iii) pressurisation system;

(iv) electrical power distribution system;

(v) air data system;

(vi) standby instruments;

(vii) navigation systems;

(viii) de-icing systems;

(ix) engine driven generators;

(x) auxiliary power unit (APU);

(xi) airborne collision avoidance system (ACAS);

(xii) terrain awareness warning system (TAWS);

(xiii) autoland systems;

(xiv) provision of crew oxygen;

(xv) supplemental oxygen for passengers.

(17) Standard operating procedures

Crew training to ensure they are familiar with normal and abnormal operating procedures and particularly any changes regarding but not limited to:

(i) pre-flight planning;

(ii) in-flight monitoring of volcanic ash cloud affected areas and avoidance procedures;

(iii) diversion;

(iv) communications with ATC;

(v) in-flight monitoring of engine and systems potentially affected by volcanic ash cloud contamination;

(vi) recognition and detection of volcanic ash clouds and reporting procedures;

(vii) in-flight indications of a volcanic ash cloud encounter;

(viii) procedures to be followed if a volcanic ash cloud is encountered;

(ix) unreliable or erroneous airspeed;

(x) non-normal procedures for engines and systems potentially affected by volcanic ash cloud contamination;

(xi) engine-out and engine relight;

(xii) escape routes; and

(xiii) operations to/from aerodromes/operating sites contaminated with volcanic ash.

(18) Provision for aircraft technical log

This should ensure:

(i) Systematic entry in the aircraft continuing airworthiness records or aircraft log if available related to any actual or suspected volcanic ash encounter whether in-flight or at an aerodrome/operating site; and

(ii) Checking, prior to flight, of the completion of maintenance actions related to an entry in the continuing airworthiness records or aircraft log if available for a volcanic ash cloud encounter on a previous flight.

(19) Incident reporting

Crew requirements for:

(i) reporting an airborne volcanic ash cloud encounter (VAR);

(ii) post-flight volcanic ash cloud reporting (VAR);

(iii) reporting non encounters in airspace forecast to be contaminated; and

(iv) filing a mandatory occurrence report in accordance with ORA.GEN.160.

(20) Continuing airworthiness procedures

Procedures when operating in or near areas of volcanic ash cloud contamination:

(i) enhancement of vigilance during inspections and regular maintenance and appropriate adjustments to maintenance practices;

(ii) definition of a follow-up procedure when a volcanic ash cloud encounter has been reported or suspected;

(iii) thorough investigation for any sign of unusual or accelerated abrasions or corrosion or of volcanic ash accumulation;

(iv) reporting to TCHs and the relevant authorities observations and experiences from operations in areas of volcanic ash cloud contamination;

(v) completion of any additional maintenance recommended by the TCH or by the authority.

(y) Reporting

(21) The ATO should ensure that reports are immediately submitted to the nearest ATS unit using the VAR/AIREP procedures followed up by a more detailed VAR on landing together with, as applicable, a report, and an aircraft technical log entry for: (1) any incident related to volcanic clouds;

(22) any observation of volcanic ash activity and

(23) anytime that volcanic ash is not encountered in an area where it was forecast to be.

(z) Additional guidance

Further guidance on volcanic ash safety risk assessment is given in ICAO Doc.

9974 (Flight safety and volcanic ash – Risk management of flight operations with known or forecast volcanic ash contamination).

GM4 ORA.GEN.200(a)(3) Management system

SAFETY RISK ASSESSMENT – RISK REGISTER

The results of the assessment of the potential adverse consequences or outcome of each hazard may be recorded by the ATO in a risk register, an example of which is provided hereafter.

Hazard		Incident Sequence Description	Existing Controls	Outcome (Pre-Mitigation)			Additional Mitigation required	Outcome (Post-Mitigation)			Actions and Owners	Monitoring and Review Requirements
No.	Description			Severity	Likelihood	Risk		Severity	Likelihood	Risk		

AMC1 ORA.GEN.200(a)(4) Management system

TRAINING AND COMMUNICATION ON SAFETY

(a) Training

(1) All personnel should receive safety training as appropriate for their safety responsibilities.

(2) Adequate records of all safety training provided should be kept.

(aa) Communication

(3) The organisation should establish communication about safety matters that:

(i) ensures that all personnel are aware of the safety management activities as appropriate for their safety responsibilities;

(ii) conveys safety critical information, especially relating to assessed risks and analysed hazards;

(iii) explains why particular actions are taken; and

(iv) explains why safety procedures are introduced or changed.

(4) Regular meetings with personnel where information, actions and procedures are discussed may be used to communicate safety matters.

GM1 ORA.GEN.200(a)(4) Management system

TRAINING AND COMMUNICATION ON SAFETY

The safety training programme may consist of self-instruction via a media (newsletters, flight safety magazines), class-room training, e-learning or similar training provided by training service providers.

AMC1 ORA.GEN.200(a)(5) Management system

ORGANISATION'S MANAGEMENT SYSTEM DOCUMENTATION

(a) The organisation's management system documentation should at least include the following information:

(1) a statement signed by the accountable manager to confirm that the organisation will continuously work in accordance with the applicable requirements and the organisation's documentation as required by this Part;

(2) the organisation's scope of activities;

(3) the titles and names of persons referred to in ORA.GEN.210 (a) and (b);

(4) an organisation chart showing the lines of responsibility between the persons referred to in ORA.GEN.210;

(5) a general description and location of the facilities referred to in ORA.GEN.215;

(6) procedures specifying how the organisation ensures compliance with the applicable requirements;

(7) the amendment procedure for the organisation's management system documentation.

(bb) The organisation's management system documentation may be included in a separate manual or in (one of) the manual(s) as required by the applicable Subpart(s). A cross reference should be included.

GM1 ORA.GEN.200(a)(5) Management system

ORGANISATION'S MANAGEMENT SYSTEM DOCUMENTATION

(a) It is not required to duplicate information in several manuals. The information may be contained in any of the organisation manuals (e.g. operations manual, training manual), which may also be combined.

(b) The organisation may also choose to document some of the information required to be documented in separate documents (e.g. procedures). In this case, it should ensure that manuals contain adequate references to any document kept separately. Any such documents are then to be considered an integral part of the organisation's management system documentation.

AMC1 ORA.GEN.200(a)(5) Management system

COMPLEX ORGANISATIONS – ORGANISATION'S SAFETY MANAGEMENT MANUAL

(a) The safety management manual (SMM) should be the key instrument for communicating the approach to safety for the whole of the organisation. The SMM should document all aspects of safety management, including the safety policy, objectives, procedures and individual safety responsibilities.

(b) The contents of the safety management manual should include all of the following:

(1) scope of the safety management system;

(2) safety policy and objectives;

(3) safety accountability of the accountable manager;

(4) safety responsibilities of key safety personnel;

(5) documentation control procedures;

(6) hazard identification and risk management schemes;

(7) safety action planning;

(8) safety performance monitoring;

(9) incident investigation and reporting;

(10) emergency response planning;

(11) management of change (including organisational changes with regard to safety responsibilities);

(12) safety promotion.

(cc) The SMM may be contained in (one of) the manual(s) of the organisation.

AMC1 ORA.GEN.200(a)(6) Management system

COMPLIANCE MONITORING - GENERAL

(a) Compliance monitoring

The implementation and use of a compliance monitoring function should enable the organisation to monitor compliance with the relevant requirements of this Part and other applicable Parts.

(1) The organisation should specify the basic structure of the compliance monitoring function applicable to the activities conducted.

(2) The compliance monitoring function should be structured according to the size of the organisation and the complexity of the activities to be monitored.

(dd) Organisations should monitor compliance with the procedures they have designed to ensure safe activities. In doing so, they should as a minimum, and where appropriate, monitor:

(3) privileges of the organisation;

(4) manuals, logs, and records;

(5) training standards;

(6) management system procedures and manuals.

(ee) Organisational set up

(7) To ensure that the organisation continues to meet the requirements of this Part and other applicable Parts, the accountable manager should designate a compliance monitoring manager. The role of the compliance monitoring manager is to ensure that the activities of the organisation are monitored for compliance with the applicable regulatory requirements , and any additional requirements as established by the organisation, and that these activities are being carried out properly under the supervision of the relevant head of functional area.

(8) The compliance monitoring manager should be responsible for ensuring that the compliance monitoring programme is properly implemented, maintained and continually reviewed and improved.

(9) The compliance monitoring manager should:

(i) have direct access to the accountable manager;

(ii) not be one of the other persons referred to in ORA.GEN.210 (b);

(iii) be able to demonstrate relevant knowledge, background and appropriate experience related to the activities of the organisation; including knowledge and experience in compliance monitoring; and

(iv) have access to all parts of the organisation, and as necessary, any contracted organisation.

(10) In the case of a non-complex organisation, this task may be exercised by the accountable manager provided he/she has demonstrated having the related competence as defined in (c)(3)(iii).

(11) In the case the same person acts as compliance monitoring manager and as safety manager, the accountable manager, with regards to his/her direct accountability for safety, should ensure that sufficient resources are allocated to both functions, taking into account the size of the organisation and the nature and complexity of its activities.

(12) The independence of the compliance monitoring function should be established by ensuring that audits and inspections are carried out by personnel not responsible for the function, procedure or products being audited.

(ff) Compliance monitoring documentation

(13) Relevant documentation should include the relevant part(s) of the organisation's management system documentation.

(14) In addition, relevant documentation should also include the following:

(i) terminology;

(ii) specified activity standards;

(iii) a description of the organisation;

(iv) the allocation of duties and responsibilities;

(v) procedures to ensure regulatory compliance;

(vi) the compliance monitoring programme, reflecting:

(A) schedule of the monitoring programme;

(B) audit procedures;

(C) reporting procedures;

(D) follow-up and corrective action procedures; and

(E) recording system.

(vii) the training syllabus referred to in (e)(2);

(viii) document control.

(gg) Training

(15) Correct and thorough training is essential to optimise compliance in every organisation. In order to achieve significant outcomes of such training, the organisation should ensure that all personnel understand the objectives as laid down in the organisation's management system documentation.

(16) Those responsible for managing the compliance monitoring function should receive training on this task. Such training should cover the requirements of compliance monitoring, manuals and procedures related to the task, audit techniques, reporting and recording.

(17) Time should be provided to train all personnel involved in compliance management and for briefing the remainder of the personnel.

(18) The allocation of time and resources should be governed by the volume and complexity of the activities concerned.

GM1 ORA.GEN.200(a)(6) Management system

COMPLIANCE MONITORING - GENERAL

(a) The organisational set-up of the compliance monitoring function should reflect the size of the organisation and the nature and complexity of its activities. The compliance monitoring manager may perform all audits and inspections himself/herself or appoint one or more auditors by choosing personnel having the related competence as defined in AMC1 ORA.GEN.200(a)(6) point (c)(3)(iii), either from within or outside the organisation.

(b) Regardless of the option chosen it must be ensured that the independence of the audit function is not affected, in particular in cases where those performing the audit or inspection are also responsible for other functions within the organisation.

(c) In case external personnel are used to perform compliance audits or inspections:

(1) any such audits or inspections are performed under the responsibility of the compliance monitoring manager; and

(2) the organisation remains responsible to ensure that the external personnel has relevant knowledge, background and experience as appropriate to the activities being audited or inspected; including knowledge and experience in compliance monitoring.

(hh) The organisation retains the ultimate responsibility for the effectiveness of the compliance monitoring function in particular for the effective implementation and follow-up of all corrective actions.

GM2 ORA.GEN.200(a)(6) Management system

COMPLEX ORGANISATIONS - COMPLIANCE MONITORING PROGRAMME FOR ATOs

(a) Typical subject areas for compliance monitoring audits and inspections for approved training organisations (ATOs) should be the following:

(1) facilities;

(2) actual flight and ground training;

(3) technical standards.

(ii) ATOs should monitor compliance with the training and operations manuals they have designed to ensure safe and efficient training. In doing so, they should, where appropriate, additionally monitor the following:

(4) training procedures;

(5) flight safety;

(6) flight and duty time limitations, rest requirements and scheduling;

(7) aircraft maintenance/operations interface.

GM3 ORA.GEN.200(a)(6) Management system

AUDIT AND INSPECTION

(a) 'Audit' means a systematic, independent and documented process for obtaining evidence and evaluating it objectively to determine the extent to which requirements are complied with.

(b) 'Inspection' means an independent documented conformity evaluation by observation and judgement accompanied as appropriate by measurement, testing or gauging, in order to verify compliance with applicable requirements.

AMC1 ORA.GEN.200(b) Management system

SIZE, NATURE AND COMPLEXITY OF THE ACTIVITY

(a) An organisation should be considered as complex when it has a workforce of more than 20 full time equivalents (FTEs).

(b) Organisations with up to 20 full time equivalents (FTEs) may also be considered complex based on an assessment of the following factors:

(1) in terms of complexity, the extent and scope of contracted activities subject to the approval;

(2) in terms of risk criteria, whether any of the following are present:

(i) operations requiring the following specific approvals: performance-based navigation (PBN), low visibility operation (LVO), extended range operations with two-engined aeroplanes (ETOPS), helicopter hoist operation (HHO), helicopter emergency medical service (HEMS), night vision imaging system (NVIS) and dangerous goods (DG);

(ii) different types of aircraft used;

(iii) the environment (offshore, mountainous area etc.);

(jj) Regardless of the criteria mentioned in (a) and (b), the following organisations should always be considered as non-complex:

(3) Approved Training Organisations (ATOs) only providing training for the private pilot licence (PPL), and the associated ratings and certificates;

(4) Aero-Medical Centres (AeMCs).

AMC1 ORA.GEN.200(c) Management system

ATOs PROVIDING TRAINING ONLY FOR THE PPL AND THE ASSOCIATED RATINGS OR CERTIFICATES — ORGANISATIONAL REVIEW

(a) The primary objective of the organisational review is to enable the organisation to ensure that its management system remains effective by verifying that it:

(1) has continually identified its aviation safety hazards;

(2) has effectively mitigated the associated risks; and

(3) monitors compliance with the applicable requirements.

(kk) Safety risk management should:

(4) be performed using internal safety or occurrence reports, hazard checklists, risk registers or similar risk management tools or processes, integrated into the activities of the organisation;

(5) in particular address safety risks related to a change; making use of the existing hazard identification, risk assessment and mitigation tools or processes; and

(6) include provisions for emergency response or a formal Emergency Response Plan (ERP).

(ll) As part of the management system documentation required by ORA.GEN.200(a)(5), the organisation should describe the organisational review programme and related responsibilities. Persons responsible for the organisational review should have a thorough knowledge of the applicable requirements and of the organisation's procedures.

(mm) The status of all corrective and risk mitigation actions should be monitored by the person responsible for the organisational review programme and implemented within a specified time frame. Action closure should be recorded by the person responsible for the organisational review programme, along with a summary of the action taken.

(nn) The results of the organisational review, including all non-compliance findings and new risks identified during the review, should be presented to the accountable manager and the person or group of persons nominated in accordance with ORA.GEN.210(b) prior to notification to the Authority. All findings should be immediately notified to the Authority and all necessary actions immediately taken.

(oo) Based on the results of the organisational review, the accountable manager should determine the need for and initiate, as appropriate, further actions to address deficiencies in or further improve the organisation's management system.

GM1 ORA.GEN.200(c) Management system

ATOs PROVIDING TRAINING ONLY FOR THE PPL AND THE ASSOCIATED RATINGS OR CERTIFICATES — ORGANISATIONAL REVIEW PROGRAMME

(a) The organisational review programme may consist of:

(1) checklist(s) covering all items necessary to be addressed in order to ensure that the organisation identified its aviation safety hazards, effectively mitigates the associated risks and ensures effective compliance with the applicable requirements. These should address all procedures described in the management system documentation and training manual; and

(2) a schedule for the accomplishment of the different checklist items, with each item being checked at least once within any 12-month period. The organisation may choose to conduct one full review annually or to conduct several partial reviews.

(pp) Performance of organisational reviews:

Each review item may be addressed using an appropriate combination of:

(3) review of training records, training documentation;

(4) review of internal safety reports (e.g. notified difficulties in using current procedures and training material, etc.);

(5) review of the risk register and hazard checklists, as applicable;

(6) sample check of training courses;

(7) witnessing of examinations, as appropriate;

(8) interview of the personnel involved; and

(9) review of the feedback provided by students and customers.

(qq) It is recommended that internal safety reports and occurrence reports be reviewed on a continual basis with the aim of identifying possible corrective and risk mitigation actions.

GM2 ORA.GEN.200(c) Management system

ATOs PROVIDING TRAINING ONLY FOR THE PPL AND THE ASSOCIATED RATINGS OR CERTIFICATES — ORGANISATIONAL REVIEW ITEMS

The following provides a list of typical items for an organisational review checklist, to be adapted as necessary to cover all relevant procedures described in the management system documentation and training manual:

(a) Terms of approval

Check that:

(1) no training has been performed outside the terms of approval;

(2) changes not requiring prior approval have been properly managed.

(rr) Training syllabi and course material

Check that:

(3) training syllabi and course materials are in compliance with the applicable requirements, as last amended;

(4) training practices are in compliance with the documentation; and

(5) instructor training practices are standardised.

(ss) Training equipment and tools

Check that all equipment and tools other than aircraft and FSTDs are present and meet the criteria defined in the training manual.

(tt) Facilities

Check that the facilities meet the criteria defined in the training manual.

(uu) Training aircraft and FSTDs

Check that the training aircraft and FSTDs meet the criteria defined in the training manual.

(vv) Personnel

Check that:

(6) the current accountable manager and other nominated persons are correctly identified;

(7) the organisation chart accurately indicates lines of responsibility and accountability throughout the organisation;

(8) the organisation remains in compliance with the applicable requirements, in case the number of personnel has decreased or if the activity has increased;

(9) the qualification of all new personnel (or personnel with new functions) has been appropriately assessed;

(10) staff involved in any safety management-related processes and tasks has been properly trained; and

(11) staff has been trained, as necessary, to cover changes in regulations, in Authority publications, in the organisation, its management system documentation and in associated procedures, etc.

(ww) Contracted activities (In case the organisation has contracted activities):

(12) Check that new providers have been assessed prior to the establishment of any contract;

(13) For existing providers approved for such activities: check the authorisation and approval status of the contracted organisation; and

(14) For existing providers not approved for such activities: check that the service provided conforms to the applicable requirements of this Part.

(xx) Training and communication on safety

Check that:

(15) all personnel are aware of safety management policies, processes and tasks;

(16) safety-related documentations and publications are available; and

(17) safety-critical information derived from internal safety or occurrence reporting and hazard identification have been timely communicated to all staff concerned.

(yy) Management system documentation

Check that:

(18) the documentation is adequate and updated;

(19) staff are aware of the safety policy; and

(20) staff can easily access such documentation when needed.

(zz) Record-keeping

Check that:

(21) the records cover all the training activities and management system processes; and

(22) minimum record-keeping periods (random checks) are complied with.

(aaa) Emergency response provisions or ERP

Check that:

(23) emergency response information is up to date and readily available; and

(24) all staff are aware of emergency response information or the ERP, as applicable (random checks).

(bbb) Internal safety or occurrence reporting procedures

(25) Check the number of reports received since the last review;

(26) Check that:

(i) internal reporting and external occurrence reporting are performed in accordance with reporting procedures;

(ii) the safety or occurrence reports are analysed; and

(iii) feedback is provided to reporters.

(ccc) Other risk management tools or processes implemented

(27) As applicable, check that:

(i) records of hazards and risks are assessed; in particular, following analysis of safety or occurrence reports and when significant changes occur (regulations, personnel, training aircraft, training courses, etc.);

(ii) the risks are assessed and the risk mitigation actions followed-up and recorded;

(iii) any risk that has been found acceptable is duly justified; and

(iv) the assumptions made for the risk assessment remain valid;

(28) Verify the effectiveness of all risk mitigation actions initiated since the last organisational review.

AMC1 ORA.GEN.205 Contracted activities

RESPONSIBILITY WHEN CONTRACTING ACTIVITIES

(a) The organisation may decide to contract certain activities to external organisations.

(b) A written agreement should exist between the organisation and the contracted organisation clearly defining the contracted activities and the applicable requirements.

(c) The contracted safety related activities relevant to the agreement should be included in the organisation's safety management and compliance monitoring programmes.

(d) The organisation should ensure that the contracted organisation has the necessary authorisation or approval when required, and commands the resources and competence to undertake the task.

GM1 ORA.GEN.205 Contracted activities

RESPONSIBILITY WHEN CONTRACTING ACTIVITIES

(a) Regardless of the approval status of the contracted organisation, the contracting organisation is responsible to ensure that all contracted activities are subject to hazard identification and risk management as required by ORA.GEN.200 (a)(3) and to compliance monitoring as required by ORA.GEN.200 (a)(6).

(b) When the contracted organisation is itself certified to carry out the contracted activities, the organisation’s compliance monitoring should at least check that the approval effectively covers the contracted activities and that it is still valid.

(c) If the organisation requires the contracted organisation to conduct an activity which exceeds the contracted organisation’s terms of approval, this will be considered as the contracted organisation working under the approval of the contracting organisation.

AMC1 ORA.GEN.215 Facility requirements

ATOs PROVIDING TRAINING FOR THE CPL, MPL AND ATPL AND THE ASSOCIATED RATINGS AND CERTIFICATES

(a) For ATOs providing flight training, the following flight operations accommodation should be available:

(1) an operations room with facilities to control flying operations;

(2) a flight planning room with the following facilities:

(i) appropriate current maps and charts;

(ii) current aeronautical information service (AIS) information;

(iii) current meteorological information;

(iv) communications to air traffic control (ATC) and the operations room;

(v) any other flight safety related material.

(3) adequate briefing rooms/cubicles of sufficient size and number;

(4) suitable offices for the supervisory personnel and room(s) to allow flight instructors to write reports on students, complete records and other related documentation;

(5) furnished crew-room(s) for instructors and students.

(ddd) For ATOs providing theoretical knowledge training, the following facilities for theoretical knowledge instruction should be available:

(6) adequate classroom accommodation for the current student population;

(7) suitable demonstration equipment to support the theoretical knowledge instruction;

(8) a radiotelephony training and testing facility;

(9) a reference library containing publications giving coverage of the syllabus;

(10) offices for the instructional personnel.

AMC2 ORA.GEN.215 Facility requirements

ATOs PROVIDING TRAINING FOR THE PPL AND THE ASSOCIATED RATINGS AND CERTIFICATES

(a) The following flight operations accommodation should be available:

(1) a flight planning room with the following facilities:

(i) appropriate current aviation maps and charts;

(ii) current AIS information;

(iii) current meteorological information;

(iv) communications to ATC (if applicable);

(v) any other flight safety related material.

(2) adequate briefing room(s)/cubicles of sufficient size and number;

(3) suitable office(s) to allow flight instructors to write reports on students, complete records and other related documentation;

(4) suitable rest areas for instructors and students, where appropriate to the training task;

(5) NA.

(eee) The following facilities for theoretical knowledge instruction should be available:

(6) adequate classroom accommodation for the current student population;

(7) suitable demonstration equipment to support the theoretical knowledge instruction;

(8) suitable office(s) for the instructional personnel.

(fff) A single room may be sufficient to provide the functions listed in (a) and (b).

AMC1 ORA.GEN.220(b) Record-keeping

GENERAL

(a) The record-keeping system should ensure that all records are accessible whenever needed within a reasonable time. These records should be organised in a way that ensures traceability and retrievability throughout the required retention period.

(b) Records should be kept in paper form or in electronic format or a combination of both. Records stored on microfilm or optical disc format are also acceptable. The records should remain legible throughout the required retention period. The retention period starts when the record has been created or last amended.

(c) Paper systems should use robust material which can withstand normal handling and filing. Computer systems should have at least one backup system which should be updated within 24 hours of any new entry. Computer systems should include safeguards against the ability of unauthorised personnel to alter the data.

(d) All computer hardware used to ensure data backup should be stored in a different location from that containing the working data and in an environment that ensures they remain in good condition. When hardware or software changes take place, special care should be taken that all necessary data continues to be accessible at least through the full period specified in the relevant Subpart. In the absence of such indication, all records should be kept for a minimum period of 5 years.

GM1 ORA.GEN.220(b) Record-keeping

RECORDS

Microfilming or optical storage of records may be carried out at any time. The records should be as legible as the original record and remain so for the required retention period.

Subpart ATO - Approved Training Organisations

SECTION I – GENERAL

GM1 ORA.ATO.100 Scope

The content of this Section contains the requirements applicable to all ATOs providing training for pilot licences and the associated ratings and certificates.

It is applicable to ATOs providing training for:

(ggg) the PPL and the associated ratings and certificates; and

(hhh) the commercial pilot licence (CPL), multi-crew pilot licence (MPL) and airline transport pilot licence (ATPL) and the associated ratings and certificates.

AMC1 ORA.ATO.105 Application

APPLICATION FORM

APPLICATION FORM FOR AN ATO CERTIFICATE		
N°	Question	Supplementary information
1.	Name of training organisation under which the activity is to take place	address, fax number, e-mail, URL
2.	Training courses offered	theory and/or flight training
3.	Name of head of training	type and number of licence full/part-time
4.	Name of chief flight instructor	as (3)
5.	Name of chief theoretical knowledge instructor	as (3)
6.	Name of flight instructor(s), where applicable	as (3)
7.	Aerodrome(s) / operating site(s) to be used	IFR approaches, if applicable night flying, if applicable air traffic control flight testing facilities, if applicable data reply facilities, if applicable
8.	Flight operations accommodation	location, number and size of rooms
9.	Theoretical instruction facilities	location, number and size of rooms
10.	Description of training devices (as applicable)	FFS, FNPT I, II and III, FTD 1, 2 and 3, and 3, and BITD
11.	Description of aircraft	Class/type(s) of aircraft registration of aircraft IFR equipped, if applicable
12.	Proposed administration and manuals : (submit with application if required)	(a) course programmes (b) training records (c) operations manual (d) training manual
13.	Details of proposed compliance monitoring system	

Note 1: If answers to any of the above questions are incomplete, the applicant should provide full details of alternative arrangements separately.

Note 2: instrument flight rules (IFR), full flight simulator (FFS), flight and navigation procedures trainer (FNPT), flight training device (FTD), basic instrument training device (BITD)

I, *(name)*, on behalf of (*name of training organisation*) certify that all the above named persons are in compliance with the applicable requirements and that all the above information given is complete and correct.

(Date) (Signature)

AMC1 ORA.ATO.110(b) Personnel requirements

HEAD OF TRAINING

The nominated head of training (HT) should have the overall responsibility to ensure that the training is in compliance with the appropriate requirements. In an ATO providing training courses for different aircraft categories, the HT shall be assisted by one or more nominated deputy HT(s) for certain flight training courses.

AMC1 ORA.ATO.110(c) Personnel requirements

THEORETICAL KNOWLEDGE INSTRUCTORS

Theoretical knowledge instructors should, before appointment, prove their competency by giving a test lecture based on material they have developed for the subjects they are to teach.

AMC1 ORA.ATO.120(a);(b) Record-keeping

ATOs PROVIDING TRAINING ONLY FOR THE PPL AND THE ASSOCIATED RATINGS AND CERTIFICATES

The details of ground, flight and flight instruction by using FSTD given to a specific individual student and the detailed progress reports from instructors may be kept also in a student's progress card. This progress card should contain all the exercises of the training syllabus. The instructor should sign this card if a certain exercise has been completed or a specific assessment has been conducted.

AMC1 ORA.ATO.125 Training programme

GENERAL

Flight training in an FSTD and theoretical knowledge instruction should be phased in such a manner as to ensure that students are able to apply to flight exercises the knowledge gained on the ground. Arrangements should be made so that problems encountered during instruction can be resolved during subsequent training.

AMC2 ORA.ATO.125 Training programme

TYPE RATING COURSES – AEROPLANES

(a) Introduction

(1) When developing the training programme for a type rating course, in addition to complying with the standards included in the operational suitability data (OSD), as established in accordance with LYCAR Regulation AIRCREW for the applicable type, the ATO should also follow any further recommendations contained therein.

(2) The type rating course should, as far as possible, provide for a continual process of ground, FSTD and flight training to enable the student to assimilate the knowledge and skills required to operate a specific aircraft type safely and efficiently. The student's ability to do this should be determined by the demonstration of a satisfactory level of theoretical knowledge of the aircraft determined by progressive checking of knowledge and examination, progressive assessment by the ATO during flight training and the successful completion of a practical skill test with an examiner.

(3) The type rating course should normally be conducted as a single, full-time course of study and training. However, in the situation where the course is intended to enable a pilot to fly a further aircraft type while continuing to fly a current type, such as to enable mixed fleet flying with the same operator, some elements of the theoretical knowledge course conducted by self-study may be undertaken while the student continues to fly the current type.

(iii) Variants

(4) Familiarisation training: Where an aeroplane type rating also includes variants of the same aircraft type requiring familiarisation training, the additional familiarisation training may be included in the theoretical knowledge training of the initial type rating course. Flight training should be conducted on a single variant within the type.

(5) Differences training: Where an aeroplane type rating also includes variants of the same aircraft type for which difference training is required, the initial training course should be directed towards a single variant. Additional training to operate other variants within the same type rating should be completed after successful completion of the initial type rating course. However, elements of this differences training may be undertaken at appropriate stages of the initial course, with the agreement of the LyCAA.

(jjj) Programme of theoretical knowledge and flight training

(6) The training programme should specify the time allocated to theoretical knowledge training, FSTD training and, if not approved for zero flight-time training (ZFTT), the aeroplane. The initial type rating course should be programmed on the basis that the student has the minimum licensing and experience requirements for entry to the course. For a first type rating on a multi-pilot aeroplane (MPA), the course should also provide for consolidation and type-specific training in those elements of basic multi-crew cooperation (MCC) training relevant to the type or variant.

(7) If the ATO wishes to provide a training course that includes credit for previous experience on similar types of aircraft, such as those with common systems or operating procedures with the new type, the entry requirements to such courses should be specified by the ATO and should define the minimum level of experience and qualification required of the flight crew member.

(8) The ATO is permitted to contract elements of training to a third party training provider. In such cases the contracted organisation should normally be approved to conduct such training. When the contracted organisation is not an ATO, the LyCAA should, within the approval process of the ATO, include the contracted organisation and be satisfied that the standard of training intended to be given meets the requirements. The other obligations of the ATO, such as student progress monitoring and an adequate management system, can be exercised by the ATO seeking approval and which retains responsibility for the whole course.

GROUND TRAINING

(kkk) Syllabus

The ground training syllabus should provide for the student to gain a thorough understanding of the operation, function and, if appropriate, abnormal and emergency operation of all aircraft systems. This training should also include those systems essential to the operation of the aircraft, such as 'fly-by-wire' flight control systems, even if the flight crew have little or no control of their normal or abnormal operation.

(lll) Theoretical knowledge instruction

The theoretical knowledge instruction training should meet the general objectives of (but not be limited to) giving the student:

(9) a thorough knowledge of the aircraft structure, powerplant and systems, and their associated limitations, including mass and balance, aircraft performance and flight planning considerations;

(10) a knowledge of the positioning and operation of the cockpit controls and indicators for the aircraft and its systems;

(11) an understanding of system malfunctions, their effect on aircraft operations and interaction with other systems; and

(12) the understanding of normal, abnormal and emergency procedures.

(mmm) Facilities and training aids

The ATO should provide adequate facilities for classroom instruction and have available appropriately qualified and experienced instructors. Training aids should enable students to gain practical experience of the operation of systems covered by the theoretical knowledge syllabus and, in the case of multi-pilot aeroplanes, enable such practical application of the knowledge to be carried out in a multi-crew environment. Facilities should be made available for student self-study outside the formal training programme.

(nnn) Computer-based training (CBT)

CBT provides a valuable source of theoretical instruction, enabling the students to progress at their own pace within specified time limits. Many such systems ensure that syllabus subjects are fully covered and progress can be denied until a satisfactory assimilation of knowledge has been demonstrated. Such systems may allow self-study or distance learning, if they incorporate adequate knowledge testing procedures. When CBT is used as part of the theoretical knowledge instruction phase, the student should also have access to a suitably qualified instructor able to assist with areas of difficulty for the student.

(ooo) Self-study and distance learning

Elements of the theoretical knowledge syllabus may be adequately addressed by distance learning, if approved, or self-study, particularly when utilising CBT. Progress testing, either by self-assessed or instructor-evaluated means should

be included in any self-study programme. If self-study or distance learning is included in the theoretical knowledge training, the course should also provide for an adequate period of supervised consolidation and knowledge testing.

(ppp) Progress tests and final theoretical knowledge examination

(13) The theoretical knowledge training programme should provide for progressive testing of the assimilation of the required knowledge. This testing process should also provide for retesting of syllabus items so that a thorough understanding of the required knowledge is assured. This should be achieved by intervention by a qualified instructor or, if using CBT with a self-testing facility, and by further testing during the supervised consolidation phase of the ground course.

(14) The final theoretical knowledge examination should cover all areas of the theoretical knowledge syllabus. The final examination should be conducted as a supervised written (including computer-based) knowledge test without reference to course material. The pass mark of 75% assumes the achievement of satisfactory levels of knowledge during the progressive phase tests of the course. The student should be advised of any areas of lack of knowledge displayed during the examination and, if necessary, given remedial instruction. A successful pass of the theoretical knowledge course and final examination should be a pre-requisite for progression to the flight training phase of the type rating course, unless otherwise determined in the OSD established in accordance with LYCAR Regulation AIRCREW.

FLIGHT TRAINING

(qqq) Flight simulation training devices (FSTDs)

A type rating course for a multi-pilot aeroplane should include FSTD training.

The amount of training required when using FSTDs will depend on the complexity of the aeroplane concerned, and to some extent on the previous experience of the pilot. Except for those courses giving credit for previous experience (c.2.), a minimum of 32 hours of FSTD training should be programmed for a crew of a multi-pilot aeroplane, of which at least 16 hours should be in an FFS operating as a crew. FFS time may be reduced if other qualified FSTDs used during the flight training programme accurately replicate the cockpit environment, operation and aeroplane response. Such FSTDs may typically include flight management computer (FMC) training devices using hardware and computer programmes identical to those of the aeroplane.

(rrr) Aeroplane training with FFS

(15) with the exception of courses approved for ZFTT, certain training exercises normally involving take-off and landing in various configurations should be completed in the aeroplane rather than in an FFS. Unless otherwise specified in the OSD established in accordance with Regulation LYCAR AIR CREW, this take-off and landing training should include:

(A) at least four landings in the case of MPAs where the student pilot has more than 500 hours of MPA experience in aeroplanes of similar size and performance or, in all other cases, at least six landings;

(B) at least one full-stop landing; and

(C) one go-around with all engines operating.

This aeroplane training may be completed after the student pilot has completed the FSTD training and has successfully undertaken the type rating skill test, provided it does not exceed 2 hours of the flight training course.';

(16) courses approved for ZFTT

(i) During the specific simulator session before line flying under supervision (LIFUS), consideration should be given to varying conditions, for example:

(A) runway surface conditions;

(B) runway length;

(C) flap setting;

(D) power setting;

(E) crosswind and turbulence conditions; and

(F) maximum take-off mass (MTOM) and maximum landing mass (MLM).

(ii) At least one landings should be conducted as full-stop landings. The session should be flown in normal operation.Special attention should be given to the taxiing technique:

(iii) A training methodology should be agreed with the LyCAA that ensures the trainee is fully competent with the exterior inspection of the aeroplane before conducting such an inspection un-supervised;

(iv) The LIFUS should be performed as soon as possible after the specific FFS session;

(v) The licence endorsement should be entered on the licence after the skill test, but before the first four take-offs and landings in the aeroplane. At the discretion of the LyCAA, provisional or temporary endorsement and any restriction should be entered on the licence.

(vi) Where a specific arrangement exists between the ATO and the commercial air transport operator, the operator proficiency check (OPC) and the ZFTT specific details should be conducted using the operator's standard operating procedures (SOPs).

(17) All training exercises should be designed to remain within the training envelope as determined by the ATO (Note: Further guidance regarding the training envelope can be found in GM1 ORA.ATO.125 point (f)).';

(sss) Aeroplane without FFS

(18) Flight training conducted solely in an aeroplane without the use of FSTDs cannot cover the crew resource management (CRM) and multi-crew cockpit (MCC) aspects of MPA flight training, and for safety reasons cannot cover all emergency and abnormal aircraft operation required for the training and skill test. In such cases, the ATO should demonstrate to the LyCAA that adequate training in these aspects can be achieved by other means. For training conducted solely on an MPA where two pilots are trained together without the use of an FSTD, a minimum of 8 hours of flight training as pilot flying (PF) for each pilot should normally be required. For training on a single-pilot aeroplane, 10 hours of flight training should normally be required. It is accepted that for some relatively simple single or multi-engine aircraft without systems such as pressurisation, flight management system (FMS) or electronic cockpit displays, this minimum may be reduced.

(19) Aeroplane training normally involves an inherent delay in achieving an acceptable flight situation and configuration for training to be carried out in accordance with the agreed syllabus. These could include ATC or other traffic delay on the ground prior to take-off, the necessity to climb to height or transit to suitable training areas and the unavoidable need to physically reposition the aircraft for subsequent or repeat manoeuvres or instrument approaches. In such cases it should be ensured that the training syllabus provides adequate flexibility to enable the minimum amount of required flight training to be carried out.

(la) Additional UPRT training as per point FCL.725.A(c) UPRT as per point FCL.725.A(c) should include the elements and components in table 1.

Table 1: Elements and respective components of upset prevention training

Elements and components		TK instructi	FSTD/ Aeroplan
(A)	**Aerodynamics**		
1.	General aerodynamic characteristics	•	
2.	Aeroplane certification and limitations	•	
3.	Aerodynamics (high and low altitudes)	•	•
4.	Aeroplane performance (high and low altitudes)	•	•
5.	AoA and stall awareness	•	•
6.	Stick shaker or other stall-warning device activation (as applicable)	•	•
7.	Stick pusher (as applicable)	•	•
8.	Mach effects (if applicable to the aeroplane type)	•	•
9.	Aeroplane stability	•	•
10.	Control surface fundamentals	•	•
11.	Use of trims	•	•
12.	Icing and contamination effects	•	•
13.	Propeller slipstream (as applicable)	•	•
(B)	**Causes of and contributing factors to upsets**		
1.	Environmental	•	
2.	Pilot-induced	•	
3.	Mechanical (aeroplane systems)	•	
(C)	**Safety review of accidents and incidents relating to aeroplane upsets**		
1.	Safety review of accidents and incidents relating to aeroplane upsets	•	
(D)	**G-load awareness and management**		
1.	Positive/negative/increasing/decreasing G-loads	•	•
2.	Lateral G awareness (sideslip)	•	•
3.	G-load management	•	•
(E)	**Energy management**		
1.	Kinetic energy vs potential energy vs effect of thrust-drag ratio on the total energy	•	•
(F)	**Flight path management**		
1.	Relationship between pitch, power and performance	•	•
2.	Performance and effects of differing power plants (if	•	•
3.	Manual and automation inputs for guidance and	•	•
4.	Type-specific characteristics	•	•
5.	Management of go-arounds from various stages during the approach	•	•

	Elements and components	TK instructi	FSTD/ Aeroplan
6.	Automation management	•	•
7.	Proper use of rudder	•	•
G.	**Recognition**		
1.	Type-specific examples of physiological, visual and instrument clues during developing and developed	•	•
2.	Pitch/power/roll/yaw	•	•
3.	Effective scanning (effective monitoring)	•	•
4.	Type-specific stall protection systems and cues	•	•
5.	Criteria for identifying stalls and upsets	•	•
H.	**System malfunction** (including immediate handling and subsequent operational considerations, as		
1.	Flight control defects	•	•
2.	Engine failure (partial or full)	•	•
3.	Instrument failures	•	•
4.	Loss of reliable airspeed (see also point (lb) of this	•	•
5.	Automation failures	•	•
6.	Fly-by-wire (FBW) protection degradations	•	•
7.	Stall protection system failures including icing alerting	•	•

(lb) Flight path management (manual or automatic, as appropriate) during unreliable airspeed indication and other failures at high altitude in aeroplanes with a maximum cruising altitude above FL300

The following training elements should be integrated into type rating training courses for aeroplanes with a maximum cruising altitude above FL300:

Element	TK instruction	FSTD / Aeroplane
Basic flight physics principles concerning flight at high altitude, with a particular emphasis on the relative proximity of the critical Mach number and the stall, pitch behaviour, and an understanding of the reduced stall	•	•
Interaction of the automation (autopilot, flight director, auto- throttle/auto-thrust) and the consequences of failures inducing disconnection of the automation.	•	•
Consequences of an unreliable airspeed and other failures indication at high altitude and the need for the flight crew to promptly identify the failure and react with appropriate (minimal) control inputs to keep the aircraft in a safe	•	•

Element	TK instruction	FSTD / Aeroplane
Degradation of FBW flight control laws/modes and its consequence on aircraft stability and flight envelope protections, including stall warnings.	•	•
Practical training, using appropriate simulators, on manual handling at high altitude in normal and in non-normal flight control laws/modes, with particular emphasis on pre-stall buffet, the reduced stall angle of attack when compared with low altitude flight, and the effect of pitch inputs on the		•

The requirement to promptly and accurately apply the stall recovery procedure, as provided by the aircraft manufacturer, at the first indication of an impending stall. Differences between high-altitude and low-altitude stalls	•	•
Procedures for taking over and transferring manual control of the aircraft, especially for FBW aeroplanes with	•	•
Task sharing and crew coordination in high workload/stress conditions with appropriate call-out and acknowledgement to confirm changes to the aircraft flight control law/mode.	•	•

SKILL TEST

(ttt) (m)examiner to demonstrate adequate competency of aircraft operation for issue of the type rating. The skill test should be separate from the flight training syllabus, and provision for it cannot be included in the minimum requirements or training hours of the agreed flight training programme. The skill test may be conducted in an FFS, the aeroplane or, in exceptional circumstances, a combination of both.

COURSE COMPLETION CERTIFICATE

(uuu) (n)The HT, or a nominated representative, should certify that all training has been carried out before an applicant undertakes a skill test for the type rating to be included in the pilot's licence. If an ATO is unable to provide certain elements of the training that is required to be carried out on an aircraft the ATO may issue such a certificate confirming the completion of the ground training or the training in an FSTD.

AMC3 ORA.ATO.125 Training programme

TYPE RATING COURSES - HELICOPTERS

(a) Introduction

(1) when developing the training programme for a type rating course, in addition to complying with the standards included in the OSD as established in accordance with Regulation LYCAR AIRCREW for the applicable type, the ATO should also follow any further recommendations contained therein.

(2) the course should, as far as possible, provide for integrated ground, FSTD and flight training designated to enable the student to operate safely and qualify for the grant of a type rating. The course should be directed towards a helicopter type, but where variants exist, all flying and ground training forming the basis of the course should relate to a single variant.

(b) Variants

(1) Familiarisation training: where a helicopter type rating also includes variants of the same aircraft type requiring familiarisation training, the additional familiarisation training may be included in the theoretical knowledge training of the initial type rating course.

(2) Differences training: where a helicopter type rating also includes variants of the same aircraft type for which difference training is required, the initial training course should be directed towards a single variant. Additional training to operate other variants within the same type rating should be completed after successful completion of the initial type rating course, although elements of this differences training may be undertaken at appropriate stages of the initial course, with the agreement of the LyCAA.

(c) Training in helicopter and FSTDs

The training programme should specify the amounts of flight training in the helicopter type and in FSTDs (FFSs, flight training devices (FTDs), or other training devices (OTDs)). Where a suitable FFS is geographically remote from the normal training base, the LyCAA may agree to some additional training being included in the programme at a remote facility.

(d) Skill test

The content of the flight training programme should be directed towards the skill test for that type. The practical training given in Part-FCL should be modified as necessary.

The skill test may be completed in a helicopter, in an FFS or partially in a helicopter and in an FSTD. The use of an FSTD for skill tests is governed by the level of approval of the flight simulator and the previous

experience of the candidate. Where an FSTD is not available, abnormal operations of systems should not be practised in a helicopter other than as allowed for in the skill test form for the type.

(e) Phase progress tests and final theoretical knowledge examination

Prior to the final theoretical knowledge examination covering the whole syllabus, the training programme should provide for phase progress tests associated with each phase of theoretical knowledge instruction. The phase progress tests should assess the candidate's knowledge on completion of each phase of the training programme.

(f) Facilities: ground school equipment, training facilities and aids

The ATO should provide, as a minimum, facilities for classroom instruction. Additional classroom training aids and equipment including, where appropriate, computers, should reflect the content of the course and the complexity of the helicopter. For multi-engine and multi-pilot helicopters, the minimum level of ground training aids should include equipment that provides a realistic cockpit working environment. Task analysis and the latest state-of–the-art training technology is encouraged and should be fully incorporated into the training facilities wherever possible. Facilities for self and supervised testing should be available to the student.

(g) Training devices

An FTD or OTD may be provided to supplement classroom training in order to enable students to practice and consolidate theoretical instruction. Where suitable equipment is not available, or is not appropriate, a helicopter or flight simulator of the relevant variant should be available. If an FTD represents a different variant of the same helicopter type for which the student is being trained, then differences or familiarisation training is required.

(h) Computer-based training (CBT)

Where CBT aids are used as a training tool, the ATO should ensure that a fully qualified ground instructor is available at all times when such equipment is being used by course students. Other than for revision periods, CBT lessons should be briefed and debriefed by a qualified ground instructor.

(i) Theoretical knowledge instruction

The theoretical knowledge instruction training should meet the general objectives of giving the student:

(1) a thorough knowledge of the helicopter structure, transmissions, rotors and equipment, powerplant and systems, and their associated limitations;

(2) a knowledge of the positioning and operation of the cockpit controls and indicators for the helicopter and its systems;

(3) a knowledge of performance, flight planning and monitoring, mass and balance, servicing and optional equipment items;

(4) an understanding of system malfunctions, their effect on helicopter operations and interaction with other systems; and

(5) the understanding of normal, abnormal and emergency procedures and giving the student the understanding of potential control problems near the edge of the handling envelope. In particular, the phenomenon of 'servo transparency' (also known as 'jack stall') should be covered for those helicopter types where it is a known problem.

The amount of time and the contents of the theoretical instruction will depend on the complexity of the helicopter type involved and, to some extent, on the previous experience of the student.

(j) Flight training

(1) FSTDs

The level of qualification and the complexity of the type will determine the amount of practical training that may be accomplished in an FSTD, including completion of the skill test. Prior to undertaking the skill test, a student should demonstrate competency in the skill test items during the practical training.

(2) Helicopter (with FSTD)

With the exception of courses approved for ZFTT, the amount of flight time in a helicopter should be adequate for completion of the skill test.

(3) Helicopters (without FSTD)

Whenever a helicopter is used for training, the amount of flight time practical training should be adequate for the completion of the skill test. The amount of flight training will depend on the complexity of the helicopter type involved and, to some extent, on the previous experience of the applicant.

AMC4 ORA.ATO.125 Training programme

FLIGHT TEST TRAINING COURSES – AEROPLANES AND HELICOPTERS

(a) Introduction

(1) The flight test training course should, as far as possible, provide for a continuous process of ground and flight training to enable the student to assimilate the knowledge and skills required to conduct flight testing safely and efficiently. The student's ability to do this should

be determined by the demonstration of a satisfactory level of theoretical knowledge of flight testing determined by progressive checking of knowledge and examination and progressive assessment by the ATO during flying training. There should be no difference in the level of knowledge or competency required of the student, irrespective of the intended role of the student as test pilot or other flight test personnel (for example, flight test engineer) within the flight crew.

(2) The flight test training course should normally be conducted as a single, full-time course of study and training.

(b) Programme of theoretical knowledge and flight training

(1) The training programme should specify the time allocated to theoretical knowledge training and flying training.

(2) If the ATO wishes to provide a flight test training course that includes credit for previous experience on flight testing activity, the entry requirements to such courses should be specified by the ATO and should define the minimum level of experience and qualification required of the flight test crew member.

GROUND TRAINING

(c) Syllabus

(1) The ground training syllabus should provide for the student to gain a thorough understanding of flight testing techniques.

(d) Theoretical knowledge instruction

(1) The theoretical knowledge instruction training should give the student a thorough knowledge of the academic requirements of flight testing.

(e) Facilities and training aids

(1) The ATO should provide adequate facilities for classroom instruction and have available appropriately qualified and experienced instructors. Training aids should enable students to gain practical experience of flight testing covered by the theoretical knowledge syllabus and enable such practical application of the knowledge to be carried out in a multi-crew environment. Facilities should be made available for student self-study outside the formal training programme.

(f) Computer-based training (CBT)

(1) CBT provides a valuable source of theoretical instruction, enabling the student to progress at his/her own pace within specified time limits. Many such systems ensure that syllabus subjects are fully covered and progress can be denied until a satisfactory assimilation of knowledge has been demonstrated. Such systems may allow self-study or distance learning, if they incorporate adequate knowledge testing procedures. When CBT is used as part of the theoretical knowledge instruction phase, the student should also have access to a suitably qualified instructor able to assist with areas of difficulty for the student.

(g) Self-study and distance learning

(1) Elements of the theoretical knowledge syllabus may be adequately addressed by distance learning, if approved, or self-study, particularly when utilising CBT. Progress testing, either by self-assessed or instructor-evaluated means, should be included in any self-study programme. If self-study or distance learning is included in the theoretical knowledge training, the course should also provide for an adequate period of supervised consolidation and knowledge testing prior to the commencement of flight training.

(h) Progress tests and final theoretical knowledge examination

(1) The theoretical knowledge training programme should provide for progressive testing of the assimilation of the required knowledge. This testing process should also provide for retesting of syllabus items so that a thorough understanding of the required knowledge is assured. This should be achieved by intervention by a qualified instructor or, if using CBT with a self-testing facility, and by further testing during the supervised consolidation phase of the ground course.

(2) The theoretical knowledge examinations should cover all areas of the theoretical knowledge syllabus. The examinations should be conducted as supervised written or oral knowledge tests without reference to course material. The pass mark (as defined by the ATO) assumes the achievement of satisfactory levels of knowledge during the progressive phase tests of the course. The student should be advised of any areas of lack of knowledge displayed during the examination and, if necessary, given remedial instruction.

FLIGHT TRAINING

(i) Aeroplane and helicopter training

(1) It is widely accepted that flying training normally involves inherent delay in achieving an acceptable flight situation and configuration for training to be carried out in accordance

with the agreed syllabus. These could include ATC or other traffic delay on the ground prior to take off, the necessity to climb to height or transit to suitable training areas and the unavoidable need to physically reposition the aircraft for subsequent or repeat manoeuvres or instrument approaches. In such cases it should be ensured that the training syllabus provides adequate flexibility to enable the minimum amount of required flight training to be carried out.

FINAL IN-FLIGHT EXERCISE

(j) Upon completion of the flight test training, the test pilot or flight test engineer will be required to undergo in-flight exercise with a flight test instructor (FTI) to demonstrate adequate competency of flight testing for issue of the flight test rating. The final in-flight exercise must be conducted in an appropriate aeroplane or helicopter (as applicable).

COURSE COMPLETION CERTIFICATE

(k) The HT is required to certify that the applicant has successfully completed the training course.

GM1 ORA.ATO.125 Training programme

UPSET PREVENTION AND RECOVERY TRAINING (UPRT)

(a) General

The objective of the UPRT is to ensure that pilots are competent to prevent or recover from a developing or developed aeroplane upset. Prevention training prepares pilots to avoid upsets whereas recovery training prepares pilots to prevent an accident once an upset condition has developed.

(vvv) Human factors

Threat and Error Management (TEM) and Crew Resource Management (CRM) principles should be integrated into the UPRT. In particular, the surprise and startle effect as well as the importance of resilience development should be emphasised.

Training should also emphasise that an actual upset condition may expose pilots to significant physiological and psychological challenges, such as visual illusions, spatial disorientation and unusual G-forces, with the objective of developing strategies to deal with such challenges.

(www) Development of training scenarios

During the development of training scenarios, the ATO should ensure that all of the following is avoided:

(1) negative training and negative transfer of training; and

(2) training utilising predictive scenarios.

Please refer to Revision 2 of the Airplane Upset Recovery Training Aid (AURTA) for further guidance on the development of training scenarios.

(xxx) Additional guidance

Specific guidance to the UPRT elements and exercises is available in:

(3) the latest revision of the ICAO Doc 10011 ‘Manual on Aeroplane Upset Prevention and Recovery Training’;

(4) Revision 3 of the Airplane Upset Prevention and Recovery Training Aid (AUPRTA); and

(5) the Flight Safety Foundation publication ‘A Practical Guide for Improving Flight Path Monitoring’, November 2014.

(yyy) Training platform

(6) When designing a training course, ATOs should select aeroplanes that are suitable for all the required training exercises. Where certain exercises require particular capabilities, then an ATO may consider the use of different aeroplanes for different exercises. Examples include basic UPRT or instrument flight training and the advanced UPRT course.

(7) For basic UPRT training conducted during the CPL or ATP courses, it is not anticipated that aerobatic category aeroplanes will be required or that aircraft need to be certificated for intentional spins. Aeroplanes with a maximum bank angle limitation may not be suitable for exercises such as steep turns or recovery from spiral dive.

(8) For the advanced UPRT course (FCL.745), the use of an aeroplane certificated in the aerobatic category will provide the greatest safety margin. Aeroplanes certificated in the normal or utility category may also be suitable provided the exercises used during the training take into account the capabilities of the aeroplane and are planned to remain within the training envelope for the aeroplane, as determined by the ATO (see point (f)).

(zzz) Training envelope

The training envelope is the envelope within which all training exercises will be carried out. It should be specified by the ATO in terms of the range of attitudes, speed and g-loads that can be used for training, taking into account:

(9) the training environment;

(10) the capabilities of the instructors; and

(11) in the case of training in FSTDs, the limitations of the FSTD (as per GM3 FCL.010 for the FSTD training envelope); and

(12) in the case of training in aeroplanes, the capabilities and certification of the aircraft, while considering a margin of safety in order to ensure that unintentional deviations from the training envelope will not exceed aircraft limitations. Different training envelopes may be specified for different aeroplane types even within a single training course.

AMC1 ORA.ATO.135 Training aircraft and FSTDs

ALL ATOs, EXCEPT THOSE PROVIDING FLIGHT TEST TRAINING

(a) The number of training aircraft may be affected by the availability of FSTDs.

(b) Each training aircraft should be:

(1) equipped as required in the training specifications concerning the course in which it is used;

(2) except in the case of balloons or single-seat aircraft, fitted with primary flight controls that are instantly accessible by both the student and the instructor (for example dual flight controls or a centre control stick). Swing-over flight controls should not be used.

(aaaa) The fleet should include, as appropriate to the courses of training:

(3) aircraft suitably equipped to simulate instrument meteorological conditions (IMC) and for the instrument flight training required. For flight training and testing for the instrument rating and the en route instrument rating (EIR), an adequate number of IFR-certificated aircraft should be available;

(4) in the case of aeroplanes and sailplanes, aircraft suitable for demonstrating stalling and spin avoidance;

(5) for the flight instructor (FI) training courses on aeroplanes and sailplanes, aircraft suitable for spin recovery at the developed stage;

(6) in the case of helicopters, helicopters suitable for autorotation demonstration;

(7) in the case of a non-complex ATO, one aircraft fulfilling all the required characteristics for a training aircraft might be sufficient;

(8) each FSTD should be equipped as required in the training specifications concerning the course in which it is used.

AMC1 ORA.ATO.140 Aerodromes and operating sites

GENERAL

(a) Except in the case of balloons, the base aerodrome or operating site and any alternative base aerodromes at which flight training is being conducted should have at least the following facilities:

(1) at least one runway or final approach and take-off area (FATO) that allows training aircraft to make a normal take-off or landing within the performance limits of all the aircraft used for the training flights.

(2) a wind direction indicator that is visible at ground level from the ends of each runway or at the appropriate holding points;

(3) adequate runway electrical lighting if used for night training;

(4) an air traffic service, except for uncontrolled aerodromes or operating sites where the training requirements may be satisfied safely by another acceptable means of air-to-ground communication.

(bbbb) Except in the case of ATOs providing flight test training, in addition to (a), for helicopters, training sites should be available for:

(5) confined area operation training;

(6) simulated engine off autorotation; and

(7) sloping ground operation.

(cccc) In the case of balloons, the take-off sites used by the ATO should allow a normal take-off and clearing of all obstacles in the take-off flight path by at least 50 ft.

AMC1 ORA.ATO.145 Pre-requisites for training

ENTRANCE REQUIREMENTS

ATOs providing training for other than the PPL and the associated ratings and certificates should establish entrance requirements for students in their procedures. The entrance requirements should ensure that the students have enough knowledge, particularly of physics and mathematics, to be able to follow the courses.

SECTION II - ADDITIONAL REQUIREMENTS FOR ATOs PROVIDING TRAINING FOR CPL, MPL AND ATPL AND THE ASSOCIATED RATINGS AND CERTIFICATES

AMC1 ORA.ATO.210 Personnel requirements

GENERAL

(a) The management structure should ensure supervision of all grades of personnel by persons having the experience and qualities necessary to ensure the maintenance of high standards. Details of the management structure, indicating individual responsibilities, should be included in the ATOs operations manual.

(b) The ATO should demonstrate to the LyCAA that an adequate number of qualified, competent staff is employed.

(c) In the case of an ATO offering integrated courses, the HT, the chief flying instructor (CFI) and the chief theoretical knowledge instructor (CTKI) should be employed full- time or part-time, depending upon the scope of training offered.

(d) In the case of an ATO offering only one of the following:

(1) modular courses,

(2) type rating courses,

(3) theoretical knowledge instruction,

the positions of HT, CFI and CTKI may be combined and filled by one or two persons with extensive experience in the training conducted by the training organisation, full- time or part-time, depending upon the scope of training offered.

(dddd) The ratio of all students to flight instructors, excluding the HT, should not exceed 6:1.

(eeee) Class numbers in ground subjects involving a high degree of supervision or practical work should not exceed 28 students.

THEORETICAL KNOWLEDGE INSTRUCTORS

(ffff) The theoretical knowledge instruction for type or class ratings should be conducted by instructors holding the appropriate type or class rating, or having appropriate experience in aviation and knowledge of the aircraft concerned.

(gggg) For this purpose, a flight engineer, a maintenance engineer or a flight operations officer should be considered as having appropriate experience in aviation and knowledge of the aircraft concerned.

AMC2 ORA.ATO.210 Personnel requirements

QUALIFICATION OF HEAD OF TRAINING AND CHIEF FLIGHT INSTRUCTOR

(a) Head of training (HT)

The nominated HT should hold or have held in the 3 years prior to first appointment as HT, a professional pilot licence and associated ratings or certificates issued in accordance with Part-FCL, related to the flight training courses provided.

(hhhh) Chief flight instructor (CFI)

(1) The CFI may delegate standardisation and supervision to the flight instructors. In all cases it is the CFI who is ultimately responsible for ensuring quality and standards.

(2) The CFI should, except in the case of ATOs providing flight test training, have completed 1 000 hours of flight time as pilot-in-command (PIC). At least 500 of those hours should be on flying instructional duties related to the flying courses provided, of which 200 hours may be instrument ground time.

AMC1 ORA.ATO.230(a) Training manual and operations manual

TRAINING MANUAL

Training manuals for use at an ATO to conduct integrated or modular flight training courses should include the following:

(a) The training plan:

(1) The aim of the course (ATP, CPL/IR, CPL, etc. as applicable)	A statement of what the student is expected to do as a result of the training, the level of performance, and the training constraints to be observed.
(2) Pre-entry requirements	Minimum age, educational requirements (including language), medical requirements; reserved
(3) Credits for previous experience	To be obtained from the LyCAA before training begins.
(4) Training syllabi	As applicable, the flying syllabus (single-engine or multi-engine, as applicable), the flight simulation training syllabus and the theoretical knowledge training syllabus.
(5) The time scale and scale, in weeks, for each syllabus	Arrangements of the course and the integration of syllabi time.
(6) Training programme	(i) The general arrangements of daily and weekly programmes for flying, theoretical knowledge training and training in FSTDs, if applicable; (ii) Bad weather constraints; (iii) Programme constraints in terms of maximum student training times, (flying, theoretical knowledge, on FSTDs), for example per day, week or month; (iv) Restrictions in respect of duty periods for students; (v) Duration of dual and solo flights at various stages; (vi) Maximum flying hours in any day or night; (vii) Maximum number of training flights in any day or night; (viii) Minimum rest period between duty periods.
(7) Training records	(i) Rules for security of records and documents; (ii) Attendance records; (iii) The form of training records to be kept; (iv) Persons responsible for checking records and students' log books; (v) The nature and frequency of record checks; (vi) Standardisation of entries in training records; (vii) Rules concerning log book entries.
(8) Safety training	(i) Individual responsibilities; (ii) Essential exercises; (iii) Emergency drills (frequency);

	(iv) Dual checks (frequency at various stages); (v) Requirement before first solo day, night or navigation etc. if applicable.
(9) Assessments, Tests and examinations	(i) Flying: (A) progress checks; (B) skill tests. (ii) Theoretical knowledge: (A) progress tests; (B) theoretical knowledge examinations. (C) Area 100 KSA assessments (iii) Authorisation for test; (iv) Rules concerning refresher training before retest; (v) Test and assessment reports and records; (vi) Procedures for examination paper preparation, type of question and assessment, standard required for 'pass'; (vii) Procedure for question analysis and review and for raising replacement papers; (viii) Examination resit procedures.
(10) Training effectiveness	(i) Individual responsibilities; (ii) General assessment; (iii) Liaison between departments; (iv) Identification of unsatisfactory progress (individual students); (v) Actions to correct unsatisfactory progress; (vi) Procedure for changing instructors; (vii) Maximum number of instructor changes per student; (viii) Internal feedback system for detecting training deficiencies; (ix) Procedure for suspending a student from training; (x) Discipline; (xi) Reporting and documentation.
(11) Standards and level of performance at various stages	(i) Individual responsibilities; (ii) Standardisation; (iii) Standardisation requirements and procedures; (iv) Application of test criteria.

(a) Briefing and air exercises:

(1) Air exercise	A detailed statement of the content specification of all the air exercises to be taught, arranged in the sequence to be flown with main and subtitles.
(2) Air exercise reference list	An abbreviated list of the above exercises giving only main and subtitles for quick reference, and preferably in flip-card form to facilitate daily use by instructors.

(3) Course structure: phase of training	A statement of how the course will be divided into phases, indication of how the above air exercises will be divided between the phases and how they will be arranged to ensure that they are completed in the most suitable learning sequence and that essential (emergency) exercises are repeated at the correct frequency. Also, the syllabus hours for each phase and for groups of exercises within each phase should be stated and when progress tests are to be
(4) Course structure: integration of syllabi	The manner in which theoretical knowledge and flight training in an aircraft or an FSTD will be integrated so that as the flying training exercises are carried out students will be able to apply the knowledge gained from the associated theoretical knowledge instruction and flight training.
(5) Student progress	The requirement for student progress and include a brief but specific statement of what a student is expected to be able to do and the standard of proficiency he/she must achieve before progressing from one phase of air exercise training to the next. Include minimum experience requirements in terms of hours, satisfactory exercise completion, etc. as necessary before significant exercises,
(6) Instructional methods	The ATO requirements, particularly in respect of pre- and post- flying briefing, adherence to syllabi and training specifications, authorisation of solo flights, etc.
(7) Progress tests	The instructions given to examining staff in respect of the conduct and documentation of all progress tests.
(8) Glossary of terms	Definition of significant terms as necessary.
(9) Appendices	Progress test report forms; Skill test report forms; ATO certificates of experience, competence, etc. as required.

(iiii) Flight training in an FSTD, if applicable: Structure generally as for (b)

(jjjj) Theoretical knowledge instruction:

(1) Structure of the theoretical knowledge course	A statement of the structure of the course, including the general sequence of the topics to be taught in each subject, the time allocated to each topic, the breakdown per subject and an example of a course schedule. Distance learning courses should include instructions of the material to be studied for individual elements of the
(2) Lesson plans	A description of each lesson or group of lessons including teaching materials, training aids, progress test organisation and inter-connection of topics with other
(3) Teaching materials	Specification of the training aids to be used (for example study materials, course manual references, exercises, self- study materials, demonstration equipment).
(4) Student progress	The requirement for student progress, including a brief but specific statement of the standard that must be achieved and the mechanism for achieving this, before application for theoretical knowledge examinations.
(5) Progress testing	The organisation of progress testing in each subject, including topics covered, evaluation methods and documentation.

(6) Review procedure	The procedure to be followed if the standard required at any stage of the course is not achieved, including an agreed action plan with remedial training if required.
7) Appendices	(i) Examples of Area 100 KSA summative assessments; (ii) Area 100 KSA mental maths test example.'

AMC2 ORA.ATO.230(a) Training manual and operations manual

THEORETICAL KNOWLEDGE COURSE DESIGN REQUIREMENTS

An ATO that delivers theoretical knowledge instruction for professional pilot licences should

ensure that:

(a) the courses are designed and developed using the instructional systems design (ISD) methodology, which is supported by a robust and effective management system;

(b) the courses include a standardised and dynamic assessment and testing system;

(c) instructors that deliver KSA instruction have received appropriate training covering at least learning styles, teaching methods, facilitation techniques, threat and error management (TEM), the applicable competencies, and the content of the subject(s) and exercises that they are to deliver;

(d) the recurrent training of instructors is conducted at least annually;

(e) the instructors that are responsible for assessing Area 100 KSA have received appropriate training regarding the assessment(s) that they are to conduct, and are to be standardised to ensure that the assessment grades awarded are consistent across the ATO; this standardisation should include at least familiarisation with the performance indicators, the ATO's word pictures for grading, and the ATO's debriefing system; and

(f) recurrent standardisation training is conducted at least annually to ensure continued inter-rater reliability.'

'AMC3 ORA.ATO.230(a) Training manual and operations manual

AREA KSA 100 02 AND 100 03 LEARNING OBJECTIVES, ASSESSMENTS AND RECORDS

(a) An ATO that delivers theoretical knowledge instruction for professional pilot licences should ensure that for the learning objectives (LOs) in topics 100 02 and 100 03 of Area 100 KSA there are at least two summative assessments and at least one formative assessment. The summative assessments are to be documented in the student's training records. Both the summative assessments and the formative assessment(s) should be debriefed.

(kkkk) The formative assessment(s) should:

(1) be designed such that the student has the opportunity to ask questions and develop competencies in most of the LOs in 100 02 and 100 03 of Area 100 KSA;

(2) be conducted during the training; the ATO may in addition conduct a formative evaluation (continuous assessment) over a specified phase of the course; and

(3) be conducted by an instructor that is trained to deliver the formative assessment.

(llll) (c) The summative assessments should:

(4) be designed so that they collectively give the student the opportunity to demonstrate competency in all LOs in 100 02 and 100 03 of Area 100 KSA; each individual summative assessment may address some of the LOs in 100 02 and 100 03 of Area 100 KSA;

(5) be satisfactorily completed before the student is recommended by the ATO for their first attempt to take the final theoretical knowledge examination paper, and the outcome of the assessments should be included in the student's training record;

(6) require that for a student to be considered that they have achieved a 'Satisfactory' standard, they:

(i) meet at least 35 % (which defines the term 'some' used in the word pictures) of the indicators relevant to the assessment exercise, in each competency;

(ii) have an overall positive effect on the outcome or completion of the exercise without any external input from the instructor, or where the assessment requires the instructor to facilitate the exercise, without the instructor providing any knowledge or corrective input to assist in the completion of the exercise; and

(7) be conducted by an instructor that is trained to deliver the summative assessments.

(mmmm) The training manual should include the following elements regarding the theoretical knowledge training and assessment of the LOs in topics 100 02 and 100 03 of Area 100 KSA:

(8) the positions, or range of positions, of the formative assessment exercise(s) and summative assessment exercises in the training programme;

(9) a description of the summative assessments, including a matrix that shows which Area 100 KSA LOs are covered in each exercise;

(10) the grading system of the Area 100 KSA summative assessment and a description of the ATO's minimum required standard;

(11) the template for the information about Area 100 KSA to be included in the student's training record, which should include at least the dates and result ('Pass' or 'Fail') of the summative assessments and the date and score of the mental maths test;

(12) the method of assessment debriefs for each summative and formative assessment;

(13) for a student who performs below the satisfactory standard in a summative assessment(s), the method to further develop the student's competencies and how to conduct the reassessment.

(nnnn) (e) Access to the information on Area 100 KSA kept in the student's training records should be restricted to the student and authorised ATO personnel, and should not be disclosed outside the ATO. The information on the record should first be de-identified before it is used to support course design improvements.'

AMC4 ORA.ATO.230(a) Training manual and operations manual

AREA 100 04 LEARNING OBJECTIVES: MENTAL MATHS TEST AND RECORDS

(a) An ATO that delivers theoretical knowledge instruction for professional pilot licences should ensure that at least one KSA mental maths test is conducted and the outcome(s) documented in the student's training records.

(b) The mental maths test(s) may be written or oral in format and should, where possible, be scenario- based, with at least two questions per LO in topic 100 04 of Area 100 KSA.

(c) The minimum score to pass the Area 100 KSA mental maths test(s) should be 75 % of the marks allocated to a test. However, a higher pass mark may be defined by the ATO.

(d) The mental maths test(s) should be satisfactorily completed before the student is recommended by the ATO for their first attempt to take their final theoretical knowledge examination paper.'

'GM1 ORA.ATO.230(a) Training manual and operations manual

ASSESSMENT OF STUDENTS IN AREA 100 KSA

(a) The Area 100 KSA formative assessment(s) and summative assessments may include but not be limited to: written planning exercises combining multiple subjects; practical exercises using training devices (if available); scenario-based oral board (viva voce); scenario-based communications exercises; written assignments or project work; and preparation and delivery of group or individual presentations.

(b) The format of formative and summative assessment debriefs should be effective, highlighting the student's strengths and weaknesses and enabling future improvement.

GM2 ORA.ATO.230(a) Training manual and operations manual

AREA 100 KSA WORD PICTURES

(a) Word pictures' are a proven assessment tool that standardises pilot core competencies, and can be used to assess student's competency in the Area 100 KSA LOs in topics 100 02 and 100 03. Word pictures describe the student's performance. Each word picture is associated with a numerical grade; within the range of grades, the minimum acceptable standard is defined. Additionally, a word picture describing performance that falls below the minimum satisfactory standard should be included in the range, as well as additional word pictures that relate to grades which exceed this minimum satisfactory standard.

Word pictures enable the standardisation of the assessment performance and facilitate inter-rater reliability within an ATO.

(oooo) This GM provides two examples of word pictures.

(pppp) The most commonly used word pictures are shown in Section A below. They are based on performance indicators, which explain what the student should demonstrate in order to attain the specific Area 100 KSA LOs that are addressed by the assessment exercise. Word pictures are formed of elements that contain the following:

(1) HOW MANY of the performance indicators were observed and, where relevant, HOW OFTEN;

(2) HOW WELL the competency was demonstrated in the assessment exercise to have an overall positive effect on the outcome or completion of the assessment exercise;

(3) the level of success in the OUTCOME of the assessment exercise.

(qqqq) An ATO could establish its own set of word picture descriptions as long as they are comparable in the grading of each competency, similar to the 'Communication' and 'Application of knowledge, UPRT and resilience' word pictures example in Section B below.

(rrrr) The advantage of word pictures is that they provide meaningful and standard data to enable identification of individual, crew, class, instructor and ATO trends, which can be analysed in order to provide feedback for further improvement or development.

(ssss) An ATO should ensure that the detailed information obtained through its grading in Area 100 KSA is de-identified before using it to support course improvement.

SECTION A — EXAMPLE 1

AREA 100 KSA WORD PICTURE GRADE LEVELS (USING INDICATORS)

(tttt) The example shown below in this Section contains the most commonly used word pictures, which are formed of elements that contain the following:

(4) HOW MANY of the performance indicators in the table further below relevant to that summative assessment were observed in that competency (as a percentage);

(5) HOW WELL the competency was demonstrated in the assessment; and

(6) the level of success in the OUTCOME of the summative assessment.

(uuuu) In order to satisfactorily complete an Area KSA 100 summative assessment, the student should reach at least the minimum satisfactory level in each competency covered by that assessment. In case the student fails to reach the minimum satisfactory level in each competency, the student should repeat the summative assessment or another summative assessment that covers the competency(ies) where performance was previously assessed as unsatisfactory.

Table 1: Example generic competency framework that can be applied for assessing the student's level of performance

Competency	**Level 1** Unsatisfactory	**Level 2** Satisfactory	**Level 3** Good	**Level 4** Very good	**Level 5** Excellent
General description of each competency level. To be applied to each individual competency in LOs 100 02 and 100 03 of Area 100 KSA.	The student's performance in this competency was ineffective or inadequate, which in relation to this competency had a neutral or negative effect on others or on the outcome of the exercise. The student showed none or few of the relevant performance indicators in this competency.	The student's performance in this competency was satisfactory, which had a slightly positive effect on the satisfactory outcome of the exercise, and in group situations had a slightly positive effect on others. The student showed at	The student's performance in this competency was effective, which in the case of an exercise where the student is the only participant, significantly contributed to a good outcome. In group situations, the student's	The student's performance in this competency was highly effective, which in the case of an exercise where the student is the only participant, significantly enhanced the very good outcome. In group situations, the	The student's performance in this competency was exemplary, which in the case of an exercise where the student is the only participant, had an outstanding effect on the excellent outcome of the exercise. In group

		least some* of the relevant performance indicators in this competency.	contribution had a good effect on others and significantly contributed to the overall outcome of the exercise. The student showed most of the relevant performance indicators to a good standard.	student's contribution had a very good effect on others and significantly enhanced the overall outcome of the exercise. The student showed most or all of the relevant performance indicators to a very good standard.	situations, the student's contribution had an excellent effect on others and had an outstanding effect on the overall outcome of the exercise. The student showed all of the relevant performance indicators to an excellent standard.

AREA 100 KSA ASSESSMENT PERFORMANCE INDICATORS

(vvvv) The performance indicators that relate to the LOs in topics 100 02 and 100 03 of Area 100 KSA can be used to form a word picture.

Table 2: Performance indicators relevant to the LOs in topics 100 02 to 100 03 of Area 100 KSA

Competency	**Competency description**	**Indicators**
Communication	Demonstrates effective oral, non-verbal and written communication skills in classroom exercise and assessment situations.	— Ensures the recipient is ready and prepared to receive the information. — Selects appropriately what, when, how and with whom to communicate. — Conveys messages clearly, accurately and concisely. — Confirms that the recipient correctly understands important information. — Listens actively and demonstrates understanding of the information they receive. — Asks relevant and effective questions. — Adheres to standard radio-telephony phraseology. — Accurately reads, interprets, constructs and responds to given documentation in English.

		— Correctly interprets non-verbal communication. — Uses eye contact, body language and gestures that are consistent with and support verbal messages.
Leadership and teamwork	Displays effective leadership and teamwork.	— Creates an atmosphere of open communication and encourages team participation. — Uses initiative and gives directions when required. — Admits mistakes and takes responsibility. — Anticipates and responds appropriately to others' needs. — Carries out instructions when directed. — Communicates relevant concerns and intentions. — Gives and receives feedback constructively. — Demonstrates empathy and shows respect and tolerance for others. — Engages others in planning and allocates activities fairly and appropriately according to abilities. — Addresses and resolves conflicts and disagreements in a constructive manner. — Projects self-control.
Problem-solving and decision-making	Accurately identifies risks and resolves problems. Uses the appropriate decision-making processes.	— Seeks accurate and adequate information from appropriate sources. — Identifies and verifies what and why things have gone wrong. — Employs proper problem-solving strategies. — Perseveres in working through problems. — Uses appropriate decision-making processes in a timely manner. — Sets priorities appropriately. — Identifies and considers options effectively. — Monitors, reviews, and adapts decisions as required. — Identifies and manages risks effectively.
Situation awareness	Perceives and comprehends all the relevant information	— Identifies and assesses accurately the general environment as it may affect the operation.

	available, anticipates what could happen that could affect the exercise or situations discussed in the classroom, and gives effective solutions to resolve the situation.	— Identifies and manages threats, errors, and undesirable aircraft states.
Workload management	Manages available resources or time to efficiently prioritise and complete or perform tasks in a timely manner.	— Maintains self-control. — Plans, prioritises and schedules tasks effectively. — Manages time efficiently when carrying out tasks. — Offers and accepts assistance, delegates when necessary, and asks for help early. — Manages and recovers from interruptions, distractions, variations, and failures effectively.
Application of knowledge, UPRT and resilience	Demonstrates correct and deep understanding of the subject(s), and is able to effectively relate this knowledge between subjects and apply the knowledge for effective threat and error management (TEM).	— Correctly completes pre-flight planning in the practical exercise. — Demonstrates KSA and TEM relating to phases of flight in the ground training environment. — Correctly and effectively applies knowledge to identify and manage threats and errors that could lead to a potential upset in scenario situations. — Recognises potential upset ‘threats’ and suggests effective ‘threat management’ in scenario situations. — Recognises potential upset ‘errors’ and suggests effective ‘error management’ in scenario situations. — Identifies the causes of and contributing factors to upsets in aircraft accident and incident reviews and in reported recovered situations or scenarios. — Is resilient, i.e. recognises and adapts to disruptions during scenarios and other exercises. — Identifies the signs of stress and discusses the effects of stress, fatigue

		and aviation lifestyle on situation awareness, including how to cope with these in order to maintain situation awareness.

SECTION B — EXAMPLE 2

AREA 100 KSA WORD PICTURES (USING DESCRIPTIONS)

(wwww) An ATO may devise its own word pictures for each of the competencies, to be used alongside or combined with those given in EXAMPLE 1.

A descriptive word picture typically includes descriptive examples that the ATO's instructors could readily identify and then equate to given competency levels. Below are two examples (for 'Communication' and 'Application of knowledge, UPRT and resilience').

Table 3: Example word pictures using descriptions

Competency	**Level 1** Unsatisfactory	**Level 2** Satisfactory	**Level 3** Good	**Level 4** Very good	**Level 5** Excellent
Communication	The student's performance in communication had a neutral or negative effect on the exercise or situation. The student may not have contributed to the exercise or the communication was unclear or insufficient. The student may have occasionally interrupted others, not listened, or showed frustration or inappropriate non-objective	The student's written or oral communication was sufficient to convey the intent of the exercise. In oral communication the listener may have rarely needed to ask for clarification which the student then positively and clearly provided. The student listened to instructions but may have occasionally been reticent and hesitant to ask questions or	The student's written or oral communication was good. Explanations, discussions, directions and comments were well-structured and clear. The student listened to others actively and when unsure asked appropriate questions to seek clarification. The student showed appropriate confidence and open body language.	The student's written or oral communication was consistently very good. All communication was clear, concise and well-structured, which ensured a very effective outcome. In group situations, the student's ability to interpret others' body language, and the use of body language to ensure a positive outcome,	The student's communication skills were exemplary. At all times the student observed others and ensured that their own communication was extremely effective. In group situations, the student's communication enabled all members to contribute to their greatest ability whilst also ensuring an excellent outcome of the exercise.

	communication. The student may have asked unrelated or unclear questions, or provided insufficient clarity in directions or comments for others to understand. The student may have written without structure or clarity.	make comments. The student may have rarely shown underconfidence or passiveness during the exercise. However, overall their communication was sufficient to ensure a positive outcome of the exercise.		was very effective. At all times the student was calm, engaged and confident.	In group situations, when appropriate, the student proactively and subtly managed the group's mood or motivated the group members appropriately.
Application of knowledge, UPRT and resilience	The student's knowledge was at times insufficient or incorrect, which had an adverse effect on the exercise. The student displayed limited ability to relate knowledge between subjects or to apply knowledge to scenarios, exercises or in answers to questions.	The student had the minimum acceptable level of knowledge to complete the exercise to a satisfactory standard. The student occasionally demonstrated the ability to relate knowledge between subjects. The student could identify some threats or errors, and when presented with a threat or error could in most situations suggest at least one possible effective	The student demonstrated a good level of knowledge with the ability to relate this knowledge effectively between subjects and in scenario exercises or situations. The student identified many threats and errors, and when presented with threats or errors used their knowledge effectively to suggest appropriate mitigations and actions.	The student demonstrated a very good level of knowledge, and correctly and readily related this knowledge across subjects and in scenario situations. The student identified most threats and errors, and immediately used their knowledge to manage them effectively.	The student had an excellent level of understanding which they immediately and appropriately applied across subjects and to the exercise or scenario situation. The student identified all actual threats and errors in scenario situations, anticipated some possible threats and errors (what if's), and used their knowledge to manage them efficiently and

		method of mitigation.			very effectively.'

GM3 ORA.ATO.230(a) Training manual and operations manual

AREA 100 KSA EXERCISES AND ASSESSMENTS

Exercises and assessments are to be interwoven into the theoretical knowledge training, utilising a range of learning styles; they should address subject or cross-subject topics, with the application of threat and error management (TEM) and, where possible, be scenario-based. The exercises and assessments do not need to be confined to a classroom.

(a) Area 100 KSA exercises may be of short duration within a lesson, and the student's performance in the exercises does not need to be recorded, although the main subject and KSA learning points are likely to be discussed (or for distance learning, reviewed) within a post exercise debrief or lesson summary. To allow for flexibility and development, the exercises do not need to be specified in the training plan.

(b) When a single formative assessment is specified in the training plan, it is likely to be extensive as it will cover many of the LOs in Area KSA 100 02 and 100 03. Alternatively, an ATO may specify a number of shorter-duration formative assessments that each covers a narrower range of LOs, and these may build in terms of content difficulty.

(c) The exercises and formative and summative assessments may include but not be limited to: scenario planning exercises combining multiple subjects; practical exercises using training devices (where available); oral communication exercises; written assignments and/or project work; discussions; the preparation and delivery of group or individual presentations and discussions; and enable scenario- based content and individual, pair or group situation(s).

(d) The type of assessment and the environment should be recorded in the ATO's training plan.'

GM4 ORA.ATO.230(a) Training manual and operations manual

AREA 100 KSA INSTRUCTION AND ASSESSMENT TRAINING

(a) The following material has been developed to provide additional guidance to organisations to help them develop an effective KSA 100 instruction and assessment training programme that satisfies the provisions in AMC2 ORA.ATO.230 (c) to (f).

(xxxx) An ATO should ensure that an instructor who conducts the Area 100 KSA formative assessment(s) has received adequate training to be familiar with the:

(1) relevant competencies and performance indicators;

(2) Area 100 KSA Learning Objectives (LOs);

(3) formative assessment(s) that they will conduct including: the applicable LOs, purpose and content of the assessment(s) and position(s) in the training plan, assessment resources, assessment environment;

(4) Area 100 KSA grading system, including familiarisation with the performance indicators and the ATO's word pictures; and

(5) student debrief methods and procedure.

(yyyy) An ATO should ensure that an instructor who conducts the Area 100 KSA summative assessments has received adequate training to be familiar with:

(6) the summative assessments that they will conduct including: the applicable LOs, purpose and content of the exercise(s) and position(s) in the training plan, assessment resources, assessment environment, and the minimum acceptable level;

(7) the assessment feedback, evaluation and development process; and

(8) KSA candidate appeal procedure.

(zzzz) An Area 100 KSA instruction and assessment course should include practical training on the conduct of an assessment, including grading to achieve inter-rater reliability, and the debrief under supervision.'

GM5 ORA.ATO.230(a) Training manual and operations manual

INSTRUCTIONAL SYSTEMS DESIGN

(a) The instructional systems design (ISD) provides a systematic and iterative process for course design based on educational best practices. There are several effective ISD models in use today, with the analyse, design, develop, implement and evaluate (ADDIE) framework being generic to all.

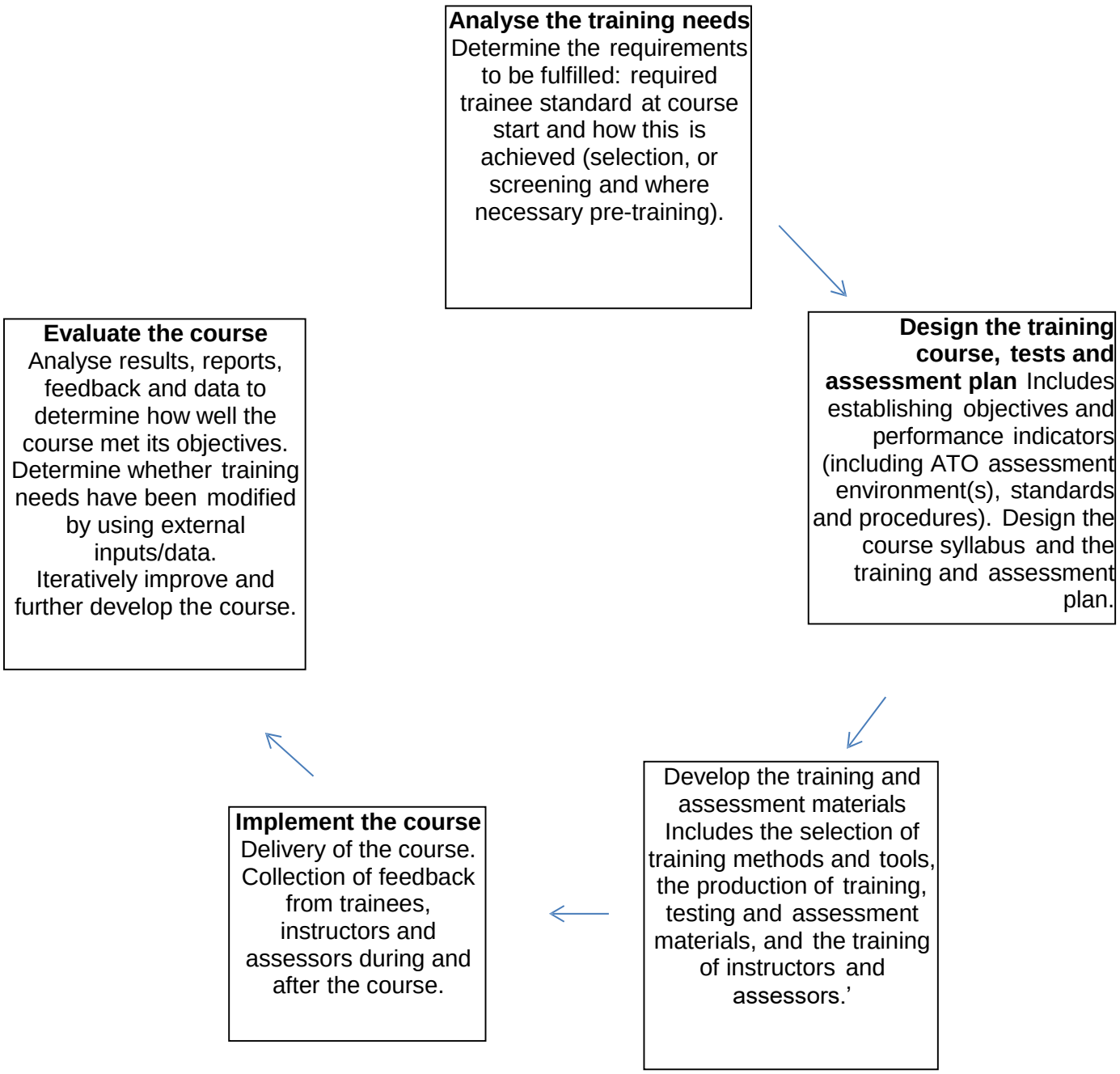
The purpose of using ISD to design training courses is to facilitate the students' efficient and

effective acquisition of knowledge and skills based on current training needs.

(b) To provide evidence of the effective use of the ISD methodology in the design and continued development of their course(s), an ATO may use documentation and records that relate to the ISD phases.

(d) ADDIE model example. The 'analysis', 'design', 'development', 'implementation' and

'evaluation' phases of the ADDIE model are shown below with brief phase descriptions.


Analyse the training needs Determine the requirements to be fulfilled: required trainee standard at course start and how this is achieved (selection, or screening and where necessary pre-training).
Design the training course, tests and assessment plan Includes establishing objectives and performance indicators (including ATO assessment environment(s), standards and procedures). Design the course syllabus and the training and assessment plan.
Develop the training and assessment materials Includes the selection of training methods and tools, the production of training, testing and assessment materials, and the training of instructors and assessors.'
Implement the course Delivery of the course. Collection of feedback from trainees, instructors and assessors during and after the course.
Evaluate the course Analyse results, reports, feedback and data to determine how well the course met its objectives. Determine whether training needs have been modified by using external inputs/data. Iteratively improve and further develop the course.

AMC1 ORA.ATO.230(b) Training manual and operations manual

ALL ATOs, EXCEPT THOSE PROVIDING FLIGHT TEST TRAINING OPERATIONS MANUAL

The operations manual for use at an ATO conducting integrated or modular flight training courses should include the following:

(a) General:

(1) a list and description of all volumes in the operations manual;

(2) administration (function and management);

(3) responsibilities (all management and administrative staff);

(4) student discipline and disciplinary action;

(5) approval or authorisation of flights;

(6) preparation of flying programme (restriction of numbers of aircraft in poor weather);

(7) command of aircraft;

(8) responsibilities of the PIC;

(9) carriage of passengers;

(10) aircraft documentation;

(11) retention of documents;

(12) flight crew qualification records (licences and ratings);

(13) revalidation (medical certificates and ratings);

(14) flight duty period and flight time limitations (flying instructors);

(15) flight duty period and flight time limitations (students);

(16) rest periods (flight instructors);

(17) rest periods (students);

(18) pilots' log books;

(19) flight planning (general);

(20) safety (general): equipment, radio listening watch, hazards, accidents and incidents (including reports), safety pilots etc..

(aaaaa) Technical:

(21) aircraft descriptive notes;

(22) aircraft handling (including checklists, limitations, maintenance and technical logs, in accordance with relevant requirements, etc.);

(23) emergency procedures;

(24) radio and radio navigation aids;

(25) allowable deficiencies (based on the master minimum equipment list (MMEL), if available).

(bbbbb) Route:

(26) performance (legislation, take-off, route, landing etc.);

(27) flight planning (fuel, oil, minimum safe altitude, navigation equipment etc.);

(28) loading (load sheets, mass, balance and limitations);

(29) weather minima (flying instructors);

(30) weather minima (students – at various stages of training);

(31) training routes or areas.

(ccccc) Personnel training

(32) Appointments of persons responsible for standards/competence of flight personnel;
(33) initial training;
(34) refresher training;
(35) standardisation training;
(36) proficiency checks;
(37) upgrading training;
(38) ATO personnel standards evaluation.

SECTION III - ADDITIONAL REQUIREMENTS FOR ATOs PROVIDING SPECIFIC TYPES OF TRAINING

Chapter 1 – Distance Learning Course

AMC1 ORA.ATO.300 General

DISTANCE LEARNING

(a) A variety of methods is open to ATOs to present course material. It is, however, necessary for ATOs to maintain comprehensive records in order to ensure that students make satisfactory academic progress and meet the time constraints laid down in Part-FCL for the completion of modular courses.

(b) The following are given as planning guidelines for ATOs developing the distance learning element of modular courses:

(1) an assumption that a student will study for at least 15 hours per week;

(2) an indication throughout the course material of what constitutes a week's study;

(3) a recommended course structure and order of teaching;

(4) one progress test for each subject for every 15 hours of study, which should be submitted to the ATO for assessment. Additional self-assessed progress tests should be completed at intervals of five to 10 study hours;

(5) appropriate contact times throughout the course when a student can have access to an instructor by telephone, fax, email or the Internet;

(6) measurement criteria to determine whether a student has satisfactorily completed the appropriate elements of the course to a standard that, in the judgement of the HT, or CGI, will enable them to be entered for the Part-FCL theoretical examinations with a good prospect of success;

(7) if the ATO provides the distance learning by help of IT solutions, for example the Internet, instructors should monitor students' progress by appropriate means.

(ddddd) Where an assessment (e.g. planning, written, scenario or practical exercise, or other assessment) is conducted outside the classroom via distance learning, the ATO should have a procedure or process in place to establish that the student themselves have completed the assessment and that the assessment method(s) for that particular exercise has (have) been effective.

Chapter 2 - Zero Flight-Time Training (ZFTT)

AMC1 ORA.ATO.330 General

INITIAL APPROVAL

For an initial approval to conduct ZFTT, the operator should have held an air operator's certificate for commercial air transport for at least 1 year. This period may be reduced where the operator and the ATO have experience of type rating training.

SUBPART FSTD –REQUIREMENTS FOR ORGANISATIONS OPERATING FLIGHT SIMULATION TRAINING DEVICES (FSTDS) AND THE QUALIFICATION OF FSTDS

SECTION I - REQUIREMENTS FOR ORGANISATIONS OPERATING FSTDS

AMC1 ORA.FSTD.100 General

COMPLIANCE MONITORING PROGRAMME – ORGANISATIONS OPERATING FSTDS

(a) Introduction.

(1) The purpose of this AMC is to provide additional and specific information to an organisation operating FSTDs on how to establish a compliance monitoring programme (CMP) that enables compliance with the applicable requirements.

(eeeee) Compliance monitoring programme

(2) Typical subject areas for inspections are the following:

(i) actual FSTD operation;

(ii) maintenance;

(iii) technical Standards;

(iv) FSTD safety features.

(fffff) Audit scope

(3) Organisations operating FSTDs are required to monitor compliance with the procedures they have designed to ensure specified performance and functions. In doing so they should as a minimum, and where appropriate, monitor the following:

(i) organisation;

(ii) plans and objectives;

(iii) maintenance procedures;

(iv) FSTD qualification level;

(v) supervision;

(vi) FSTD technical status;

(vii) manuals, logs and records;

(viii) defect deferral;

(ix) personnel training;

(x) aircraft modifications;

(xi) FSTD configuration management.

AMC2 ORA.FSTD.100 General

COMPLIANCE MONITORING PROGRAMME –ORGANISATIONS OPERATING FSTDS

One acceptable means of measuring FSTD performance is contained in ARINC report 433-1 (December 14th, 2007 or as amended) *Standard Measurements for Flight Simulation Quality*.

AMC3 ORA.FSTD.100 General

COMPLIANCE MONITORING PROGRAMME – ORGANISATIONS OPERATING BASIC INSTRUMENT TRAINING DEVICES (BITDs)

(a) The compliance monitoring programme together with a statement acknowledging completion of a periodic review by the accountable manager should include the following:

(1) a maintenance facility that provides suitable BITD hardware and software test and maintenance capability;

(2) a recording system in the form of a technical log in which defects, deferred defects and development work are listed, interpreted, actioned and reviewed within a specified time scale; and

(3) planned routine maintenance of the BITD and periodic running of the qualification test guide (QTG) with adequate manning to cover BITD operating periods and routine maintenance work.

(ggggg) A planned audit schedule and a periodic review should be used to verify that corrective action was carried out and that it was effective. The auditor should have adequate knowledge of BITDs.

GM1 ORA.FSTD.100 General

COMPLIANCE MONITORING – ORGANISATIONS OPERATING FSTDS – GENERAL

(a) The concept of compliance monitoring (CM) is a fundamental requirement for organisations operating FSTDs. An effective CM function is vitally important in supporting operation of the devices, in a structured way, to ensure they remain in compliance with the technical standards of CS-FSTD(A) and CS-FSTD(H) and continue to be effective training tools. An effective CM function is also essential to support any level of extended recurrent evaluation period as permitted by ORA.FSTD.225(b).

(b) The following guidance has been developed to provide additional material to help both organisations operating FSTDs and competent authorities in developing effective CM that satisfy the applicable requirements and ensure the highest standards of training are maintained.

(c) Additional GM provide a compliance checklist for organisations operating FSTDs (GM2 ORA.FSTD.100) and guidance detailing the preparation for an evaluation by the LyCAA (GM3 ORA.FSTD.100). The compliance checklist should be used by the competent authorities as a standardised checklist for the elements that are expected in the CM function of an organisation operating FSTDs. The organisation should complete as a minimum the second column of the checklist by providing appropriate manual or procedure references for each of the identified elements of the CM function. Additional information can be provided in the third column to aid assessment of the checklist as appropriate. This would then be provided to the LyCAA. Use of this checklist should assist in ensuring a consistent approach by the competent authorities and also provide organisations operating FSTDs with additional guidance on all the elements of a CM function that the competent authorities will expect. The guidance is provided to help organisations operating FSTDs to prepare for authority visits.

(d) The documentation of the CM may be electronic, provided the necessary controls can be demonstrated. This should include control of any paper copies that may be downloaded for use by individuals. It is recommended that any such copies are automatically designated as uncontrolled as part of the download process. Whilst electronic signatures on master documents may be accepted, with appropriate protections, a hardcopy master of the CM manual should be provided, with wet-ink signatures to be held by the applicant.

(e) It should be recognised that whatever CM is developed, it will not be effective unless it becomes an integral part of the way in which the organisation works. It includes both the necessary procedures for maintaining compliance with all the applicable requirements and a compliance monitoring programme (CMP) to monitor the execution of these procedures. A successful CM will ensure that the highest training tool is available at all times. If the CM is viewed as an add-on to existing processes it will become a burden and it will never be wholly effective. It should also be noted that compliance control or inspection is only a small part of a CM. If the CM is working effectively, inspections such as fly-outs should become routine revealing little beyond day-to-day unserviceabilities. Systematic defects should be captured by the CMP.

(f) The LyCAA should be satisfied that the accountable manager is able to adequately provide the required level of resources to properly support the FSTD. Detailed knowledge of FSTD requirement standards are not necessary, only sufficient to understand his/her responsibility for ensuring the FSTD is properly supported. The assessment of the compliance monitoring manager should concentrate on establishing that the nominee has sufficient knowledge and experience of both CM management and FSTD operations to operate a compliance monitoring system (CMS) within an organisation operating FSTDs. This is likely to require experience of working in the compliance monitoring field and sufficient knowledge of FSTDs and the technical standards with which they should comply.

(g) If an organisation operating FSTDs is certified under any international quality standard it should assure that it fully covers the applicable organisation requirements of Part- ORA and the qualification basis.

(h) For small organisations, it is perfectly acceptable to combine the roles of compliance monitoring manager and accountable manager. For other organisations that hold multiple certificates and may cover multiple sites, it is advantageous to have a common CM function with an overall compliance monitoring manager. However, it is essential, particularly where sites may be significantly separated geographically, that there is a nominated representative at each site and possibly for each certificate. These representatives should hold the delegated responsibility of the CM manager for the day-to-day CM role at their site and in their function and have the necessary direct reporting line to the overall CM manager. It will also be necessary to ensure that local representatives are also acceptable to the local LyCAA. In many cases the local representatives may perform other functions in addition to this role. This is acceptable provided the necessary independence of any compliance monitoring activity is maintained.

(i) CM, as a whole, begins with the requirements with which the system seeks to comply. These include both the technical standards, in this case the relevant parts of CS- FSTD(A)/(H) plus any other specific standards, for example health and safety regulations, and the compliance monitoring objectives, such as defect rates and rectification intervals and FSTD reliability targets. The CM should define the process by which these standards are made available to those who require them.

(j) The next part of CM is that part which defines the day-to-day procedures or working practices by which the standards will be achieved. These procedures should include as a minimum defect reporting systems, defect rectification processes, tracking mechanisms, preventative maintenance programmes, spares handling, equipment calibration and configuration management of the device. They should include checks to assess the compliance of the performed actions. These procedures and standards should be made readily available to anybody involved in the maintenance and day-to- day operation of the FSTD.

(k) The third part of CM is the method by which the organisation operating an FSTD confirms the device is maintained in compliance with the defined standards and is being operated in accordance with the defined procedures. This is the compliance monitoring programme (CMP) and includes the audit methods, reporting and corrective action procedures and feedback, management reviews and schedules for audits of all aspects of the FSTD operation.

(l) Across all aspects of CM, and most important to it, are the people. CM includes the definition of the responsibilities of all staff and should include a declaration of the minimum levels of resource proposed for the direct support of the FSTD plus the levels of support and managerial staff proposed. The levels of resource can be affected by factors such as local health and safety regulations, existence of weekend and/or night usage of the device(s), etc. CM also includes definition of the skills and experience required for staff and leads to definition of any required training programmes. Training needs cover both technical training and audit training, including QTG running and checking and fly-out techniques for flight crew.

(m) The documentation of CM may be provided in any number of documents provided there are appropriate cross-references in all documents such that the system is fully traceable in both directions from end to end. For all but small organisations at least two documents would be expected:

(1) Firstly, a CM manual containing the policy, terminology, organisational charts and responsibilities, an overview of all processes, within the system, including those for maintaining regulatory compliance such as QTG running and fly-outs (function and subjective testing), CMP including the audit schedule and audit procedures including reporting and corrective action procedures. In addition, the CM manual should include, either directly or by reference, the identification of skills and experience and associated training.

(2) Secondly, a procedures manual containing, as a minimum, software and hardware control procedures, configuration control procedures including, for example, control of training loads, updates to visual models, navigation and instructor operation station (IOS) databases, QTG running and checking procedures, fly-out procedures, maintenance procedures including both defect rectification and preventative maintenance processes. Any standard forms and checklists should also be included.

(hhhhh) The CM documentation also includes all records such as technical logs, QTG runs, fly- out reports and maintenance job cards.

(iiiii) For organisations with several certificates, separate and modular procedures manuals with a single CM manual covering all approvals, may be acceptable.

(jjjjj) It is important to understand the difference between compliance assurance and compliance control. An effective CM will contain elements of both. Compliance control is normally done by inspection of the product; it provides confirmation at the time of the inspection that the product conforms to a defined standard.

(kkkkk) The compliance assurance element is essential to ensure the standard is maintained throughout the periods between product (FSTD) inspections. Within a CMP, the processes are defined that are necessary to provide confidence that the FSTD(s) is/are being supported and maintained to the highest possible standard and in compliance with the relevant requirements. A programme of internal audits is then set in place to confirm that the processes are being followed and are effective. The LyCAA would normally oversee a certified organisation by process and system audit, however, in the case of FSTDs, authority oversight includes an inspection element in the form of the recurrent FSTD evaluation.

(lllll) In addition to the normal process and system audits, the compliance assurance audit schedule should include the schedule for each FSTD for fly-outs and QTG running through the audit year.

(mmmmm) The audit procedure should include, at least, the following: statement of scope, planning, initiation of audit, collection of evidence, analysis, reporting of findings, identification and agreement of corrective actions and feedback, including reporting significant findings to the LyCAA, where appropriate. The review of published material could include, in addition to the CM and procedures manuals, QTG records, fly-out reports, technical log sheets, maintenance records and configuration control records.

(nnnnn) In addition to basic knowledge of FSTD requirements and operation, it is expected that auditors have received training in CM and audit techniques.

(ooooo) The routine fly-outs of the device are a specialised part of the audit programme. It is essential that the pilots tasked with carrying out these fly-outs are adequately experienced. They would be expected to be type rating instructor/examiner (TRI/TRE) qualified on the type, and should have experience of simulator evaluations carried out by the LyCAA. The assignment of such pilots can present difficulties, particularly for the independent organisation operating FSTDs not directly associated with an airline. It is vital for the organisation to ensure their users are aware of the importance of the fly-outs as part of the continued qualification of the device and the need to assist in the provision of suitably qualified pilots to carry them out. It is worth noting that simulator users are required to satisfy themselves that the training devices they use are assessed for continued suitability, as part of their own CMP. Involvement in fly-outs assists in meeting this need.

(ppppp) Whilst it is accepted that the number of audits required in an organisation with a single device will be significantly less than those in larger organisations with multiple devices, the CMP should still meet the same criteria, and cover all aspects of the operation within a 12 month period. The independence of the audit personnel should be maintained at all times. The audit programme, whether by full audit or by using a checklist system should still be sufficiently comprehensive to provide the necessary level of confidence that the device is maintained and operated to the highest possible standard. This includes monitoring and review of corrective actions and feedback processes.

(qqqqq) The successful use of sub-contractors who play a significant role in the provision of services, such as maintenance or engineering services, to an organisation operating FSTDs is reliant on the sub-contractor operating under the CM of the organisation. All requirements that an organisation is expected to meet are equally applicable to his/her sub-contractor. It is the organisation's responsibility to ensure that the sub- contractor complies with its CM.

(rrrrr) It is essential that a proper understanding of the CM and how it applies to each and every staff member is provided by appropriate training to all, not just those directly involved in operating the CM, such as the accountable manager, the CM manager, representatives and the auditors. The training given to those directly involved in CM should cover the CM, audit techniques and applicable technical standards. CM familiarisation training should be an integral part of any induction training and recurrent training. Update training on technical standards for audit personnel, is also of particular importance.

(sssss) Any effective CM will include measurement of its effectiveness. The organisation should develop performance measures that can be monitored against objectives. Such measures, often referred to as metrics, should be reviewed by the LyCAA as part of its oversight of the CM within the organisation and during recurrent evaluations. In addition they should form part of the data reviewed during scheduled management reviews as part of the CM.

(ttttt) ARINC 433 provides good guidance on FSTD compliance measurement. Metrics should monitor not only individual FSTD performance but, for larger organisations, how each FSTD is performing within the fleet. It is also recommended that metrics data be shared, regularly, with the FSTD manufacturers to allow monitoring for generic problems such as design issues, which may be best addressed with a fleet-wide solution.

GM2 ORA.FSTD.100 General

COMPLIANCE MONITORING – ASSESSMENT FOR ORGANISATIONS OPERATING FSTDs

COMPLIANCE MONITORING ASSESSMENT FOR ORGANISATIONS OPERATING FSTDs			
Organisation:			
Site Assessed:			
Date of Assessment:			
Accountable Manager:			
Compliance Monitoring Manager:			
Number and Type of FSTDs:			
CM Manual Reference:			
Audit Area	CM/Proc Ref	Comments	Satisfactory Y/N
1. ACCOUNTABLE MANAGER			
Has an accountable manager (AM) with overall responsibility for compliance monitoring (CM) been nominated?			
Does the accountable manager have corporate authority to ensure all necessary activities can be financed and carried out to the standard required by the LyCAA?			
Has a formal written compliance policy statement been established, included in the CM manual and signed by the			

2. COMPLIANCE MONITORING MANAGER			
Has a compliance monitoring manager (CM manager) been nominated?			
Are the posts of CM manager and AM combined? If so, is the independence of compliance audits			
Does the CM manager have overall responsibility and authority to: a) verify that standards are met; and b) ensure that the compliance monitoring programme is established, implemented and maintained?			
Does the CM manager have direct access to the AM?			
Does the CM manager have access to all parts of the organisation operating an FSTD and as necessary any sub-contractor's organisation?			
3. COMPLIANCE MONITORING (CM)			
Has CM been established by the operator?			
Is CM properly documented? (see Section 4)			
Is the CM structured according to the size and complexity of the operator?			

Does the CM include the following as a minimum: a) monitoring of compliance with required technical standards; b) identification of corrective actions and person responsible for rectification; c) a feedback system to accountable manager to ensure corrective action are promptly addressed; d) reporting of significant non-compliances to the LyCAA; e) a compliance monitoring programme to verify continued compliance with applicable requirements, standards and procedures		a) b) c) d) e)	
Are the responsibilities of the CM manager defined to include, as a minimum: a) monitoring of corrective action programme; b) ensuring that the corrective actions contain the necessary elements; c) providing management with an independent assessment of corrective action, implementation and completion; d) evaluation of the effectiveness of the corrective action programme.		a) b) c) d)	

Are adequate financial, material and human resources in place to support CM?			
Are management evaluations/reviews of CM held at least quarterly?			
Does the management evaluation ensure that the CMS is working effectively and is it comprehensive and well documented?			
Does the compliance monitoring programme identify the processes necessary and the persons within the organisation who have the training, experience, responsibility and authority to carry out the following: a) schedule and perform quality inspections and audits, including unscheduled audits when required; b) identify and record any concerns or findings, and the evidence necessary to substantiate such concerns or findings; c) initiate or recommend solutions to concerns or		a) b) c)	
Is there sufficient auditor resource available and can their required level of independence be demonstrated?			
Do the auditors report directly to the compliance monitoring manager?			

Does the defined audit schedule cover the following areas, within each 12 month period? a) organisation b) plans and objectives c) maintenance procedures d) FSTD qualification level; e) supervision f) FSTD technical status g) manuals, logs and records h) defect deferral i) personnel training j) aircraft and simulator configuration management, including		a) b) c) d) e) f) g) h) i) j)	
How are audit non-compliances recorded?			
Are procedures in place to ensure that corrective actions are taken in response to findings?			
Are records of the compliance monitoring programme: a) accurate b) complete and c) readily accessible?		a) b)	
Is there an acceptable and effective procedure for providing a briefing on the CM to all personnel?			

Is there an acceptable and effective procedure for ensuring that all those responsible for managing the CM receive training covering: a) an introduction to the concept of the CM; b) compliance management; c) the concept of compliance assurance; d) CM manuals; e) audit techniques; f) reporting and recording; g) how the CM supports continuous improvement within the organisation.		a) b) c) d) e) f) g)	
Are suitable training records maintained?			
Are activities within the CM sub- contracted out to external agencies?			
Do written agreements exist between the organisation and the sub-contractor clearly defining the services and standard to be provided?			
Are the procedures in place to ensure that the necessary authorisations/approval when required are held by a sub- contractor?			
Are the procedures in place to establish that the sub-contractor has the necessary technical competence?			
4. CM MANUAL			
What is the current status of the CM manual – amendment and issue date?			

Is there a procedure in place to control copies and the distribution of the CM manual?			
Is the CM manual signed by the accountable manager and the compliance monitoring manager?			
Does the CM manual include, either directly or by reference to other documents, the following: a) a description of the organisation; b) reference to appropriate FSTD technical standards; c) allocation of duties and responsibilities; d) audit procedures; e) reporting procedures; f) follow-up and corrective action procedures; g) document retention policy; h) training records		a) b) c) d) e) f) g)	
Is there a document retention policy covering: a) audit schedules; b) inspection and audit reports; c) responses to findings; d) corrective action reports; e) follow-up and closure reports; f) management evaluation reports.		a) b) c) d) e) f)	

Does the CM manual include, either directly or by reference to other documents, the following procedures for day to day operation of the FSTD: a) defect reporting systems; b) defect rectification processes; c) tracking mechanisms; d) preventative maintenance programmes; e) spares handling; f) equipment calibration; g) configuration management of the device including visual, IOS and navigation databases; h) configuration control system to ensure the continued integrity of the hardware and software qualified; i) QTG running and function and subjective tests.		a) b) c) d) e) f) g) h) i)	

Does the CM manual include, either directly or by reference to other documents, procedures for notification of the competent authorities of the following: a) any change in the organisation including company name, location, management; b) major changes to a qualified device; c) deactivation or relocation of a qualified device; d) major failures of a qualified device; e) major safety issue associated with the installation.		a) b) c) d) e)	
Does the CM manual define acceptable and effective procedures to ensure compliance with applicable health and safety regulations, including: a) safety briefings; b) fire/smoke detection and suppression; c) protection against electrical, mechanical, hydraulic and pneumatic hazards; d) other items as defined in AMC1 ORA.FSTD.115		a) b) c)	
Does the CM manual include acceptable and effective procedures for regularly checking FSTD safety features such as emergency stops and emergency lighting, and are such tests recorded?			

5. COMPLIANCE MEASURES			
Have compliance monitoring objectives been developed from the policy statement, and included either directly or by reference in the CMS			
Does the CMS include processes to produce and review appropriate metrics data?			
Do these compliance measures track the following: a) FSTD availability; b) numbers of defects; c) open defects; d) defect closure rates; e) training session interrupt rates; f) training session compliance rating.		a) b) c) d) e) f)	
Do the compliance measures support the compliance objectives?			
Required actions/Comments Signature:…… Date:……			

GM3 ORA.FSTD.100 General

COMPLIANCE MONITORING SYSTEM – GUIDANCE FOR ORGANISATIONS OPERATING FSTDS TO PREPARE FOR A LYCAA EVALUATION

(a) Introduction

The following material provides guidance on what is expected by the competent authorities to support the discussion during the preliminary briefing, which is a first step of any initial or recurrent evaluation of an FSTD carried out by a LyCAA.

This document has been developed to develop effective CM spot checks to satisfy the applicable requirements and therefore to ensure the highest standards of training are attained.

(uuuuu) Document form

Different document forms can be considered. Nevertheless, it appears that the best solution is a dossier, which includes all the information required by the LyCAA to perform an evaluation.

(vvvvv) Contents of the dossier for an initial evaluation:

(1) type of FSTD and qualification level requested;

(2) evaluation agenda: including date of evaluation, name of people involved for the LyCAA, contact details for the FSTD operator, schedules for the subjective flight profile, QTG rerun;

(3) FSTD identification and detailed technical specification including, type of FSTD, manufacturer, registration number, date of entry into service, host computer, visual system, motion system, type of IOS, simulated version(s), standards of all the aircraft computers, if applicable. Manuals needed for an evaluation (e.g. flight manuals, system manuals, acceptance test manual, IOS user manual etc. – if applicable) could already be provided as part of the dossier in an electronic format;

(4) planned modifications;

(5) subjective open defect(s);

(6) airport visual databases including for each visual scene, name of the airport, IATA and ICAO codes, type of visual scene (specific or generic), additional capabilities (e.g. snow model, WGS 84 compliance, enhanced ground proximity warning system (EGPWS)); and

(7) QTG status: the list should include for each QTG test available the status of the tests following the FSTD operator and LyCAA reviews.

(wwwww) Contents of the dossier for a recurrent evaluation:

(8) type of FSTD and qualification level requested;

(9) evaluation agenda, including date of evaluation, name of people involved for the LyCAA, contact details for the operator, schedules for the subjective flight profile, QTG rerun and QTG review;

(10) FSTD identification, including type of FSTD, manufacturer, registration number, date of entry into service, host computer, visual system, motion system, type of IOS, simulated version(s), standards of all the aircraft computers, if applicable;

(11) status of items raised during the last evaluation and date of closure;

(12) reliability data: training hours month by month during the past year, numbers of complaints mentioned in the technical log, training hours lost, availability rate;

(13) operational data: a list of FSTD users over the previous 12 months should be provided, with number of training hours;

(14) failure tabulation including categorisation of failures (by ATA chapter and Pareto diagram, ARINC classification);

(15) details of main failures leading to training interruption or multiple occurrences of some failures;

(16) hardware and/or software updates or changes since last evaluation and planned hardware and/or software updates or changes;

(17) subjective open defect(s);

(18) airport visual databases including for each visual scene, name of the airport, ATA and ICAO codes, type of visual scene (specific or generic), additional capabilities (snow model, WGS 84 compliance, EGPWS);

(19) QTG status: the list should include for each QTG test available, the date of run during the past year, any comment, and the status of the tests; and

(20) results of scheduled internal audits and additional quality inspections (if any) since last evaluation and a summary of actions taken.

AMC1 ORA.FSTD.110 Modifications

GENERAL

(a) The FSTD, where applicable, should be maintained in a configuration that accurately represents the aircraft being simulated. This may be a specific aircraft tail number or may be a representation of a common standard.

(b) Users of the device should always establish a differences list for any device they intend to use, and to identify how any differences should be covered in training. In order to ensure each device is maintained in the appropriate configuration, the organisation operating an FSTD should have a system that ensures that all relevant airworthiness directives (ADs) are introduced where applicable on affected FSTDs.

(c) ADs from both the State of Design of the aircraft and the State where the FSTD is located should be monitored. ADs from the State of Design of an aircraft are usually automatically applicable, unless specifically varied by the aircraft's State of Registry.

(d) Where appropriate, ADs issued by States where users of the device have aircraft registered should also be monitored. In addition to ADs, the FSTD operator should also put in place processes that ensure all aircraft modifications are reviewed for any effect on training, testing and checking. This can be achieved by reviewing the aircraft manufacturer's service bulletins and may require a specific link to the aircraft manufacturer to be developed. In practice this link is often established through aircraft operators who use the device.

(e) Organisations operating FSTDs should notify the LyCAA of major changes.

(f) This does not imply that the LyCAA will always wish to directly evaluate the change. The LyCAA should be mindful of the potential burden placed on the organisation by a special evaluation and should always consider that burden when deciding if such an evaluation is necessary.

(g) The organisation operating FSTDs should have an internal acceptance process for modifications, to be used when implementing all modifications, even if the LyCAA has made a decision to carry out an evaluation.

GM1 ORA.FSTD.110 Modifications

EXAMPLES OF MAJOR MODIFICATIONS

The following are examples of modifications that should be considered as major. This list is not exhaustive and modifications need to be classified on a case-by-case basis:

(a) any change that affects the QTG;

(b) introduction of new standards of equipment such as flight management and guidance computer (FMGC) and updated aerodynamic data packages;

(c) re-hosting of the FSTD software;

(d) introduction of features that model new training scenarios; e.g. airborne collision avoidance system (ACAS), EGPWS;

(e) aircraft modifications that could affect the FSTD qualification; and

(f) FSTD hardware or software modifications that could affect the handling qualities, performance or system representation.

AMC1 ORA.FSTD.115 Installations

MINIMUM ELEMENTS FOR SAFE OPERATION

(a) Introduction

(1) This AMC identifies those elements that are expected to be addressed, as a minimum, to ensure that the FSTD installation provides a safe environment for the users and operators of the FSTD under all circumstances.

(xxxxx) Expected elements

(2) Adequate fire/smoke detection, warning and suppression arrangements should be provided to ensure safe passage of personnel from the FSTD.

(3) Adequate protection should be provided against electrical, mechanical, hydraulic and pneumatic hazards, including those arising from the control loading and motion systems, to ensure maximum safety of all persons in the vicinity of the FSTD.

(4) Other areas that should be addressed include the following:

(i) a two-way communication system that remains operational in the event of a total power failure;

(ii) emergency lighting;

(iii) escape exits and escape routes;

(iv) occupant restraints (seats, seat belts etc.);

(v) external warning of motion and access ramp or stairs activity;

(vi) danger area markings;

(vii) guard rails and gates;

(viii) motion and control loading emergency stop controls accessible from either pilot or instructor seats;

(ix) a manual or automatic electrical power isolation switch.

GM1 ORA.FSTD.115 Installations

GENERAL

(a) The intent of ORA.FSTD.115 is to establish that the organisation operating an FSTD has all the necessary procedures in place to ensure that the FSTD installation remains in compliance with all requirements affecting the safety of the device and its users.

(b) Based on experience, the LyCAA should pay particular attention to the quality of safety briefings on the FSTD provided to users and instructors, and to the execution of regular checks on the FSTD safety features.

(c) It is recognised that certain checks, such as that of the emergency stop, can have adverse impact on the FSTD if carried out in full.

(d) It is acceptable to develop a procedure that protects elements of the device by shutting them down in advance, in a more controlled manner, provided it can be shown that the procedure still demonstrates the whole device can be shut down by the operation of a single emergency stop button, when required.

SECTION II – REQUIREMENTS FOR THE QUALIFICATION OF FSTDs

AMC1 ORA.FSTD.200 Application for FSTD qualification

LETTER OF APPLICATION FOR INITIAL QUALIFICATION OF AN FSTD; EXCEPT BASIC INSTRUMENT TRAINING DEVICE (BITD)

A sample of letter of application is provided overleaf.

Part A

To be submitted not less than 3 months prior to requested qualification date

(Date)
(Address)…….
(City)…….. (Country)…….

Type of FSTD	Aircraft Type/class	Qualification Level Sought				
Full Flight Simulator FFS		A	B	C	D	Sp./Cat
Flight Training Device FTD		1	2	3		
Flight and Navigation Procedures Trainer FNPT		I	II	III	II MCC	III MCC

Interim Qualification Level requested: YES/NO Dear,

<*Name of Applicant*> requests the evaluation of its flight simulation training device<*operator's identification of the FSTD*> for qualification. The <*FSTD manufacturer's name*> FSTD with its

<visual system and manufacturer's name, if applicable>visual system.

Evaluation is requested for the following configurations and engine fits as applicable:

e.g. 767 PW/GE and 757RR

1.....…...

2.....…...

3.....…...

Dates requested are: <*date(s)*> and the FSTD will be located at <*place*>.

The objective tests of the QTG will be submitted by <*date*> and in any event not less than 30 days before the requested evaluation date unless otherwise agreed with the LyCAA.

Comments:

……
……

Signed

……

Print name: ……..

Position/appointment held: ……..

Email address: ……..

Telephone number: ……..

Part B

To be completed with attached QTG results

(Date) …….

We have completed tests of the FSTD and declare that it meets all applicable requirements except as noted below.

The following QTG tests still have to be provided:

Tests	Comments

(Add boxes as required)

It is expected that they will be completed and submitted 3 weeks prior to the evaluation date.
Signed
……
Print name: …….. Position/appointment held: …….. E-mail address: …..
Telephone number: ……..

Part C

To be completed not less than 7 days prior to initial evaluation

(Date) …….

The FSTD has been assessed by the following evaluation team:
(Name) …… Qualification…….. (Name) …… Qualification…….. (Name) ……. Qualification…….. (Name) ……. Pilot's Licence Nr …….. (Name) …..... Flight Engineer's Licence Nr (if applicable) …….

- ☐ FFS/FTD: This team attests that the <*type of FSTD*> conforms to the aeroplane flight deck/helicopter cockpit configuration of <*name of aircraft operator (if applicable)*, *type of aeroplane/helicopter*> aeroplane/helicopter within the requirements for <*type of FSTD and level*> and that the simulated systems and subsystems function equivalently to those in that aeroplane/helicopter. The pilot of this evaluation team has also assessed the performance and the flying qualities of the FSTD and finds that it represents the designated aeroplane/helicopter.

- ☐ FNPT: This team attest(s) that the <type of FSTD> represents the flight deck or cockpit environment of a <*aeroplane/helicopter or class of aeroplane/type of helicopter*> within the requirements for <*type of FSTD and level*> and that the simulated systems appear to function as in the class of aeroplane/type of helicopter. The pilot of this evaluation team has also assessed the performance and the flying qualities of the FSTD and finds that it represents the designated class of aeroplane/type of helicopter.

(Additional comments as required)
…….
…….
Signed
……
Print name: ……
Position/appointment held: ……..
E-mail address: ……..…..
Telephone number: ……..

GM1 ORA.FSTD.200 Application for FSTD qualification

USE OF FOOTPRINT TESTS IN QUALIFICATION TEST SUBMISSION

(a) Introduction

(1) Recent experience during initial qualification of some FFSs has required acceptance of increasing numbers of footprint tests. This is particularly true for FFSs of smaller or older aircraft types, where there may be a lack of aircraft flight test data. However, the large number of footprint tests offered in some QTGs has given rise to concern.

(2) This guidance is applicable to FFS aeroplane, FTD aeroplane, FFS helicopter and FTD helicopter qualifications.

(yyyyy) Terminology

(3) Footprint test - footprint test data are derived from a subjective assessment carried out on the actual FSTD requiring qualification. The assessment and validation of these data are carried out by a pilot appointed by the LyCAA. The resulting data are the footprint validation data for the FSTD concerned.

(zzzzz) Recommendation

(4) It is permitted to use footprint data where flight test data is not available. Only when all other alternative possible sources of data have been thoroughly reviewed without success may a footprint test be acceptable, subject to a case- by-case review with the competent authorities concerned, and taking into consideration the level of qualification sought for the FSTD.

(5) Footprint test data should be:

(i) constructed with initial conditions and FFS set up in the appropriate configuration (e.g. correct engine rating) for the required validation data;

(ii) a manoeuvre representative of the particular aircraft being simulated;

(iii) manually flown out by a type rated pilot who has current experience on type* and is deemed acceptable by the LyCAA*;

(iv) constructed from validation data obtained from the footprint test manoeuvre and transformed into an automatic test;

(v) an automatic test run as a fully integrated test with pilot control inputs; and

(vi) automatically run for the initial qualification and recurrent evaluations.

* In this context, ‘current’ refers to the pilot experience on the aircraft and not to the Part-FCL standards.

** The same pilot should sign off the complete test as being fully representative.

(6) A clear rationale should be included in the QTG for each footprint test. These rationales should be added to and clearly recorded within the validation data roadmap (VDR) in accordance with and as defined in Appendix 2 to AMC1-CS- FSTD(A).300.

(7) Where the number of footprint tests is deemed by the LyCAA to be excessive, the maximum level of qualification may be affected. The LyCAA should review each area of validation test data where the use of footprint tests as the basis for the validation data is proposed. Consideration should be given to the extent to which footprint tests are used in any given area.

For example, it would be unacceptable if all or the vast majority of take-off tests were proposed as footprint tests, with little or no flight test data being presented. It should be recognised, therefore, that it may be necessary for new flight test data to be gathered if the use of footprint tests becomes excessive, not just overall, but also in specific areas.

(8) For recurrent evaluation purposes an essential match is to be expected. Validation tests using footprint data which do not provide an essential match should be justified to the satisfaction of the LyCAA.

(9) The LyCAA should be consulted at the point of definition of the aircraft data for qualification prior to the procurement of the device if footprint tests need to be used.

AMC1 ORA.FSTD.225(b)(4) Duration and continued validity

The assigned person should have experience in FSTDs and training. The person may have FSTD experience or training experience with an education in FSTD evaluation procedures only, provided the other element of expertise is available within the organisation and a procedure for undertaking the annual review and reporting to the LyCAA is documented within the compliance monitoring function.

AMC1 ORA.FSTD.230(b) Changes to the qualified FSTD

UPDATING AND UPGRADING EXISTING FSTDS

(a) An update is a result of a change to the existing device where it retains its existing qualification level. The change may be certified through a recurrent inspection or an extra inspection if deemed necessary by the LyCAA according to the applicable requirements in effect at the time of initial qualification.

(b) If such a change to an existing device would imply that the performance of the device could no longer meet the requirements at the time of initial qualification, but that the result of the change would, in the opinion of the LyCAA, clearly mean an improvement to the performance and training capabilities of the device altogether, then the LyCAA might accept the proposed change as an update while allowing the device to retain its original qualification level.

(c) An upgrade is defined as the raising of the qualification level of a device, or an increase in training credits, which can only be achieved by undergoing an initial qualification according to the latest applicable requirements.

(d) As long as the qualification level of the device does not change, all changes made to the device should be considered to be updates pending approval by the LyCAA.

(e) An upgrade, and consequent initial qualification according to the latest applicable requirements, is only applicable when the organisation requests another qualification level (recategorisation) for the FSTD.

AMC1 ORA.FSTD.240 Record-keeping

FSTD RECORDS

(a) FSTD records to be kept should include the following:

(1) for the lifetime of the device:

(i) the master QTG (MQTG) of the initial evaluation;

(ii) the qualification certificate of the initial evaluation; and

(iii) the initial evaluation report;

(2) for a period of at least 5 years (in paper or electronic format):

(i) recurrent QTG runs;

(ii) recurrent evaluation reports;
(iii) reports of internal functions and subjective testing;
(iv) technical log;
(v) CMS report;
(vi) audit schedule;
(vii) evaluation programme;
(viii) management evaluation reports;
(ix) obsolete procedures and forms.

Subpart AeMC – Aero-medical Centres

SECTION I – GENERAL

AMC1 ORA.AeMC.115 Application

GENERAL

(a) The documentation for the approval of an AeMC should include the names and qualifications of all medical staff, a list of medical and technical facilities for initial class 1 aero-medical examinations and of supporting specialist consultants.

(b) The AeMC should provide details of clinical attachments to hospitals, medical institutions and/or specialists.

AMC1 ORA.AeMC.135 Continued validity

EXPERIENCE

(a) At least 200 class 1 aero-medical examinations and assessments should be performed at the AeMC every year.

(b) In Member States where the number of aero-medical examinations and assessments mentioned in (a) cannot be reached due a low number of professional pilots, a proportionate number of class 1 aero-medical examinations and assessments should be performed.

(c) In these cases, the continuing experience of the head of the AeMC and aero-medical examiners on staff should also be ensured by them performing aero-medical examinations and assessments for:

(1) class 2 medical certificates as established in Part-MED; and/or

(2) third country class 1 medical certificates.

(aaaaaa) Aero-medical research including publication in peer reviewed journals may also be accepted as contributing to the continued experience of the head of, and aero-medical examiners at, an AeMC.

SECTION II – MANAGEMENT

GM1 ORA.AeMC.200 Management system

RESEARCH

If aero-medical research is conducted at an AeMC, its management system should include processes to conduct that research and publish the results.

AMC1 ORA.AeMC.210 Personnel requirements

GENERAL

(a) The aero-medical examiner (AME) should have held class 1 privileges for at least 5 years and have performed at least 200 aero-medical examinations for a class 1 medical certificate before being nominated as head of an AeMC.

(b) The AeMC may provide practical AME training for persons fully qualified and licensed in medicine.

AMC1 ORA.AeMC.215 Facility requirements

MEDICAL-TECHNICAL FACILITIES

The medical-technical facilities of an AeMC should consist of the equipment of a general medical practice and, in addition, of:

(a) Cardiology

Facilities to perform:

(1) 12-lead resting ECG;

(2) stress ECG;

(3) 24-hour blood pressure monitoring; and

(4) 24-hour heart rhythm monitoring.

(bbbbbb) Ophthalmology

Facilities for the examination of:

(5) near, intermediate and distant vision;

(6) external eye, anatomy, media and fundoscopy;

(7) ocular motility;

(8) binocular vision;

(9) colour vision (anomaloscopy or equivalent);

(10) visual fields;

(11) refraction; and

(12) heterophoria.

(ccccc) Hearing

(13) pure-tone audiometer

(dddddd) Otorhinolaryngology

Facilities for the clinical examination of mouth and throat and:

(14) otoscopy;

(15) rhinoscopy;

(16) tympanometry or equivalent; and

(17) clinical assessment of vestibular system.

(eeeeee) Examination of pulmonary function

(18) spirometry

(ffffff) The following facilities should be available at the AeMC or arranged with a service provider:

(19) clinical laboratory facilities; and

(20) ultrasound of the abdomen.