สำนักงานการบินพลเรือนแห่งประเทศไทย
The Civil Aviation Authority of Thailand

Thailand Civil Aviation Regulation – Air Operations
Part Organisation Requirements for Air Operations
(TCAR OPS Part - ORO)

TCAR OPS Part - ORO
Issue: 02
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Date 20 December 2024

Approved By

Suttipong Kongpool
Director General
The Civil Aviation Authority of Thailand

THAILAND CIVIL AVIATION REGULATION (TCAR)

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RECORD OF REVISIONS

Issue No.	Revision No.	Date (DD/MMM/YYYY)	Subject	Insert By (Department/ Division)
01	00	8 Dec 2023	Initial issue including (EU) No 2019/1387, (EU) No2018/1384, (EU) No 2019/1387, (EU) No 2020/2036, (EU) No 2021/1296, (EU) No 2021/2237, (EU) 2022/2203 and (EU) 2023/217, Notably, (EU) 2023/203 was not included.	OPS
02	00	20 Dec 2024	New Issue	OPS

REVISION HIGHLIGHTS

Area of Change	Change Detail(s)
New Issue	New Issue

LIST OF EFFECTIVE PAGES

Change and amendment bar is placed against each paragraph affected.

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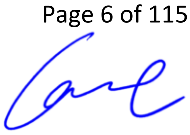

INTRODUCTION AND APPLICABILITY

In this publication the word 'must' or 'shall' is used to indicate where the Director General requires the Organisation, owner or operator to respond to and comply with, or adhere closely to, the defined requirement.

If the Organisation's/owner's/operator's response is deemed to be inadequate by the Director General, a specific requirement or restriction may be applied as a condition of the appropriate instrument to be issued under Thailand Civil Aviation Regulations.

TCAR OPS is based on the latest consolidated version of Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations, as amended up to (EU) No 2023/217. Notably, (EU) 2023/203 was not included as part of the initial issue.

TCAR OPS Part ORO is a part of the overall TCAR OPS Regulation set.

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TABLE OF CONTENT

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SUBPART GEN: GENERAL REQUIREMENTS

SECTION I General

ORO.GEN.005 - Scope

This Subpart establishes the requirements to be followed by a Kingdom of Thailand Air Operator conducting the following operational activity:

(a) commercial air transport operations (CAT),

(b) commercial specialised operations

(c) non-commercial operations with complex-motor powered aircraft;

(d) non-commercial specialised operations with complex motor-powered aircraft.

ORO.GEN.105 – The competent authority

For the purpose of TCAR OPS Part ORO, the CAAT is the competent authority exercising oversight, over operators subject to a certification or authorisation obligation or specialised operation authorisation having their principal place of business in the Kingdom of Thailand.

ORO.GEN.110 - Operator responsibilities

(a) The operator is responsible for the operation of the aircraft in accordance with the air operations requirements set out in the Air Navigation Act B.E.2497, the relevant requirements of TCAR OPS Part ORO and its air operator certificate (AOC), specialised operation authorisation (SPO authorisation) or other authorisation, as it is required.

(b) Every flight shall be conducted in accordance with the provisions of the operations manual.

(c) The operator shall establish and maintain a system for exercising operational control over any flight operated under the terms of its certificate, SPO authorisation or other authorisation.

(d) The operator shall ensure that its aircraft are equipped and its crews are qualified as required for the area and type of operation.

(e) The operator shall ensure that all personnel assigned to, or directly involved in, ground and flight operations are properly instructed, have demonstrated their abilities in their particular duties and are aware of their responsibilities and the relationship of such duties to the operation as a whole.

(f) The operator shall establish procedures and instructions for the safe operation of each aircraft type, containing ground staff and crew member duties and responsibilities, for all types of operation on the ground and in flight. Those procedures and instructions shall not require crew members to perform any activities during critical phases of flight other than those required for the safe operation of the aircraft. Procedures and instructions for a sterile flight crew compartment shall also be included.

(g) The operator shall ensure that all personnel are made aware that they shall comply with the laws, regulations and procedures of those States in which operations are conducted and that are pertinent to the performance of their duties.

(h) The operator shall establish a checklist for each aircraft type to be used by crew members in all phases of flight under normal, abnormal and emergency conditions in order to ensure that

the operating procedures in the operations manual are followed. The design and the usage of checklists shall observe human factors principles and take into account the latest relevant documentation from the design approval holder.

(i) The operator shall specify flight planning procedures to provide for the safe conduct of the flight based on considerations of aircraft performance, other operating limitations and relevant expected conditions on the route to be followed and at the aerodromes or operating sites concerned. These procedures shall be included in the operations manual.

(j) The operator shall establish and maintain dangerous goods training programmes for personnel as required by the technical instructions. Such training programmes shall be commensurate with the responsibilities of personnel. Training programmes of operators performing CAT, whether they transport dangerous goods or not, and of operators conducting commercial or non-commercial specialised operations or non-commercial operations with complex motor-powered aircraft shall be subject to review and approval by the CAAT.

(k) Notwithstanding point (j), operators conducting commercial operations with either of the following aircraft shall ensure that the flight crew has received an appropriate dangerous goods training or briefing, so as to enable them to recognise undeclared dangerous goods brought on-board by passengers or as cargo:

(1) a single-engined propeller-driven aeroplane having a maximum certified take-off mass of 5 700 kg or less and a MOPSC of 5 or less, operated in a flight taking off and landing at the same aerodrome or operating site, under VFR by day; or

(2) an other-than complex motor-powered helicopter, single-engined, with a MOPSC of 5 or less, operated in a flight taking off and landing at the same aerodrome or operating site, under VFR by day.

(l) The operator shall ensure that the ground handling operations for its aircraft is compliance with CAAT Guidance Material for Ground Handling Operations (GOPS).

ORO.GEN.115 - Application for an AOC

(a) The application for an air operator certificate or an amendment to an existing certificate shall be made in a form and manner established by the CAAT, taking into account Sections 41/112, 41/113, 41/114, 41/115 of the Air Navigation Act B.E 2497, Kingdom of Thailand Civil Aviation Regulations and the CAAT internal oversight, certification and enforcement procedures.

(b) Applicants for an initial certificate shall provide the CAAT with documentation demonstrating how they will comply with the requirements established in Sections 41/112, 41/113, 41/114, 41/115, 41/117 and the air operations of the Air Navigation Act B.E 2497 and Kingdom of Thailand Civil Aviation Regulations. The documentation that is submitted to the CAAT by the applicant shall include a procedure describing how changes not requiring prior approval will be managed and notified to the CAAT.

ORO.GEN.120 - Means of compliance

(a) Purpose

With a view to ensuring uniformity in the application of common requirements, it is essential that common standards be applied. Consequently, the CAAT, when necessary and practicable, will develop Acceptable Means of Compliance and Guidance Material to TCAR OPS Parts to facilitate the necessary regulatory uniformity. These AMCs may be used to demonstrate compliance with the provisions of corresponding provisions contained in TCAR OPS.

(b) Definitions

Acceptable means of compliance (AMC) are non-binding standards adopted by the CAAT to illustrate means to establish compliance with requirements of the Regulation.
Alternative means of compliance (AMoC) are those means that propose an alternative to an existing AMC or those that propose new means to establish compliance with requirements of the Regulation for which no associated AMC have been adopted by the CAAT.

(c) Acceptable Means of Compliance

The AMCs to TCAR OPS Parts issued by the CAAT shall neither introduce new requirements nor alleviate the requirements of the corresponding TCARs.
Each AMC shall identify clearly the provisions of the TCAR OPS it illustrates.
When the acceptable means of compliance to TCAR OPS issued by the CAAT are used, the related requirements of the TCAR OPS shall be considered met without further demonstration.

(d) Alternative means of compliance

Alternative means of compliance (AMoC) to those published by the CAAT may be used by an organisation to establish compliance with the requirements of TCAR OPS Parts.
When an organisation, wishes to use an AMoC to the AMCs to TCAR OPS, it shall, prior to implementing it, provide the CAAT with a full description of the proposed AMoC.
The description shall include any revisions to manuals or procedures that may be relevant, as well as an assessment demonstrating that the corresponding requirements are met.
The organisation may implement these AMoCs subject to prior formal approval by the CAAT and upon receipt of the notification of approval.

(e) Approval of AMCs and AMoC.

The CAAT OPS department shall be responsible for developing, approving and publishing AMCs to TCAR OPS Parts.
The CAAT OPS department shall be responsible for assessing AMoCs and, when the assessment is satisfactory, for approving AMoCs to TCAR OPS submitted by the organisations.
The CAAT OPS department shall publish any newly approved AMCs.

ORO.GEN.125 - Terms of approval and privileges of an AOC holder

A certified operator shall comply with the scope and privileges defined in the operations specifications attached to the operator's certificate.

ORO.GEN.130 - Changes related to an AOC holder

(a) Any change affecting:

(1) the scope of the certificate or the operations specifications of an operator; or

(2) any of the elements of the operator's management system as required in ORO.GEN.200(a)(1)(i) and (a)(1)(ii),

shall require prior approval by the CAAT.

(b) For any changes requiring prior approval in accordance with the Air Navigation Act B.E 2497 and Kingdom of Thailand Civil Aviation Regulations, the operator shall apply for and obtain an approval issued by the CAAT. The application shall be submitted before any such change takes place, in order to enable the CAAT to determine continued compliance with the Air Navigation Act B.E 2497 and Kingdom of Thailand Civil Aviation Regulations, and to amend, if necessary, the operator certificate and related terms of approval attached to it.

The operator shall provide the CAAT with any relevant documentation.

The change shall only be implemented upon receipt of formal approval by the CAAT in accordance with the CAAT internal oversight, certification and enforcement procedures.

The operator shall operate under the conditions prescribed by the CAAT during such changes, as applicable.

(c) All changes not requiring prior approval shall be managed and notified to the CAAT as defined in the operator procedure approved by the CAAT.

(d) In case of introduction of the new aircraft type in the company, while the Authority does not have type-rated officer or have type-rated officer but not adequately meet the overall number of such aircraft type, the AOC holder shall provide aircraft type training for the new aircraft type to the Authority's Officers, at the expense of the AOC holder.

ORO.GEN.135 - Continued validity of an AOC

(e) The operator's certificate shall be issued for a duration not exceeding 5 years and shall remain valid subject to:

(1) the operator remaining in compliance with Chapter 4/1 of the Air Navigation Act B.E 2497, its air operations requirements and Kingdom of Thailand Civil Aviation Regulations, taking into account the provisions related to the handling of findings as specified under ORO.GEN.150;

(2) the CAAT being granted access to the operator as defined in ORO.GEN.140 to determine continued compliance with the requirements of the Air Navigation Act B.E 2497 and Kingdom of Thailand Civil Aviation Regulations; and

(3) the certificate not being surrendered, revoked or expired.

(f) Upon revocation or surrender the certificate shall be returned to the CAAT without delay.

ORO.GEN.140 - Access

(a) For the purpose of determining compliance with the requirements of the Air Navigation Act B.E 2497 and the operator shall grant access at any time to any facility, aircraft, document, records, data, procedures or any other material relevant to its activity subject to certification, authorisation, whether it is contracted or not, to any person authorised by the CAAT, as defined in ORO.GEN.105 and in accordance with Sections 41/119 and 67/4 of the Air Navigation Act B.E.2497.

(b) Access to the aircraft mentioned under (a) shall, in the case of CAT, include the possibility to enter and remain in the aircraft during flight operations unless otherwise decided by the commander for the flight crew compartment in accordance with CAT.GEN.MPA.135 in the interest of safety.

ORO.GEN.150 - Findings

(a) Level of findings

A level 1 finding shall be issued by the CAAT when any significant non-compliance is detected with the applicable requirements, with the organisation's procedures and manuals or with the terms of an approval, or certificate which lowers safety or seriously endangers flight safety.

A level 2 finding shall be issued by the CAAT when any non-compliance is detected with the applicable requirement, with the organisation's procedures and manuals or with the terms of an approval, or certificate which could lower safety or seriously hazards flight safety

An observation is an opportunity for improvement which is minor gap, mostly documented and implemented. The management system that may be weak, cumbersome, redundant, overly complex, or in some other manner, may, in the opinion of the auditor, offer an opportunity for an organisation to improve its current status. An observation is not subject to any corrective actions unless it is accepted by auditee for improvement.

(b) After receipt of notification of findings, the organisation shall:

(1) identify the root cause of the non-compliance;

(2) define a corrective action plan;

(3) demonstrate corrective action implementation to the satisfaction of the CAAT.

(c) The actions referred to in points (b)(1), (b)(2) and (b)(3) shall be performed within the period agreed with the CAAT.

ORO.GEN.155 - Immediate reaction to a safety problem

The operator shall implement:

(a) any safety measures mandated by the CAAT; and

(b) any relevant mandatory safety information issued by the CAAT, including airworthiness directives.

ORO.GEN.160 - Occurrence reporting

(a) The operator shall report to the CAAT, and to any other organisation required by the State of the operator to be informed, any accident, serious incident and occurrence as defined in Section 61 of the Air Navigation Act B.E.2497 and Kingdom of Thailand Civil Aviation Regulations, including the Kingdom of Thailand Civil Aviation Occurrence Reporting Regulation.

(b) Without prejudice to point (a) the operator shall report to the CAAT and to the organisation responsible for the design of the aircraft any incident, malfunction, technical defect, exceeding of technical limitations or occurrence that would highlight inaccurate, incomplete or ambiguous information contained in the operational suitability data established in accordance with EASA, Part 21 or any equivalent material established in accordance with certification regulations acceptable to the CAAT, or other irregular circumstance that has or may have endangered the safe operation of the aircraft and that has not resulted in an accident or serious incident.

(c) Without prejudice the reports referred in paragraphs (a) and (b) shall be made in a form and manner established by the CAAT and contain all pertinent information about the condition known to the operator.

(d) Reports shall be made as soon as practicable, but in any case within 72 hours of the operator identifying the condition to which the report relates, unless exceptional circumstances prevent this.

If the occurrence is categorised as an accident or serious incident, the Operator shall notify the CAAT immediately and submit initial report within 24 hours.

(e) Where relevant, the operator shall produce a follow-up report to provide details of actions it intends to take to prevent similar occurrences in the future, as soon as these actions have been identified. This report shall be produced in a form and manner established by the CAAT.

SECTION 2 Management

ORO.GEN.200 - Management system

(a) The operator shall establish, implement and maintain a management system that includes:

(1) A safety Management system.

This safety Management system shall include:

(i) clearly defined lines of responsibility and accountability throughout the operator, including a direct safety accountability of the accountable manager;

(ii) a description of the overall philosophies and principles of the operator with regard to safety, referred to as the safety policy;

(iii) the identification of aviation safety hazards entailed by the activities of the operator, their evaluation and the management of associated risks, including taking actions to mitigate the risk and verify their effectiveness;

Safety risk management shall include:

— Hazard identification processes
— Risk assessment and mitigation processes
— Internal safety investigation
— Safety performance monitoring and measurement
— The management of change
— Continuous improvement
— A system or plan to implement immediate safety actions and to coordinate with other parties involved in a safety related event

(iv) maintaining personnel trained and competent to perform their tasks;

(v) documentation of all safety management system key processes, including a process for making personnel aware of their responsibilities and the procedure for amending this documentation;

(2) a compliance monitoring system which has the function to monitor compliance of the operator with the relevant requirements. Compliance monitoring key processes shall be documented and shall include a feedback system of findings to the accountable manager to ensure effective implementation of corrective actions as necessary; and

(3) any additional requirements that are prescribed in the relevant Subparts of TCAR OPS Part ORO or other applicable regulations.

(b) The management system shall correspond to the size of the operator and the nature and complexity of its activities, taking into account the hazards and associated risks inherent in these activities.
Notwithstanding point (a) (1) (iii), for non-complex organizations safety risk management shall include at least:

— The use of Hazard checklists or similar risk management processes integrated into the activities of the organisation;

— The management of change;

— A system or plan to implement immediate safety actions and to coordinate with other parties involved in a safety related event.

ORO.GEN.205 - Contracted activities

(a) When contracting or purchasing any services or products as a part of its activities, the operator shall ensure all of the following:

(1) that the contracted or purchased services or products comply with the applicable requirements;

(2) that any aviation safety hazards associated with contracted or purchased services or products are considered by the operator's management system.

(b) When the certified operator or the authorisation holder contracts any part of its activity to an organisation that is not itself certified or authorised in accordance with this Part to carry out such activity, the contracted organisation shall work under the approval of the operator. The contracting organisation shall ensure that the CAAT is given access to the contracted organisation, to determine continued compliance with the applicable requirements.

ORO.GEN.210 - Personnel requirements

(a) The operator shall appoint an accountable manager, who has the authority for ensuring that all activities can be financed and carried out in accordance with the applicable requirements. The accountable manager shall be responsible for establishing and maintaining an effective management system.

(b) A person or group of persons shall be nominated by the operator, with the responsibility of ensuring that the operator remains in compliance with the applicable requirements. Such person(s) shall be ultimately responsible to the accountable manager.

(c) The operator shall have sufficient qualified personnel for the planned tasks and activities to be performed in accordance with the applicable requirements.

(d) The operator shall maintain appropriate experience, qualification and training records to show compliance with point (c).

(e) The operator shall ensure that all personnel are aware of the rules and procedures relevant to the exercise of their duties.

ORO.GEN.215 - Facility requirements

The operator shall have facilities allowing the performance and management of all planned tasks and activities in accordance with the applicable requirements.

ORO.GEN.220 - Record-keeping

(a) The operator shall establish a system of record-keeping that allows adequate storage and reliable traceability of all activities developed, covering in particular all the elements indicated in ORO.GEN.200.

(b) The format of the records shall be specified in the operator's procedures.

(c) Records shall be stored in a manner that ensures protection from damage, alteration and theft.

SECTION 3 – ADDITIONAL ORGANISATIONAL REQUIREMENTS

ORO.GEN.310 - Use of aircraft listed on an AOC for non-commercial operations and specialised operations

(a) Aircraft listed on an operator's AOC may remain on the AOC if it is operated in any of the following situations:

(1) by the AOC holder itself, for specialised operations in accordance with TCAR OPS Part SPO;

(2) by other operators, for non-commercial operations with motor-powered aircraft or for specialised operations performed in accordance with TCAR OPS Part NCC, TCAR OPS Part NCO or TCAR OPS Part SPO, provided that the aircraft is used for a continuous period not exceeding 30 days.

(b) When the aircraft is used in accordance with point (a)(2), the AOC holder providing the aircraft and the operator using the aircraft shall establish a procedure:

(1) clearly identifying which operator is responsible for the operational control of each flight and to describe how the operational control is transferred between them;

(2) describing the handover procedure of the aircraft upon its return to the AOC holder.

That procedure shall be included in the operations manual of each operator or in a contract between the AOC holder and the operator using the aircraft in accordance with point (a)(2). The AOC holder shall establish a template of such contract. Point ORO.GEN.220 shall apply to the record-keeping of those contracts.

The AOC holder and the operator using the aircraft in accordance with point (a)(2) shall ensure that the procedure is communicated to the relevant personnel.

(c) The AOC holder shall submit to the CAAT the procedure referred to in point (b) for prior approval. The AOC holder shall agree with the CAAT on the means and on the frequency of providing it with information about transfers of operational control in accordance with point ORO.GEN.130(c).

(d) The continuing airworthiness of the aircraft used in accordance with point (a) shall be managed by the organisation responsible for the continuing airworthiness of the aircraft included in the AOC.

(e) The AOC holder providing the aircraft in accordance with point (a) shall:

(1) indicate in its operations manual the registration marks of the provided aircraft and the type of operations conducted with those aircraft;

(2) remain informed at all times and keep record of each operator that holds the operational control of the aircraft at any given moment until the aircraft is returned to the AOC holder;

(3) ensure that its hazard identification, risk assessment and mitigation measures address all the operations conducted with those aircraft.

(f) For operations under TCAR OPS Part NCC and TCAR OPS Part SPO, the operator using the aircraft in accordance with point (a) shall ensure all of the following:

(1) that every flight conducted under its operational control is recorded in the aircraft technical log system;

(2) that no changes to the aircraft systems or configuration are made;

(3) that any defect or technical malfunction occurring while the aircraft is under its operational control is reported to the organisation referred to in point (d);

(4) that the AOC holder receives a copy of any occurrence report related to the flights performed with the aircraft, completed in accordance with the CAAT requirement No.22/2562 on reporting of civil aviation occurrences.

SUBPART AOC: AIR OPERATOR CERTIFICATION

ORO.AOC.100 - Application for an air operator certificate

(a) Without prejudice to the Air Navigation Act B.E.2497 prior to commencing commercial air transport operations, the operator shall apply for and obtain an air operator certificate (AOC) issued by the CAAT.

(b) The operator shall provide the following information to the CAAT:

(1) the official name and business name, address, and mailing address of the applicant;

(2) a description of the proposed operation, including the type(s), and number of aircraft to be operated;

(3) a description of the management system, including organisational structure;

(4) the name of the accountable manager;

(5) the names of the nominated persons required by ORO.AOC.135(a) together with their qualifications and experience;

(6) a copy of the operations manual required by ORO.MLR.100;

(7) a statement that all the documentation sent to the CAAT have been verified by the applicant and found in compliance with the applicable requirements.

(c) Applicants shall demonstrate to the CAAT that:

(1) they comply with the requirements of the Air Navigation Act B.E.2497, Chapter 4/1, this TCAR OPS Part ORO, TCAR OPS Part CAT and TCAR OPS Part SPA to this Regulation.

(2) all aircraft operated have a certificate of airworthiness (CofA) in accordance with applicable regulations or are dry-leased in accordance with ORO.AOC.110(c); and

(3) its organisation and management are suitable and properly matched to the scale and scope of the operation.

ORO.AOC.105 - Operations specifications and privileges of an AOC holder

The privileges of the operator, including those granted in accordance with TCAR OPS Part SPA, shall be specified in the operations specifications of the certificate.

ORO.AOC.110 - Leasing agreement

Any lease-in

(a) Any lease agreement concerning aircraft used by an operator certified in accordance with this Part shall be subject to prior approval by the CAAT.

Wet lease-in

(b) The applicant for the approval of the wet lease-in of an aircraft of a foreign operator shall demonstrate to the CAAT that:

(1) the foreign country operator holds a valid AOC issued in accordance with ICAO Annex6;

(2) the safety standards of the foreign operator with regard to continuing airworthiness and air operations are equivalent to the requirements for continuing airworthiness applicable in Thailand and TCAR OPS; and

(3) the aircraft has a standard CofA issued in accordance with ICAO Annex 8.

Dry lease-in

(c) Dry lease-in of an aircraft registered in a foreign country is not authorised.

Dry lease-out

(d) The operator certified in accordance with this Part intending to dry lease-out one of its aircraft shall apply for prior approval by the CAAT. The application shall be accompanied by copies of the intended lease agreement or description of the lease provisions, except financial arrangements, and all other relevant documentation.

Wet lease-out

(e) Prior to the wet lease-out of an aircraft, the operator certified in accordance with this Part shall notify the CAAT.

ORO.AOC.115 - Code-share agreements

(a) Without prejudice to applicable the CAAT safety requirements for foreign operators and aircraft, a Kingdom of Thailand operator certified in accordance with this Part shall enter into a code-share agreement with a foreign operator only after:

(1) having verified that the foreign operator complies with the applicable ICAO standards;

(2) having provided the CAAT with documented information in point (a)(1); and

(3) having obtained the CAAT acceptance after liaison with the authority of the State of the foreign-country operator.

(b) When implementing the code-share agreement the operator shall monitor and regularly assess the ongoing compliance of the foreign operator with the applicable ICAO standards.

(c) The operator certified in accordance with this Part shall not sell and issue tickets for a flight operated by a foreign operator when the foreign operator is failing to maintain compliance with the applicable ICAO standards.

ORO.AOC.120 - Approvals to provide cabin crew training and to issue cabin crew initial training certificate

(a) When intending to provide the training course required in TCAR OPS Part CC, the operator shall comply with the requirements for the conduct and content of training course established in TCAR OPS Part CC and shall ensure the following information specified in the Operations Manual (OM):

(1) qualifications of the instructors as relevant to the training elements to be covered;

(2) the name(s) of the training site(s) at which the training is to be conducted;

(3) a description of the facilities, training methods, and representative devices to be used; and

(4) the syllabi and associated programmes for the training course

(b) To issue cabin crew attestations, the operator shall, in addition to (a):

(1) demonstrate to the CAAT that:

(i) the organisation has the capability and accountability to perform this task;

(ii) the personnel conducting examinations are appropriately qualified as specified in Subpart TRC and Subpart CC where applicable, and free from conflict of interest; and

(2) provide the procedures and the specified conditions for:

(i) conducting the examination required by TCAR OPS Part CC, point CC.TRA.220;

(ii) issuing cabin crew initial training certificate; and

(iii) maintaining all relevant information and documentation related to the issued certificate, for the purpose of record-keeping oversight by the authority.

ORO.AOC.125 - Non-commercial operations of aircraft listed in the operations specifications by the holder of an AOC

(a) The AOC holder may conduct non-commercial operations in accordance with TCAR OPS Part NCC or Part NCO with aircraft listed in the operations specifications of its AOC or in its operations manual, provided that the AOC holder describes such operations in detail in the operations manual, including the following:

(1) an identification of the applicable requirements;

(2) a description of any differences between operating procedures used when conducting CAT operations and non-commercial operations;

(3) means of ensuring that all personnel involved in the operations are fully familiar with the associated procedures.

(b) An AOC holder shall comply with:

(1) TCAR OPS Part SPO when conducting maintenance check flights with complex motor-powered aircraft;

(2) TCAR OPS Part NCO when conducting maintenance check flights with other than complex motor- powered aircraft.

(c) An AOC holder conducting operations referred to in (a) and (b) shall not be required to submit a declaration in accordance with subpart DEC.

(d) The AOC holder shall specify the type of flight, as listed in its operations manual, in the flight-related documents (operational flight plan, loadsheet and other equivalent documents).

ORO.AOC.130 - Flight data monitoring — aeroplanes & helicopters

(a) The operator shall establish and maintain a flight data monitoring programme, which shall be integrated in its management system, for aeroplanes of a certificated take-off mass in excess of:

- 27,000 kg; or
- 15,000 kg with a passenger seating capacity greater than 19, and with a certificate of airworthiness first issued on or after 1 January 2027.

Shall be equipped with a means to support a flight data monitoring programme.

(b) The Helicopter operator shall establish a flight data monitoring programme, which shall be integrated in its management system, for helicopters with a maximum certificated take-off mass of more than 7 000 Kg or MOPSC of more than 9 seats if fitted with a fight data recorder. In doing so the operator shall take account of the information on the establishment of a flight data monitoring programme at SPA.HOFO.145

(c) The flight data monitoring programme shall be non-punitive and contain adequate safeguards to protect the source(s) of the data.

ORO.AOC.135 - Personnel requirements

(a) In accordance with ORO.GEN.210(b), the operator shall nominate persons responsible for the management and supervision of the following areas:

(1) flight operations;

(2) crew training;

(3) ground operations; and

(4) continuing airworthiness management.

(b) Adequacy and competency of personnel

(1) The operator shall employ sufficient personnel for the planned ground and flight operations.

(2) All personnel assigned to, or directly involved in, ground and flight operations shall:

(i) be properly trained;

(ii) demonstrate their capabilities in the performance of their assigned duties; and

(iii) be aware of their responsibilities and the relationship of their duties to the operation as a whole.

(c) Supervision of personnel

(1) The operator shall appoint a sufficient number of personnel supervisors, taking into account the structure of the operator's organisation and the number of personnel employed.

(2) The duties and responsibilities of these supervisors shall be defined, and any other necessary arrangements shall be made to ensure that they can discharge their supervisory responsibilities.

(3) The supervision of crew members and personnel involved in the operation shall be exercised by individuals with adequate experience and the skills to ensure the attainment of the standards specified in the operations manual.

ORO.AOC.140 - Facility requirements

In accordance with ORO.GEN.215, the operator shall:

(a) make use of appropriate ground handling facilities to ensure the safe handling of its flights;

(b) arrange operational support facilities at the main operating base, appropriate for the area and type of operation; and

(c) ensure that the available working space at each operating base is sufficient for personnel whose actions may affect the safety of flight operations. Consideration shall be given to the needs of ground crew, personnel concerned with operational control, the storage and display of essential records and flight planning by crews.

ORO.AOC.150 - Documentation requirements

(a) The operator shall make arrangements for the production of manuals and any other documentation required and associated amendments.

(b) The operator shall be capable of distributing operational instructions and other information without delay.

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SUBPART DEC: DECLARATION

ORO.DEC.100 Declaration

The operators of complex motor-powered aircraft engaged in non-commercial operations or non-commercial specialised operations, and the commercial specialised operators shall:

(a) provide the CAAT with all relevant information and obtain the corresponding authorisation prior to commencing operations. The relevant information shall be provided using the form contained in Appendix I to this TCAR OPS Part ORO;

(b) maintain compliance with the applicable requirements and with the information given in the declaration;

(c) notify the CAAT of any change to its declaration through submission of an amended declaration and shall obtain the corresponding amended authorisation from the CAAT prior to implementing the change(s); and

(d) notify the CAAT when it ceases operation.

Operators intending to perform high risk commercial specialised operation shall obtain a special authorisation from the CAAT in accordance with ORO.SPO.110 prior to commencing the high risk commercial specialised operations.

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SUBPART SPO: COMMERCIAL SPECIALISED OPERATIONS

ORO.SPO.100 - Common requirements for commercial specialised operators

(a) A commercial specialised operator shall obtain approval from the CAAT prior to commencing operations in accordance with ORO.DEC.100 and shall also comply with ORO.AOC.135, ORO.AOC.140 and ORO.AOC.150.

(b) Aircraft shall have a certificate of airworthiness (CofA) in accordance with applicable airworthiness requirements for aircraft registered in the kingdom of Thailand or shall be leased-in in accordance with (c).

(c) A commercial specialised operator shall obtain prior approval from the CAAT and comply with the following conditions, if:

(1) Wet leasing-in an aircraft of a foreign country operator:

(i) The safety standards of a foreign country operator with regard to continuing airworthiness and air operations are equivalent to the applicable airworthiness requirements and to TCAR OPS;

(ii) The aircraft of a foreign country operator has a standard CofA issued in accordance with ICAO Annex 8;

(iii) The duration of the wet lease-in does not exceed seven months in any 12 consecutive month period; or

(2) Dry leasing-in an aircraft registered in a foreign country is not authorised by the CAAT.

ORO.SPO.110 - Authorisation of high risk commercial specialised operations

(a) A commercial specialised operator shall apply for and obtain an authorisation issued by the CAAT prior to commencing a high risk specialised operation:

(1) that is carried out over an area where the safety of third parties on the ground is likely to be endangered in the event of an emergency, or

(2) that in respect to the place where the operation is conducted, as determined by the CAAT, including taking account of its specific nature and the local environment in which it is conducted, poses a risk, in particular to third parties on the ground.

(b) The operator shall provide the following information to the CAAT

(1) the official name and business name, address, and mailing address of the applicant;

(2) a description of the management system, including organisational structure;

(3) a description of the proposed operation, including the type(s), and number of aircraft to be operated;

(4) the risk assessment documentation and related standard operating procedures, required by SPO.OP.230;

(5) a statement that all the documentation sent to the CAAT has been verified by the operator and found in compliance with the applicable requirements.

(c) The application for an authorisation or its amendment shall be made in a form and manner established by the CAAT, taking into account the requirements of the Air Navigation Act B.E 2497 and Kingdom of Thailand Civil Aviation Regulations.

ORO.SPO.115 - Changes

(a) Any change affecting the scope of the authorisation or the authorised operations shall require prior approval of the CAAT. Any change not covered by the initial risk assessment, shall require the submission of an amended risk assessment and SOP to the CAAT.

(b) The application for approval of a change shall be submitted before any such change takes place, in order to enable the CAAT to determine continued compliance with the Air Navigation Act B.E 2497 and Kingdom of Thailand Civil Aviation Regulations, and to amend, if necessary, the authorisation. The operator shall provide the CAAT with any relevant documentation.

(c) The change shall only be implemented upon receipt of formal approval by the CAAT.

(d) The operator shall operate under the conditions prescribed by the CAAT during such changes, as applicable.

ORO.SPO.120 - Continued validity

(a) An operator holding a specialised operation authorisation shall comply with the scope and privileges defined in the authorisation.

(b) The operator's authorisation shall be issued for a duration not exceeding 3 years and shall remain valid subject to:

(1) the operator remaining in compliance with the requirements of the Air Navigation Act B.E 2497 and Kingdom of Thailand Civil Aviation Regulations, taking into account the provisions related to the handling of findings as specified under ORO.GEN.150;

(2) the CAAT being granted access to the operator as defined in ORO.GEN.140 to determine continued compliance with the relevant requirements of the Air Navigation Act B.E 2497 and Kingdom of Thailand Civil Aviation Regulations; and

(3) the authorisation not being surrendered, revoked or expired.

(c) Upon revocation or surrender the authorisation shall be returned to the CAAT without delay.

SUBPART MLR: MANUALS, LOGS AND RECORDS

ORO.MLR.100 - Operations manual — general

(a) The operator shall establish an operations manual (OM) in accordance with the Air Navigation Act B.E 2497 and Kingdom of Thailand Civil Aviation Regulations. To the extent that it is applicable, this requirement shall also apply to the establishment of a flight safety documents system by an operator, whether in operations manuals and/or an operator's management system documentation.

(b) The content of the OM shall reflect the requirements set out in this TCAR OPS Part ORO, Part CAT, Part SPA, Part NCC and Part SPO, as applicable, and shall not contravene the conditions contained in the operations specifications to the air operator certificate (AOC), the authorisation or the list of specific approvals, as applicable.

(c) The OM may be issued in separate parts.

(d) All operations personnel shall have easy access to the portions of the OM that are relevant to their duties.

(e) The OM shall be kept up to date. All personnel shall be made aware of the changes that are relevant to their duties.

(f) Each crew member shall be provided with a personal copy of the relevant sections of the OM pertaining to their duties. Each holder of an OM, or appropriate parts of it, shall be responsible for keeping their copy up to date with the amendments or revisions supplied by the operator.

(g) For AOC holders:

(1) for amendments required to be notified in accordance with ORO.GEN.115(b) and ORO.GEN.130(c), the operator shall supply the CAAT with intended amendments in advance of the effective date; and

(2) for amendments to procedures associated with prior approval items in accordance with ORO.GEN.130, approval shall be obtained before the amendment becomes effective.

(g1) For SPO authorisation holders, any amendment associated with the authorised standard operating procedures, prior approval shall be obtained before the amendment becomes effective.

(h) Notwithstanding (g) and (g1), when immediate amendments or revisions are required in the interest of safety, they may be published and applied immediately, provided that any approval required has been applied for.

(i) The operator shall incorporate all amendments and revisions required by the CAAT.

(j) The operator shall ensure that information taken from approved documents, and any amendment thereof, is correctly reflected in the OM. This does not prevent the operator from publishing more conservative data and procedures in the OM.

(k) The operator shall ensure that all personnel are able to understand the language in which those parts of the OM which pertain to their duties and responsibilities are written. The content of the OM shall be presented in a form that can be used without difficulty and observes human factors principles.

ORO.MLR.101 - Operations manual — structure for commercial air transport

Except for operations with single-engined propeller-driven aeroplanes with a MOPSC of 5 or less or with single-engined non-complex helicopters with a MOPSC of 5 or less, taking off and landing at the same aerodrome or operating site, under VFR by day, the main structure of the OM shall be as follows:

(a) Part A: General/Basic, comprising all non-type-related operational policies, instructions and procedures;

(b) Part B: Aircraft operating matters, comprising all type-related instructions and procedures, taking into account differences between types/classes, variants or individual aircraft used by the operator;

(c) Part C: Commercial air transport operations, comprising route/role/area and aerodrome/operating site instructions and information;

(d) Part D: Training, comprising all training instructions for personnel required for a safe operation.

ORO.MLR.105 - Minimum equipment list

(a) A minimum equipment list (MEL) shall be established as specified under the Air Navigation Act B.E 2497 and Kingdom of Thailand Civil Aviation Regulations, it shall be based on the relevant master minimum equipment list (MMEL) as approved or published by relevant authority in charge of type certification. If an MMEL has not been established, the MEL may be based on the relevant MMEL accepted by the State of Operator or Registry as applicable.

(b) The MEL and any amendment thereto shall be approved by the CAAT.

(c) The operator shall amend the MEL after any applicable change to the MMEL within the acceptable timescales.

(d) In addition to the list of items, the MEL shall contain:

  (1) a preamble, including guidance and definitions for flight crews and maintenance personnel using the MEL;

  (2) the revision status of the MMEL upon which the MEL is based and the revision status of the MEL;

  (3) the scope, extent and purpose of the MEL.

(e) The operator shall:

  (1) establish rectification intervals for each inoperative instrument, item of equipment or function listed in the MEL. The rectification interval in the MEL shall not be less restrictive than the corresponding rectification interval in the MMEL;

  (2) establish an effective rectification programme;

  (3) only operate the aircraft after expiry of the rectification interval specified in the MEL when:

    (i) the defect has been rectified; or

    (ii) the rectification interval has been extended in accordance with (f).

(f) Subject to approval of the CAAT, the operator may use a procedure for the one time extension of category B, C and D rectification intervals, provided that:

(1) the extension of the rectification interval is within the scope of the MMEL for the aircraft type;

(2) the extension of the rectification interval is, as a maximum, of the same duration as the rectification interval specified in the MEL;

(3) the rectification interval extension is not used as a normal means of conducting MEL item rectification and is used only when events beyond the control of the operator have precluded rectification;

(4) a description of specific duties and responsibilities for controlling extensions is established by the operator;

(5) the CAAT is notified of any extension of the applicable rectification interval; and

(6) a plan to accomplish the rectification at the earliest opportunity is established.

(g) The operator shall establish the operational and maintenance procedures referenced in the MEL taking into account the operational and maintenance procedures referenced in the MMEL. These procedures shall be part of the operator's manuals or the MEL.

(h) The operator shall amend the operational and maintenance procedures referenced in the MEL after any applicable change to the operational and maintenance procedures referenced in the MMEL.

(i) Unless otherwise specified in the MEL, the operator shall complete:

(1) the operational procedures referenced in the MEL when planning for and/or operating with the listed item inoperative; and

(2) the maintenance procedures referenced in the MEL prior to operating with the listed item inoperative.

(j) Subject to a specific case-by-case approval by the CAAT, the operator may operate an aircraft with inoperative instruments, items of equipment or functions outside the constraints of the MEL but within the constraints of the MMEL, provided that:

(1) the concerned instruments, items of equipment or functions are within the scope of the MMEL as defined in point (a);

(2) the approval is not used as a normal means of conducting operations outside the constraints of the approved MEL and is used only when events beyond the control of the operator have precluded the MEL compliance;

(3) a description of specific duties and responsibilities for controlling the operation of the aircraft under such approval is established by the operator; and

(4) a plan to rectify the inoperative instruments, items of equipment or functions or to return operating the aircraft under the MEL constraints at the earliest opportunity is established.

ORO.MLR.110 - Journey log

Particulars of the aircraft, its crew and each journey shall be retained for each flight, or series of flights, in the form of a journey log, or equivalent.

ORO.MLR.115 - Record-keeping

(a) The following records shall be stored for at least 5 years.

(1) for CAT operators, records of the activities referred to in ORO.GEN.200;

(2) for declared operators, a copy of the operator's declaration, details of approvals held and operations manual;

(3) for SPO authorisation holders, in addition to (a)(2), records related to the risk assessment conducted in accordance with SPO.OP.230 and related standard operating procedures.

(b) The following information used for the preparation and execution of a flight, and associated reports, shall be stored for three months:

(1) the operational flight plan, if applicable;

(2) route-specific notice(s) to airmen (NOTAM) and aeronautical information services (AIS) briefing documentation, if edited by the operator;

(3) mass and balance documentation;

(4) notification of special loads, including written information to the commander/pilot-in-command about dangerous goods, if applicable;

(5) the journey log, or equivalent; and

(6) flight report(s) for recording details of any occurrence, or any event that the commander/pilot-in-command deems necessary to report or record;

(c) Personnel records shall be stored for the periods indicated below:

Flight crew licence and cabin crew initial training certificate	As long as the crew member is exercising the privileges of the licence or certificate for the aircraft operator
Crew member training, checking and qualifications	3 years
Records on crew member recent experience	15 months
Crew member route and aerodrome/task and area competence, as appropriate	3 years
Dangerous goods training, as appropriate	3 years
Training/qualification records of other personnel for whom a training programme is required	Last 2 training records

(d) The operator shall:

(1) maintain records of all training, checking and qualifications of each crew member, as prescribed in Part ORO; and

(2) make such records available, on request, to the crew member concerned, and made fully available when requested by the CAAT.

(e) The operator shall preserve the information used for the preparation and execution of a flight and personnel training records, even if the operator ceases to be the operator of that aircraft or the employer of that crew member, provided this is within the timescales prescribed in (c).

(f) If a crew member becomes a crew member for another operator, the operator shall make the crew member's records available to the new operator, provided this is within the timescales prescribed in (c).

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SUBPART SEC: SECURITY

ORO.SEC.100 - Flight crew compartment security — aeroplanes

(a) In an aeroplane which is equipped with a flight crew compartment door, that door shall be capable of being locked, and means shall be provided by which the cabin crew can notify the flight crew in the event of suspicious activity or security breaches in the cabin.

(b) All passenger-carrying aeroplanes that are engaged in the commercial transportation of passengers shall be equipped with an approved secure flight crew compartment door that is capable of being locked and unlocked from either pilot's station and designed to meet the applicable airworthiness requirements, where such airplanes fall within any of the following categories:

(1) aeroplanes with an MCTOM that exceeds 54 500 kg;

(2) aeroplanes with an MCTOM that exceeds 45 500 kg and have an MOPSC of more than 19; or

(3) aeroplanes with an MOPSC of more than 60.

(c) In all aeroplanes which are equipped with a secure flight crew compartment door in accordance with point (b) above:

(1) this door shall be closed and locked from the time that the first passenger gets inside the aircraft to the time that the last passenger gets outside the aircraft, except when deemed to be necessary for authorised persons to access or egress in compliance with national civil aviation security programme; and

(2) means shall be provided for monitoring from either pilot's station the entire door area outside the flight crew compartment to identify persons that request to enter and to detect suspicious behaviour or potential threat.

ORO.SEC.105 - Flight crew compartment security — helicopters

If installed, the flight crew compartment door on a helicopter operated for the purpose of carrying passengers shall be capable of being locked from within the flight crew compartment in order to prevent unauthorised access.

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SUBPART FC: FLIGHT CREW

ORO.FC.005 - Scope

This Subpart establishes requirements to be met by the operator related to flight crew training, experience and qualification and comprises:

(a) SECTION 1 specifying common requirements applicable to both non-commercial operations of complex motor-powered aircraft and any commercial operation;

(b) SECTION 2 specifying additional requirements applicable to commercial air transport operations, with the exception of commercial air transport operations of passengers conducted under VFR by day, starting and ending at the same aerodrome or operating site and within a local area specified by the CAAT, with:

(1) single-engined propeller-driven aeroplanes having an MCTOM of 5 700 kg or less and an MOPSC of 5 or less; or

(2) other-than-complex motor-powered helicopters, single-engined, with an MOPSC of 5 or less.

(c) SECTION 3 specifying additional requirements for commercial specialised operations and for those referred to in b(1) and (2).

SECTION 1 Common requirements

ORO.FC.100 - Composition of flight crew

(a) The composition of the flight crew and the number of flight crew members at designated crew stations shall be not less than the minimum specified in the aircraft flight manual or operating limitations prescribed for the aircraft.

(b) The flight crew shall include additional flight crew members when required by the type of operation and shall not be reduced below the number specified in the operations manual.

(c) All flight crew members shall hold a licence and ratings issued or accepted in accordance with TCAR PEL and appropriate to the duties assigned to them.

(d) The flight crew member may be relieved in flight of his or her duties at the controls by another suitably qualified flight crew member.

(e) When engaging the services of flight crew members who are working on a freelance or part-time basis, the operator shall verify that all applicable requirements of this Subpart and the relevant elements of TCAR PEL Part FCL, including the requirements on recent experience, are complied with, taking into account all services rendered by the flight crew member to other operator(s) to determine in particular:

(1) the total number of aircraft types or variants operated; and

(2) the applicable national flight and duty time limitations and rest requirements.

(f) Specific requirements for helicopter operations

If the helicopter is operated with a crew of two pilots, each pilot shall either:

(1) hold a certificate of satisfactory completion of a multi-crew cooperation (MCC) course in helicopters in accordance with TCAR PEL; or

(2) have at least 500 hours of flight time as a pilot in multi-pilot operations.

ORO.FC.105 - Designation as pilot-in-command/commander

(a) In accordance with TCAR PEL Part FCL, one pilot amongst the flight crew, qualified as pilot-in-command shall be designated by the operator as pilot-in-command or, for commercial air transport operations, as commander.

(b) The operator shall only designate a flight crew member to act as pilot-in-command/commander if all of the following apply:

(1) the flight crew member has the minimum level of experience specified in the operations manual;

(2) the flight crew member has adequate knowledge of the route or area to be flown and of the aerodromes, including alternate aerodromes, facilities and procedures to be used;

(3) in the case of multi-crew operations, the flight crew member has completed an operator's command course if upgrading from co-pilot to pilot-in-command/commander.

(c) In the case of commercial operations of aeroplanes and helicopters, the pilot-in-command/commander or the pilot to whom the conduct of the flight may be delegated shall have had initial familiarisation training on the route or area to be flown and on the

aerodromes, facilities and procedures to be used and shall maintain this knowledge as follows:

(1) The validity of the aerodrome knowledge shall be maintained by operating at least once on the aerodrome within a 12 calendar months' period.

(2) The route or area knowledge shall be maintained by operating at least once to the route or area within a 36 months' period. In addition, refresher training is required regarding route or area knowledge if not operating on a route or area for 12 months within the 36-month period.

(d) Notwithstanding point (c), in the case of operations under VFR by day with performance class B and C aeroplanes and helicopters, familiarisation training on the route and aerodromes may be replaced by area familiarisation training.

ORO.FC.110 - Flight engineer

When a separate flight engineer station is incorporated in the design of an aeroplane, the flight crew shall include one crew member who is suitably qualified in accordance with applicable national rules.

ORO.FC.115 - Crew resource management (CRM) training

(a) Before operating, the flight crew member shall have received CRM training, appropriate to his/her role, as specified in the operations manual.

(b) Elements of CRM training shall be included in the aircraft type or class training and recurrent training as well as in the command course.

ORO.FC.120 - Operator conversion training

(a) In the case of aeroplane or helicopter operations, the flight crew member shall complete the operator conversion training course before commencing unsupervised line flying:

(1) when changing to an aircraft for which a new type or class rating is required;

(2) when joining an operator.

(b) The operator conversion training course shall include training on the equipment installed on the aircraft as relevant to flight crew members' roles.

ORO.FC.125 - Differences training and familiarisation training

(a) Flight crew members shall complete differences training or familiarisation when required by TCAR PEL Part FCL.

(b) Flight crew members shall complete equipment and procedure training when changing equipment or changing procedures requiring additional knowledge on types or variants currently operated.

(c) The operations manual shall specify when such differences training or familiarisation or equipment and procedure training is required.

ORO.FC.130 - Recurrent training and checking

(a) Each flight crew member shall complete annual recurrent flight and ground training relevant to the type or variant, and associated equipment of aircraft on which he or she operates, including training on the location and use of all emergency and safety equipment carried on board the aircraft.

(b) Each flight crew member shall be periodically checked to demonstrate competence in carrying out normal, abnormal and emergency procedures.

ORO.FC.135 - Pilot qualification to operate in either pilot's seat

Flight crew members who may be assigned to operate in either pilot's seat shall complete appropriate training and checking as specified in the operations manual.

ORO.FC.140 - Operation on more than one type or variant

(a) Flight crew members that operate more than one type or variant of aircraft shall comply with the requirements prescribed in this Subpart for each type or variant, unless credits related to the training, checking, and recent experience requirements are defined in the mandatory part of the operational suitability data established in accordance with EASA Part 21 or any equivalent material acceptable to the CAAT for the relevant types or variants.

(b) The operator may define groups of single-engined helicopter types. An operator proficiency check on one type shall be valid for all the other types within the group if both of the following conditions are met:

(1) the group either includes only single-engined turbine helicopters operated under VFR or it includes only single-engined piston helicopters operated under VFR;

(2) for CAT operations, at least two operator proficiency checks per type shall be conducted within a 3-year cycle.

(c) For specialised operations, elements of the aircraft/FSTD training and operator proficiency check that cover the relevant aspects associated with the specialised task and are not related to the type or group of types may be credited towards the other groups or types, based on a risk assessment performed by the operator.

(d) For operations on more than one helicopter type or variant that are used for conducting sufficiently similar operations, if line checks rotate between types or variants, each line check shall revalidate the line check for the other helicopter types or variants.

(e) Appropriate procedures and any operational restrictions shall be specified in the operations manual for any operation on more than one type or variant.

ORO.FC.145 - Provision of training

(a) All training, checking and assessment required in this Subpart shall be conducted in accordance with the training programmes and syllabi established by the operator in the operations manual;

(b) When establishing the training programmes and syllabi, the operator shall include the relevant elements defined in the mandatory part of the operational suitability data established in accordance with EASA Part 21 or any equivalent material acceptable to the CAAT.

(c) In the case of CAT operations, training and checking programmes, including syllabi and the use of the means to deliver the programme such as individual flight simulation training devices (FSTDs) and other training solutions, shall be approved by the CAAT.

(d) The FSTD used to meet the requirements of this Subpart shall be qualified in accordance with TCAR PEL and it shall replicate the aircraft used by the operator, as far as practicable. Differences between the FSTD and the aircraft shall be described and addressed through a briefing or training, as appropriate.

(e) The operator shall establish a system to adequately monitor changes to the FSTD and to ensure that those changes do not affect the adequacy of the training programmes.

(f) The operator shall monitor the validity of each recurrent training and checking.

(g) The validity periods required in this Subpart shall be counted from the end of the month in which the recency, training or check was completed.

ORO.FC.146 - Personnel providing training, checking and assessment

(a) All training, checking and assessment required in this Subpart shall be conducted by appropriately qualified personnel.

(b) In the case of flight and flight simulation training, checking and assessment, the personnel that provide the training and conduct the checking or assessment shall be qualified in accordance with TCAR PEL Part FCL. Additionally, the personnel providing training and conducting checking towards specialised operations shall be suitably qualified for the relevant operation.

(c) For an EBT programme, the personnel that performs assessment and provides training shall:

(1) hold a TCAR PEL Part FCL instructor or examiner certificate;

(2) complete the operator's EBT instructor standardisation programme. This shall include an initial standardisation programme and a recurrent standardisation programme.

Completion of the operator's EBT initial standardisation will qualify the instructor to perform EBT practical assessment.

(d) Notwithstanding point (b), the line evaluation of competence may be conducted by a suitably qualified commander nominated by the operator that is standardised in EBT concepts and the assessment of competencies (line evaluator).

(e) Notwithstanding point (b), the aircraft/FSTD training and the operator proficiency check may be conducted by a suitably qualified commander holding a FI/TRI/SFI certificate and nominated by the operator for any of the following operations:

(1) CAT operations of helicopters meeting the criteria defined in point ORO.FC.005(b)(2);

(2) CAT operations of other than complex motor-powered helicopters by day and over routes navigated by reference to visual landmarks;

(3) CAT operations of performance class B aeroplanes that do not meet the criteria defined in point ORO.FC.005(b)(1).

(f) Notwithstanding point (b), the aircraft/FSTD training and the demonstration of competence/operator proficiency check may be conducted by a suitably qualified pilot-in-command/commander nominated by the operator for any of the following operations:

(1) specialised operations;

(2) CAT operations of aeroplanes meeting the criteria defined in point ORO.FC.005(b)(1).

(g) Notwithstanding point (b), the line check may be conducted by a suitably qualified commander nominated by the operator.

(h) The operator shall inform the CAAT about the persons nominated under points (e) to (g).

SECTION 2 Additional requirements for commercial air transport operations

ORO.FC.200 - Composition of flight crew

(a) There shall not be more than one inexperienced flight crew member in any flight crew.

(b) The commander may delegate the conduct of the flight to another pilot suitably qualified in accordance with TCAR PEL Part FCL.provided that the requirements of ORO.FC.105(b)(1), (b)(2) and (c) are complied with.

(c) Specific requirements for aeroplane operations under instrument flight rules (IFR) or at night.

(1) The minimum flight crew shall be two pilots for all turbo-propeller aeroplanes with a maximum operational passenger seating configuration (MOPSC) of more than nine and all turbojet aeroplanes.

(2) Aeroplanes other than those covered by (c)(1) and with a maximum take-off mass of not more than 5 700 kg shall be operated with a minimum crew of two pilots, unless the requirements of ORO.FC.202 are complied with, in which case they may be operated by a single pilot.

(d) Specific requirements for helicopter operations

For all operations of helicopters with an MOPSC of more than 19 and for operations under IFR of helicopters with an MOPSC of more than 9, the minimum flight crew shall be two pilots.

ORO.FC.A.201 - In-flight relief of flight crew members

(a) The commander may delegate the conduct of the flight to:

(1) another qualified commander; or

(2) for operations only above flight level (FL) 200, a pilot who complies with the following minimum qualifications:

(i) ATPL;

(ii) conversion training and checking, including type rating training, in accordance with ORO.FC.220;

(iii) all recurrent training and checking in accordance with ORO.FC.230 and ORO.FC.240;

(iv) route/area and aerodrome competence in accordance with ORO.FC.105.

(b) The co-pilot may be relieved by:

(1) another suitably qualified pilot;

(2) for operations only above FL 200, a cruise relief co-pilot that complies with the following minimum qualifications:

(i) valid commercial pilot licence (CPL) with an instrument rating;

(ii) conversion training and checking, including type rating training, in accordance with ORO.FC.220 except the requirement for take-off and landing training;

(iii) recurrent training and checking in accordance with ORO.FC.230 except the requirement for take-off and landing training.

(c) A flight engineer may be relieved in flight by a crew member suitably qualified in accordance with applicable national rules.

ORO.FC.202 - Single-pilot operations under IFR or at night

In order to be able to fly under IFR or at night with a minimum flight crew of one pilot, the following shall be complied with:

(a) The activity needs the approval of the CAAT and the operator shall include in the operations manual a pilot's conversion and recurrent training programme that includes the additional requirements for a single-pilot operation. The pilot shall have undertaken training on the operator's procedures, in particular regarding:

(1) engine management and emergency handling;

(2) use of normal, abnormal and emergency checklist;

(3) air traffic control (ATC) communication;

(4) departure and approach procedures;

(5) autopilot management, if applicable;

(6) use of simplified in-flight documentation;

(7) single-pilot crew resource management.

(b) INTENTIONALLY LEFT BLANK.

(c) For aeroplane operations under IFR the pilot shall have:

(1) a minimum of 50 hours flight time under IFR on the relevant type or class of aeroplane, of which 10 hours are as commander; and

(2) completed during the preceding 90 days on the relevant type or class of aeroplane:

(i) five IFR flights, including three instrument approaches, in a single-pilot role; or

(ii) an IFR instrument approach check.

(d) For aeroplane operations at night the pilot shall have:

(1) a minimum of 15 hours flight time at night which may be included in the 50 hours flight time under IFR in (c)(1); and

(2) completed during the preceding 90 days on the relevant type or class of aeroplane:

(i) three take-offs and landings at night in the single pilot role; or

(ii) a night take-off and landing check.

ORO.FC.205 - Command course

(a) For aeroplane and helicopter operations, the command course shall include at least the following elements:

(1) training in an FSTD, which includes line oriented flight training (LOFT) and/or flight training;

(2) the operator proficiency check, operating as commander;

(3) command responsibilities training;

(4) line training as commander under supervision, for a minimum of:

(i) 10 flight sectors, in the case of aeroplanes; and

(ii) 10 hours, including at least 10 flight sectors, in the case of helicopters;

(5) completion of a line check as commander and demonstration of adequate knowledge of the route or area to be flown and of the aerodromes, including alternate aerodromes, facilities and procedures to be used; and

(6) crew resource management training.

ORO.FC.215 - Initial operator's crew resource management (CRM) training

(a) The flight crew member shall have completed an initial CRM training course before commencing unsupervised line flying.

(b) Initial CRM training shall be conducted by at least one suitably qualified CRM trainer who may be assisted by experts in order to address specific areas.

If the flight crew member has not previously received theoretical training in human factors to the ATPL level, he/she shall complete, before or combined with the initial CRM training, a theoretical course provided by the operator and based on the human performance and limitations syllabus for the ATPL as established in TCAR PEL Part FCL.

ORO.FC.220 - Operator conversion training and checking

(a) CRM training shall be integrated into the operator conversion training course.

(b) Once an operator conversion course has been commenced, the flight crew member shall not be assigned to flying duties on another type or class of aircraft until the course is completed or terminated. Crew members operating only performance class B aeroplanes may be assigned to flights on other types of performance class B aeroplanes during conversion courses to the extent necessary to maintain the operation. Crew members may be assigned to flights on single-engined helicopters during an operator conversion course on a single-engined helicopter, provided that the training is unaffected.

(c) The amount of training required by the flight crew member for the operator's conversion course shall be determined in accordance with the standards of qualification and experience specified in the operations manual, taking into account his/her previous training and experience.

(d) The flight crew member shall complete:

(1) the operator proficiency check and the emergency and safety equipment training and checking before commencing line flying under supervision (LIFUS); and

(2) the line check upon completion of line flying under supervision. For performance class B aeroplanes, LIFUS may be performed on any aeroplane within the applicable class.

(e) In the case of aeroplanes, pilots that have been issued a type rating based on a zero flight-time training ('ZFTT') course shall:

(1) commence line flying under supervision not later than 21 days after the completion of the skill test or after appropriate training provided by the operator. The content of that training shall be described in the operations manual;

(2) complete six take-offs and landings in an FSTD not later than 21 days after the completion of the skill test under the supervision of a type rating instructor for aeroplanes ('TRI(A)') occupying the other pilot seat. The number of take-offs and landings may be reduced when credits are defined in the mandatory part of the operational suitability data established in accordance with EASA, Part 21 or any equivalent material established in accordance with certification regulations acceptable to the CAAT. If those take-offs and landings have not been performed within 21

days, the operator shall provide refresher training the content of which shall be described in the operations manual;

(3) conduct the first four take-offs and landings of the LIFUS in the aeroplane under the supervision of a TRI(A) occupying the other pilot seat. The number of take-offs and landings may be reduced when credits are defined in the mandatory part of the operational suitability data established in accordance with EASA, Part 21 or any equivalent material established in accordance with certification regulations acceptable to the CAAT.

(f) If operational circumstances, such as applying for a new AOC or adding a new aircraft type or class to the fleet, do not allow the operator to comply with the requirements in (d), the operator may develop a specific conversion course, to be used temporarily for a limited number of pilots.

ORO.FC.230 - Recurrent training and checking

(a) Each flight crew member shall complete recurrent training and checking relevant to the type or variant, and associated equipment of aircraft on which they operate.

(b) **Operator proficiency check**

(1) Each flight crew member shall complete operator proficiency checks as part of the normal crew complement.

(2) When the flight crew member will be required to operate under IFR, the operator proficiency check shall be conducted without external visual reference, as appropriate.

(3) The validity period of the operator proficiency check shall be 6 calendar months. For operations under VFR by day of performance class B aeroplanes that are conducted during seasons not longer than 8 consecutive months, one operator proficiency check shall be sufficient. The proficiency check shall be undertaken before commencing CAT operations.

(c) **Line check**

Each flight crew member shall complete a line check on the aircraft. The validity period of the line check shall be 12 calendar months.

(d) **Emergency and safety equipment training and checking**

Each flight crew member shall complete recurrent training and checking on the location and use of all emergency and safety equipment carried on board the aircraft. The validity period of an emergency and safety equipment training and checking shall be 12 calendar months.

(e) CRM training

(1) Elements of CRM shall be integrated into all appropriate phases of the recurrent training.

(2) Each flight crew member shall undergo specific modular CRM training. All major topics of CRM training shall be covered by distributing modular training sessions as evenly as possible over each 3-year period.

(f) Each flight crew member shall undergo ground training and flight training in an FSTD or an aircraft, or a combination of FSTD and aircraft training, at least every 12 calendar months.

(g) The validity periods mentioned in (b)(3), (c) and (d) shall be counted from the end of the month when the check was taken.

(h) When the training or checks required above are undertaken within the last three months of the validity period, the new validity period shall be counted from the original expiry date.

ORO.FC.231 - Evidence-based training

(a) EBT PROGRAMME

(1) The operator may substitute the requirements of ORO.FC.230 by establishing, implementing and maintaining a suitable EBT programme approved by the CAAT.

The operator shall demonstrate its capability to support the implementation of the EBT programme (including an implementation plan) and perform a safety risk assessment demonstrating how an equivalent level of safety is achieved.

(2) The EBT programme shall:

(i) correspond to the size of the operator, and the nature and complexity of its activities, taking into account the hazards and associated risks inherent in those activities;

(ii) ensure pilot competence by assessing and developing pilot competencies required for a safe, effective and efficient operation of aircraft;

(iii) ensure that each pilot is exposed to the assessment and training topics derived in accordance with ORO.FC.232;

(iv) include at least six EBT modules distributed across a 3-year programme; each EBT module shall consist of an evaluation phase and a training phase. The validity period of a EBT module shall be 12 months;

(A) The evaluation phase comprises a line-orientated flight scenario (or scenarios) to assess all competencies and identify individual training needs.

(B) The training phase comprises:

(a) the manoeuvres training phase, comprising training to proficiency in certain defined manoeuvres;

(b) the scenario-based training phase, comprising a line-orientated flight scenario (or scenarios) to develop competencies and address individual training needs. The training phase shall be conducted in a timely manner after the evaluation phase.

(3) The operator shall ensure that each pilot enrolled in the EBT programme completes:

(i) a minimum of two EBT modules within the validity period of the type rating, separated by a period of not less than 3 months. The EBT module is completed when:

(A) the content of the EBT programme is completed for that EBT module (exposure of the pilot to the assessment and training topics); and

(B) an acceptable level of performance in all observed competencies has been demonstrated;

(ii) line evaluation(s) of competence; and

(iii) ground training.

(4) The operator shall establish an EBT instructor standardisation and concordance assurance programme to ensure that the instructors involved in EBT are properly qualified to perform their tasks.

(i) All instructors must be subject to this programme;

(ii) The operator shall use appropriate methods and metrics to assess concordance;

(iii) The operator shall demonstrate that the instructors have sufficient concordance.

(5) The EBT programme may include contingency procedures for unforeseen circumstances that could affect the delivery of the EBT modules. The operator shall demonstrate the need for those procedures. The procedures shall ensure that a pilot does not continue line operations if the performance observed was below the minimum acceptable level. They may include:

(i) a different separation period between EBT modules; and

(ii) different order of the phases of the EBT module.

(b) COMPETENCY FRAMEWORK

The operator shall use a competency framework for all aspects of assessment and training within an EBT programme. The competency framework shall:

(1) be comprehensive, accurate, and usable;

(2) include observable behaviours required for safe, effective and efficient operations;

(3) include a defined set of competencies, their descriptions and their associated observable behaviours

(c) TRAINING SYSTEM PERFORMANCE

(1) The EBT system performance shall be measured and evaluated through a feedback process in order to:

(i) validate and refine the operator's EBT programme;

(ii) ascertain that the operator's EBT programme develops pilot competencies.

(2) The feedback process shall be included in the operator's management system.

(3) The operator shall develop procedures governing the protection of EBT data.

(d) GRADING SYSTEM

(1) The operator shall use a grading system to assess the pilot competencies. The grading system shall ensure:

(i) a sufficient level of detail to enable accurate and useful measurements of individual performance;

(ii) a performance criterion and a scale for each competency, with a point on the scale which determines the minimum acceptable level to be achieved for the conduct of line operations. The operator shall develop procedures to address low performance of the pilot;

(iii) data integrity;

(iv) data security.

(2) The operator shall verify at regular intervals the accuracy of the grading system against a criterion-referenced system.

(e) SUITABLE TRAINING DEVICES AND VOLUME OF HOURS TO COMPLETE THE OPERATOR'S EBT PROGRAMME

(1) Each EBT module shall be conducted in an FSTD with a qualification level adequate to ensure the correct delivery of the assessment and training topics.

(2) The operator shall provide a sufficient volume of hours in the suitable training device for the pilot to complete the operator's EBT programme. The criteria to determine the volume of the EBT programme are as follows:

(i) The volume corresponds to the size and complexity of the EBT programme;

(ii) The volume is sufficient to complete the EBT programme;

(iii) The volume ensures an effective EBT programme taking into account the recommendations provided by ICAO, and the CAAT;

(iv) The volume corresponds to the technology of the training devices used.

(f) EQUIVALENCY OF MALFUNCTIONS

(1) Each pilot shall receive assessment and training in the management of aircraft system malfunctions.

(2) Aircraft system malfunctions that place a significant demand on a proficient crew shall be organised by reference to the following characteristics:

(i) immediacy;

(ii) complexity;

(iii) degradation of aircraft control;

(iv) loss of instrumentation;

(v) management of consequences.

(3) Each pilot shall be exposed to at least one malfunction for each characteristic at the frequency determined by the table of assessment and training topics.

(4) Demonstrated proficiency in the management of one malfunction is considered equivalent to demonstrated proficiency in the management of other malfunctions with the same characteristics.

(g) EQUIVALENCY OF APPROACHES RELEVANT TO OPERATIONS

(1) The operator shall ensure that each pilot receives regular training in the conduct of approach types and approach methods relevant to operations.

(2) This training shall include approaches that place an additional demand on a proficient crew.

(3) This training shall include the approaches that require specific approval in accordance with TCAR OPS Part SPA.

(h) LINE EVALUATION OF COMPETENCE

(1) Each pilot shall periodically undertake a line evaluation of competence in an aircraft to demonstrate the safe, effective and efficient conduct of normal line operations described in the operations manual.

(2) The validity period of a line evaluation of competence shall be 12 months.

(3) The operator approved for EBT may, with the approval of the CAAT, extend the validity of the line evaluation of competence to:

(i) either 2 years, subject to a risk assessment;

(ii) or 3 years, subject to a feedback process for the monitoring of line operations which identifies threats to the operations, minimises the risks of such threats, and implements measures to manage human error in the operations.

(4) For successful completion of the line evaluation of competence, the pilot shall demonstrate an acceptable level of performance in all observed competencies.

(i) GROUND TRAINING

(1) Every 12 calendar months, each pilot shall undergo:

(i) technical ground training;

(ii) assessment and training on the location and use of all emergency and safety equipment carried on the aircraft.

(2) The operator may, with the approval of the CAAT and subject to a risk assessment, extend the period of assessment and training on the location and use of all emergency and safety equipment carried on the aircraft to 24 months.

ORO.FC.232 - EBT programme assessment and training topics

(a) The operator shall ensure that each pilot is exposed to the assessment and training topics.

(b) The assessment and training topics shall be:

(1) derived from safety and operational data that are used to identify the areas for improvement and prioritisation of pilot training to guide in the construction of suitable EBT programmes;

(2) distributed across a 3-year period at a defined frequency;

(3) relevant to the type or variant of aircraft on which the pilot operates.

ORO.FC.235 - Pilot qualification to operate in either pilot's seat — aeroplanes

(a) Commanders of aeroplanes whose duties require them to operate in either pilot's seat and carry out the duties of a co-pilot, or commanders required to conduct training or checking duties shall complete additional training and checking to ensure that they are proficient in conducting the relevant normal, abnormal and emergency procedures from either seat. Such training and checking shall be specified in the operations manual. The checking may be conducted together with the operator proficiency check prescribed in ORO.FC.230(b) or in the EBT programme prescribed in ORO.FC.231.

(b) The additional training and checking shall include at least the following:

(1) an engine failure during take-off;

(2) a one-engine-inoperative approach and go-around; and

(3) a one-engine-inoperative landing.

(c) The validity period shall be 12 calendar months. For operators with an approved EBT programme, the validity is determined by the assessment and training topics in accordance with ORO.FC.232.

(d) When operating in the co-pilot's seat, the checks required by ORO.FC.230 or the assessment and training required by ORO.FC.231 for operating in the commander's seat shall, in addition, be valid and current.

(e) The pilot relieving the commander shall have demonstrated, concurrent with the operator proficiency checks prescribed in ORO.FC.230(b) or the assessment and training required by ORO.FC.231, practice of drills and procedures that would not normally be his or her responsibility. Where the differences between left- and right-hand seats are not significant, practice may be conducted in either seat.

(f) The pilot, other than the commander, occupying the commander's seat shall demonstrate practice of drills and procedures, concurrent with the operator proficiency checks prescribed in ORO.FC.230(b) or the assessment and training required by ORO.FC.231, which are the commander's responsibility acting as pilot monitoring. Where the differences between left- and right-hand seats are not significant, practice may be conducted in either seat.

ORO.FC.236 - Pilot qualification to operate in either pilot's seat — helicopters

(a) Helicopter pilots whose duties require them to operate in either pilot's seat shall complete additional training and checking to ensure that they are proficient in conducting the relevant normal, abnormal and emergency procedures from either seat. The validity period of this qualification shall be 12 calendar months.

(b) Current FIs or TRIs on the relevant type are considered to fulfil the requirement of point (a) if they have had a FI or TRI activity in the last 6 months on that type and on the helicopter.

ORO.FC.240 - Operation on more than one type or variant

(a) The procedures or operational restrictions for operation on more than one type or variant established in the operations manual and approved by the CAAT shall cover:

(1) the flight crew members' minimum experience level;

(2) the minimum experience level on one type or variant before beginning training for and operation of another type or variant;

(3) the process whereby flight crew qualified on one type or variant will be trained and qualified on another type or variant; and

(4) all applicable recent experience requirements for each type or variant.

(b) INTENTIONALLY LEFT BLANK

(c) Point (a) shall not apply to operations of performance class B aeroplanes if they are limited to single-pilot classes of reciprocating engine aeroplanes under VFR by day.

ORO.FC.A.245 - Alternative training and qualification programme

GENERAL

(a) The aeroplane operator having appropriate experience may substitute one or more of the following training and checking requirements for flight crew by an alternative training and qualification programme (ATQP), approved by the competent authority:

(1) set out in point SPA.LVO.120 on flight crew training and qualifications;;

(2) set out in point ORO.FC.220 on conversion training and checking;

(3) set out in point ORO.FC.125 on differences training, familiarisation, equipment and procedure training;

(4) set out in point ORO.FC.205 on command course;

(5) set out in point ORO.FC.230 on recurrent training and checking; and

(6) set out in point ORO.FC.240 on operation on more than one type or variant.

(b) The ATQP shall contain training and checking that establishes and maintains at least an equivalent level of proficiency achieved by complying with the provisions of ORO.FC.220 and ORO.FC.230. The level of flight crew training and qualification proficiency shall be demonstrated prior to being granted the ATQP approval by the CAAT.

(c) The operator applying for an ATQP approval shall provide the CAAT with an implementation plan, including a description of the level of flight crew training and qualification proficiency to be achieved.

(d) In addition to the checks required by points ORO.FC.230 and FCL.060 of TCAR PEL Part FCL, each flight crew member shall complete a line oriented evaluation (LOE) conducted in an FSTD. The validity period of an LOE shall be 12 calendar months. The LOE is completed when both of the following conditions are met:

(1) the syllabus of the LOE is completed; and

(2) the flight crew member has demonstrated an acceptable level of performance.

(e) After 2 years of operating with an approved ATQP, the operator may, with the approval of the competent authority, extend the validity periods of the checks referred to in point ORO.FC.230 as follows:

(1) Operator proficiency check to 12 calendar months.

(2) Line check to 24 calendar months.

(3) Emergency and safety equipment checking to 24 calendar monthse.

(f) Each flight crew member shall undergo specific modular CRM training. All major topics of CRM training shall be covered by distributing modular training sessions as evenly as possible over each 3-year period.

(g) The ATQP programme shall include 48 hours on an FSTD for each flight crew member, distributed evenly over a 3-year programme. The operator may reduce the number of FSTD hours, but no lower than 36 hours, provided that it demonstrates that the level of safety that is achieved is equivalent to that of the programme the ATQP may substitute in accordance with point (a).

ORO.FC.A.250 - Commanders holding a CPL(A)

(a) The holder of a CPL(A) (aeroplane) shall only act as commander in commercial air transport on a single-pilot aeroplane if either of the following conditions is met:

(1) when carrying passengers under VFR outside a radius of 50 NM (90 km) from an aerodrome of departure, he/she has a minimum of 500 hours of flight time on aeroplanes or holds a valid instrument rating; or

(2) when operating on a multi-engine type under IFR, he/she has a minimum of 700 hours of flight time on aeroplanes, including 400 hours as pilot-in-command. These hours shall include 100 hours under IFR and 40 hours in multi-engine operations. The 400 hours as pilot-in-command may be substituted by hours operating as co-pilot within an established multi-pilot crew system prescribed in the operations manual, on the basis of two hours of flight time as co-pilot for one hour of flight time as pilot-in command;

(3) when operating on a single-engined aeroplane under IFR, he/she has a minimum of 700 hours of flight time on aeroplanes, including 400 hours as pilot-in-command. Those hours shall include 100 hours under IFR. The 400 hours as pilot-in-command may be substituted by hours operating as co-pilot within an established multi-pilot crew system prescribed in the operations manual, on the basis of two hours of flight time as co-pilot for one hour of flight time as pilot-in command.

(b) For operations under VFR by day of performance class B aeroplanes (a)(1) shall not apply.

ORO.FC.H.250 - Commanders holding a CPL(H)

(a) Holders of a CPL(H) (helicopter) shall only act as commanders in CAT operations on a single-pilot helicopter if:

(1) when operating under IFR, they have a minimum of 700 hours total flight time on helicopters, including 300 hours as pilot-in-command. The total flight time on helicopters shall include 100 hours under IFR. Up to 50 hours instrument time performed on an FFS(H) level B or FTD level 3 qualification or higher qualified for instrument training, may be credited towards the 100 hours. The 300 hours as pilot-in-command may be substituted by hours operating as co-pilot within an established multi-pilot crew system prescribed in the operations manual on the basis of 2 hours of flight time as co-pilot for 1 hour flight time as pilot-in command;

(2) when operating under visual meteorological conditions (VMC) at night, he/she has:

(i) a valid instrument rating; or

(ii) 300 hours of flight time on helicopters, including 100 hours as pilot-in-command and 10 hours as pilot flying at night.

SECTION 3 Additional requirements for commercial specialised operations and CAT operations referred to in ORO.FC.005(b)(1) and (2)

ORO.FC.320 Operator conversion training and checking

The operator conversion course shall include an operator proficiency check.

ORO.FC.325 Equipment and procedure training and checking

If a flight crew member undergoes equipment and procedure training that requires training on a suitable FSTD or the aircraft, with regard to standard operating procedures related to a specialised operation, the flight crew member shall undergo an operator proficiency check.

ORO.FC.330 - Recurrent training and checking — operator proficiency check

(a) Each flight crew member shall complete recurrent training and operator proficiency checks. In the case of specialised operations, the recurrent training and checking shall cover the relevant aspects associated with the specialised tasks described in the operations manual.

(b) Appropriate consideration shall be given when operations are undertaken under IFR or at night.

(c) The validity period of the operator proficiency check shall be 12 calendar months.

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SUBPART CC: CABIN CREW

ORO.CC.005 - Scope

This Subpart establishes the requirements to be met by the operator when operating an aircraft with cabin crew and comprises:

(a) Section 1 specifying common requirements applicable to all operations; and

(b) Section 2 specifying additional requirements only applicable to commercial air transport operations.

SECTION 1 Common requirements

ORO.CC.100 - Number and composition of cabin crew

(a) For the operation of aircraft with an MOPSC of more than 19, at least one cabin crew member shall be assigned when carrying one or more passenger(s).

(b) For the purpose of complying with point (a), the minimum number of cabin crew members shall be the greatest number amongst the following:

(1) the number of cabin crew members established during the aircraft certification process in accordance with the applicable certification specifications, for the aircraft cabin configuration used by the operator;

(2) if the number under point (1) has not been established, the number of cabin crew members established during the aircraft certification process for the maximum certified passenger seating configuration reduced by 1 for every whole multiple of 50 passenger seats of the aircraft cabin configuration used by the operator falling below the maximum certified seating capacity;

(3) one cabin crew member for every 50, or fraction of 50, passenger seats installed on the same deck of the aircraft to be operated.

(c) For operations with more than one cabin crew member, the operator shall nominate one cabin crew member accountable to the pilot-in-command or the commander.

(d) By way of derogation from point (a), non-commercial operations with aircraft with an MOPSC of more than 19 may be performed without an operating cabin crew member, subject to the prior approval by the CAAT. To obtain the approval, the operator shall ensure that all of the following conditions are fulfilled:

(1) there are maximum 19 passengers on board;

(2) the operator has developed procedures for that operation.

ORO.CC.110 - Conditions for assignment to duties

(a) Cabin crew members shall only be assigned to duties on an aircraft if they:

(1) are at least 18 years of age;

(2) have been assessed physically and mentally fit to perform their duties and discharge their responsibilities safely. Medical examinations or assessments are required to be renewed on an annual basis; and

(3) have successfully completed all applicable training and checking required by TCAR OPS Part CC and this Subpart and are competent to perform the assigned duties in accordance with the procedures specified in the operations manual.

(b) Operating cabin crew members, as well as their role with regard to the safety of passengers and flight, shall be clearly identified to the passengers.

ORO.CC.115 - Conduct of training courses and associated checking

(a) A detailed programme and syllabus shall be established by the operator for each training course in accordance with the applicable requirements of this Subpart, and of TCAR OPS Part CC where applicable, to cover the duties and responsibilities to be discharged by the cabin crew members.

(b) Each training course shall include theoretical and practical instruction together with individual or collective practice, as relevant to each training subject, in order that the cabin crew member achieves and maintains the adequate level of proficiency in accordance with this Subpart, and TCAR OPS Part CC.

(c) Each training course shall be:

(1) conducted in a structured and realistic manner; and

(2) performed by personnel appropriately qualified for the subject to be covered, with the qualification specified in Subpart TRC and this Subpart.

(d) During or following completion of all training required by this Subpart, and TCAR OPS Part CC, each cabin crew member shall undergo a check covering all training elements of the relevant training programme, except for crew resource management (CRM) training. Checks shall be performed by personnel appropriately qualified to verify that the cabin crew member has achieved and/or maintains the required level of proficiency.

(e) CRM training courses and CRM modules where applicable shall be conducted by a cabin crew CRM instructor. When CRM elements are integrated in other training, a cabin crew CRM instructor shall manage the definition and implementation of the syllabus.

ORO.CC.120 - Initial training course

(a) Each new entrant who does not already hold a valid cabin crew initial training certificate issued in accordance with TCAR OPS Part CC:

(1) shall be provided with an initial training course as specified in CC.TRA.220 of TCAR OPS Part CC; and

(2) shall successfully undergo the associated examination before undertaking other training required by this Subpart.

(b) Elements of the initial training programme may be combined with the first aircraft type specific training and operator conversion training, provided that the requirements of CC.TRA.220 of TCAR OPS Part CC are met and any such element(s) are recorded as elements of the initial training course in the training records of the cabin crew members concerned.

ORO.CC.125 - Aircraft type specific training and operator conversion training

(a) Each cabin crew member shall have completed appropriate aircraft type specific training and operator conversion training, as well as the associated checks, before being:

(1) first assigned by the operator to operate as a cabin crew member; or

(2) assigned by that operator to operate on another aircraft type.

(b) When establishing the aircraft type specific and the operator conversion training programmes and syllabi, the operator shall include, where available, the relevant elements defined in the mandatory part of the operational suitability data established in accordance with EASA Part 21 or any equivalent material established in accordance with Type certification regulations acceptable to the CAAT.

(c) The aircraft type specific training programme shall:

(1) involve training and practice on a representative training device or on the actual aircraft; and

(2) cover at least the following aircraft type specific training elements:

(i) aircraft description as relevant to cabin crew duties;

(ii) all safety equipment and systems installed relevant to cabin crew duties;

(iii) operation and actual opening, by each cabin crew member, of each type or variant of normal and emergency doors and exits in the normal and emergency modes;

(iv) demonstration of the operation of the other exits including flight crew compartment windows;

(v) fire and smoke protection equipment where installed;

(vi) evacuation slide training, where fitted;

(vii) operation of the seat, restraint system and oxygen system equipment relevant to pilot incapacitation.

(d) The operator conversion training programme for each aircraft type to be operated shall:

(1) involve training and practice on a representative training device or on the actual aircraft;

(2) include training in the operator's standard operating procedures for cabin crew members to be first assigned to duties by the operator;

(3) cover at least the following operator specific training elements as relevant to the aircraft type to be operated:

(i) description of the cabin configuration;

(ii) location, removal and use of all portable safety and emergency equipment carried on-board;

(iii) all normal and emergency procedures;

(iv) passenger handling and crowd control;

(v) fire and smoke training including the use of all related fire-fighting and protective equipment representative of that carried on-board;

(vi) evacuation procedures;

(vii) pilot incapacitation procedures;

(viii) applicable security requirements and procedures;

(ix) crew resource management.

ORO.CC.130 - Differences training

(a) In addition to the training required in ORO.CC.125, the cabin crew member shall complete appropriate training and checking covering any differences before being assigned on:

(1) a variant of an aircraft type currently operated; or

(2) a currently operated aircraft type or variant with different:

(i) safety equipment;

(ii) safety and emergency equipment location; or

(iii) normal and emergency procedures.

(b) The differences training programme shall:

(1) be determined as necessary on the basis of a comparison with the training programme completed by the cabin crew member, in accordance with ORO.CC.125(c) and (d), for the relevant aircraft type; and

(2) involve training and practice in a representative training device or the actual aircraft as relevant to the difference training element to be covered.

(c) When establishing a differences training programme and syllabus for a variant of an aircraft type currently operated, the operator shall include, where available, the relevant elements defined in the mandatory part of the operational suitability data established in accordance with EASA, Part 21 or any equivalent material established in accordance with certification regulations acceptable to the CAAT.

ORO.CC.135 - Familiarisation

After completion of aircraft type specific training and operator conversion training on an aircraft type, each cabin crew member shall complete appropriate supervised familiarisation on the type before being assigned to operate as a member of the minimum number of cabin crew required in accordance with ORO.CC.100.

ORO.CC.140 - Recurrent training

(a) Each cabin crew member shall complete annually recurrent training and checking.

(b) Recurrent training shall cover the actions assigned to each member of the cabin crew in normal and emergency procedures and drills relevant to each aircraft type and/or variant to be operated.

(c) Aircraft type specific training elements:

(1) Recurrent training shall include annually touch-drills by each cabin crew member for simulating the operation of each type or variant of normal and emergency doors and exits for passenger evacuation.

(2) Recurrent training shall also include at intervals not exceeding three years:

(i) operation and actual opening by each cabin crew member, in a representative training device or in the actual aircraft, of each type or variant of normal and emergency exits in the normal and emergency modes;

(ii) actual operation by each cabin crew member, in a representative training device or in the actual aircraft, of the flight crew compartment security door, in both normal and emergency modes, and of the seat and restraint system, and a practical demonstration of the oxygen system equipment relevant to pilot incapacitation;

(iii) demonstration of the operation of all other exits including the flight crew compartment windows; and

(iv) demonstration of the use of the life-raft, or slide raft, where fitted.

(d) Operator specific training elements:

(1) Recurrent training shall include annually:

(i) by each cabin crew member:

(A) location and handling of all safety and emergency equipment installed or carried on board; and

(B) the donning of life-jackets, portable oxygen and protective breathing equipment (PBE);

(ii) stowage of articles in the passenger compartment;

(iii) procedures related to aircraft surface contamination;

(iv) emergency procedures;

(v) evacuation procedures;

(vi) incident and accident review;

(vii) crew resource management;

(viii) aero-medical aspects and first aid including related equipment;

(ix) security procedures.

(2) Recurrent training shall also include at intervals not exceeding three years:

(i) use of pyrotechnics (actual or representative devices);

(ii) practical demonstration of the use of flight crew checklists;

(iii) realistic and practical training in the use of all fire-fighting equipment, including protective clothing, representative of that carried in the aircraft;

(iv) by each cabin crew member:

(A) extinguishing a fire characteristic of an aircraft interior fire;

(B) donning and use of PBE in an enclosed simulated smoke-filled environment.

(e) Validity periods:

(1) The annual recurrent training validity period shall be 12 calendar months counted from the end of the month when the check was taken.

(2) If the recurrent training and checking required in (a) are undertaken within the last three calendar months of the validity period, the new validity period shall be counted from the original expiry date.

(3) For the additional triennial training elements specified in (c)(2) and (d)(2), the validity period shall be 36 calendar months counted from the end of the month when the checks were taken.

ORO.CC.145 - Refresher training

(a) When a cabin crew member, during the preceding six months within the validity period of the last relevant recurrent training and checking:

(1) has not performed any flying duties, he/she shall, before being reassigned to such duties, complete refresher training and checking for each aircraft type to be operated; or

(2) has not performed flying duties on one particular aircraft type, he/she shall, before being reassigned to duties, complete on that aircraft type:

(i) refresher training and checking; or

(ii) two familiarisation flights in accordance with ORO.CC.135.

(b) The refresher training programme for each aircraft type shall at least cover:

(1) emergency procedures;

(2) evacuation procedures;

(3) operation and actual opening, by each cabin crew member, of each type or variant of normal and emergency exits and of the flight crew compartment security door in the normal and emergency modes;

(4) demonstration of the operation of all other exits including the flight crew compartment windows;

(5) location and handling of all relevant safety and emergency equipment installed or carried on-board.

(c) The operator may elect to replace refresher training by recurrent training if the reinstatement of the cabin crew member's flying duties commences within the validity period of the last recurrent training and checking. If that validity period has expired, refresher training may only be replaced by aircraft type specific and operator conversion training as specified in ORO.CC.125.

SECTION 2 Additional requirements for commercial air transport operations

ORO.CC.200 - Senior cabin crew member

(a) When more than one cabin crew member is required, the composition of the cabin crew shall include a senior cabin crew member nominated by the operator.

(b) The operator shall nominate cabin crew members to the position of senior cabin crew member only if they:

(1) have at least one year of experience as operating cabin crew member; and

(2) have successfully completed a senior cabin crew training course and the associated check.

(c) The senior cabin crew training course shall cover all duties and responsibilities of senior cabin crew members and shall include at least the following elements:

(1) pre-flight briefing;

(2) cooperation with the crew;

(3) review of operator requirements and legal requirements;

(4) accident and incident reporting;

(5) human factors and crew resource management (CRM); and

(6) flight and duty time limitations and rest requirements.

(d) The senior cabin crew member shall be responsible to the commander for the conduct and coordination of normal and emergency procedures specified in the operations manual, including for discontinuing non-safety-related duties for safety or security purposes.

(e) The operator shall establish procedures to select the most appropriately qualified cabin crew member to act as senior cabin crew member if the nominated senior cabin crew member becomes unable to operate. Changes to these procedures shall be notified to the CAAT.

ORO.CC.205 - Reduction of the number of cabin crew during ground operations and in unforeseen circumstances

(a) Whenever passengers are on board an aircraft, the minimum number of cabin crew required in accordance with ORO.CC.100 shall be present in the aircraft and ready to act.

(b) By way of derogation from point (a), the minimum number of cabin crew members may be reduced in either of the following cases:

(1) during normal ground operations not involving refuelling or defuelling when the aircraft is at its parking station; or

(2) in unforeseen circumstances if the number of passengers carried on the flight is reduced. In this case a report shall be submitted to the CAAT after completion of the flight.

(3) for the purpose of providing in-flight rest during the cruise phase, either in accordance with point ORO.FTL.205(e) or as a fatigue mitigation implemented by the operator.

(c) For the purposes of points (b)(1) and (b)(2), the operator's procedures of the operations manual shall ensure that:

(1) an equivalent level of safety is achieved with the reduced number of cabin crew members, in particular for evacuation of passengers;

(2) despite the reduced number of cabin crew members a senior cabin crew member is present in accordance with point ORO.CC.200;

(3) at least one cabin crew member is required for every 50, or fraction of 50, passengers present on the same deck of the aircraft;

(4) in the case of normal ground operations with aircraft requiring more than one cabin crew member, the number determined in accordance with point (3) shall be increased by one cabin crew member per each pair of floor level emergency exits.

(d) For the purposes of point (b)(3), the operator shall:

(1) conduct a risk assessment to determine the number of cabin crew members who are to be present and ready to act at all times during cruise;

(2) identify measures to mitigate the effects of having a lower number of cabin crew members being present and ready to act during cruise;

(3) establish in the operations manual specific procedures, including for the in-flight rest of the senior cabin crew member, that ensure at all times appropriate passenger handling and efficient management of any abnormal or emergency situations;

(4) specify, in the flight time specification scheme in accordance with point ORO.FTL.125, the conditions under which in-flight rest may be provided to the cabin crew members

ORO.CC.210 - Additional conditions for assignment to duties

Cabin crew members shall only be assigned to duties, and operate, on a particular aircraft type or variant if they:

(a) hold a valid certificate issued in accordance with TCAR OPS Part CC.

(b) are qualified on the type or variant in accordance with this Subpart;

(c) comply with the other applicable requirements of this Subpart and TCAR OPS Part CAT;

(d) wear the operator’s cabin crew uniform.

ORO.CC.215 - Training and checking programmes and related documentation

(a) Training and checking programmes including syllabi required by this Subpart, and TCAR OPS Part CC shall be approved by the CAAT and specified in the operations manual.

(b) After a cabin crew member has successfully completed a training course and the associated check, the operator shall:

(1) update the cabin crew member’s training records in accordance with ORO.MLR.115; and

(2) provide him/her with a list showing updated validity periods as relevant to the aircraft type(s) and variant(s) on which the cabin crew member is qualified to operate.

ORO.CC.250 - Operation on more than one aircraft type or variant

(a) A cabin crew member shall not be assigned to operate on more than three aircraft types, except that, with the approval of the CAAT, the cabin crew member may be assigned to operate on four aircraft types if for at least two of the types:

(1) safety and emergency equipment and type-specific normal and emergency procedures are similar; and

(2) non-type-specific normal and emergency procedures are identical.

(b) For the purpose of (a) and for cabin crew training and qualifications, the operator shall determine:

(1) each aircraft as a type or a variant taking into account, where available, the relevant elements defined in the mandatory part of the operational suitability data established in accordance with EASA, Part 21 or any equivalent material established in accordance with certification regulations acceptable to the CAAT for the relevant aircraft type or variant; and

(2) variants of an aircraft type to be different types if they are not similar in the following aspects:

(i) emergency exit operation;

(ii) location and type of portable safety and emergency equipment;

(iii) type-specific emergency procedures.

ORO.CC.255 - Single cabin crew member operations

(a) The operator shall select, recruit, train and check the proficiency of cabin crew members to be assigned to single cabin crew member operations according to criteria appropriate to this type of operation.

(b) Cabin crew members who have no previous operating experience as single cabin crew member shall only be assigned to such type of operation after they have:

(1) completed training as required in (c) in addition to other applicable training and checking required by this Subpart;

(2) successfully passed the checks verifying their proficiency in discharging their duties and responsibilities in accordance with the procedures specified in the operations manual; and

(3) undertaken familiarisation flying of at least 20 hours and 15 sectors on the relevant aircraft type under the supervision of an appropriately experienced cabin crew member.

(c) The following additional training elements shall be covered with particular emphasis to reflect single cabin crew operations:

(1) responsibility to the commander for the conduct of normal and emergency procedures;

(2) importance of coordination and communication with the flight crew, in particular when managing unruly or disruptive passengers;

(3) review of operator requirements and legal requirements;

(4) documentation;

(5) accident and incident reporting; and

(6) flight and duty time limitations and rest requirements.

SUBPART TC: TECHNICAL CREW IN HEMS, HHO OR NVIS OPERATIONS

ORO.TC.100 - Scope

This Subpart establishes the requirements to be met by the operator when operating an aircraft with technical crew members in commercial air transport helicopter emergency medical service (HEMS), night vision imaging system (NVIS) operations or helicopter hoist operations (HHO).

ORO.TC.105 - Conditions for assignment to duties

(a) Technical crew members in commercial air transport HEMS, HHO or NVIS operations shall only be assigned duties if they:

(1) are at least 18 years of age;

(2) are physically and mentally fit to safely discharge assigned duties and responsibilities;

(3) have completed all applicable training required by this Subpart to perform the assigned duties;

(4) have been checked as proficient to perform all assigned duties in accordance with the procedures specified in the operations manual.

(b) Before assigning to duties technical crew members who are self-employed and/or working on a freelance or part-time basis, the operator shall verify that all applicable requirements of this Subpart are complied with, taking into account all services rendered by the technical crew member to other operator(s) to determine in particular:

(1) the total number of aircraft types and variants operated;

(2) the applicable flight and duty time limitations and rest requirements.

ORO.TC.110 - Training and checking

(a) The operator shall establish a training programme in accordance with the applicable requirements of this Subpart to cover the duties and responsibilities to be performed by technical crew members.

(b) Following the completion of initial, operator conversion, differences and recurrent training, each technical crew member shall undergo a check to demonstrate their proficiency in carrying out normal and emergency procedures.

(c) Training and checking shall be conducted for each training course by personnel suitably qualified and experienced in the subject to be covered. The operator shall inform the CAAT about the personnel conducting the checks.

ORO.TC.115 - Initial training

Before undertaking the operator conversion training, each technical crew member shall complete initial training, including:

(a) general theoretical knowledge on aviation and aviation regulations covering all elements relevant to the duties and responsibilities required of technical crew;

(b) fire and smoke training;

(c) survival training on ground and in water, appropriate to the type and area of operation;

(d) aero-medical aspects and first-aid;

(e) communication and relevant CRM elements of ORO.FC.115 and ORO.FC.215.

ORO.TC.120 - Operator conversion training

Each technical crew member shall complete:

(a) operator conversion training, including relevant CRM elements,

(1) before being first assigned by the operator as a technical crew member; or

(2) when changing to a different aircraft type or class, if any of the equipment or procedures mentioned in (b) are different.

(b) Operator conversion training shall include:

(1) the location and use of all safety and survival equipment carried on the aircraft;

(2) all normal and emergency procedures;

(3) on-board equipment used to carry out duties in the aircraft or on the ground for the purpose of assisting the pilot during HEMS, HHO or NVIS operations.

ORO.TC.125 - Differences training

(a) Each technical crew member shall complete differences training when changing equipment or procedures on types or variants currently operated.

(b) The operator shall specify in the operations manual when such differences training is required.

ORO.TC.130 - Familiarisation flights

Following completion of the operator conversion training, each technical crew member shall undertake familiarisation flights prior to operating as a required technical crew member in HEMS, HHO or NVIS operations.

ORO.TC.135 - Recurrent training

(a) Within every 12-month period, each technical crew member shall undergo recurrent training relevant to the type or class of aircraft and equipment that the technical crew member operates. Elements of CRM shall be integrated into all appropriate phases of the recurrent training.

(b) Recurrent training shall include theoretical and practical instruction and practice.

ORO.TC.140 - Refresher training

(a) Each technical crew member who has not undertaken duties in the previous six months shall complete the refresher training specified in the operations manual.

(b) The technical crew member who has not performed flying duties on one particular aircraft type or class during the preceding six months shall, before being assigned on that type or class, complete either:

(1) refresher training on the type or class; or

(2) two familiarisation sectors on the aircraft type or class.

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SUBPART FOO/FD: Flight Operations Officer/Flight Dispatcher

ORO.FOO/FD.005 – Scope

This Subpart establishes the requirements to be followed by a Kingdom of Thailand Air Operator when employs flight operations officer/flight dispatcher in conjunction with a method of operational control and supervision.

ORO.FOO/FD.010 – Duties of the Flight Operations Officer/Flight Dispatcher

(a) A flight operations officer/flight dispatcher in conjunction with a method of control and supervision of flight operations shall:

(1) assist the pilot-in-command in flight preparation and provide the relevant information;

(2) assist the pilot-in-command in preparing the operational and ATS flight plans, sign when applicable and file the ATS flight plan with the appropriate ATS unit;

(3) furnish the pilot-in-command while in flight, by appropriate means, with information which may be necessary for the safe conduct of the flight; and

(4) notify the appropriate ATS unit when the position of the aeroplane cannot be determined by an aircraft tracking capability, and attempts to establish communication are unsuccessful.

(b) In the event of an emergency, a flight operations officer/flight dispatcher shall:

(1) initiate such procedures as outlined in the operations manual while avoiding taking any action that would conflict with ATC procedures; and

(2) convey safety-related information to the pilot-in-command that may be necessary for the safe conduct of the flight, including information related to any amendments to the flight plan that become necessary in the course of the flight.

(3) Where necessary, notify the appropriate authorities without delay and request for assistance if required, if the emergency endangers the safety of the aircraft or persons and becomes known first to the flight operations officer/flight dispatcher.

ORO.FOO/FD.100 – Flight Operations Officer Initial Training Programmes under AOC Holder

CAT operator shall ensure that personnel employed to perform operational control duties within the organisation have completed a flight operations officer training programme in accordance with TCAR PEL or equivalent flight operations officers initial training programme under this subpart.

(a) Flight operations officer initial training programme shall be established in accordance with the applicable requirements of this Subpart to cover the duties and responsibilities to be performed by Flight Operations Officer. The training and checking programmes shall be approved by the CAAT before conducting the training.

(b) Flight operations officer initial training programme shall be included applied practical training (on-the-job training: OJT), which includes at least one familiarisation flight in the flight crew compartment of an aircraft over any area for which that individual is authorised to exercise operations control.

(c) Once the flight operations officer initial training programme has been completed, an initial proficiency check shall be conducted by the flight operations officer/flight dispatcher examiner nominated by the operator to demonstrate the proficiency.

ORO.FOO/FD.105 – Recent experience

(a) A flight operations officer/flight dispatcher shall have an appropriate recent experience.

(b) For CAT operations, the minimum acceptable recent experience is to have dispatched at least one flight within the last 90 calendar days. A flight operations officer/flight dispatcher who does not meet this minimum experience requirement shall dispatch at least one flight under the supervision of a current flight operations officer/flight dispatcher before resuming the exercise of their privileges.

(c) Flight operations officer/flight dispatcher shall not be assigned to duties after 12 consecutive months of absence from their assigned role. In such cases, FOO/FD shall undergo adequate refresher or recurrent training as defined by the operator and pass a proficiency check conducted by a FOO/FD examiner nominated by the operator.

ORO.FOO/FD.110 – Operator Conversion (Operator-Specific) Training

(a) The flight operations officer/flight dispatcher or operational control personnel, when joining an operator, shall complete the operator conversion training course before commencing the operations control duties without supervision.

(b) The operator conversion training course shall be delivered by the operator in accordance with the training syllabus approved by the CAAT.

(c) The operator conversion training course shall contain the technical specificity related to at least one aircraft type or class operated by the operator.

ORO.FOO/FD.115 – Differences training and familiarisation training

(a) The flight operations officer/flight dispatcher or operational control personnel shall undergo differences training or familiarisation training when changing to a new aircraft type or class, including cases where there are changes in equipment and procedures related to their current use.

(b) The differences training shall include both theoretical and practical components, while the familiarisation training may involve only theoretical training.

(c) The operations manual shall specify when such differences or familiarisation trainings including checking upon completion of the programme, are required.

ORO.FOO/FD.120 – Recurrent training and checking

(a) Recurrent training shall be given to each flight operations officer/flight dispatcher and other operational control personnel by an instructor nominated by the operator.

(b) Recurrent training shall cover those subjects specified in the flight operations officer (initial) training programme and operator conversion training course, as well as the technical elements for each aircraft type or variant the FOO/FD and other operational control personnel is performing the operations control at least once every 36 months.

(c) FOO/FD and other operational control personnel shall complete familiarisation flight at least once every 12 months.

(d) Annual recurrent proficiency check shall be conducted to demonstrate competencies are maintained. The validity period of recurrent training and checking shall valid 12 month.

ORO.FOO/FD.125 – New route/destination training

When the operator introduces a new route and/or destination that requires different procedures and additional knowledge, a FOO/FD or operational control personnel shall undergo a new route/destination familiarisation training before conducting the duties related to new route/destination.

ORO.FOO/FD.130 – Personnel providing training, checking and assessment

(a) All training, checking and assessment required in this Subpart shall be conducted by appropriately qualified personnel nominated by the operator.

(b) Prior experience may be considered in the selection and qualification criteria for instructors, examiners and assessors responsible for delivering the required training, checking, and assessment under this subpart.

ORO.FOO/FD.131. – Provision of training, checking and assessment

(a) All training, checking and assessment required in this Subpart shall be conducted in accordance with the training programmes and syllabi established by the operator in the operations manual.

(b) The validity periods required in this Subpart shall be counted from the end of the month in which the training or check was completed

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SUBPART FTL: FLIGHT AND DUTY TIME LIMITATIONS AND REST REQUIREMENTS

SECTION 1 General

ORO.FTL.100 - Scope

This Subpart establishes the requirements to be met by an operator and its crew members with regard to flight and duty time limitations and rest requirements for crew members.

ORO.FTL.105 - Definitions

For the purpose of this Subpart, the following definitions shall apply:

(1) 'acclimatised' means a state in which a crew member's circadian biological clock is synchronised to the time zone where the crew member is. A crew member is considered to be acclimatised to a 2-hour wide time zone surrounding the local time at the point of departure. When the local time at the place where a duty commences differs by more than 2 hours from the local time at the place where the next duty starts, the crew member, for the calculation of the maximum daily flight duty period, is considered to be acclimatised in accordance with the values in the Table 1.

Table 1

Time difference (h) between reference time and local time where the crew member starts the next duty	**Time elapsed since reporting at reference time**				
	<48	**48–71:59**	**72–95:59**	**96–119:59**	**≥120**
< 4	B	D	D	D	D
≥ 4 and ≤ 6	B	X	D	D	D
> 6 and ≤ 9	B	X	X	D	D
> 9 and ≤ 12	B	X	X	X	D

'B' means acclimatised to the local time of the departure time zone,

'D' means acclimatised to the local time where the crew member starts his/her next duty, and

'X' means that a crew member is in an unknown state of acclimatisation.

(2) 'reference time' means the local time at the reporting point situated in a 2-hour wide time zone band around the local time where a crew member is acclimatised;

(3) 'accommodation' means, for the purpose of standby and split duty, a quiet and comfortable place not open to the public with the ability to control light and temperature, equipped with adequate furniture that provides a crew member with the possibility to sleep, with enough capacity to accommodate all crew members present at the same time and with access to food and drink;

(4) 'suitable accommodation' means, for the purpose of standby, split duty and rest, a room located in a quiet environment and equipped with a bed, which is sufficiently ventilated, has a device for regulating temperature and light intensity, and access to food and drink;

(5) 'augmented flight crew' means a flight crew which comprises more than the minimum number required to operate the aircraft, allowing each flight crew member to leave the assigned post, for the purpose of in-flight rest, and to be replaced by another appropriately qualified flight crew member;

(6) 'break' means a period of time within an flight duty period, shorter than a rest period, counting as duty and during which a crew member is free of all tasks;

(7) 'delayed reporting' means the postponement of a scheduled FDP by the operator before a crew member has left the place of rest;

(8) 'disruptive schedule' means a crew member's roster which disrupts the sleep opportunity during the optimal sleep time window by comprising an FDP or a combination of FDPs which encroach, start or finish during any portion of the day or of the night where a crew member is acclimatised. A schedule may be disruptive due to early starts, late finishes or night duties according to the following period of 'early type' of disruptive schedule :

(i) for 'early start' a duty period starting in the period between 05:00 and 05:59 in the time zone to which a crew member is acclimatised, and

(ii) for 'late finish' a duty period finishing in the period between 23:00 and 01:59 in the time zone to which a crew member is acclimatised;

(9) 'night duty' means a duty period encroaching any portion of the period between 02:00 and 04:59 in the time zone to which the crew is acclimatised;

(10) 'duty' means any task that a crew member performs for the operator, including flight duty, administrative work, giving or receiving training and checking, positioning, and some elements of standby;

(11) 'duty period' means a period which starts when a crew member is required by an operator to report for or to commence a duty and ends when that person is free of all duties, including post- flight duty;

(12) 'flight duty period ('FDP')' means a period that commences when a crew member is required to report for duty, which includes a sector or a series of sectors, and finishes when the aircraft finally comes to rest and the engines are shut down, at the end of the last sector on which the crew member acts as an operating crew member;

(13) 'flight time' means, for aeroplanes, the time between an aircraft first moving from its parking place for the purpose of taking off until it comes to rest on the designated parking position and all engines or propellers are shut down.

(14) 'home base' means the location, assigned by the operator to the crew member, from where the crew member normally starts and ends a duty period or a series of duty periods and where, under normal circumstances, the operator is not responsible for the accommodation of the crew member concerned;

(15) 'local day' means a 24-hour period commencing at 00:00 local time;

(16) 'local night' means a period of 8 hours falling between 22:00 and 08:00 local time;

(17) 'operating crew member' means a crew member carrying out duties in an aircraft during a sector;

(18) 'positioning' means the transferring of a non-operating crew member from one place to another, at the behest of the operator, excluding:

— the time of travel from a private place of rest to the designated reporting place at home base and vice versa, and
— the time for local transfer from a place of rest to the commencement of duty and vice versa;

(19) 'rest facility' means a bunk or seat with leg and foot support suitable for crew members' sleeping on board an aircraft.

(20) 'reserve' means a period of time during which a crew member is required by the operator to be available to receive an assignment for an FDP, positioning or other duty notified at least 10 hours in advance.

(21) 'rest period' means a continuous, uninterrupted and defined period of time, following duty or prior to duty, during which a crew member is free of all duties, standby and reserve.

(22) 'rotation' is a duty or a series of duties, including at least one flight duty, and rest periods out of home base, starting at home base and ending when returning to home base for a rest period where the operator is no longer responsible for the accommodation of the crew member.

(23) 'single day free of duty' means, a time free of all duties and standby consisting of one day and two local nights, which is notified in advance. A rest period may be included as part of the single day free of duty.

(24) 'sector' means the segment of an FDP between an aircraft first moving for the purpose of taking off until it comes to rest after landing on the designated parking position.

(25) 'standby' means a pre-notified and defined period of time during which a crew member is required by the operator to be available to receive an assignment for a flight, positioning or other duty without an intervening rest period.

(26) 'airport standby' means a standby performed at the airport;

(27) 'other standby' means a standby either at home or in a suitable accommodation;

(28) 'window of circadian low ('WOCL') means the period between 02:00 and 05:59 hours in the time zone to which a crew member is acclimatised.

(29) 'unforeseen operational circumstance' is an unexpected condition that could not reasonably have been predicted and accommodated, such as bad weather or equipment malfunction, which may result in necessary on-the-day operational adjustments.

(30) 'Eastward-Westward and Westward-Eastward transition' means the transition at home base between a rotation in one direction and a rotation in the opposite direction.

ORO.FTL.110 - Operator responsibilities

An operator shall:

(a) publish duty rosters sufficiently in advance to provide the opportunity for crew members to plan adequate rest;

(b) ensure that flight duty periods are planned in a way that enables crew members to remain sufficiently free from fatigue so that they can operate to a satisfactory level of safety and manage their workload under all circumstances;

(c) specify reporting times that allow sufficient time for ground duties;

(d) take into account the relationship between the frequency and pattern of flight duty periods and rest periods and give consideration to the cumulative effects of undertaking long duty hours combined with minimum rest periods;

(e) allocate duty patterns which avoid practices that cause a serious disruption of an established sleep/work pattern, such as alternating day/night duties;

(f) comply with the provisions concerning disruptive schedules;

(g) provide rest periods of sufficient time to enable crew members to overcome the effects of the previous duties and to be rested by the start of the following flight duty period and provide accommodation or suitable accommodation as appropriate to the operations;

(h) plan recurrent extended recovery rest periods and notify crew members sufficiently in advance;

(i) plan flight duties in order to be completed within the allowable flight duty period taking into account the time necessary for pre-flight duties, the sector and turnaround times;

(j) change a schedule and/or crew arrangements if the actual operation exceeds the maximum flight duty period on more than 33% of the flight duties in that schedule during a scheduled seasonal period.

(k) Establish the procedures that ensure crew arrangements and day-to-day operational practices are compliant with Individual Flight Time Specification Schemes (IFTSS).

(l) Establish a fatigue reporting process that complies with applicable regulatory requirements. This reporting process shall enable the operational personnel to raise legitimate concerns regarding fatigue without fear of retribution or punishment from both within and outside the organization.

ORO.FTL.115 - Crew member responsibilities

Crew members shall:

(a) comply with point CAT.GEN.MPA.100 (b) of TCAR OPS Part CAT; and

(b) make optimum use of the opportunities and facilities for rest provided and plan and use their rest periods properly.

ORO.FTL.120 - Fatigue Risk Management (FRM)

(a) When FRM is required by ORO.FTL or an applicable certification specification, the operator shall establish, implement and maintain a FRM as an integral part of its management system. The FRM shall ensure compliance with the Air Navigation Act B.E.2497, Kingdom of Thailand Civil Aviation Regulations and other relevant national provision. The FRM shall be described in the operations manual.

(b) The FRM established, implemented and maintained shall provide for continuous improvement to the overall performance of the FRM and shall include:

a description of the philosophy and principles of the operator with regard to FRM, referred to as the FRM policy;

(1) documentation of the FRM processes, including a process for making personnel aware of their responsibilities and the procedure for amending this documentation;

(2) scientific principles and knowledge;

(3) a hazard identification and risk assessment process that allows managing the operational risk(s) of the operator arising from crew member fatigue on a continuous basis;

(4) a risk mitigation process that provides for remedial actions to be implemented promptly, which are necessary to effectively mitigate the operator's risk(s) arising from crew member fatigue and for continuous monitoring and regular assessment of the mitigation of fatigue risks achieved by such actions;

(5) FRM safety assurance processes;

(6) FRM promotion processes.

(c) The FRM shall correspond to the flight time specification scheme, the size of the operator and the nature and complexity of its activities, taking into account the hazards and associated risks inherent in those activities and the applicable flight time specification scheme.

(d) The operator shall take mitigating actions when the FRM safety assurance process shows that the required safety performance is not maintained.

ORO.FTL.125 - Flight time specification schemes

(a) Operators shall establish, implement and maintain flight time specification schemes that are appropriate for the type(s) of operation performed and that comply with the air operations requirements of the Air Navigation Act B.E 2497, this Subpart and Kingdom of Thailand Civil Aviation Regulations and other applicable legislation;

(b) Before being implemented, flight time specification schemes, including any related FRM where required, shall be approved by the CAAT.

(c) To demonstrate compliance with the Air Navigation Act B.E 2497, TCAR OPS, and this Subpart, the operator shall apply the applicable certification specifications requirements. Alternatively, if the operator wants to deviate from those certification specifications, the operator shall provide the CAAT with a full description of the intended deviation prior to implementing it. The description shall include any revisions to manuals or procedures that may be relevant, as well as an assessment demonstrating that the requirements are met and proving that level of safety equivalent to, or better than, the prescriptive fatigue management requirements.

(d) Within 2 years of the implementation of a deviation,the operator shall collect data concerning the granted deviation or derogation and analyse that data using scientific principles with a view to assessing the effects of the deviation or derogation on aircrew fatigue. Such analysis shall be provided in the form of a report to the CAAT.

SECTION 2 Commercial Air Transport Operators

ORO.FTL.200 - Home base

An operator shall assign a home base to each crew member.

ORO.FTL.205 - Flight duty period (FDP)

(a) The operator shall:

(1) define reporting times appropriate to each individual operation taking into account ORO.FTL.110(c);

(2) establish procedures specifying how the commander shall, in case of special circumstances which could lead to severe fatigue, and after consultation with the crew members concerned, reduce the actual FDP and/or increase the rest period in order to eliminate any detrimental effect on flight safety.

(b) Basic maximum daily FDP.

(1) The maximum daily FDP without the use of extensions for acclimatised crew members shall be in accordance with the following table:

Table 2

Maximum daily FDP – Acclimatised crew members

Start of FDP at reference time	1–2 Sectors	3 Sectors	4 Sectors	5 Sectors	6 Sectors	7 Sectors	8 Sectors	9 Sectors	10 Sectors
0600–1329	13:00	12:30	12:00	11:30	11:00	10:30	10:00	09:30	09:00
1330–1359	12:45	12:15	11:45	11:15	10:45	10:15	09:45	09:15	09:00
1400–1429	12:30	12:00	11:30	11:00	10:30	10:00	09:30	09:00	09:00
1430–1459	12:15	11:45	11:15	10:45	10:15	09:45	09:15	09:00	09:00
1500–1529	12:00	11:30	11:00	10:30	10:00	09:30	09:00	09:00	09:00
1530–1559	11:45	11:15	10:45	10:15	09:45	09:15	09:00	09:00	09:00
1600–1629	11:30	11:00	10:30	10:00	09:30	09:00	09:00	09:00	09:00
1630–1659	11:15	10:45	10:15	09:45	09:15	09:00	09:00	09:00	09:00
1700–0459	11:00	10:30	10:00	09:30	09:00	09:00	09:00	09:00	09:00
0500–0514	12:00	11:30	11:00	10:30	10:00	09:30	09:00	09:00	09:00
0515–0529	12:15	11:45	11:15	10:45	10:15	09:45	09:15	09:00	09:00
0530–0544	12:30	12:00	11:30	11:00	10:30	10:00	09:30	09:00	09:00
0545–0559	12:45	12:15	11:45	11:15	10:45	10:15	09:45	09:15	09:00

(2) The maximum daily FDP when crew members are in an unknown state of acclimatisation shall be in accordance with the following table:

Table 3

Crew members in an unknown state of acclimatisation

Maximum daily FDP according to sectors						
1–2	3	4	5	6	7	8
11:00	10:30	10:00	09:30	09:00	09:00	09:00

(3) The maximum daily FDP when crew members are in an unknown state of acclimatisation and the operator has implemented a FRM, shall be in accordance with the following table:

Table 4

Crew members in an unknown state of acclimatisation under FRM

The values in the following table may apply provided the operator's FRM continuously monitors that the required safety performance is maintained.

Maximum daily FDP according to sectors						
1–2	3	4	5	6	7	8
12:00	11:30	11:00	10:30	10:00	09:30	09:00

(c) FDP with different reporting time for flight crew and cabin crew.

Whenever cabin crew requires more time than the flight crew for their pre-flight briefing for the same sector or series of sectors, the FDP of the cabin crew may be extended by the difference in reporting time between the cabin crew and the flight crew. The difference shall not exceed 1 hour. The maximum daily FDP for cabin crew shall be based on the time at which the flight crew report for their FDP, but the FDP shall start at the reporting time of the cabin crew.

(d) Maximum daily FDP for acclimatised crew members with the use of extensions without in-flight rest.

(1) The maximum daily FDP may be extended by up to 1 hour not more than twice in any 7 consecutive days. In that case:

(i) the minimum pre-flight and post-flight rest periods shall be increased by 2 hours; or

(ii) the post-flight rest period shall be increased by 4 hours.

(2) When extensions are used for consecutive FDPs, the additional pre- and post-flight rest between the two extended FDPs required under subparagraph 1 shall be provided consecutively.

(3) The use of the extension shall be planned in advance, and shall be limited to a maximum of:

(i) 5 sectors when the WOCL is not encroached; or

(ii) 4 sectors, when the WOCL is encroached by 2 hours or less; or

(iii) 2 sectors, when the WOCL is encroached by more than 2 hours.

(4) Extension of the maximum basic daily FDP without in-flight rest shall not be combined with extensions due to in-flight rest or split duty in the same duty period.

(5) Flight time specification schemes shall specify the limits for extensions of the maximum basic daily FDP in accordance with the certification specifications applicable to the type of operation, taking into account:

(i) the number of sectors flown; and

(ii) WOCL encroachment.

(e) Maximum daily FDP with the use of extensions due to in-flight rest

Flight time specification schemes shall specify the conditions for extensions of the maximum basic daily FDP with in-flight rest in accordance with the certification specifications applicable to the type of operation, taking into account:

(i) the number of sectors flown;

(ii) the minimum in-flight rest allocated to each crew member;

(iii) the type of in-flight rest facilities; and

(iv) the augmentation of the basic flight crew.

(f) Unforeseen circumstances in flight operations — commander's discretion

(1) The conditions to modify the limits on flight duty, duty and rest periods by the commander in the case of unforeseen circumstances in flight operations, which start at or after the reporting time, shall comply with the following:

(i) the maximum daily FDP which results after applying points (b) and (e) of point ORO.FTL.205 or point ORO.FTL.220 may not be increased by more than 2 hours unless the flight crew has been augmented, in which case the maximum flight duty period may be increased by not more than 3 hours;

(ii) if on the final sector within an FDP the allowed increase is exceeded because of unforeseen circumstances after take-off, the flight may continue to the planned destination or alternate aerodrome; and

(iii) the rest period following the FDP may be reduced but can never be less than 10 hours.

(2) In case of unforeseen circumstances which could lead to severe fatigue, the commander shall reduce the actual flight duty period and/or increase the rest period in order to eliminate any detrimental effect on flight safety.

(3) The commander shall consult all crew members on their alertness levels before deciding the modifications under subparagraphs 1 and 2.

(4) The commander shall submit a report to the operator when an FDP is increased or a rest period is reduced at his or her discretion.

(5) Where the increase of an FDP or reduction of a rest period exceeds 1 hour, a copy of the report, to which the operator shall add its comments, shall be sent by the operator to the CAAT not later than 28 days after the event.

(6) The operator shall implement a non-punitive process for the use of the discretion described under this provision and shall describe it in the operations manual.

(g) Unforeseen circumstances in flight operations — delayed reporting

The operator shall establish procedures, in the operations manual, for delayed reporting in the event of unforeseen circumstances, in accordance with the certification specifications applicable to the type of operation.

ORO.FTL.210 - Flight times and duty periods

(a) The total duty periods to which a crew member may be assigned shall not exceed:

(1) 60 duty hours in any 7 consecutive days;

(2) 110 duty hours in any 14 consecutive days; and

(3) 190 duty hours in any 28 consecutive days, spread as evenly as practicable throughout that period.

(b) The total flight time of the sectors on which an individual crew member is assigned as an operating crew member shall not exceed:

(1) 100 hours of flight time in any 28 consecutive days;

and

(2) 1 000 hours of flight time in any 12 consecutive calendar months.

(c) Notwithstanding (b)(2), the total flight time of the sectors on which an individual cabin crew member is assigned as an operating crew member shall not exceed 1 200 hours of flight time in any 12 consecutive calendar months.

(d) Post-flight duty shall count as duty period. The operator shall specify in its operations manual the minimum time period for post-flight duties.

ORO.FTL.215 - Positioning

If an operator positions a crew member, the following shall apply:

(a) positioning after reporting but prior to operating shall be counted as FDP but shall not count as a sector;

(b) all time spent on positioning shall count as duty period.

ORO.FTL.220 - Split duty

The conditions for extending the basic maximum daily FDP due to a break on the ground shall be in accordance with the following:

(a) flight time specification schemes shall specify the following elements for split duty in accordance with the certification specifications applicable to the type of operation:

(1) the minimum duration of a break on the ground; and

(2) the possibility to extend the FDP prescribed under point ORO.FTL.205(b) taking into account the duration of the break on the ground, the facilities provided to the crew member to rest and other relevant factors;

(b) the break on the ground shall count in full as FDP;

(c) split duty shall not follow a reduced rest;

(d) breaks shall be planned in advance.

ORO.FTL.225 - Standby and duties at the airport

If an operator assigns crew members to standby or to any duty at the airport, the following shall apply in accordance with the certification specifications applicable to the type of operation:

(a) standby and any duty at the airport shall be in the roster and the start and end time of standby shall be defined and notified in advance to the crew members concerned to provide them with the opportunity to plan adequate rest;

(b) a crew member is considered on airport standby from reporting at the reporting point until the end of the notified airport standby period;

(c) airport standby shall count in full as duty period for the purpose of points ORO.FTL.210 and ORO.FTL.235;

(d) any duty at the airport shall count in full as duty period and the FDP shall count in full from the airport duty reporting time;

(e) the operator shall provide accommodation to the crew member on airport standby;

(f) flight time specification schemes shall specify the following elements:

(1) the maximum duration of any standby;

(2) the impact of the time spent on standby on the maximum FDP that may be assigned, taking into account facilities provided to the crew member to rest, and other relevant factors such as:

— the need for immediate readiness of the crew member,

— the interference of standby with sleep, and

— sufficient notification to protect a sleep opportunity between the call for duty and the assigned FDP;

(3) the minimum rest period following standby which does not lead to assignment of an FDP;

(4) how time spent on standby other than airport standby shall be counted for the purpose of cumulative duty periods.

ORO.FTL.230 - Reserve

If an operator assigns crew members to reserve, the following requirements shall apply in accordance with the certification specifications applicable to the type of operation:

(a) reserve shall be in the roster;

(b) flight time specification schemes shall specify the following elements:

(1) the maximum duration of any single reserve period;

(2) the number of consecutive reserve days that may be assigned to a crew member.

ORO.FTL.235 - Rest periods

(a) Minimum rest period at home base.

(1) The minimum rest period provided before undertaking an FDP starting at home base shall be at least as long as the preceding duty period, or 12 hours, whichever is greater.

(2) By way of derogation from point (1), the minimum rest provided under point (b) applies if the operator provides suitable accommodation to the crew member at home base.

(b) Minimum rest period away from home base.

The minimum rest period provided before undertaking an FDP starting away from home base shall be at least as long as the preceding duty period, or 10 hours, whichever is greater. This period shall include an 8-hour sleep opportunity in addition to the time for travelling and physiological needs.

(c) Reduced rest

By derogation from points (a) and (b), flight time specification schemes may reduce the minimum rest periods in accordance with the certification specifications applicable to the type of operation and taking into account the following elements:

(1) the minimum reduced rest period;

(2) the increase of the subsequent rest period; and

(3) the reduction of the FDP following the reduced rest.

(d) Recurrent extended recovery rest periods

Flight time specification schemes shall specify recurrent extended recovery rest periods to compensate for cumulative fatigue. The minimum recurrent extended recovery rest period shall be 36 hours, including 2 local nights, and in any case the time between the end of one recurrent extended recovery rest period and the start of the next extended recovery rest period shall not be more than 168 hours. The recurrent extended recovery rest period shall be increased to 2 local days twice every month.

(e) Flight time specification schemes shall specify additional rest periods in accordance with the applicable certification specifications to compensate for:

(1) the effects of time zone differences and extensions of the FDP;

(2) additional cumulative fatigue due to disruptive schedules; and

(3) a change of home base.

ORO.FTL.240 - Nutrition

(a) During the FDP there shall be the opportunity for a meal and drink in order to avoid any detriment to a crew member's performance, especially when the FDP exceeds 6 hours.

(b) An operator shall specify in its operations manual how the crew member's nutrition during FDP is ensured.

ORO.FTL.245 - Records of home base, flight times, duty and rest periods

(a) An operator shall maintain, for a period of 24 months:

(1) individual records for each crew member including:

(i) flight times;

(ii) start, duration and end of each duty period and FDP;

(iii) rest periods and days free of all duties; and

(iv) assigned home base;

(2) reports on extended flight duty periods and reduced rest periods.

(b) Upon request, the operator shall provide copies of individual records of flight times, duty periods and rest periods to:

(1) the crew member concerned; and

(2) to another operator, in relation to a crew member who is or becomes a crew member of the operator concerned.

(c) Records referred to in point CAT.GEN.MPA.100(b)(5) in relation to crew members who undertake duties for more than one operator shall be kept for a period of 24 months.

ORO.FTL.250 - Fatigue management training

(a) The operator shall provide initial and recurrent fatigue management training to crew members, personnel responsible for preparation and maintenance of crew rosters and management personnel concerned.

(b) This training shall follow a training programme established by the operator and described in the operations manual. The training syllabus shall cover the possible causes and effects of fatigue and fatigue countermeasure.

CERTIFICATION SPECIFICATIONS AND GUIDANCE MATERIAL FOR COMMERCIAL AIR TRANSPORT BY AEROPLANE — SCHEDULED AND CHARTER OPERATIONS

CS FTL.1.100 - Applicability

These Certification Specifications are applicable to commercial air transport by aeroplanes for scheduled and charter operations, excluding emergency medical service (EMS), air taxi and single pilot operations.

CS FTL.1.200 - Home base

(a) The home base is a single airport location assigned with a high degree of permanence.

(b) In the case of a change of home base, the first recurrent extended recovery rest period prior to starting duty at the new home base is increased to 72 hours, including 3 local nights. Travelling time between the former home base and the new home base is positioning.

CS FTL.1.205 - Flight duty period (FDP)

(a) Night duties and late finish duties under the provisions of points ORO.FTL.205(b) and (d) comply with the following:

(1) When establishing the maximum FDP for consecutive night duties, the number of sectors is limited to 4 sectors per duty.

(2) The operator applies appropriate fatigue risk management (appropriate FRM) to actively manage the fatiguing effect of night duties and late finish duties in relation to the surrounding duties and rest periods.

(3) When planning and implementing appropriate FRM measures to reduce fatigue during night duties, the operator distinguishes between the following subtypes of night duties and ranks them based on the probability of occurrence of high levels of fatigue at Top of Descent (TOD):

(i) FDPs with a start time between 02:00 and 04:59;

(ii) FDPs with an end time between 02:00 and 05:59 and a start time at 01:59 or earlier; and

(iii) FDPs with an end time at 06:00 or later and a start time at 01:59 or earlier.

(b) Extension of FDP without in-flight rest

The extension of FDP without in-flight rest under the provisions of ORO.FTL.205(d)(5) is limited to the values specified in the table below.

Maximum daily FDP with extension

Starting time of FDP	1–2 sectors (in hours)	3 sectors (in hours)	4 sectors (in hours)	5 sectors (in hours)
0600–0614	Not allowed	Not allowed	Not allowed	Not allowed
0615–0629	13:15	12:45	12:15	11:45
0630–0644	13:30	13:00	12:30	12:00
0645–0659	13:45	13:15	12:45	12:15
0700–1329	14:00	13:30	13:00	12:30
1330–1359	13:45	13:15	12:45	Not allowed
1400–1429	13:30	13:00	12:30	Not allowed
1430–1459	13:15	12:45	12:15	Not allowed
1500–1529	13:00	12:30	12:00	Not allowed
1530–1559	12:45	Not allowed	Not allowed	Not allowed
1600–1629	12:30	Not allowed	Not allowed	Not allowed
1630–1659	12:15	Not allowed	Not allowed	Not allowed
1700–1729	12:00	Not allowed	Not allowed	Not allowed
1730–1759	11:45	Not allowed	Not allowed	Not allowed
1800–1829	11:30	Not allowed	Not allowed	Not allowed
1830–1859	11:15	Not allowed	Not allowed	Not allowed
1900–0359	Not allowed	Not allowed	Not allowed	Not allowed
0400–0414	Not allowed	Not allowed	Not allowed	Not allowed
0415–0429	Not allowed	Not allowed	Not allowed	Not allowed
0430–0444	Not allowed	Not allowed	Not allowed	Not allowed
0445–0459	Not allowed	Not allowed	Not allowed	Not allowed
0500–0514	Not allowed	Not allowed	Not allowed	Not allowed
0515–0529	Not allowed	Not allowed	Not allowed	Not allowed
0530–0544	Not allowed	Not allowed	Not allowed	Not allowed
0545–0559	Not allowed	Not allowed	Not allowed	Not allowed

(c) Extension of FDP due to in-flight rest

In-flight rest facilities in accordance with ORO.FTL.205(e)(iii) fulfil the following minimum standards:

— 'Class 1 rest facility' means a bunk or other surface that allows for a flat or near flat sleeping position. It reclines to at least 80° back angle to the vertical and is located separately from both the flight crew compartment and the passenger cabin in an area that allows the crew member to control light, and provides isolation from noise and disturbance;

— 'Class 2 rest facility' means a seat in an aircraft cabin that reclines at least 45° back angle to the vertical, has at least a pitch of 55 inches (137,5 cm), a seat width of at least 20 inches (50 cm) and provides leg and foot support. It is separated from passengers by at least a curtain to provide darkness and some sound mitigation, and is reasonably free from disturbance by passengers or crew members;

— 'Class 3 rest facility' means a seat in an aircraft cabin or flight crew compartment that reclines at least 40° from the vertical, provides leg and foot support and is separated from passengers by at least a curtain to provide darkness and some sound mitigation, and is not adjacent to any seat occupied by passengers.

(1) The extension of FDP with in-flight rest under the provisions of ORO.FTL.205(e) complies with the following:

(i) the FDP is limited to 3 sectors; and

(ii) the minimum in-flight rest period is a consecutive 90-minute period for each crew member and 2 consecutive hours for the flight crew members at control during landing.

(2) The maximum daily FDP under the provisions of ORO.FTL.205 (e) may be extended due to in-flight rest for flight crew:

(i) with one additional flight crew member:

(A) up to 14 hours with class 3 rest facilities;

(B) up to 15 hours with class 2 rest facilities; or

(C) up to 16 hours with class 1 rest facilities;

(ii) with two additional flight crew members:

(A) up to 15 hours with class 3 rest facilities;

(B) up to 16 hours with class 2 rest facilities; or

(C) up to 17 hours with class 1 rest facilities.

(3) The minimum in-flight rest for each cabin crew member is:

Maximum extended FDP	Minimum in-flight rest (in hours)		
	Class 1	Class 2	Class 3
up to 14:30 hrs	1:30	1:30	1:30
14:31 – 15:00 hrs	1:45	2:00	2:20
15:01 – 15:30 hrs	2:00	2:20	2:40
15:31 – 16:00 hrs	2:15	2:40	3:00
16:01 – 16:30 hrs	2:35	3:00	Not allowed
16:31 – 17:00 hrs	3:00	3:25	Not allowed
17:01 – 17:30 hrs	3:25	Not allowed	Not allowed
17:31 – 18:00 hrs	3:50	Not allowed	Not allowed

(4) The limits specified in (2) may be increased by 1 hour for FDPs that include 1 sector of more than 9 hours of continuous flight time and a maximum of 2 sectors.

(5) All time spent in the rest facility is counted as FDP.

(6) The minimum rest at destination is at least as long as the preceding duty period, or 14 hours, whichever is greater.

(7) A crew member does not start a positioning sector to become part of this operating crew on the same flight.

(d) Unforeseen circumstances in flight operations — delayed reporting

(1) The operator may delay the reporting time in the event of unforeseen circumstances, if procedures for delayed reporting are established in the operations manual. The operator keeps records of delayed reporting. Delayed reporting procedures establish a notification time allowing a crew member to remain in his/her suitable accommodation when the delayed reporting procedure is activated. In such a case, if the crew member is informed of the delayed reporting time, the FDP is calculated as follows:

(i) one notification of a delay leads to the calculation of the maximum FDP according to (iii) or (iv);

(ii) if the reporting time is further amended, the FDP starts counting 1 hour after the second notification or at the original delayed reporting time if this is earlier;

(iii) when the delay is less than 4 hours, the maximum FDP is calculated based on the original reporting time and the FDP starts counting at the delayed reporting time;

(iv) when the delay is 4 hours or more, the maximum FDP is calculated based on the more limiting of the original or the delayed reporting time and the FDP starts counting at the delayed reporting time;

(v) as an exception to (i) and (ii), when the operator informs the crew member of a delay of 10 hours or more in reporting time and the crew member is not further disturbed by the operator, such delay of 10 hours or more counts as a rest period.

CS FTL.1.220 - Split duty

The increase of limits on flight duty, under the provisions of ORO.FTL.220, complies with the following:

(a) The break on the ground within the FDP has a minimum duration of 3 consecutive hours.

(b) The break excludes the time allowed for post and pre-flight duties and travelling. The minimum total time for post and pre-flight duties and travelling is 30 minutes. The operator specifies the actual times in its operations manual.

(c) The maximum FDP specified in ORO.FTL.205(b) may be increased by up to 50 % of the break.

(d) Suitable accommodation is provided either for a break of 6 hours or more or for a break that encroaches the window of circadian low (WOCL).

(e) In all other cases:

(1) accommodation is provided; and

(2) any time of the actual break exceeding 6 hours or any time of the break that encroaches the WOCL does not count for the extension of the FDP.

(f) Split duty cannot be combined with in-flight rest.

CS FTL.1.225 - Standby

The modification of limits on flight duty, duty and rest periods under the provisions of ORO.FTL.225 complies with the following:

(a) Airport standby

(1) If not leading to the assignment of an FDP, airport standby is followed by a rest period as specified in ORO.FTL.235.

(2) If an assigned FDP starts during airport standby, the following applies:

(i) the FDP counts from the start of the FDP. The maximum FDP is reduced by any time spent on standby in excess of 4 hours;

(ii) the maximum combined duration of airport standby and assigned FDP as specified in ORO.FTL.205(b) and (d) is 16 hours.

(b) Standby other than airport standby:

(1) the maximum duration of standby other than airport standby is 16 hours;

(2) The operator's standby procedures are designed to ensure that the combination of standby and FDP do not lead to more than 18 hours awake time;

(3) 25 % of time spent on standby other than airport standby counts as duty time for the purpose of ORO.FTL.210;

(4) standby is followed by a rest period in accordance with ORO.FTL.235;

(5) standby ceases when the crew member reports at the designated reporting point;

(6) if standby ceases within the first 6 hours, the maximum FDP counts from reporting;

(7) if standby ceases after the first 6 hours, the maximum FDP is reduced by the amount of standby time exceeding 6 hours;

(8) if the FDP is extended due to in-flight rest according to CS FTL.1.205(c), or to split duty according to CS FTL.1.220, the 6 hours of paragraph (6) and (7) are extended to 8 hours;

(9) if standby starts between 23:00 and 07:00, the time between 23:00 and 07:00 does not count towards the reduction of the FDP under (6), (7) and (8) until the crew member is contacted by the operator; and

(10) the response time between call and reporting time established by the operator allows the crew member to arrive from his/her place of rest to the designated reporting point within a reasonable time.

CS FTL.1.230 - Reserve

The operator assigns duties to a crew member on reserve under the provisions of ORO.FTL.230 complying with the following:

(a) An assigned FDP counts from the reporting time.

(b) Reserve times do not count as duty period for the purpose of ORO.FTL.210 and ORO.FTL.235.

(c) The operator defines the maximum number of consecutive reserve days within the limits of ORO.FTL.235(d).

(d) To protect an 8-hour sleep opportunity, the operator rosters a period of 8 hours, taking into account fatigue management principles, for each reserve day during which a crew member on reserve is not contacted by the operator.

CS FTL.1.235 - Rest periods

(a) Disruptive schedules

(1) If a transition from a late finish/night duty to an early start is planned at home base, the rest period between the 2 FDPs includes 1 local night.

(2) If a crew member performs 4 or more night duties, early starts or late finishes between 2 extended recovery rest periods as defined in ORO.FTL.235(d), the second extended recovery rest period is extended to 60 hours.

(b) Time zone differences

(1) For the purpose of ORO.FTL.235(e)(1), 'rotation' is a series of duties, including at least one flight duty, and rest period out of home base, starting at home base and ending when returning to home base for a rest period where the operator is no longer responsible for the accommodation of the crew member.

(2) The operator monitors rotations and combinations of rotations in terms of their effect on crew member fatigue, and adapts the rosters as necessary.

(3) Time zone differences are compensated by additional rest, as follows:

(i) At home base, if a rotation involves a 4 hour time difference or more, the minimum rest is as specified in the following table.

Minimum local nights of rest at home base to compensate for time zone differences

Maximum time difference (h) between reference time and local time where a crew member rests during a rotation	**Time elapsed (h) since reporting for the first FDP in a rotation involving at least 4 hour time difference to the reference time**			
	< 48	**48 – 71:59**	**72 – 95:59**	**≥96**
≤ 6	2	2	3	3
> 6 and ≤ 9	2	3	3	4
> 9 and ≤ 12	2	3	4	5

(ii) Away from home base, if an FDP involves a 4-hour time difference or more, the minimum rest following that FDP is at least as long as the preceding duty period, or 14 hours, whichever is greater. By way of derogation from point (b)(3)(i) and only once between 2 recurrent extended recovery rest periods as specified in ORO.FTL.235(d), the minimum rest provided under this point (b)(3)(ii) may also apply to home base if the operator provides suitable accommodation to the crew member.

(4) In case of an Eastward-Westward or Westward-Eastward transition, at least 3 local nights of rest at home base are provided between alternating rotations.

(5) The monitoring of combinations of rotations is conducted under the operator's management system provisions.

(c) Reduced rest

(1) The minimum reduced rest periods under reduced rest arrangements are 12 hours at home base and 10 hours out of base.

(2) Reduced rest is used under fatigue risk management.

(3) The rest period following the reduced rest is extended by the difference between the minimum rest period specified in ORO.FTL.235(a) or (b) and the reduced rest.

(4) The FDP following the reduced rest is reduced by the difference between the minimum rest period specified in ORO.FTL.235(a) or (b) as applicable and the reduced rest.

(5) There is a maximum of 2 reduced rest periods between 2 recurrent extended recovery rest periods specified in accordance with ORO.FTL.235(d).

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SUBPART FTLS: FLIGHT AND DUTY TIME LIMITATION AND REST REQUIREMENTS

ORO.FTLS.100 - Scope

This Subpart establishes the requirements to be met by the following operators and their crew members with regard to flight and duty time limitations and rest requirements for crew members.

(a) The Commercial Air Transport (CAT) - Helicopter

(b) The Commercial Air Transport (CAT) - Air taxi

(c) The Commercial Air Transport (CAT) - Emergency Medical Services (EMS)

ORO.FTLS.105 - Definitions

For the purpose of this Subpart, the following definitions shall be applied:

(1) **Accommodation** means for the purpose of standby and split duty, a quiet and comfortable place not open to the public with the ability to control light and temperature, equipped with adequate furniture that provides a crew member with the possibility to sleep, with enough capacity to accommodate all crew members present at the same time and with access to food and drink.

(2) **Suitable accommodation** means, for the purpose of standby, split duty and rest, a room located in a quiet environment and equipped with a bed, which is sufficiently ventilated, has a device for regulating temperature and light intensity, and access to food and drink.

(3) **Augmented flight crew** means a flight crew which comprises more than the minimum number required to operate the aircraft, allowing each flight crew member to leave the assigned post, for the purpose of in-flight rest, and to be replaced by another appropriately qualified flight crew member;

(4) **Break** means a period of time within an flight duty period, shorter than a rest period, counting as duty and during which a crew member is free of all tasks;

(5) **Crew member** means a person assigned by an operator to perform duties on board an aircraft, including, Flight crew member and Cabin crew member.

(6) **Duty** means any task that a crew member performs for the operator, including flight duty, administrative work, giving or receiving training and checking, positioning, and some elements of standby.

(7) **Duty period** means a period which starts when a crew member is required by an operator to report for or to commence a duty and ends when that person is free of all duties, including postflight duty;

(8) **Emergency Medical Service/Air ambulance** means a flight for the purpose of which is to facilitate emergency medical assistance, where immediate and rapid transportation is essential, by carrying:

(a) medical personnel,

(b) or medical supplies (equipment, blood, organs, medications),

(c) or sick or injured individuals and other directly affected persons.

(9) **Fatigue** means a physiological state of reduced mental or physical performance capability resulting from sleep loss, extended wakefulness, circadian phase, and/ or workload (mental and/or physical activity) that can impair a person's alertness and ability to perform safety-related operational duties.

(10) **Flight duty period** means a period that commences when a crew member is required to report for duty that includes a flight or a series of flights, start counting at reporting time and stop when the aircraft finally comes to rest at the end of the last flight on which he/she is a crewmember and all engines or propellers are shut down or rotor blades are stopped.

(11) **Flight time/ Block Time** means

Aeroplane: The total time between an aircraft first moving from its parking place for the purpose of taking off until it finally comes to rest at the end of the flight and all engines or propellers are shut down.

Helicopter: The total time from the moment a helicopter's rotor blades start turning until the moment the helicopter finally comes to rest at the end of the flight, and the rotor blades are stopped.

(12) **Home base** means the location, assigned by the operator to the crew member, from where the crew member normally starts and ends a duty period or a series of duty periods and where, under normal circumstances, the operator is not responsible for the accommodation of the crew member concerned.

(13) **Local day** means a 24-hour period commencing at 00:00 local time.

(14) **Local night** means a period of 8 hours falling between 22:00 and 08:00 local time.

(15) **Night** means a period between the end of evening civil twilight and the beginning of morning civil twilight or such other period between sunset and sunrise as may be prescribed by the appropriate authority.

(16) **Positioning** means the transferring of a non-operating crew member from one place to another, at the behest of the operator, excluding:

the time of travel from a private place of rest to the designated reporting place at home base and vice versa, and the time for local transfer from a place of rest to the commencement of duty and vice versa.

(17) **Reporting time** means the local time where crew member is required by the operator to report for duty.

(18) **Reserve** means a period of time during which a crew member is required by the operator to be available to receive an assignment for an FDP, positioning or other duty notified at least 10 hours in advance.

(19) **Rest period** means a continuous, uninterrupted and defined period of time, following duty or prior to duty, during which a crew member is free of all duties, standby and reserve.

(20) **Roster** means a list provided by the operator of the times when a crew member is required to undertake duties. The roster shall include, but not limited to the elements of Duty Period and Day Off.

(21) **Rotation** is a duty or a series of duties, including at least one flight duty, and rest periods out of home base, starting at home base and ending when returning to home base for a rest period where the operator is no longer responsible for the accommodation of the crew member.

(22) **Single day free of duty** means a time free of all duties and standby consisting of one day and two local nights, which is notified in advance. A rest period may be included as part of the single day free of duty.

(23) **Sectors** means the segment of an FDP between an aircraft first moving for the purpose of taking off until it comes to rest after landing on the designated parking position.

(24) **Standby duty** means a defined period of time during which a crew member is required by the operator to be available to receive an assignment for a specific duty without an intervening rest period.

(25) **Airport standby** means a standby performed at the airport.

(26) **Other standby** means a standby either at home or in a suitable accommodation.

(27) **Window of circadian low ('WOCL')** means the period between 02:00 and 05:59 local time where crew member is required by the operator to report for duty.

(28) **Unforeseen operational circumstance** an unexpected condition that could not reasonably have been predicted and accommodated, such as bad weather or equipment malfunction, which may result in necessary on-the-day operational adjustments.

ORO.FTLS.110 - Operator responsibilities

An operator shall:

(a) Prepare and publishe duty roster sufficiently in advance to provide crew members the opportunity to plan adequate rest. Consideration shall be given to the cumulative effects of undertaking long duty hours interspersed with minimum rest, and of avoiding rosters that result in the serious disruption of an established pattern of working and sleeping.

(b) Establish the roster which includes, but not limited to the elements of Duty period and Day free of duty.

(c) Ensure that flight duty periods are planned in a way that enables crew members to remain sufficiently free from fatigue so that they can operate to a satisfactory level of safety and manage their workload under all circumstances.

(d) Plan the flight within the allowable flight duty period taking into account the time necessary for the pre-flight duties, the flight and turnaround times, and the nature of the operation.

(e) Define the duration necessary for the post-flight duty considering the time required for aircraft-related tasks, completion of post-flight documentation, and administrative responsibilities, tailored to the specific nature of the operation.

(f) Provide rest periods of sufficient time to enable crew members to overcome the effects of previous duties and to be rested by the start of the following flight duty period and provide accommodation or suitable accommodation as appropriate to the operations.

(g) Establish a fatigue reporting process that complies with applicable regulatory requirements. This reporting process shall enable the operational personnel to raise legitimate concerns regarding fatigue without fear of retribution or punishment from both within and outside the organization.

(h) Establish the procedures that ensure crew arrangements and day-to-day operational practices are compliant with Individual Flight Time Specification Schemes (IFTSS).

ORO.FTLS.115 - Crew member responsibilities

A crew member shall:

(a) Not operate the flight when he or she knows that he or she is fatigued or feels unfit to the extent that the safety of the flight may be adversely affected, or in a state which is not ready to make a flight for reasons of health, body and mind.

(b) Make optimum use of the facilities and opportunities that are provided for rest and for the consumption of meals, and they should plan and use their rest periods properly to ensure that they are fully rested.

(c) Check their records under ORO.FTLS.245(a)(1) before performing the duty, and inform the operator if the information does not meet the requirements.

(d) Comply with all flight and duty time limitations and rest requirements applicable to their activities.

ORO.FTLS.120 - Fatigue Risk Management (FRM)

(a) When FRM is required by ORO.FTL or an applicable certification specification, the operator shall establish, implement and maintain a FRM as an integral part of its management system. The FRM shall ensure compliance with the Air Navigation Act B.E.2497, Kingdom of Thailand Civil Aviation Regulations and other relevant national provision. The FRM shall be described in the operations manual.

(b) The FRM established, implemented and maintained shall provide for continuous improvement to the overall performance of the FRM and shall include:

(1) a description of the philosophy and principles of the operator with regard to FRM, referred to as the FRM policy;

(2) documentation of the FRM processes, including a process for making personnel aware of their responsibilities and the procedure for amending this documentation;

(3) scientific principles and knowledge;

(4) a hazard identification and risk assessment process that allows managing the operational risk(s) of the operator arising from crew member fatigue on a continuous basis;

(5) a risk mitigation process that provides for remedial actions to be implemented promptly, which are necessary to effectively mitigate the operator's risk(s) arising from crew member fatigue and for continuous monitoring and regular assessment of the mitigation of fatigue risks achieved by such actions;

(6) FRM safety assurance processes;

(7) FRM promotion processes.

(c) The FRM shall correspond to the flight time specification scheme, the size of the operator and the nature and complexity of its activities, taking into account the hazards and associated risks inherent in those activities and the applicable flight time specification scheme.

(d) The operator shall take mitigating actions when the FRM safety assurance process shows that the required safety performance is not maintained. Further guidance on FRM processes, appropriate fatigue management, the underlying scientific principles and operational knowledge may be found in ICAO Doc 9966 (Manual for the Oversight of Fatigue Management Approaches).

ORO.FTLS.125 - Flight time specification schemes

(a) Operators shall establish, implement and maintain flight time specification schemes that are appropriate for the type(s) of operation performed and that comply with the air operations requirements of the Air Navigation Act B.E 2497, this Subpart and Kingdom of Thailand Civil Aviation Regulations and other applicable legislation.

(b) Before being implemented, flight time specification schemes, including any related FRM where required, shall be approved by the CAAT.

(c) To demonstrate compliance with the Air Navigation Act B.E 2497, TCAR OPS and this Subpart, the operator shall apply the applicable certification specifications requirements. Alternatively, if the operator wants to deviate from those certification specifications, the operator shall provide the CAAT with a full description of the intended deviation prior to implementing it. The description shall include any revisions to manuals or procedures that may be relevant, as well as an assessment demonstrating that the requirements are met and proving that level of safety equivalent to, or better than, the prescriptive fatigue management requirements.

(d) In accordance with the CAAT internal oversight, certification and enforcement procedures, within 2 years of the implementation of a deviation, the operator shall collect data concerning the granted deviation or derogation and analyse that data using scientific principles with a view to assessing the effects of the deviation or derogation on aircrew fatigue. Such analysis shall be provided in the form of a report to the CAAT.

ORO.FTLS.200 - Home base

An operator shall assign a home base to each crew member, from where the crew member will normally start and end a duty period or a series of duty periods. The home base shall be assigned with a degree of permanence.

ORO.FTLS.205 - Flight duty period (FDP)

(a) The operator shall define reporting time appropriate to each individual operation, take into account the time required to complete safety-related ground duties.

(b) The basic maximum daily FDP

(1) The maximum daily FDP for ORO.FTLS.100(a) without the use of extensions for crew members shall be in accordance with the following table:

Table A

Maximum Flight Duty Period and Flight Time (Hours)				
Local time of Departure	Single Pilot		Multi Pilot	
	Maximum Flight Duty Period	Maximum Flight Time	Maximum Flight Duty Period	Maximum Flight Time
06:00 - 06:59	9	6	10	7
07:00 - 07:59	10	7	11	8
08:00 - 13:59	10	7	12	8
14:00 - 21:59	9	6	10	7
22:00 - 05:59	8	5	9	6

(i) Helicopter emergency medical service (HEMS) operations shall apply ORO.FTLS.205 (d).

(2) The maximum daily FDP for ORO.FTLS.100(b) and (c) without the use of extensions for crew members shall be in accordance with the following table:

Table B

Number of Sector	1	2	3	4	5	6	7 or more
Maximum Flight Duty Period (hours)	13	13	12:30	12	11:30	11	11

(i) When the FDP starts in the WOCL, the maximum FDP stated in Table B shall be reduced by 100% of its encroachment up to a maximum of 2 hours.

(ii) When the FDP ends in or entirely in the WOCL, the maximum FDP stated in Table B shall be reduced by 50% of its encroachment.

(c) FDP for CAT - single pilot operations for ORO.FTLS.100(b) and (c)

(1) The provisions of ORO.FTLS.205(b)(2) shall be applied.

(2) Additionally, in IFR or night operations, the sum of daily flight times shall not exceed 6 hours, and the maximum flight time of each sector is as follows:

(i) 4 hours if the aircraft is equipped with a fully functioning and serviceable autopilot;

(ii) 2 hours in other cases.

(d) FDP for CAT - Emergency Medical Service operations

(1) The provisions of ORO.FTLS.205(b)(2) shall be applied for multi pilot operations.

(2) The provisions of ORO.FTLS.205(c) shall be applied for single pilot operations.

(3) The alternative provisions regarding maximum daily FDP for CAT-EMS are:

Table C

Number of Sector	1	2	3	4	5	6	7 or more
Maximum Flight Duty Period (hours)	18	18	18	17:30	17	16:30	16

(i) When the FDP starts in the WOCL, the maximum FDP stated in Table C shall be reduced by 100% of its encroachment up to a maximum of 2 hours.

(ii) When the FDP ends in or entirely in the WOCL, the maximum FDP stated in Table C shall be reduced by 50% of its encroachment.

(iii) The flight duty period greater than 14 hours shall be followed by rest period not less than 24 hours, including at least one local night.

(4) The operator is allowed to use the alternative provisions regarding the maximum daily FDP provided in ORO.FTLS.205(d)(3), if comply with the following conditions:

(i) The aircraft shall be operated with a two-man crew, and
(ii) The operator implements a fatigue risk management (FRM).

(e) FDP extension without in-flight rest

The maximum daily flight duty period prescribed in ORO.FTLS.205(b)(2) may be extended up to 1 hour under the following conditions;

(1) The use of the extension shall be planned in advance, and shall be limited to a maximum of:

(i) 5 sectors when the WOCL is not encroached; or

(ii) 4 sectors, when the WOCL is encroached by 2 hours or less; or

(iii) 2 sectors, when the WOCL is encroached by more than 2 hours.

(2) The minimum pre-flight and post-flight rest periods shall be increased by 2 hours, or the post-flight rest period shall be increased by 4 hours.

(3) When extensions are used for consecutive FDPs, the additional pre- and post-flight rest between the two extended FDPs required under ORO.FTLS.205(e)(2) shall be provided consecutively.

(4) The maximum number of extensions is 2 in any 7 consecutive days.

(5) When the extended FDP starts during the period of 22:00 - 04:59, the total FDP is limited to 11:45 hours.

(6) The extension of the maximum basic daily FDP without in-flight rest shall not be combined with the FDP extensions due to in-flight rest or the split duty in the same duty period.

(f) FDP extension due to in-flight rest

The operator shall provide the crew members with rest facilities that away from cockpit and passengers, to enable each flight crew member to leave the assigned post for the purpose of in-flight rest. He or she shall be replaced by another appropriately qualified crew member. The maximum FDP is increased to:

Table D

Rest facility	Maximum flight duty period (hours)				
	Sectors				
	1	2	3	4	5
Reclinable seat	16	16	15.30	15	Not allowed
Bunk	18	18	Not allowed	Not allowed	Not allowed

(1) For the flight duty period of more than 18 hours, FRM shall be applied.

(2) The minimum in-flight rest period is a consecutive 90 minutes period for each crew member.

(g) FDP extension by PIC discretion due to unforeseen operational circumstance

(1) The conditions to modify the limits on flight duty, duty and rest periods only at the discretion of the Pilot in Command (PIC) in the case of Unforeseen operational circumstances, which start at or after the reporting time, shall comply with the following:

(i) The maximum daily FDP may not be increased by more than 2 hours unless the flight crew has been augmented, in which case the maximum FDP may be increased by not more than 3 hours.

(ii) If on the final sector within an FDP the allowed increase in ORO.FTLS.205(g)(1)(i) is exceeded because of unforeseen circumstances after take-off, the flight may continue to the planned destination or alternate aerodrome; and

(iii) The rest period following the FDP may be reduced but can never be less than 10 hours.

(2) In case of unforeseen circumstances which could lead to severe fatigue, the PIC shall reduce the actual Flight Duty Period and/or increase the Rest Period to eliminate any detrimental effect on flight safety.

(3) The PIC shall consult all crew members on their alertness levels before deciding the modifications under ORO.FTLS.205(g)(1) and (2).

(4) The PIC shall submit a report to the operator when an FDP is increased or a rest period is reduced at his or her discretion.

(5) The operator shall submit the PIC's discretion report of the Flight Duty Period extension or Rest Period reduction of crew members due to Unforeseen operational circumstances to the CAAT within 28 days after the PIC's discretion.

(6) The operator shall implement a non-punitive process for the use of the discretion described under this provision and shall describe it in the operations manual.

ORO.FTLS.210 – Flight times and duty periods

(a) The total flight time to which an individual crew member may be assigned shall not exceed:

(1) 34 hours in any 7 consecutive days,

(2) 110 hours in any 28 consecutive days,

(3) 1000 hours in any 365 consecutive days

(b) The total duty periods to which an individual crew member may be assigned shall not exceed:

(1) 60 hours in any 7 consecutive days,

(2) 110 hours in any 14 consecutive days,

(3) 190 hours in any 28 consecutive days

(c) Post-flight duty shall be counted as duty period. The operator shall specify the minimum time period for post-flight duties in the operations manual.

ORO.FTLS.215 - Positioning

If an operator positions a crew member, the following requirements shall be applied:

(a) Positioning after reporting but prior to operating shall be counted as FDP but shall not count as a sector;

(b) All time spent on positioning shall count as duty period.

(c) The rest period under ORO.FTLS.235 start counting after the on-block time and end at the commencement of the next duty.

(d) The positioning after a flight duty period shall not be counted as a rest period.

ORO.FTLS.220 – Split duty

Flight duty period including a break may be extended under the following conditions;

(a) Break shall be planned in advance.

(b) The break on the ground shall count in full as FDP;

(c) The break on ground within the FDP shall be a minimum duration of 3 consecutive hours.

(d) The break excludes the time for post-flight duties, pre-flight duties and traveling time which will not less than 30 minutes. The operator shall specify the time applicable to the type of operation in the operations manual

(e) The maximum FDP may be increased by 50% of the break duration.

(f) The split duty shall not follow a reduced rest.

(g) The split duty cannot be combined with in-flight rest.

(h) The suitable accommodation shall be provided either for a break of 6 hours or more or for a break that encroaches the window of circadian low (WOCL).

(i) In all other cases, accommodation shall be provided.

(j) If the break is taken in the aircraft on ground, the operator shall ensure that

(1) minimum conditions in terms of noise, temperature, light and ventilation are specified in the operations manual,

(2) a crew member has an ability to control conditions specified in ORO.FTLS.220(j)(1) in the aircraft,

(3) the surrounding aircraft operations do not interfere the rest of the crew member during break,

(4) no passenger on board,

(5) an opportunity to consume meal is arranged,

(6) Fatigue Risk Management (FRM) shall be applied.

ORO.FTLS.225 – Standby and duties at the airport

(a) Airport standby and duties at the airport

(1) Standby and any duty at the airport shall be in the roster and the start and end time of standby shall be defined and notified in advance to the crew members concerned to provide them with the opportunity to plan adequate rest.

(2) A crew member is considered on airport standby from reporting at the reporting point until the end of the notified airport standby period;

(3) Airport standby shall be counted in full as duty period for the purpose of ORO.FTLS.210(b) and ORO.FTLS.235.

(4) Any duty at the airport shall count in full as duty period and the FDP shall count in full from the airport duty reporting time.

(5) The operator shall provide accommodation to the crew member on airport standby.

(6) The maximum standby at the airport is 12 hours.

(7) If not leading to the assignment of an FDP, airport standby is followed by a rest period as specified in ORO.FTLS.235.

(8) If an assigned FDP starts during airport standby, the following applies:

(ii) the FDP counts from the start of the FDP. The maximum FDP is reduced by any time spent on standby in excess of 4 hours;

(iii) the maximum combined duration of airport standby and assigned FDP is 16 hours.

(b) Standby other than airport standby

(1) The maximum duration of standby other than airport standby is 16 hours;

(2) The operator's standby procedures are designed to ensure that the combination of standby and FDP do not lead to more than 18 hours awake time;

(3) 25 % of time spent on standby other than airport standby counts as duty time for the purpose of ORO.FTLS.210(b);

(4) Standby is followed by a rest period in accordance with ORO.FTLS.235;

(5) Standby ceases when the crew member reports at the designated reporting point;

(6) If standby ceases within the first 6 hours, the maximum FDP counts from reporting;

(7) If standby ceases after the first 6 hours, the maximum FDP is reduced by the amount of standby time exceeding 6 hours;

(8) If the FDP is extended due to in-flight rest or to split duty, the 6 hours of ORO.FTLS.225(b) (6) and (7)are extended to 8 hours;

(9) If standby starts between 23:00 and 07:00, the time between 23:00 and 07:00 does not count towards the reduction of the FDP under ORO.FTLS.225(b) (6), (7) and (8) until the crew member is contacted by the operator; and

(10) The response time between the call and the reporting time established by the operator allows the crew member to arrive from his/her place of rest to the designated reporting point within a reasonable time.

ORO.FTLS.230 – Reserve

If an operator assigns crew members to reserve, the following requirements shall be applied:

(a) Reserve shall be in the roster.

(b) The maximum duration of any single reserve period shall be specified.

(c) The maximum number of consecutive reserve days shall be specified within the limits of ORO.FTL.235(d).

(d) An assigned FDP counts from the reporting time.

(e) Reserve times do not count as duty period for the purpose of ORO.FTL.210 and ORO.FTL.235.

(f) Duty shall be notified in advance at least 10 hours between the notification of an assignment for any duty and reporting for duty to protect an 8-hour sleep opportunity, the operator rosters a period of 8 hours, taking into account fatigue management principles, for each reserve day during which a crew member on reserve is not contacted by the operator.

ORO.FTLS.235 – Rest periods

(a) Minimum rest at home base

(1) The minimum rest period provided before undertaking an FDP starting at home base shall be at least as long as the preceding duty period, or 12 hours, whichever is greater.

(2) If a rotation involves at least a sector of a 4-hour time difference or more, the minimum rest after rotation shall be at least 36 hours, including two local nights.

(b) Minimum rest away from home base

(1) The minimum rest period provided before undertaking an FDP starting away from home base shall be at least as long as the preceding duty period, or 10 hours, whichever is greater. This period shall include an 8-hour sleep opportunity in addition to the time for travelling and physiological needs.

(2) If an FDP involves a 4-hour time difference or more, the minimum rest following that FDP is at least as long as the preceding duty period, or 14 hours, whichever is greater.

(c) Reduced rest

(1) Reduced rest is used under fatigue risk management.

(2) The minimum reduced rest periods under reduced rest arrangements are 12 hours at home base and 10 hours out of base.

(3) The rest period following the reduced rest is extended by the difference between the minimum rest period specified in ORO.FTL.235(a)(1) or (b)(1) and the reduced rest.

(4) The FDP following the reduced rest is reduced by the difference between the minimum rest period specified in ORO.FTL.235(a)(1) or (b)(1) as applicable and the reduced rest.

(5) There is a maximum of 2 reduced rest periods between 2 recurrent extended recovery rest periods specified in accordance with ORO.FTL.235(d).

(d) Recovery rest

The recovery rest period shall be planned and notified to crew members sufficiently in advance.

The minimum recovery rest period shall be 36 hours, including 2 local nights, and in any case the time between the end of one recovery rest period and the start of the next extended recovery rest period shall not be more than 168 hours.

ORO.FTLS.240 – Nutrition

An operator shall arrange the opportunities to consume a meal for crew member when the flight duty period exceeds 6 hours to avoid any detriment to a crew member's performance.

ORO.FTLS.245 – Records

(a) The operator shall maintain records of the following information for a period of 24 months and ensure that this information is accessible by individual crew members;

(1) Individual records for each crew member including:

(i) Flight Time;

(ii) the start, duration and end of each Duty period and Flight Duty Period;

(iii) Rest Periods and Day free of all duties; and

(iv) Assigned home base

(2) reports on extended flight duty periods and reduced rest periods.

ORO.FTLS.250 – Fatigue management training

(a) The operator shall provide initial and recurrent fatigue management training to crew members, personnel responsible for preparation and maintenance of crew rosters and management personnel concerned.

(b) The training syllabus shall cover the following:

(1) applicable regulatory requirements for flight, duty and rest,

(2) the basics of fatigue including sleep fundamentals and the effects of disturbing the circadian rhythms,

(3) the causes of fatigue, including medical conditions that may lead to fatigue,

(4) the effect of fatigue on performance,

(5) fatigue countermeasures,

(6) the influence of lifestyle, including nutrition, exercise, and family life, on fatigue,

(7) familiarity with sleep disorders and their possible treatments,

(8) where applicable, the effects of long range operations and heavy short range schedules on individuals,

(9) the effect of operating through and within multiple time zones,

(10) the crew member responsibility for ensuring adequate rest and fitness for flight duty,

(11) the optimum use of sleep opportunities, in particular before an FDP with in-flight rest.

Appendix I to TCAR OPS Part ORO

DECLARATION in accordance with TCAR OPS
Operator
Name: Place in which the operator has its principal place of business or, if the operator has no principal place of business, place in which the operator is established or residing and place from which the operations are directed: Name and contact details of the accountable manager:
Aircraft operation
Starting date of operation and applicability date of the change:
Information on aircraft, operation and continuing airworthiness management organisation(1):
Type(s) of aircraft, registration(s) and main base:

Aircraft MSN(2)	Aircraft type	Aircraft registration(3)	Main base	Type(s) of operation(4)	Organisation in charge of continuing airworthiness management(5)

The operator shall obtain a prior approval(6) or specific approval(7) for certain operations before conducting such operations.
Where applicable, details of approvals held. Attach the list of specific approvals, including: - specific approvals granted by a third country, if applicable; - name of operations conducted with operational credits (e.g. EFVS 200, SA CAT I, etc.).
Where applicable, details of specialised operations authorisation held (attach authorisation(s), if applicable).
Where applicable, list of alternative means of compliance (AltMoC) with references to the associated AMC they replace (attach AltMoC).

Statements
☐ The operator complies, and will continue to comply, with the essential requirements set out in Air Navigation Act and in the cover regulation to TCAR OPS. ☐ The management system documentation, including the operations manual, complies with the requirements of TCAR OPS part ORO, TCAR OPS part SPA, TCAR OPS part NCC, TCAR OPS part SPO and all flights will be made in accordance with the provisions of the operations manual as required by point ORO.GEN.110(b) of TCAR OPS. ☐ operated aircraft hold a valid certificate of airworthiness in accordance with applicable airworthiness requirements or meet the specific airworthiness requirements applicable to aircraft registered in a third country and authorise to operate in the Kingdom of Thailand. ☐ All operated aircraft shall hold: - a valid certificate of airworthiness in accordance with the applicable airworthiness requirements or, for aircraft registered in a third country, in accordance with ICAO Annex 8; and - when used for SPO activities, a valid lease agreement as per ORO.SPO.100. ☐ All flight crew members hold a licence in accordance with TCAR PEL Part FCL as required by point ORO.FC.100(c) of Part ORO, and cabin crew members, where applicable, be trained in accordance with Subpart CC of Part ORO. ☐ (If applicable) The operator shall implement and demonstrate conformity to a recognised industry standard. Reference of the standard: Certification body: Date of the last conformity audit: ☐ The operator will notify to the CAAT any change in circumstances affecting its compliance with the essential requirements set out in Air Navigation Act and in the cover regulation to TCAR OPS and with the requirements of TCAR OPS as declared to the CAAT through this declaration as required by TCAR OPS point ORO.GEN.120(a) ☐ The operator confirms that the information disclosed in this declaration is correct. ☐ The operator will grant access to the facilities, documents, records and aircrafts to the representative of the CAAT for oversight purposes.
Date, name and signature of the accountable manager
(1) If there is not enough space to list the information in the space of the declaration, the information shall be listed in a separate annex. The annex shall be dated and signed by the accountable manager. (2) Manufacturer serial number. (3) If the aircraft is also registered with an AOC holder, specify the AOC number of the AOC holder. (4) “Type(s) of operation” refers to the type of operations conducted with this aircraft, e.g. non-commercial operations or specialised operations such as aerial photography flights, aerial

advertising flights, news media flights, television and movie flights, parachute operations, skydiving, maintenance check flights.

(5) Information about the organisation responsible for the continuing airworthiness management includes the name of the organization its address, and the approval reference.

(6) (a) operations with any defective instrument or piece of equipment or item or function, under a minimum equipment list (MEL) (points ORO.MLR.105 (b), (f), and (j), NCC.IDE.A.105, NCC.IDE.H.105, SPO.IDE.A.105, and SPO.IDE.H.105).

(b) Operations requiring prior authorisation or approval, including all of the following:

— for specialised operations, wet lease-in and dry lease-in of aircraft registered in a third country (point ORO.SPO.100 (c));

— high-risk commercial specialised operations (point ORO.SPO.110);

— non-commercial operations with aircraft with an MOPSC of more than 19, which are performed without an operating cabin crew member (point ORO.CC.100 (d));

— use of IFR operating minima that are lower than those published by the State (points NCC.OP.110 and SPO.OP.110);

— refuelling with engine(s) and/or rotors turning (point NCC.OP.157);

— specialised operations (SPO) without oxygen above 10 000 ft (point SPO.OP.195).

(7) Operations in accordance with TCAR OPS Part SPA, including Subparts B 'Performance-based navigation (PBN) operations', C 'Operations with specified minimum navigation performance (MNPS)', D 'Operations in airspace with reduced vertical separation minima (RVSM)', E 'Low-visibility operations (LVOs) and operations with operational credits', G 'Transport of dangerous goods' and K 'Helicopter offshore operations'.