EASA FTL Regulations Combined Document and TM-CAD Guidance to Developing an FTL Scheme

(Including Compliance Table)

- Implementing Rules
- Certification Specifications
  - Acceptable Means of Compliance
    - Guidance Material

Note: Disclaimer: This document is meant as an aid for operators to comply with the applicable rules. If any differences or discrepancies would exist between this document and the applicable EU regulations and EASA CS/AMC/GM the latter prevail and must always be consulted.

The EU and EASA documents (linked to above) should be used as the official documents.

CONTENTS

INTRODUCTION

Commission Regulation (EU) No. 83/2014 establishes the requirements to be met by an operator and its crew members with regards to flight and duty time limitations and rest requirements for crew members. The regulation and the related Certification Specifications will be referred to as Subpart FTL.

This Document provides implementation guidelines to affected CAT operators as intended by the regulation.

This document contains information for operators to use as part of the submission for an EASA Subpart FTL approved scheme / Manual. **This is NOT a template document as the Manual must reflect the individual operator's requirements and operating context**. Where specific additional elements are required to be included as part of the Manual, they are highlighted either at the start of that individual rule or within the text of that regulation. The compliance table must be completed and submitted with the Operations Manual.

- Appendix 1 – Compliance table.
- Appendix 2 – Outlines the format for operators to follow for their FTL Scheme. **Operators must include the ORO, CS and AMC requirement within their Operations Manual.**

GM material can be included in the scheme or an operator may choose to demonstrate compliance with the GM in their associated policy and procedures manuals.

Reference Documents –

i. Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EU) No 2018/1139 of the European Parliament and of the Council of 4th July 2018

ii. Part-ORO Organization Requirements for Air Operations (Annex III to Commission Regulation (EU) No 965/2012)

iii. Subpart FTL (Flight and Duty Time Limitations and Rest Requirements)

iv. Certification Specifications Commercial Air Transport by Aeroplane – Scheduled and Charter Operations

v. OAN Number: 03/15 Issued 16th June 2015

Key to highlighted text:

	Areas for the operator to complete, or decide whether a specific requirement is applicable to their operation. In addition, this highlights parts of the manual where an operator is required to document and demonstrate where it holds its associated policies and procedures in order to comply with this implementing rule. These policies and procedures need to be documented and will be reviewed as part of the audit process.
	Additional elements that some operators have requested for inclusion within the manual in order to keep all relevant information / regulations together. Operators may elect to include them within the manual or maintain them in other documents.
	Guidance notes added by TM-CAD, where considered useful information for operators. These do not need to be included as part of the scheme
	To be included where an operator already has FRM approved ONLY.

Operators have to show how and where the rule is implemented. The necessary OM references shall be inserted in the appropriate field. A copy of Section 7 shall be attached to the checklist.

An on-site inspection by TM-CAD may be necessary to ensure that the stated policies and procedures are in place before Subpart FTL becomes applicable. More information may be found in OAN 03/15.

Appendix 1 Compliance Table

The operator should complete the 'Operator Manual (OM) Part A, Section 7 Para Reference' column. If a requirement is not applicable to your flight time specification scheme, complete column with 'N/A'. Submit this checklist with the corresponding OM Part A, Section 7 via Centrik application.

NOTE: This version incorporates all changes as per Regulation (EU) 2024/1111 and ED Decisions up to 2023/023/R. Please ensure your Operations Manual Part A, Chapter 7 references all listed items and includes appropriate policy and procedural content. A full audit trail is expected.

Status	EASA Reference	OM Part A Section 7 Reference / or N/A	CAD Remark	Implemented (Y/N/N.A)
IR	ORO.FTL.100 Scope			
CS	CS FTL.1.100 Applicability			
IR	ORO.FTL.105 Definitions			
GM	GM1 ORO.FTL.105(1) Definitions – Acclimatised			
GM	GM2 ORO.FTL.105(1) Definitions – Point of Departure			
GM	GM3 ORO.FTL.105(1) Definitions – Time Elapsed			
GM	GM1 ORO.FTL.105(2) Definitions – Reference Time			
GM	GM1 ORO.FTL.105(3) Definitions – Accommodation			
GM	GM1ORO.FTL.105(8) Disruptive Schedules			
GM	GM1 ORO.FTL.105(10) Standby Elements			
GM	GM1 ORO.FTL.105(17) Operating Crew Member			

All entries marked as 'Customised procedure required' must be supported by a full policy and procedural description in OM Part A, Section 7.

Where applicable, ensure alignment with SMS hazard reporting and training programme.
TM-CAD may request supporting records or on-site inspection prior to granting FTL approval.

IR	ORO.FTL.110 Operator Responsibilities	Custom procedures required
AMC	AMC1 ORO.FTL.110 Scheduling	
AMC	AMC1 ORO.FTL.110(a) Publication of Rosters	
AMC	AMC1 ORO.FTL.110(j) Operational Robustness of Rosters	
GM	GM1 ORO.FTL.110(j) Operational Robustness Guidance	
IR	ORO.FTL.115 Crew member responsibilities	
IR	ORO.FTL.120 Fatigue Risk Management (FRM)	Only if FRM approved N/A for FRM under SMS
IR	ORO.FTL.125 Flight Time Specification Schemes	
IR	ORO.FTL.200 Home Base	Custom procedure for crew base records
CS	CS FTL.1.200 Home Base	
GM	GM1 CS FTL.1.200 Travelling Time	
IR	ORO.FTL.205 FDP	See individual elements below
CS	CS FTL.1.205 FDP	
GM	GM1 CS FTL.1.205(a)(2) Appropriate FRM	Required under SMS if night duties or late finishes are planned. Not equivalent to full FRM approval under ORO.FTL.120.
GM	GM2 CS FTL.1.205(a)(2) Night/Late Finish Monitoring	Required under SMS
GM	GM5 CS FTL.1.205(a)(2) PSWM (if used)	Optional, if declared

All entries marked as 'Customised procedure required' must be supported by a full policy and procedural description in OM Part A, Section 7.

Where applicable, ensure alignment with SMS hazard reporting and training programme.
TM-CAD may request supporting records or on-site inspection prior to granting FTL approval.

AMC	AMC1 ORO.FTL.205(f) Commander's Discretion	Customised procedure required
GM	GM1 CS FTL.1.205(c)(1)(ii) In-Flight Rest	
GM	GM2 CS FTL.1.205(c)(1)(ii) In-Flight Rest	
GM	GM1 CS FTL.1.205(d) Delayed Reporting	
GM	GM1 ORO.FTL.205(a)(1) Reporting Times	
GM	GM1 ORO.FTL.205(b)(1) Reference Time	
GM	GM1ORO.FTL.205(f)(1)(i) Commander's Discretion	
IR	ORO.FTL.210 Flight Times and Duty Periods	Custom procedure for post-flight duties
AMC	AMC1 ORO.FTL.210(c) Post-Flight Duties	
IR	ORO.FTL.215 Positioning	
IR	ORO.FTL.220 Split Duty	Custom procedure required
CS	CS FTL.1.220 Split Duty	
GM	GM1 CS FTL.1.220(b) Split Duty Duty/Travel Times	
IR	ORO.FTL.225 Standby	Procedures for f(1)&(2) required
CS	CS FTL.1.225 Standby	
GM	GM1 CS FTL.1.225 Standby – Min Rest	
GM	GM1 CS FTL.1.225(b) Home Standby	
GM	GM1 CS FTL.1.225(b)(2) Awake Time	Customised procedure required

All entries marked as 'Customised procedure required' must be supported by a full policy and procedural description in OM Part A, Section 7.

Where applicable, ensure alignment with SMS hazard reporting and training programme.
TM-CAD may request supporting records or on-site inspection prior to granting FTL approval.

IR	ORO.FTL.230 Reserve	b) requires custom procedures
CS	CS FTL.1.230 Reserve	
GM	GM1 CS.FTL.1.230 Reserve Notification	
GM	GM2 CS.FTL.1.230 Advance Notification	
GM	GM1 CS FTL1.230(c) Recurrent Recovery Rest	
GM	GM1 ORO.FTL.230(a) Reserve Rostering	
IR	ORO.FTL.235 Rest Periods	b) requires sleep opportunity policy
CS	CS FTL.1.235 Rest Periods	b(2)&(5) Rotation Monitoring
AMC	AMC1 ORO.FTL.235(b) Rest Away from Base	
GM	GM1 CS FTL.1.235(b) (3) Time Since Reporting	Describe time-based limits for rest calculation if based on elapsed time since reporting.
GM	GM1 ORO.FTL.235(a) (2) Home Base Rest	
IR	ORO.FTL.240 Nutrition	
AMC	AMC1 ORO.FTL.240 Nutrition	Meal opportunity procedures required
IR	ORO.FTL.245 Record keeping	Describe process for keeping records of FDP, rest, and home base for 24 months.
IR	ORO.FTL.250 Fatigue Management Training	Training programme required
AMC	AMC1 ORO.FTL.250 Training Syllabus	

All entries marked as 'Customised procedure required' must be supported by a full policy and procedural description in OM Part A, Section 7.

Where applicable, ensure alignment with SMS hazard reporting and training programme.
TM-CAD may request supporting records or on-site inspection prior to granting FTL approval.

The following regulatory items **require detailed, operator-specific procedures** as part of the FTL approval process. The operator must:

- Clearly show how each item is implemented within their FTL scheme.
- Insert the corresponding reference in their **OM Part A, Chapter 7**.
- Submit the full OM Chapter 7 along with the checklist.
- Be prepared for an **on-site TM-CAD inspection** to verify the implementation of these policies and procedures.

Note: Approval under **ORO.FTL.120 (FRM)** requires a full FRM Manual. For all operators, including those not FRM-approved, the authority expects **appropriate fatigue risk management** under the Safety Management System (SMS), as outlined in GM1 CS FTL.1.205(a)(2).

Areas Requiring Operator-Customised Procedures:

EASA Reference **OMA Reference**

ORO.FTL.110 – Operator Responsibilities (all elements)

ORO.FTL.200 – Home Base (records of crew bases)

ORO.FTL.205 – Flight Duty Period (FDP):

(a) Reduction of FDP / Increase of Rest

(c) Reporting Times

(f)(6) Commander's Discretion Process

(g) Delayed Reporting

CS FTL.1.205 – FDP:

(a)(2) Night Duties

(d) Delayed Reporting

ORO.FTL.210 – Flight Times and Duty Periods (post-duty)

ORO.FTL.220 – Split Duty

ORO.FTL.225 – Standby and Airport Duties:

(f)(1) and (f)(2) – Standby Process and Elements

CS FTL.1.225(b) – Home Standby Procedures

ORO.FTL.230 – Reserve (especially para b – Procedures)

ORO.FTL.235 – Rest Periods:

(b) 8-Hour Sleep Opportunity Process

CS FTL.1.235 – Rest Periods:

(b)(2) & (b)(5) – Rotation Planning and Monitoring

ORO.FTL.240 – Nutrition:

(b) Procedure for Providing Meals During FDP

ORO.FTL.250 – Fatigue Management Training:

(b) Training Programme Outline and Implementation

GM1 CS FTL.1.205(a)(2) – *Appropriate Fatigue Risk Management (FRM)*

→ The operator shall demonstrate how fatigue associated with **night duties and late finishes** is **actively managed** under its **Safety Management System (SMS)**, including:

- Identification and categorisation of night duty subtypes;
- Assignment of fatigue likelihood rankings (e.g. likelihood of high fatigue at Top of Descent);
- Monitoring/reporting of fatigue outcomes (e.g. fatigue reports, KPIs, trends);
- Procedural mitigations integrated into rostering and crew scheduling;
- Clearly referenced procedures in OM Part A, Chapter 7 and/or SMS manual.

Note: This applies even if the operator is not approved under ORO.FTL.120. If ORO.FTL.120 approval is requested, a full FRM Manual is required.

tm Transport Malta Civil Aviation Directorate	**Commission Regulation (EU) 83/2014** FLIGHT AND DUTY TIME LIMITATIONS AND REST REQUIREMENTS **COMPLIANCE CHECKLIST**

Please complete this form electronically.	**For Civil Aviation Directorate use only** File Ref: ..... Date: .....

Name of Operator:		AOC Number:	
Prepared By: (Nominated Person Flight Operations)			
Checked By: (Compliance Manager)			

SUBPART FTL: FLIGHT AND DUTY TIME LIMITATIONS AND REST REQUIREMENTS

SECTION 1 – GENERAL

ORO.FTL.100 Scope

Regulation (EU) 2024/1111

~~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.~~

~~*[applicable until 30 April 2025 — Regulation (EU) No 83/2014]*~~

This Subpart establishes the requirements to be met by an air operator and its flight and cabin crew (aircrew) members with regard to flight and duty time limitations and rest requirements for aircrew assigned to commercial air transport (CAT) operations with aeroplanes.

[applicable from 1 May 2025 — Regulation (EU) 2024/1111]

ORO.FTL.105 Definitions

Regulation (EU) 2018/1975

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
≤6	B	X	D	D	D
≤9	B	X	X	D	D
≤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 separate room for each crew member 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.

(a) ‘early type’ of disruptive schedule means:

(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;

~~(b) ‘late type’ of disruptive schedule means:~~

~~(i) for ‘early start’ a duty period starting in the period between 05:00 and 06:59 in the time zone to which a crew member is acclimatised; and~~

~~(ii) for ‘late finish’ a duty period finishing in the period between 00:00 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, for the purpose of complying with the provisions of Council Directive 2000/79/EC, 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.

GM1 ORO.FTL.105(1) Definitions

ED Decision 2019/019/R

ACCLIMATISED

(a) A crew member remains acclimatised to the local time of his or her reference time during 47 hours 59 minutes after reporting no matter how many time zones he/she has crossed.

(b) The maximum daily FDP for acclimatised crew members is determined by using table 1 of ORO.FTL.205(b)(1) with the reference time of the point of departure. As soon as 48 hours have elapsed, the state of acclimatisation is derived from the time elapsed since reporting at reference time and the number of time zones crossed.

(c) A crew member is considered to be in an unknown state of acclimatisation after the first 48 hours of the rotation have elapsed unless he or she remains in the first arrival destination time zone (either for rest or any duties) in accordance with the table in ORO.FTL.105(1).

(d) Should a crew member's rotation include additional duties that end in a different time zone than his or her first arrival destination's time zone while he or she is considered to be in an unknown state of acclimatisation, then the crew member remains in an unknown state of acclimatisation until he or she:

(1) has taken the rest period required by CS FTL.1.235(b)(3) at home base;

(2) has taken the rest period required by CS FTL.1.235(b)(3) at the new location; or

(3) has been undertaking duties starting at and returning to the time zone of the new location until he or she becomes acclimatised in accordance with the values in the table in ORO.FTL.105(1).

To determine the state of acclimatisation, the two following criteria should be applied:

(i) the greater of the time differences between the time zone where he or she was last acclimatised or the local time of his or her last departure point and the new location; and

(ii) the time elapsed since reporting at home base for the first time during the rotation.

GM2 ORO.FTL.105(1) Definitions

ED Decision 2014/017/R

ACCLIMATISED 'POINT OF DEPARTURE'

The point of departure refers to the reporting point for a flight duty period or positioning duty after a rest period.

GM3 ORO.FTL.105(1) Definitions

ED Decision 2014/017/R

ACCLIMATISED 'TIME ELAPSED SINCE REPORTING AT REFERENCE TIME'

The time elapsed since reporting at reference time for operations applying CS FTL.1.235(b)(3)(ii) at home base refers to the time elapsed since reporting for the first time at home base for a rotation.

GM1 ORO.FTL.105(2) Definitions

ED Decision 2014/017/R

REFERENCE TIME

(a) Reference time refers to reporting points in a 2-hour wide time zone band around the local time where a crew member is acclimatised.

(b) Example: A crew member is acclimatised to the local time in Helsinki and reports for duty in London. The reference time is the local time in London.

GM1 ORO.FTL.105(3) Definitions

ED Decision 2014/017/R

ADEQUATE FURNITURE FOR 'ACCOMMODATION'

Adequate furniture for crew member accommodation should include a seat that reclines at least 45° back angle to the vertical, has a seat width of at least 20 inches (50cm) and provides leg and foot support.

GM1 ORO.FTL.105(8) Definitions

ED Decision 2014/017/R

DETERMINATION OF DISRUPTIVE SCHEDULES

If a crew member is acclimatised to the local time at his/her home base, the local time at the home base should be used to consider an FDP as 'disruptive schedule'. This applies to operations within the 2-hour wide time zone surrounding the local time at the home base, if a crew member is acclimatised to the local time at his/her home base.

GM1 ORO.FTL.105(10) Definitions

ED Decision 2014/017/R

ELEMENTS OF STANDBY FOR DUTY

ORO.FTL.225(c) and (d) and CS FTL.1.225(b)(2) determine which elements of standby count as duty.

GM1 ORO.FTL.105(17) Definitions

ED Decision 2014/017/R

OPERATING CREW MEMBER

A person on board an aircraft is either a crew member or a passenger. If a crew member is not a passenger on board an aircraft he/she should be considered as 'carrying out duties'. The crew member remains an operating crew member during in-flight rest. In-flight rest counts in full as FDP, and for the purpose of ORO.FTL.210.

ORO.FTL.110 Operator responsibilities

Regulation (EU) No 83/2014

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 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 in accordance with ARO.OPS.230;

(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;

(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.

AMC1 ORO.FTL.110 Operator responsibilities

ED Decision 2014/017/R

SCHEDULING

(a) Scheduling has an important impact on a crew member's ability to sleep and to maintain a proper level of alertness. When developing a workable roster, the operator should strike a fair balance between the commercial needs and the capacity of individual crew members to work effectively. Rosters should be developed in such a way that they distribute the amount of work evenly among those that are involved.

(b) Schedules should allow for flights to be completed within the maximum permitted flight duty period and flight rosters should take into account the time needed for pre-flight duties, taxiing, the flight- and turnaround times. Other factors to be considered when planning duty periods should include:

(1) the allocation of work patterns which avoid undesirable practices such as alternating day/night duties, alternating eastward-westward or westward-eastward time zone transitions, positioning of crew members so that a serious disruption of established sleep/work patterns occurs;

(2) scheduling sufficient rest periods especially after long flights crossing many time zones; and

(3) preparation of duty rosters sufficiently in advance with planning of recurrent extended recovery rest periods and notification of the crew members well in advance to plan adequate pre-duty rest.

AMC1 ORO.FTL.110(a) Operator responsibilities

ED Decision 2014/017/R

PUBLICATION OF ROSTERS

Rosters should be published 14 days in advance.

AMC1 ORO.FTL.110(j) Operator responsibilities

ED Decision 2014/017/R

OPERATIONAL ROBUSTNESS OF ROSTERS

The operator should establish and monitor performance indicators for operational robustness of rosters.

GM1 ORO.FTL.110(j) Operator responsibilities

ED Decision 2014/017/R

OPERATIONAL ROBUSTNESS OF ROSTERS

Performance indicators for operational robustness of rosters should support the operator in the assessment of the stability of its rostering system. Performance indicators for operational robustness of rosters should at least measure how often a rostered crew pairing for a duty period is achieved within the planned duration of that duty period. Crew pairing means rostered positioning and flights for crew members in one duty period.

ORO.FTL.115 Crew member responsibilities

Regulation (EU) No 83/2014

Crew members shall:

(a) comply with point CAT.GEN.MPA.100(b) of Annex IV (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)

Regulation (EU) No 83/2014

(a) When FRM is required by this Subpart 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 essential requirements in points 7.f., 7.g. and 8.f. of Annex IV to Regulation (EC) No 216/2008. 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.

GM1 ORO.FTL.120 Fatigue risk management (FRM)

ED Decision 2017/007/R

ICAO DOC 9966 — MANUAL FOR THE OVERSIGHT OF FATIGUE MANAGEMENT APPROACHES

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).

AMC1 ORO.FTL.120(b)(1) Fatigue risk management (FRM)

ED Decision 2015/005/R

CAT OPERATORS FRM POLICY

(a) The operator's FRM policy should identify all the elements of FRM.

(b) The FRM policy should define to which operations FRM applies.

(c) The FRM policy should:

(1) reflect the shared responsibility of management, flight and cabin crew, and other involved personnel;

(2) state the safety objectives of FRM;

(3) be signed by the accountable manager;

(4) be communicated, with visible endorsement, to all the relevant areas and levels of the organisation;

(5) declare management commitment to effective safety reporting;

(6) declare management commitment to the provision of adequate resources for FRM;

(7) declare management commitment to continuous improvement of FRM;

(8) require that clear lines of accountability for management, flight and cabin crew, and all other involved personnel are identified; and

(9) require periodic reviews to ensure it remains relevant and appropriate.

AMC1 ORO.FTL.120(b)(2) Fatigue risk management (FRM)

n/a

Reserved

AMC2 ORO.FTL.120(b)(2) Fatigue risk management (FRM)

ED Decision 2014/017/R

CAT OPERATORS FRM DOCUMENTATION

The operator should develop and keep current FRM documentation that describes and records:

(1) FRM policy and objectives;

(2) FRM processes and procedures;

(3) accountabilities, responsibilities and authorities for these processes and procedures;

(4) mechanisms for on-going involvement of management, flight and cabin crew members, and all other involved personnel;

(5) FRM training programmes, training requirements and attendance records;

(6) scheduled and actual flight times, duty periods and rest periods with deviations and reasons for deviations; and

(7) FRM outputs including findings from collected data, recommendations, and actions taken.

GM1 ORO.FTL.120(b)(3) Fatigue risk management (FRM)

ED Decision 2017/007/R

SCIENTIFIC METHOD

'Scientific method' is defined as 'a method or procedure that has characterized natural science since the 17th century, consisting in systematic observation, measurement, and experiment, and the formulation, testing, and modification of hypotheses'.

A scientific study may be required as an element of proactive fatigue hazard identification. Such a study should be based on scientific principles, i.e. use the scientific method. That means that the study should consist of the following elements as applicable to each individual case:

(a) an introduction with a summary and the description of the study design, methods and results;

(b) a statement of the hypothesis being tested, how it is being tested and a conclusion as to whether the hypothesis was found to be true or not;

(c) a description of the data collection method and tools, e.g. the sensitivity of the activity monitors, further information on any model and its limitations and how it is being used as part of the study;

(d) a description of how the study subjects were selected and how representative of the crew member population the study group is;

(e) a description of the rosters the study participants have worked containing data such as e.g. flight and duty hours, number of sectors, duty start/finish times;

(f) reports on mean sleep duration and efficiency and data for other standard measures (e.g. sleep timing, self-rated sleepiness/fatigue, sources of sleep disruption, performance, safety);

(g) a description of how sleep and the other measures varied across the roster (i.e. day-to-day) and where and why minimum sleep occurred;

(h) statistical data analysis to test the hypothesis; and

(i) the explanation of how the study results have been used to influence the design of the roster or other fatigue mitigations.

AMC1 ORO.FTL.120(b)(4) Fatigue risk management (FRM)

ED Decision 2015/005/R

CAT OPERATORS IDENTIFICATION OF HAZARDS

The operator should develop and maintain three documented processes for fatigue hazard identification:

(a) Predictive

The predictive process should identify fatigue hazards by examining crew scheduling and taking into account factors known to affect sleep and fatigue and their effects on performance. Methods of examination may include, but are not limited to:

(1) operator or industry operational experience and data collected on similar types of operations;

(2) evidence-based scheduling practices; and

(3) bio-mathematical models.

(b) Proactive

The proactive process should identify fatigue hazards within current flight operations. Methods of examination may include, but are not limited to:

(1) self-reporting of fatigue risks;

(2) crew fatigue surveys;

(3) relevant flight and cabin crew performance data;

(4) available safety databases and scientific studies; and

(5) analysis of planned versus actual time worked.

(c) Reactive

The reactive process should identify the contribution of fatigue hazards to reports and events associated with potential negative safety consequences in order to determine how the impact of fatigue could have been minimised. At a minimum, the process may be triggered by any of the following:

(1) fatigue reports;

(2) confidential reports;

(3) audit reports;

(4) incidents; or

(5) flight data monitoring (FDM) events.

AMC2 ORO.FTL.120(b)(4) Fatigue risk management (FRM)

ED Decision 2014/017/R

CAT OPERATORS RISK ASSESSMENT

An operator should develop and implement risk assessment procedures that determine the probability and potential severity of fatigue-related events and identify when the associated risks require mitigation. The risk assessment procedures should review identified hazards and link them to:

(a) operational processes;

(b) their probability;

(c) possible consequences; and

(d) the effectiveness of existing safety barriers and controls.

AMC1 ORO.FTL.120(b)(5) Fatigue risk management (FRM)

ED Decision 2014/017/R

CAT OPERATORS RISK MITIGATION

An operator should develop and implement risk mitigation procedures that:

(a) select the appropriate mitigation strategies;

(b) implement the mitigation strategies; and

(c) monitor the strategies' implementation and effectiveness.

AMC1 ORO.FTL.120(b)(6) Fatigue risk management (FRM)

ED Decision 2015/005/R

CAT OPERATORS FRM SAFETY ASSURANCE PROCESSES

The operator should develop and maintain FRM safety assurance processes to:

(a) provide for continuous FRM performance monitoring, analysis of trends, and measurement to validate the effectiveness of the fatigue safety risk controls. The sources of data may include, but are not limited to:

(1) hazard reporting and investigations;

(2) audits and surveys; and

(3) reviews and fatigue studies;

(b) provide a formal process for the management of change which should include, but is not limited to:

(1) identification of changes in the operational environment that may affect FRM;

(2) identification of changes within the organisation that may affect FRM; and

(3) consideration of available tools which could be used to maintain or improve FRM performance prior to implementing changes; and

(c) provide for the continuous improvement of FRM. This should include, but is not limited to:

(1) the elimination and/or modification of risk controls have had unintended consequences or that are no longer needed due to changes in the operational or organisational environment;

(2) routine evaluations of facilities, equipment, documentation and procedures; and

(3) the determination of the need to introduce new processes and procedures to mitigate emerging fatigue-related risks.

AMC1 ORO.FTL.120(b)(7) Fatigue risk management (FRM)

ED Decision 2015/005/R

CAT OPERATORS FRM PROMOTION PROCESS

FRM promotion processes should support the on-going development of FRM, the continuous improvement of its overall performance, and attainment of optimum safety levels.

The following should be established and implemented by the operator as part of its FRM:

(a) training programmes to ensure competency commensurate with the roles and responsibilities of management, flight and cabin crew , and all other involved personnel under the planned FRM; and

(b) an effective FRM communication plan that:

(1) explains FRM policies, procedures and responsibilities to all relevant stakeholders; and

(2) describes communication channels used to gather and disseminate FRM-related information.

ORO.FTL.125 Flight time specification schemes

Regulation (EU) No 83/2014

(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 Regulation (EC) No 216/2008, this Subpart and other applicable legislation, including Directive 2000/79/EC.

(b) Before being implemented, flight time specification schemes, including any related FRM where required, shall be approved by the competent authority.

(c) To demonstrate compliance with Regulation (EC) No 216/2008 and this Subpart, the operator shall apply the applicable certification specifications adopted by the Agency. Alternatively, if the operator wants to deviate from those certification specifications in accordance with Article 22(2) of Regulation (EC) No 216/2008, it shall provide the competent authority 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 of Regulation (EC) No 216/2008 and of this Subpart are met.

(d) For the purpose of point ARO.OPS.235(d), within 2 years of the implementation of a deviation or derogation, 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 competent authority.

SECTION 2 – COMMERCIAL AIR TRANSPORT OPERATORS

ORO.FTL.200 Home base

Regulation (EU) No 83/2014

An operator shall assign a home base to each crew member.

ORO.FTL.205 Flight duty period (FDP)

Regulation (EU) No 83/2014

(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 competent authority 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.

GM1 ORO.FTL.205(a)(1) Flight Duty Period (FDP)

ED Decision 2014/017/R

REPORTING TIMES

The operator should specify reporting times taking into account the type of operation, the size and type of aircraft and the reporting airport conditions.

GM1 ORO.FTL.205(b)(1) Flight duty period (FDP)

ED Decision 2014/017/R

REFERENCE TIME

The start time of the FDP in the table refers to the 'reference time'. That means, to the local time of the point of departure, if this point of departure is within a 2-hour wide time zone band around the local time where a crew member is acclimatised.

AMC1 ORO.FTL.205(f) Flight Duty Period (FDP)

ED Decision 2014/017/R

UNFORESEEN CIRCUMSTANCES IN ACTUAL FLIGHT OPERATIONS — COMMANDER'S DISCRETION

(a) As general guidance when developing a commander's discretion policy, the operator should take into consideration the shared responsibility of management, flight and cabin crew in the case of unforeseen circumstances. The exercise of commander's discretion should be considered exceptional and should be avoided at home base and/or company hubs where standby or reserve crew members should be available. Operators should asses on a regular basis the series of pairings where commander's discretion has been exercised in order to be aware of possible inconsistencies in their rostering.

(b) The operator's policy on commander's discretion should state the safety objectives, especially in the case of an extended FDP or reduced rest and should take due consideration of additional factors that might decrease a crew member's alertness levels, such as:

(1) WOCL encroachment;

(2) weather conditions;

(3) complexity of the operation and/or airport environment;

(4) aeroplane malfunctions or specifications;

(5) flight with training or supervisory duties;

(6) increased number of sectors;

(7) circadian disruption; and

(8) individual conditions of affected crew members (time since awake, sleep-related factor, workload, etc.).

GM1 ORO.FTL.205(f)(1)(i) Flight Duty Period (FDP)

ED Decision 2014/017/R

COMMANDER'S DISCRETION

The maximum basic daily FDP that results after applying ORO.FTL.205(b) should be used to calculate the limits of commander's discretion, if commander's discretion is applied to an FDP which has been extended under the provisions of ORO.FTL.205(d).

ORO.FTL.210 Flight times and duty periods

Regulation (EU) No 83/2014

(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;

(2) 900 hours of flight time in any calendar year; and

(3) 1 000 hours of flight time in any 12 consecutive calendar months.

(c) Post-flight duty shall count as duty period. The operator shall specify in its operations manual the minimum time period for post-flight duties.

AMC1 ORO.FTL.210(c) Flight times and duty periods

ED Decision 2014/017/R

POST-FLIGHT DUTIES

The operator should specify post-flight duty times taking into account the type of operation, the size and type of aircraft and the airport conditions.

ORO.FTL.215 Positioning

Regulation (EU) No 83/2014

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

Regulation (EU) No 83/2014

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.

ORO.FTL.225 Standby and duties at the airport

Regulation (EU) No 83/2014

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

Regulation (EU) No 83/2014

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.

GM1 ORO.FTL.230(a) Reserve

ED Decision 2014/017/R

ROSTERING OF RESERVE

Including reserve in a roster, also referred to as 'rostering', implies that a reserve period that does not result in a duty period may not retrospectively be considered as part of a recurrent extended recovery rest period.

ORO.FTL.235 Rest periods

Regulation (EU) No 83/2014

(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.

GM1 ORO.FTL.235(a)(2) Rest periods

ED Decision 2014/017/R

MINIMUM REST PERIOD AT HOME BASE IF SUITABLE ACCOMMODATION IS PROVIDED

An operator may apply the minimum rest period away from home base during a rotation which includes a rest period at a crew member's home base. This applies only if the crew member does not rest at his/her residence, or temporary accommodation, because the operator provides suitable accommodation. This type of roster is known as "back-to-back operation".

AMC1 ORO.FTL.235(b) Rest periods

ED Decision 2014/017/R

MINIMUM REST PERIOD AWAY FROM HOME BASE

The time allowed for physiological needs should be 1 hour. Consequently, if the travelling time to the suitable accommodation is more than 30 minutes, the operator should increase the rest period by twice the amount of difference of travelling time above 30 minutes.

ORO.FTL.240 Nutrition

Regulation (EU) No 83/2014

(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.

AMC1 ORO.FTL.240 Nutrition

ED Decision 2014/017/R

MEAL OPPORTUNITY

(a) The operations manual should specify the minimum duration of the meal opportunity, when a meal opportunity is provided, in particular when the FDP encompasses the regular meal windows (e.g. if the FDP starts at 11:00 hours and ends at 22:00 hours meal opportunities for two meals should be given).

(b) It should define the time frames in which a regular meal should be consumed in order not to alter the human needs for nutrition without affecting the crew member's body rhythms.

ORO.FTL.245 Records of home base, flight times, duty and rest periods

Regulation (EU) No 83/2014

(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

Regulation (EU) No 83/2014

(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.

AMC1 ORO.FTL.250 Fatigue management training

ED Decision 2023/023/R

TRAINING SYLLABUS FATIGUE MANAGEMENT TRAINING

The training syllabus should contain the following:

(a) applicable regulatory requirements for flight, duty and rest;

(b) the basics of fatigue including sleep fundamentals and the effects of disturbing the circadian rhythms;

(c) the causes of fatigue, including medical conditions that may lead to fatigue;

(d) the effect of fatigue on performance;

(e) fatigue countermeasures;

(f) the influence of lifestyle, including nutrition, exercise, and family life, on fatigue;

(g) familiarity with sleep disorders and their possible treatments;

(h) where applicable, the effects of long-range operations and heavy short-range schedules on individuals;

(i) the effect of operating through and within multiple time zones;

(j) the crew member responsibility for ensuring adequate rest and fitness for flight duty; and

(k) the optimum use of sleep opportunities, in particular before crew reporting for night duties or late finish duties, and during an FDP with in-flight rest.

CERTIFICATION SPECIFICATIONS AND GUIDANCE MATERIAL FOR COMMERCIAL AIR TRANSPORT BY AEROPLANE — SCHEDULED AND CHARTER OPERATIONS

CS FTL.1.100 Applicability

ED Decision 2014/002/R

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

ED Decision 2014/002/R

(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.

GM1 CS FTL.1.200 Home base

ED Decision 2014/002/R

TRAVELLING TIME

Crew members should consider making arrangements for temporary accommodation closer to their home base if the travelling time from their residence to their home base usually exceeds 90 minutes.

CS FTL.1.205 Flight duty period (FDP)

ED Decision 2023/023/R

(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):

(1) FDPs with a start time between 02:00 and 04:59;

(2) FDPs with an end time between 02:00 and 05:59 and a start time at 01:59 or earlier; and

(3) 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.

GM1 CS FTL.1.205(a)(2) Flight duty period (FDP)

ED Decision 2023/023/R

APPROPRIATE FATIGUE RISK MANAGEMENT (APPROPRIATE FRM)

The term 'appropriate FRM' is a term chosen to refer to a set of principles and tools that support the operator and their operational personnel in managing particular fatigue hazards and associated risks through the safety risk management (SRM) process within the operator's management system, in full compliance with the duty time, flight time limits and rest requirements defined by Subpart ORO.FTL.

It should be distinguished from the fully-fledged fatigue risk management (FRM) system described under ORO.FTL.120.

An FRM system under ORO.FTL.120 is a scientifically based, data-driven complement or alternative to the prescriptive regulation of flight and duty time and rest requirements, which manages crew fatigue in a flexible manner with due consideration to the risk exposure and the nature of operations. Operators need such FRM system when deviating from the certification specifications or when applying a mix of prescriptive rules and flexible arrangements.

Conversely, an 'appropriate FRM' concept supports implementation of the rules and is applied without deviating from them.

These two distinct methods are also supported by ICAO (ref.: ICAO Doc 9966).

GM2 CS FTL.1.205(a)(2) Flight duty period (FDP)

ED Decision 2023/023/R

NIGHT DUTIES AND LATE FINISH DUTIES — APPROPRIATE FATIGUE RISK MANAGEMENT (APPROPRIATE FRM)

(a) The operator should apply appropriate FRM to night duties and late finish duties:

(1) in the safety risk management process by assessing fatigue-related hazards in relation to a particular duty and mitigating fatigue-related risks and consequences to an acceptable level or to a level as low as reasonably practicable; and

(2) in the crew rostering process by applying scientifically based principles.

(b) For the purpose of applying appropriate FRM, the operator should monitor night duties and late finish duties, and collect data by means of:

(1) crew fatigue reports;

(2) fatigue metrics and associated targets and thresholds;

(3) proactive fatigue data collection tools, such as but not limited to sleep–wake diaries or fatigue survey questionnaires, to collect relevant data to feed its fatigue risk assessment process;

(4) fatigue predictive tools, such as but not limited to the Prior Sleep Wake Model (described in GM5 CS FTL.1.205(a)(2));

(5) the safety assurance process.

(c) The operator should describe in the operations manual the responsibilities of the management, crew and crew-rostering personnel for the implementation of appropriate FRM to night duties and late finish duties.

(d) The operator should provide personalised and context-specific training to its crew on fatigue-mitigation strategies, especially on how to obtain more sleep prior to night duties and late finish duties, e.g. by providing advice regarding exposure to daylight, sleep, physical activity, and nutrition.

GM3 CS FTL.1.205(a)(2) Flight duty period (FDP)

ED Decision 2023/023/R

NIGHT DUTIES AND LATE FINISH DUTIES — APPROPRIATE FATIGUE RISK MANAGEMENT (APPROPRIATE FRM)

(a) When rostering night duties, it is critical for the crew member to obtain sufficient sleep before such duties when he or she is adapted to being awake during daytime hours at the local time where he or she is acclimatised. To optimise alertness during night duties, the likelihood of obtaining sleep as close as possible to the start of the FDP should be considered, when rostering rest periods before night duties, by providing sufficient time to the crew member to adapt to being awake during the night. Rostering practices leading to extended wakefulness before reporting for night duties should be avoided. Appropriate fatigue risk management principles and tools that could be applied to the rostering of night duties may include:

(1) avoiding night duties after extended recovery rest periods;

(2) progressively delaying the rostered ending time of the FDPs preceding night duties; and

(3) avoiding the sequence of early starts and night duties.

(b) When rostering late finish duties, sleep deprivation may arise, leading to the onset of fatigue. To optimise crew alertness during late finish duties, the operator should avoid rostering practices that may lead to sleep debt prior to the reporting for late finish duties.

(c) Obtaining sufficient sleep is a shared responsibility between the operator and its crew members.

(1) The operator could implement various measures, such as:

(i) identifying those night duties or late finish duties that are safety critical;

(ii) communicating on the use of available rest facilities at the main base;

(iii) promoting the optimum use of sleep opportunities among their crew, in particular before crew reporting for night duties or late finish duties;

(iv) where possible, providing suitable accommodation at or near the crew reporting point, or use augmented crew.

(2) For crew members, it is important to make optimum use of sleep opportunities, as applicable:

(i) in the afternoon, prior to a night duty;

(ii) prior to a late finish duty;

(iii) during FDPs with in-flight rest;

(iv) during a long turnaround.

GM4 CS FTL.1.205(a)(2) Flight duty period (FDP)

ED Decision 2023/023/R

CONSECUTIVE NIGHT DUTIES AND CONSECUTIVE LATE FINISH DUTIES — APPROPRIATE FATIGUE RISK MANAGEMENT (APPROPRIATE FRM)

Appropriate FRM that may be applied to consecutive night duties or consecutive late finish duties include:

(1) rostering a block of identical duties (late finish duties or night duties) rather than rostering mixed duties;

(2) starting a block of late finish duties or night duties with a shorter FDP;

(3) rostering not more than one transition between two different types of disruptive duties, between two extended recovery rest periods.

GM5 CS FTL.1.205(a)(2) Flight duty period (FDP)

ED Decision 2023/023/R

APPROPRIATE FATIGUE RISK MANAGEMENT (APPROPRIATE FRM) — THE PRIOR SLEEP WAKE MODEL

(a) The Prior Sleep Wake model (PSWM) is a simple method that may be used among other methods to predict the likelihood of accumulating fatigue or sleep debt and to assess crew fitness for duty, based on scientific evidence and principles.

Most evidence suggests that to maintain optimum performance, health, and well-being, individuals should get between 7 and 9 hours of sleep during a 24-hour period.

Many studies have investigated how decreasing levels of sleep and increasing time awake affects performance. In general, research has found that performance begins to become

impaired after getting less than 5 hours of sleep over a 24-hour period. Performance also becomes impaired if sleep consistently falls below 6 hours per night on an ongoing basis.

Sleepiness is related to factors such as the time of day, the time since awakening and the duration of prior sleep. As prior sleep decreases and time awake increases, the likelihood of fatigue-related symptoms, errors, and incidents also increases.

The PSWM allows the operator to set minimum and maximum thresholds for sleep and time awake, according to the specific work risk profile of the crew members concerned, to determine whether they have obtained sufficient sleep and are by inference fit for duty. These thresholds should not be treated as targets.

The PSWM also allows crew members to calculate for themselves how much sleep they have had and how long it has been since their last sleep period. The operator may decide that crew members, after assessing their own fitness for duty, report to their supervisor when they do not meet the relevant thresholds. This simple and practical process can flag sleepiness and fatigue before they lead to a safety issue.

When crew members report to a supervisor that they have had insufficient sleep, it is important that clear procedures be in place to manage the risk in a consistent manner.

The PSWM has limitations which operators and crew members need to be aware of. The model does not account for crew circadian rhythm, workload and sleep quality, to name a few. Therefore, where used, the PSWM may be one element of the appropriate FRM, but not the only element. Operators and crew members may use complementary methods and tools to validate predictions about fatigue made by the PSWM or alternative methods and tools having similar characteristics.

(b) The prior sleep–wake score is calculated by means of the following table:

Calculating prior sleep–wake						Score
Step 1: Sleep in prior 24 hours (*)						
Sleep	2 hrs	3 hrs	4 hrs	5+ hrs		
Points	12	8	4	0		
Step 2: Sleep in prior 48 hours (*)						
Sleep	8 hrs	9 hrs	10 hrs	11 hrs	12+ hrs	
Points	8	6	4	2	0	
Step 3: Predicted hours awake since last sleep until end of duty (**) If sleep hours in Step 2 are more than hours awake, score = 0. If less, add 1 point per hour awake more than sleep in Step 2.						
Total						

(*) Sleep in prior 24 (48) hours means the sleep duration in the 24 (48) hours prior to the start of a rostered duty period. Sleep in this context is a sleep period during a continuous,

uninterrupted and defined rest period, following a duty or prior to a duty, during which a crew member is free of all duties, standby and reserve. It excludes in-flight rest and controlled rest.

(**) Predicted hours awake refer to the period from wake-up from the last sleep period to the end of the rostered duty period.

(c) Fitness for duty is assessed by means of the following table:

Total score from the previous table	Risk level	Approved controls
0	Acceptable	No additional controls necessary except in the presence of higher-level indicators of fatigue (i.e. symptoms, errors, or incidents).
1–4	Minor	Inform line supervisor and document in daily logbook. Self-monitor for fatigue-related symptoms and apply individual controls such as strategic use of caffeine, task rotation, working in pairs, additional rest breaks.
5–8	Moderate	Inform local manager and document in a fatigue report. Implement additional fatigue controls such as task reallocation, napping, and increased level of peer and supervisory monitoring.
9+	Significant	Call manager before driving to work. Document in a fatigue report on next work shift. Do not engage in safety-critical tasks (including driving to work), and do not return to work until sufficiently rested as per sleep/time awake rules.

GM1 CS FTL.1.205(c)(1)(ii) Flight Duty Period (FDP)

ED Decision 2014/002/R

IN-FLIGHT REST

In-flight rest should be taken during the cruise phase of the flight.

GM2 CS FTL.1.205(c)(1)(ii) Flight Duty Period (FDP)

ED Decision 2014/002/R

IN-FLIGHT REST

In-flight rest periods should be allocated in order to optimise the alertness of those flight crew members at control during landing.

GM1 CS FTL.1.205(d) Flight Duty Period (FDP)

ED Decision 2014/002/R

DELAYED REPORTING

Operator procedures for delayed reporting should:

(a) specify a contacting mode;

(b) establish minimum and maximum notification times; and

(c) avoid interference with sleeping patterns when possible.

CS FTL.1.220 Split duty

ED Decision 2014/002/R

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.

GM1 CS FTL.1.220(b) Split duty

ED Decision 2014/002/R

POST, PRE-FLIGHT DUTY AND TRAVELLING TIMES

The operator should specify post and pre-flight duty and travelling times taking into account aircraft type, type of operation and airport conditions.

CS FTL.1.225 Standby

ED Decision 2014/002/R

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.

GM1 CS FTL.1.225 Standby

ED Decision 2014/002/R

MINIMUM REST AND STANDBY

(a) If airport or other standby initially assigned is reduced by the operator during standby that does not lead to an assignment to a flight duty period, the minimum rest requirements specified in ORO.FTL.235 should apply.

(b) If a minimum rest period as specified in ORO.FTL.235 is provided before reporting for the duty assigned during the standby, this time period should not count as standby duty.

(c) Standby other than airport standby counts (partly) as duty for the purpose of ORO.FTL.210 only. If a crew member receives an assignment during standby other than airport standby, the actual reporting time at the designated reporting point should be used for the purpose of ORO.FTL.235.

GM1 CS FTL.1.225(b) Standby

ED Decision 2014/002/R

STANDBY OTHER THAN AIRPORT STANDBY NOTIFICATION

Operator procedures for the notification of assigned duties during standby other than airport standby should avoid interference with sleeping patterns if possible.

GM1 CS FTL.1.225(b)(2) Standby

ED Decision 2014/002/R

AWAKE TIME

Scientific research shows that continuous awake in excess of 18 hours can reduce the alertness and should be avoided.

CS FTL.1.230 Reserve

ED Decision 2014/002/R

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.

GM1 CS FTL.1.230 Reserve

ED Decision 2014/002/R

RESERVE NOTIFICATION

Operator procedures for the notification of assigned duties during reserve should avoid interference with sleeping patterns if possible.

GM2 CS FTL.1.230 Reserve

ED Decision 2014/002/R

NOTIFICATION IN ADVANCE

The minimum 'at least 10 hours' between the notification of an assignment for any duty and reporting for that duty during reserve may include the period of 8 hours during which a crew member on reserve is not contacted by the operator.

GM1 CS FTL.1.230(c) Reserve

ED Decision 2014/002/R

RECURRENT EXTENDED RECOVERY REST

ORO.FTL.235(d) applies to a crew member on reserve.

CS FTL.1.235 Rest periods

ED Decision 2014/002/R

(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
≤9	2	3	3	4
≤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).

GM1 CS FTL.1.235(b)(3) Rest periods

ED Decision 2014/002/R

TIME ELAPSED SINCE REPORTING

The time elapsed since reporting for a rotation involving at least a 4-hour time difference to the reference time stops counting when the crew member returns to his/her home base for a rest period during which the operator is no longer responsible for the accommodation of the crew member.

GM2 CS FTL.1.235(b)(3) Additional rest to compensate for time zone differences

ED Decision 2017/007/R

REST AFTER ROTATIONS WITH THREE OR MORE FLIGHT DUTY PERIODS

For a rotation with three or more FDPs, the greatest time zone difference from the original reference time should be used to determine the minimum number of local nights of rest to compensate for time zone differences. If such a rotation includes time zones crossings in both directions, the calculation is based on the highest number of time zones crossed in any one FDP during the rotation.