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'.

Upon completion, return Appendix 1 to your Flight Operations Inspector together with the updated OM Part A, Section 7 in the usual way by uploading on NAS Server and notify TM-CAD on : airops.tm@transport.gov.mt These documents with be reviewed and you will be advised if they meet with the EASA Subpart FTL requirements.

Status	EASA Reference	OM Part A, Section 7 Reference / or N/A	CAD Remark U/S	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 – Acclimatised 'Point of Departure'			
GM	GM3 ORO.FTL.105(1) Definitions – Acclimatised 'Time Elapsed Since Reporting at Reference Time'			
GM	GM1 ORO.FTL.105(2) Definitions – Reference Time			
GM	GM1 ORO.FTL.105(3) Definitions – Adequate Furniture for 'Accommodation'			
GM	GM1 ORO.FTL.105(8) Definitions – Determination of Disruptive Schedules			
GM	GM1 ORO.FTL.105(10) Definitions – Elements of Standby for Duty			
GM	GM1 ORO.FTL.105(17) Definitions – Operating Crew Member			
IR	ORO.FTL.110 Operator responsibilities			
AMC	AMC1 ORO.FTL.110 Operator responsibilities – Scheduling			
AMC	AMC1 ORO.FTL.110(a) Operator responsibilities – Publication of Rosters			

Status	EASA Reference	OM Part A, Section 7 Reference / or N/A	CAD Remark U/S	implemented Y/N, N/A
AMC	AMC1 ORO.FTL.110(j) Operator responsibilities – Operational Robustness of Rosters			
GM	GM1 ORO.FTL.110(j) Operator responsibilities – Operational Robustness of Rosters			
IR	ORO.FTL.115 Crew member responsibilities			
IR	ORO.FTL.120 Fatigue risk management (FRM)			
AMC	AMC1 ORO.FTL.120(b)(1) Fatigue risk management (FRM) – Commercial Air Transport Operators FRM Policy			
AMC	AMC2 ORO.FTL.120(b)(2) Fatigue risk management (FRM) – Commercial Air Transport Operators FRM Documentation			
AMC	AMC1 ORO.FTL.120(b)(4) Fatigue risk management (FRM) – Commercial Air Transport Operators Identification of Hazards			
AMC	AMC2 ORO.FTL.120(b)(4) Fatigue risk management (FRM) – Commercial Air Transport Operators Risk Assessment			
AMC	AMC1 ORO.FTL.120(b)(5) Fatigue risk management (FRM) – Commercial Air Transport Risk Mitigation			
AMC	AMC1 ORO.FTL.120(b)(8) Fatigue risk management (FRM) – Commercial Air Transport FRM Safety Assurance Processes			
AMC	AMC1 ORO.FTL.120(b)(9) Fatigue risk management (FRM) – Commercial Air Transport FRM Promotion Process			
IR	ORO.FTL.125 Flight time specification schemes			
IR	ORO.FTL.200 Home base			
CS	CS FTL.1.200 Home base			
GM1	GM1 CS FTL.1.200 Home base – Travelling time			
IR	ORO.FTL.205 Flight duty period (FDP)			
CS	CS FTL.1.205 Flight duty period (FDP)			

Status	EASA Reference	OM Part A, Section 7 Reference / or N/A	CAD Remark U/S	implemented Y/N, N/A
AMC	AMC1 ORO.FTL.205(f) Flight duty period (FDP) – Unforeseen Circumstances in Actual Flight Operations – Commander's Discretion			
GM	GM1 CS FTL.1.205(a)(2) Flight duty period (FDP) – Night Duties – Appropriate Fatigue Risk Management			
GM	GM1 CS FTL.1.205(c)(1)(ii) Flight duty period (FDP) – In-Flight Rest			
GM	GM2 CS FTL.1.205(c)(1)(ii) Flight duty period (FDP) – In-Flight Rest			
GM	GM1 CS FTL.1.205(d) Flight duty period (FDP) – Delayed Reporting			
GM	GM1 ORO.FTL.205(a)(1) Flight duty period (FDP) – Reporting Times			
GM	GM1 ORO.FTL.205(b)(1) Flight duty period (FDP) – Reference Time			
GM	GM1 ORO.FTL.205(f)(1)(i) Flight duty period (FDP) – Commander's Discretion			
IR	ORO.FTL.210 Flight times and duty periods			
AMC	AMC1 ORO.FTL.210(c) Flight Times and Duty Periods – Post-Flight Duties			
IR	ORO.FTL.215 Positioning			
IR	ORO.FTL.220 Split duty			
CS	CS FTL.1.220 Split Duty			
GM	GM1 CS FTL.1.220(b) Split Duty – Post, Pre-Flight Duty and Travelling Times			
IR	ORO.FTL.225 Standby and duties at the airport			
CS	CS FTL.1.225 Standby			
GM	GM1 CS FTL.1.225 Standby – Minimum Rest and Standby			
GM	GM1 CS FTL.1.225(b) Standby – Standby Other than Airport Standby Notification			
GM	GM1 CS FTL.1.225(b)(2) Standby – Awake Time			
IR	ORO.FTL.230 Reserve			

Status	EASA Reference	OM Part A, Section 7 Reference / or N/A	CAD Remark U/S	implemented Y/N, N/A
CS	CS FTL.1.230 Reserve			
GM	GM1 CS.FTL.1.230 Reserve – Reserve Notification			
GM	GM2 CS.FTL.1.230 Reserve – Notification in Advance			
GM	GM1 CS FTL1.230(c) Reserve – Recurrent Extended Recovery Rest			
GM	GM1 ORO.FTL.230(a) Reserve – Rostering of Reserve			
IR	ORO.FTL.235 Rest periods			
CS	CS FTL.1.235 Rest periods			
AMC	AMC1 ORO.FTL.235(b) Rest periods – Minimum Rest Period Away from Home Base			
GM	GM1 CS FTL.1.235(b)(3) Rest periods – Time Elapsed Since Reporting			
GM	GM1 ORO.FTL.235(a)(2) Rest periods – Minimum Rest Period at Home Base if Suitable Accommodation is Provided			
IR	ORO.FTL.240 Nutrition			
AMC	AMC1 ORO.FTL.240 Nutrition – Meal Opportunity			
IR	ORO.FTL.245 Records of home base, flight times, duty and rest periods			
IR	ORO.FTL.250 Fatigue management training			
AMC	AMC1 ORO.FTL.250 Fatigue management training – Training Syllabus Fatigue Management Training			

The following are areas that require further detailed processes and procedures as part of the approval process. Please include reference to where the supporting procedure is documented. In order to support the processing of an operators application. 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.The FTL approval will not be granted until all the processes and procedures required under the regulations have been reviewed and accepted.

EASA Reference	**Reference to the documented procedure**	
ORO.FTL.110 Operator Responsibilities (all elements)		☐
ORO.FTL.200 Home Base (*records of crew bases*)		☐
ORO.FTL.205 Flight Duty Period (FDP) (a) (*Reduce FDP or increase rest)*, (c) (*reporting times for crew*), (f)(6) (*discretion process*), (g) (*delayed reporting)*		☐
CS FTL.1.205 Flight Duty Period (FDP) (a)(2) (*night duties*), (d) (*Delayed Reporting)*		☐
ORO.FTL.210 Flight Times and Duty Periods (*post flight duty periods*)		☐
ORO.FTL.220 Split Duty process		☐
ORO.FTL.225 Standby and Duties at the Airport (f)(1) & (2), (*elements of standby*)		☐
CS FTL.1.225 Standby and Duties at the Airport (b) (*home standby procedures*)		☐
ORO.FTL.230 Reserve (b) (*reserve procedures*)		☐
ORO.FTL.235 Rest Periods (b) (*ensuring 8 hours sleep opportunity process*)		☐

CS FTL 1.235 Rest Periods (b)(2) & (5) (*rotation / combinations of rotation monitoring*).		☐
ORO.FTL.240 Nutrition (b) (*procedure for ensuring nutrition during an FDP*)		☐
ORO.FTL.250 Fatigue Management Training (b) (*training programme*)		☐

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)	

Appendix 2 General

ORO.FTL.100 Scope

ORO.FTL.100 Scope

This scheme establishes the requirements to be met by 'insert airline name' and its crew members with regard to flight and duty time limitations and rest requirements for crew members.

NOTE: Operators are required to comply with the Civil Aviation (Working Time) Regulations in full. Where those regulations have a more limiting requirement than those within this regulation the more restrictive is to be applied.

CS FTL.1.100 Applicability

The Certification Specifications (CS) contained within this document are applicable to commercial air transport by aeroplanes for scheduled and charter operations, excluding emergency medical service (EMS), air taxi and single pilot operations.

"'Air taxi operation' means, for the purpose of flight time and duty time limitations, a non-scheduled on demand commercial air transport operation with an aeroplane with a maximum operational passenger seating configuration ('MOPSC') of 19 or less."

ORO.FTL.125 Flight time specification schemes

(a) Insert airline name shall establish, implement and maintain flight time specification schemes that are appropriate for the type(s) of operation performed and that comply with Regulation (EU) No 2018/1139, 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 TM-CAD.

ORO.FTL.105 Definitions

ORO.FTL.105 Definitions

For the purpose of this scheme, 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 the crew member is in an unknown state of acclimatisation;

Operator to decide if this definition is required by their operation.

(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 a 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.
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.

(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;

NOTE: TM-CAD has decided that all CAT operators with a Maltese AOC shall use 'early type' of disruptive schedules.

(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 and touring motor gliders, 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;

(29) NOTE: "fatigue" means a physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness, circadian phase, or workload (mental and/or physical activity) that can impair a crew member's alertness and ability to safely operate an aircraft or perform safety related duties as defined by ICAO in the FRMS Manual Doc 9966

GM1 ORO.FTL.105(1) Definitions

ACCLIMATISED

(a) A crew member remains acclimatised to the local time of his/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.

Operator to decide if this definition is required by their operation.

GM2 ORO.FTL.105(1) Definitions

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.

Operator to decide if this definition is required by their operation.

GM3 ORO.FTL.105(1) Definitions

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.

Operator to decide if this definition is required by their operation.

GM1 ORO.FTL.105(2) Definitions

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.

Operator to decide if they keep this example or use one which better reflects their operation.

GM1 ORO.FTL.105(3) Definitions

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 (50 cm) and provides leg and foot support.

GM1 ORO.FTL.105(8) Definitions

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

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

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 Responsibilities

ORO.FTL.110 Operators Responsibilities

The operator is required to demonstrate its associated policies and procedures in order to comply with this implementing rule. These policies and procedures need to be part of the scheme/ Manual but may be part of the operators SMS. Procedures will be a significant part of the approval and ongoing oversight processes.

'insert airline name' 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;

ARO.OPS.235 requires all competent authorities to determine in accordance with the definitions of 'early type' and ''late type'' of disruptive schedules in point ORO.FTL.105, which of those two types shall apply to all CAT operators under its oversight. **TM-CAD has determined that all CAT operators under its oversight shall apply the 'early type' disruptive schedules for their home bases**.

(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 themaximum flight duty period on more than 33% of the flight duties in that schedule during a scheduled seasonal period.

AMC1 ORO.FTL.110 Operator's Responsibilities

The operator is required to demonstrate its associated policies and procedures in order to comply with this implementing rule. These policies and procedures need to be part of the scheme/Manual and will be reviewed as part of the audit process.

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, 'insert airline name' 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's Responsibilities

PUBLICATION OF ROSTERS

Rosters should be published 14 days in advance.

AMC1 ORO.FTL.110(j) Operator's Responsibilities

OPERATIONAL ROBUSTNESS OF ROSTERS

The operator is required to demonstrate its associated policies and procedures in order to comply with this implementing rule. These policies and procedures need to be part of the scheme/ Manual and will be reviewed as part of the audit process.

'insert airline name' should establish and monitor performance indicators for operational robustness of rosters.

GM1 ORO.FTL.110(j) Operator's Responsibilities

The operator is required to demonstrate its associated policies and procedures in order to comply with this implementing rule. These policies and procedures need to be part of the scheme / Manual and will be reviewed as part of the audit process.

OPERATIONAL ROBUSTNESS OF ROSTERS

Performance indicators for operational robustness of rosters should support 'insert airline name' 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

Crew members shall:

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

which states specifically as follows:

"The crew member shall:

- comply with all flight and duty time limitations (FTL) and rest requirements applicable to their activities.
- when undertaking duties for more than one operator:
  - maintain his/her individual records regarding flight and duty times and rest periods as referred to in applicable FTL requirements; and
  - provide each operator with the date needed to schedule activities in accordance with the applicable FTL requirements.
- The crew member shall not perform duties on an aircraft:
  - if he/she knows or suspects that he/she is suffering from fatigue as referred to in 7.f of Annex IV to Regulation (EU) No 2018/1139 or feels otherwise unfit, to the extent that the flight may be endangered."

(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 is not a mandatory element to comply with Subpart FTL. FRM is mandatory in specific cases, namely –

• Application for an individual FTL scheme as per provisions of Article 22. (Such schemes shall be subject to approval of both TM-CAD and EASA).
• Application of FDP values in Table 4 of ORO.FTL.205 (b)(3).
• Application of FRM to actively manage the fatiguing effect of night duties of more than 10hours in relation to the surrounding duties and rest periods. CS FTL.1.205 (a)(2).
• Reduced rest in accordance with CS FTL.1.235 (c).

Operators should consider reviewing the FRMS Guidance manual for Operators (1st edition) to support this task. ICAO Guidance documents can be found at: http://www.icao.int/safety/fatiguemanagement/Pages/Resources.aspx#FMGM

ORO.FTL.120 Fatigue Risk Management (FRM)

(a) When FRM is required by this Subpart or an applicable certification specification, 'insert airline name' 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 (EU) 2018/1139. 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 'insert airline name' 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 'insert airline name' 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 'insert airline name' 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 operation 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) 'insert airline name' shall take mitigating actions when the FRM safety assurance process shows that the required safety performance is not maintained.

AMC1 ORO.FTL.120(b)(1) Fatigue Risk Management (FRM)

COMMERCIAL AIR TRANSPORT OPERATORS FRM POLICY

(a) The 'insert airline name' 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.

AMC2 ORO.FTL.120(b)(2) Fatigue Risk Management (FRM)

COMMERCIAL AIR TRANSPORT OPERATORS FRM DOCUMENTATION

'insert airline name' should develop and keep current FRM documentation that describes and records:

(a) FRM policy and objectives;

(b) FRM processes and procedures;

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

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

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

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

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

AMC1 ORO.FTL.120(b)(4) Fatigue Risk Management (FRM)

COMMERCIAL AIR TRANSPORT OPERATORS IDENTIFICATION OF HAZARDS

'insert airline name' 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) 'insert airline name' 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 minimized. 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)

COMMERCIAL AIR TRANSPORT OPERATORS RISK ASSESSMENT

'insert airline name' 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)

COMMERCIAL AIR TRANSPORT 'INSERT AIRLINE NAME'S' RISK MITIGATION

An 'insert airline name' 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)(8) Fatigue Risk Management (FRM)

COMMERCIAL AIR TRANSPORT 'INSERT AIRLINE NAME'S' FRM SAFETY ASSURANCE PROCESSES

The 'insert airline name' 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)(9) Fatigue Risk Management (FRM)

COMMERCIAL AIR TRANSPORT 'INSERT AIRLINE NAME'S' 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 'insert airline name' 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.200 Home Base

ORO.FTL.200 Home Base

The operator is expected to list its home bases.

'insert airline name' shall assign a home base to each crew member.

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.

GM1 CS FTL.1.200 Home Base

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.

ORO.FTL.205 Flight Duty Periods

ORO.FTL.205 Flight Duty Period (FDP)

The operator is required to demonstrate its associated policies and procedures in order to comply with this implementing rule. These policies and procedures need to be part of the scheme/ Manual and will be reviewed as part of the audit process.

(a) The 'insert airline name' shall:

(1) define reporting times appropriate to each individual operation taking into account ORO.FTL.110(c); ***(As part of the scheme reporting times are to be listed.)***

(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
06:00 – 13:29	13:00	12:30	12:00	11:30	11:00	10:30	10:00	09:30	09:00
13:30 – 13:59	12:45	12:15	11:45	11:15	10:45	10:15	09:45	09:15	09:00
14:00 – 14:29	12:30	12:00	11:30	11:00	10:30	10:00	09:30	09:00	09:00
14:30 – 14:59	12:15	11:45	11:15	10:45	10:15	09:45	09:15	09:00	09:00
15:00 – 15:29	12:00	11:30	11:00	10:30	10:00	09:30	09:00	09:00	09:00
15:30 – 15:59	11:45	11:15	10:45	10:15	09:45	09:15	09:00	09:00	09:00
16:00 – 16:29	11:30	11:00	10:30	10:00	09:30	09:00	09:00	09:00	09:00
16:30 – 16:59	11:15	10:45	10:15	09:45	09:15	09:00	09:00	09:00	09:00
17:00 – 04:59	11:00	10:30	10:00	09:30	09:00	09:00	09:00	09:00	09:00
05:00 – 05:14	12:00	11:30	11:00	10:30	10:00	09:30	09:00	09:00	09:00
05:15 – 05:29	12:15	11:45	11:15	10:45	10:15	09:45	09:15	09:00	09:00
05:30 – 05:44	12:30	12:00	11:30	11:00	10:30	10:00	09:30	09:00	09:00
05:45 – 05:59	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 'insert airline name' has implemented a FRM, shall be in accordance with the following table:

Only to be included where operator has an approved FRM

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.

The operator is required, in their scheme, to list any differences in reporting time between flight crew and cabin crew.

(d) 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.

(e) Maximum daily FDP for acclimatised crew members with the use of extensions without in-flight rest.

(1) The maximum daily FDP may be extended in accordance with **CS FTL.1.205(b)** 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.

NOTE: Operators do not need to include the detail in (5) below into their scheme as this is covered within the Certification Specification which must be used for extensions of the maximum basic daily FDP.

(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.

NOTE: Operators do not need to include the detail in (e) below into their scheme as this is covered within the Certification Specification which must be used for extensions of the maximum basic daily FDP.

(e) Maximum daily FDP with the use of extensions due to in-flight rest will be in accordance with CS FTL.1.205(c).

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 sub paragraphs 1 and 2.

(4) The commander shall submit a report to the 'insert airline name' 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 'insert airline name' shall add its comments, shall be sent by the 'insert airline name' to the competent authority not later than 28 days after the event.

(6) The 'insert airline name' shall implement a non-punitive process for the use of the discretion described under this provision and shall describe it in the operations manual.

The operator is required to demonstrate its associated policies and procedures in order to comply with this implementing rule. These policies and procedures need to be part of the scheme but must be in the operations manual and will be reviewed as part of the audit process. These procedures must include all of the elements within AMC ORO.FTL.205(f).

(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.
Note: The procedure will be in accordance with **CS FTL.1.205(d)**

CS FTL.1.205 Flight Duty Period (FDP)

(a) Night duties under the provisions of 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 'insert airline name' applies appropriate fatigue risk management to actively manage the fatiguing effect of night duties of more than 10 hours in relation to the surrounding duties and rest periods in accordance with **GM1 CS FTL.1.205(a)(2)**.

(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)
06:00 – 06:14	Not allowed	Not allowed	Not allowed	Not allowed
06:15 - 06:29	13:15	12:45	12:15	11:45
06:30 - 06:44	13:30	13:00	12:30	12:00
06:45 - 06:59	13:45	13:15	12:45	12:15
07:00 - 13:29	14:00	13:30	13:00	12:30
13:30 - 13:59	13:45	13:15	12:45	Not allowed
14:00 - 14:29	13:30	13:00	12:30	Not allowed
14:30 - 14:59	13:15	12:45	12:15	Not allowed
15:00 - 15:29	13:00	12:30	12:00	Not allowed
15:30 - 15:59	12:45	Not allowed	Not allowed	Not allowed
16:00 - 16:29	12:30	Not allowed	Not allowed	Not allowed
16:30 – 16:59	12:15	Not allowed	Not allowed	Not allowed
17:00 – 17:29	12:00	Not allowed	Not allowed	Not allowed
17:30 – 17:59	11:45	Not allowed	Not allowed	Not allowed
18:00 – 18:29	11:30	Not allowed	Not allowed	Not allowed
18:30 – 18:59	11:15	Not allowed	Not allowed	Not allowed
19:00 – 03:59	Not allowed	Not allowed	Not allowed	Not allowed
04:00 – 04:14	Not allowed	Not allowed	Not allowed	Not allowed
04:15 – 04:29	Not allowed	Not allowed	Not allowed	Not allowed
04:30 – 04:44	Not allowed	Not allowed	Not allowed	Not allowed
04:45 – 04:59	Not allowed	Not allowed	Not allowed	Not allowed
05:00 – 05:14	Not allowed	Not allowed	Not allowed	Not allowed
05:15 – 05:29	Not allowed	Not allowed	Not allowed	Not allowed
05:30 – 05:44	Not allowed	Not allowed	Not allowed	Not allowed
05:45 – 05:59	Not allowed	Not allowed	Not allowed	Not allowed

(c) Extension of FDP due to in-flight rest

"NOTE: The operator shall decide if the CS rules (c)(1 - 7)below are required by its operation."

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 (hours)**		
	Class 1	**Class 2**	**Class 3**

Up to 14:30 hours	1:30	1:30	1:30
14:31 – 15:00 hours	1:45	2:00	2:20
15:01 – 15:30 hours	2:00	2:20	2:40
15:31 – 16:00 hours	2:15	2:40	3:00
16:01 – 16:30 hours	2:35	3:00	Not allowed
16:31 – 17:00 hours	3:00	3:25	Not allowed
17:01 – 17:30 hours	3:25	Not allowed	Not allowed
17:31 – 18:00 hours	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 'insert airline name' may delay the reporting time in the event of unforeseen circumstances, if procedures for delayed reporting are established in the operations manual. The 'insert airline name' 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 'insert airline name' 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 'insert airline name', such delay of 10 hours or more counts as a rest period.

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

UNFORESEEN CIRCUMSTANCES IN ACTUAL FLIGHT OPERATIONS – COMMANDER'S DISCRETION

(a) As general guidance when developing a commander's discretion policy, the 'insert airline name' 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. 'insert airline name' 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 'insert airline name'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 CS FTL.1.205(a)(2) Flight Duty Period (FDP)

The operator is required to demonstrate its associated policies and procedures in order to comply with this CS. This provision does not need a full FRM approval, but does need a special application and approval by TM-CAD before being used. These policies and procedures must be in the operations manual and will be reviewed as part of the audit process.

NIGHT DUTIES – APPROPRIATE FATIGUE RISK MANAGEMENT

(a) When rostering night duties of more than 10 hours (referred to below as 'long night duties'), it is critical for the crew member to obtain sufficient sleep before such duties when he/she is adapted to being awake during day time hours at the local time where he/she is acclimatised. To optimise alertness on long 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 long 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 such duties should be avoided. Fatigue risk management principles that could be applied to the rostering of long night duties may include:

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

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

(3) starting a block of night duties with a shorter FDP; and

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

(b) Fatigue risk management principles may be applied to the rostering of long night duties by means of:

(1) considering 'insert airline name' or industry operational experience and data collected on similar operations;

(2) evidence-based scheduling practices; and

(3) bio-mathematical models.

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

NOTE: The operator shall decide if the GM CS rule below is required by its operation.

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)

NOTE: The operator shall decide if the GM CS rule below is required by its operation.

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)

The operator is required to demonstrate its associated policies and procedures in order to comply with this CS. These policies and procedures need to be part of the Operations Manual and will be reviewed as part of the audit process.

DELAYED REPORTING

'insert airline name' 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.

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

The operator' is required, in their manual, to define the reporting times for their aircraft types and bases. Operators are reminded that they should demonstrate how hey have assessed the reporting times.

REPORTING TIMES

The 'insert airline name' 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)

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.

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

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

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;

(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 minimum time for post-flight duties is (operator to include here).

Note: Reference working time directive 2008 no crew member employed shall have a total annual working time of more than 2,000 hours during the period of 12 months expiring at the end of the month before the month in question.

AMC1 ORO.FTL.210(c) Flight Times and Duty Periods

The operator is required to define the post-flight times for their aircraft types and bases. The operator is reminded that they should demonstrate how they have assessed the post-flight duty times.

POST-FLIGHT DUTIES

'insert airline name' 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

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

ORO.FTL.220 Split Duty

The conditions for extending the basic maximum FDP due to a break on the ground shall be in accordance with the following:

(a) flight time specification schemes shall comply with CS FTL.1.220;

(b) the break on the ground shall count in full as FDP;

(c) split duty shall not follow a reduced rest.

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 'insert airline name' 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

The operator is required to demonstrate in their policies and procedures how they have assessed these times.

POST, PRE-FLIGHT DUTY AND TRAVELLING TIMES

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

Minimum times are.*(operator to specify here)*

ORO.FTL.225 Standby

ORO.FTL.225 Standby and Duties at the Airport

NOTE: Operators must comply with CS FTL 1.225 in order to demonstrate compliance with the requirements of (f) below.

If an 'insert airline name' 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 'insert airline name' 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.

CS FTL.1.225 Standby

The operator is required to demonstrate its associated policies and procedures in order to comply with this CS. These policies and procedures need to be documented and they will be reviewed as part of the audit process

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 'insert airline name'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 'insert airline name'; and

(10) the response time between call and reporting time established by the 'insert airline name' 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

MINIMUM REST AND STANDBY

(a) If airport or other standby initially assigned is reduced by the 'insert airline name' 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

STANDBY OTHER THAN AIRPORT STANDBY NOTIFICATION

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

The operator is required to demonstrate its associated policies and procedures inorder to comply with this CS. These policies and procedures need to be documented and they will be reviewed as part of the audit process

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

AWAKE TIME

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

The operator is required to demonstrate its associated policies and procedures inorder to comply with this CS. These policies and procedures need to be documented and they will be reviewed as part of the audit process

ORO.FTL.230 Reserve

ORO.FTL.230 Reserve

If an 'insert airline name' 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.

CS FTL.1.230 Reserve

The operator is required to demonstrate its associated policies and procedures in order to comply with this CS. These policies and procedures need to be part of the Scheme/Manual andwill be reviewed as part of the audit process.

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 'insert airline name' 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 'insert airline name' 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 'insert airline name'.

GM1 CS FTL.1.230 Reserve

RESERVE NOTIFICATION

'insert airline name' procedures for the notification of assigned duties during reserve should avoid interference with sleeping patterns if possible.

GM2 CS FTL.1.230 Reserve

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 'insert airline name'.

GM1 CS FTL.1.230(c) Reserve

RECURRENT EXTENDED RECOVERY REST

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

GM1 ORO.FTL.230(a) Reserve

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

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 'insert airline name' 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.

CS FTL.1.235 Rest Periods

The operator required to demonstrate its associated policies and procedures in order to comply with this CS. These policies and procedures need to be part of the Manual/ scheme and will be reviewed as part of the audit process.

(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 'insert airline name' is no longer responsible for the accommodation of the crew member.

(2) The 'insert airline name' 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 'insert airline name' 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. '*Eastward-Westward and Westward-Eastward transition' means the transition at home base between a rotation crossing 6 or more time zones in one direction and a rotation crossing 4 or more time zones in the opposite direction.'*

(5) The monitoring of combinations of rotations is conducted under the 'insert airline name's' management system provisions.

(c) Reduced rest (only available to operators with FRM approval)

(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).

AMC1 ORO.FTL.235(b) Rest Periods

The operator is required to demonstrate its associated policies and procedures in order to comply with this operating rule. These policies and procedures need to be part of the scheme/ Manual and will be reviewed as part of the audit process.

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 'insert airline name' should increase the rest period by twice the amount of difference of travelling time above 30 minutes.

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

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 'insert airline name' is no longer responsible for the accommodation of the crew member.

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

MINIMUM REST PERIOD AT HOME BASE IF SUITABLE ACCOMMODATION IS PROVIDED

'insert airline name' 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 'insert airline name' provides suitable accommodation. This type of roster is known as "back-to-back operation".

ORO.FTL.240 Nutrition

ORO.FTL.240 Nutrition

The operator is required to demonstrate its associated policies and procedures in order to comply with the operating rule. These policies and procedures need to be part of the scheme / Documentation and will be reviewed as part of the audit process

(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) 'insert airline name' shall specify in accordance with AMC1 ORO.FTL.240 how the crew member's nutrition during FDP is ensured.

AMC1 ORO.FTL.240 Nutrition

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

ORO.FTL.245 Records of Home Base, Flight Times, Duty and Rest Periods

(a) 'insert airline name' 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, 'insert airline name' 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

ORO.FTL.250 Fatigue Management Training

Note: This training must be completed prior to the initial approval being issued and must also be completed by an operator without a full FRM approval.

(a) 'insert airline name' 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 'insert airline name' 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

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; and

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