HELLENIC CAA	FSD/OPERATIONS SECTION **INFORMATION BULLETIN**	**FSD/OPS/IB/1/2015**
	For all GREEK AOC HOLDERS and AOC APPLICANTS	**4/6/2015**

Subject	**HCAA Guidance to Developing an FTL Scheme according to Regulation (EU) No 83/2014**

SCOPE

The scope of this document is to help Greek AOC Holders to implement Regulation (EU) No 83/2014 (Subpart FTL of Air Ops) and to develop an FTL Scheme.

INTRODUCTION

This document contains information (all the relevant regulations requirements) for operators to use as part of the submission for an EASA Subpart FTL approved scheme.

This is **NOT** a template document as the scheme must reflect the individual operator's requirements and operating context. Where specific additional elements are required to be included as part of the scheme, they are highlighted either at the start of that individual rule or within the text of that regulation.

The Compliance Table (Appendix 1) must be completed and submitted with the application to move to the new regulations.

Appendix 2 provides Guidance Material for ORO.FTL.110.

The text following outlines the format for operators to follow for their FTL Scheme.

Operators must include the ORO, CS and AMC requirement within their schemes. 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.

ORO.FTL.125 Flight time specification schemes

(a) Operators shall establish, implement and maintain flight time specification schemes that are appropriate for the type(s) of operation performed and that comply with Regulation (EC) No 216/2008, this Subpart and other applicable legislation, including Directive 2000/79/EC.EN 31.1.2014 Official Journal of the European Union L 28/23.

(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.

Key to highlighted text (in the following colors):

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

RED text indicates text only required by Operators which decide to develop an FRM and seek for such an approval (this is not required by HCAA).

ORO.FTL.100 Scope

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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.

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, air taxi and single pilot operations.

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, forthe 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 its operations.

(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 dueto 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 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 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) "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 [asdefined 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 do not need to be part of the scheme and may be part of the operators SMS but will be reviewed as part of the audit process. The output from these processes and 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;

(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 dutyperiod;

(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'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 do not need to be part of the scheme but 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 do not need to be part of the scheme but 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 do not need to be part of the scheme but 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 (EC) No 216/2008 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

Operators are not required to develop an FRM and seek for such an approval (at least at this stage). All the requirements of this paragraph should be managed through Management

System (and in particular through SMS)
Operators are only required to include these requirements where they are seeking an additional FRM approval. Operators are required to inform their FOI if they will be seeking an FRM approval as part of their submission. An operator will be required to develop a separate FRM manual to support their application for an FRM approval.

The operators FRM should be proportionate to their size, complexity and the scope of the Operational application of FRM. The manual should follow the requirements contained in ICAO Doc.9966, as this is the document it will be audited against. Operators shouldconsider 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 (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 _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)
(6) arising from crew member fatigue and for continuous monitoring and regular assessment of the mitigation of fatigue risks achieved by such actions;

(7) FRM safety assurance processes;

(8) 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 flightoperations. 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 safetylevels.

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, including3 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 do not need to be part of the scheme but 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.

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 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 shallbe 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 exceededbecause of unforeseen circumstances after take-off, the flight may continueto 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 _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 do not 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

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 hourafter 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 ofpairings 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. These policies and procedures do not need to be part of the scheme. It is expected that they will be part of the operators SMS or FRM but they will be reviewed as part of the FTL audit process. The output from these processes and procedures will be a significant part of the approval and ongoing oversight processes.

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)

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)

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 do not need to be part of the scheme but 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 scheme, to define the reporting times for their aircraft types and bases. Operators are reminded that they should demonstrate how they 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).

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 that they meet the requirements of (f).**

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 do not need to be part of the scheme but 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‘ 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 in order to comply with this CS. These policies and procedures do not need to be part of the scheme but 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 in order to comply with this CS. These policies and procedures do not need to be part of the scheme but 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 do not need to be part of the scheme but will be reviewed as part of the audit process.

The _insert airline name‘ 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 dayduring 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 additionto 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 recurrentextended 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 do not need to be part of the scheme but 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, or14 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 thecrew 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‘ 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 do not need to be part of the scheme but 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 do not need to be part of the scheme but 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.

(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.

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‘.

Status	EASA Reference	OM Part A, Section 7 Para Reference / or Not Applicable
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	
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)	
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	
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 should send in their specific processes and procedures with their –Draft amendment‖. 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*)	

Appendix 2

Guidance material for ORO.FTL.110

Operator responsibilities

This document contains guidance on ORO.FTL.110 requirements, to help operators develop their own methods and processes to actively manage and show oversight of their identified fatigue risks.

It should be used in a proportionate way depending on the size and complexity of the operator and their operational context.

Compliance only with the prescriptive and numerical limits within an operator‘s scheme does not meet the operators responsibilities required under ORO.FTL.110. This document will give examples of elements that could be used to demonstrate compliance with the implementing rule requirements. Operators may wish to develop alternative methods that may be more suitable to their operation and risks.

Operators must develop a change management plan (required under their Safety Management System) to assess the risks associated with the change to the new regulations from current practices, as well as show how they will manage specific fatigue risks.

Along with the requirements of the regulations, operators will need to consider other industrial, social or contractual aspects of their operation; including tracking any changes to these areas if they are used as mitigations or controls for fatigue related risks.

While there are a number of suggested metrics listed at the end of this document, they only relate to core fatigue areas and are not numerical values. The methods and safety performance indicators that the operator chooses to use will enable them to demonstrate how they manage fatigue risks internally. The measures may include developing additional planning and day of operation requirements, all measures should be reviewed and adjusted as necessary.

Operators may want to make use of the tools and techniques outlined in the ICAO Fatigue Risk Management System manual, which is a good source of information for developing assessment and assurance processes. IATA has also produced guidance for developing fatigue safety performance indicators, including developing roster metrics, which provides a useful source of practical information for operators to demonstrate they are meeting therequirements of ORO.FTL.110.

Specifics for ORO.FTL.110(a)

Principles

- Crew need to know rostered duties, rest and recovery periods in advance in order to plan the use of their rest periods (AMC1 ORO.FTL.110(a))
- Changes to rostered duties can cause difficulties for crew to efficiently plan and use their rest periods, especially where the change is given with little notice of the new duty

Considerations

- Develop roster publication dates that are made available to crew members on an annual basis
- Develop a method to manage changes to the assigned duties so that the extent of the disruption reduces closer to the day of operation.
- Develop roster disruption metrics that could include:

  a) Effect of changes to:

  - Sleeping patterns
  - Sleep quality
  - Sleep duration

  b) Higher impact on fatigue through:

  - Short notification
  - Time of day of notification

  c) Notification method:

  - Active communication (e.g. direct phone call)
  - Passive communication(e.g. text message or email)

- Develop a planned minimum notification period for extended recovery rest periods and days free of duty. For example:

  a) Roster publication 14 days in advance (AMC1 ORO.FTL.110(a))

  b) Lower number if justified and mitigated

  c) Consideration for the management of changes after the roster has been issued

  - Develop protections around extended recovery rest periods allocated in a published roster. Changes made with the crew member‘s agreement unless there are factors beyond the operator‘s control (such as down route tech issues, volcanic ash clouds, disruption during the Flying Duty Period etc).

- Establish roster stability metrics to demonstrate the level and management of disruption that rosters are subject to after being issued.
- Develop a method/metric to show the relationship between disruption and standby usage to assess the impact of disruption.
- Method to track additional overtime on days off.

Specifics for ORO.FTL.110(b)(d)(e)(f)(g)

These responsibilities support the management of safety risks that could affect an operation, such as fatigue. The operator‘s management system requires hazard identification, risk assessment and mitigation, and performance monitoring and measurement (in accordance with ORO.GEN.200(a)(3)). In order to meet the _operator responsibilities‘ the operator needs to consider how they will demonstrate the independence of their selected processes from their normal FTL compliance operational processes and show that they are effective.

Principles

- Manage fatigue related risks under Safety Management System (SMS).
- The safety manager/safety department is responsible for facilitating the management and assessment of the operator responsibilities processes. If these processes are delegated to other departments, the oversight and integration of the information gathered within the SMS should remain the responsibility of the safety manager/safety department.
- Where applicable this responsibility could be allocated to the Fatigue Risk Management (FRM) team.
- FRM is an integrated part of the SMS.
- Demonstrate the independence of the process as well as the effectiveness of the assessment through safety/FRM manager.
- Timely capture of fatigue safety related trends and closure of action items/audit findings.
- Demonstrate understanding of how fatigue could affect a crew member‘s alertness and performance, how fatigue does or could occur within the working environment and the need to manage it effectively for continued safe operation.

Considerations:

- Develop a method to track crew member fatigue as a safety performance indicator
- Create a change management plan (under SMS) to assess the risks associated with the new regulations, and show how they will manage specifically identified fatigue risks.
- Develop a method to advise crew of their responsibilities under CAT.GEN.MPA.100 and ORO.FTL.115.

- Fatigue reports may be trended against route, pattern and individual as part of the operator‘s SMS reporting processes (or under FRM if applicable).
- Use a method to proactively and reactively review how the roster is developed so that the links between duties (frequency and pattern) and associated rest periods support the crew member to achieve adequate rest.
- Develop training in fatigue awareness and mitigation to support crew and roster staff so that they are aware of what could affect their ability to rest for their duties.
- Develop a link into the continuous improvement and ongoing assurance processes of the SMS (or FRM if applicable) to review possible areas of complacency around fatigue risk such as repetitive schedules or certain operations.
- Create internal rules that reflect fatigue management principles and refine them on an ongoing process using data and feedback. Wherever a fatigue mitigation is achieved (e.g. through industrial agreement or working time regulations) these should be reflected as controls or barriers that support the application of the prescriptive limitations that produce the overall fatigue management of the operation. If an operator wishes to develop an Individual Flight Time Specification Scheme (IFTSS) or Alternative Means of Compliance (AltMoC) they are required to consider these elements as part of the documentation they present to the competent authority.
- Develop processes to capture information on fatigue related issues associated with the crew member and use procedures to assess the roster related influences to reduce or mitigate them.
- Develop a method that considers fatigue related issues when assessing the potential risks of the flight or series of flights. The method needs to take into account that fatigue risks could increase or decrease depending on other factors (such as training, weather, aerodrome categorisation, crew experience, etc). This needs to be done early in the flight planning/network scheduling process. This is an ongoing process and information collected should be regularly reviewed. As a minimum this should be done on a seasonal basis. In order for this information to be understood by commercialstaff when making commercial decisions, appropriate training is recommended as theyare seen as ‒concerned management personnel‖ (*cross-reference ORO.FTL.250*).
- Develop a method to gather different sources of data, so that fatigue can be tracked and assessed for trends against fleet, base, route, season or individual.
- Use a method that shows sufficient time has been allowed within the pre-flight reporting period so that all safety related ground duties can be completed. The operator should consider conducting a risk analysis of the tasks required at each base and for each aircraft type, taking into account the local conditions. *(cross-reference - ORO.FTL.205(a)(1) Flight Duty Period)*
- Possible processes for gathering information:

  a) Specific non-punitive fatigue reporting process under their existing safety reporting procedures.

b) Roster performance indicators using metrics developed from their roster data.

These sources of data should inform fatigue management decisions. Operators may want to gather stakeholder information on roster induced fatigue; for example, through additional questions as part of regular safety surveys or setting up a stakeholder review group that assesses the roster data.

Think about providing feedback to all the relevant operational areas (e.g. rostering, commercial, crew members, and senior management) on the data gathered and any associated changes or mitigations that have been introduced.

Where operators have automated systems, these principles should be encoded into the system. Elements that influence the management of crew fatigue (regulations, responsibilities, social, and industrial) within an operation should be considered in related safety cases.

Metrics and demonstrable measures of fatigue management

When developing roster related metrics, planning and day of operation guidelines, operators should at a minimum take into account the following issues and develop a gap analysis process to question the relevance to their operation.

It may not be necessary for an operator to use all their agreed metrics all the time; they should have a review process in place to ensure that the data is being used effectively to monitor fatigue. While specific route issues must be addressed, when developing their metrics the operator must consider and demonstrate the different characteristics due to base, type, rank, and experience or contract type.

- Think about the impact of operating long haul, short haul or mixed operations on a crew members ability to recover from duties and be adequately rested for subsequent rostered duties. Attention should be given to the impact of the Window of Circadian Low (WOCL) and of circadian disruption created by crossing multiple time zones, especially where duties are rostered in the same block of work. Operators need to appreciate the impact of operating scheduled, charter or ad-hoc FDP‘s on the crew- members‘ ability to plan and achieve adequate rest for their flying duty periods.

- Demonstrate how the impact of transient and cumulative fatigue has been considered, including the impacts associated with combining duties and allocated extended recovery rest periods. Transitions between early/late and night duties can have asignificant effect on fatigue and the sustainability of the roster. Transitions should be assessed and managed in relation to their impact on subsequent Flying Duty Period‘s (FDP). Operators should manage crew leave allocation to prevent cumulative fatigue (for example, spread throughout the year and given in blocks of seven days or more).

- Allocation of recovery rest is particularly important and the effectiveness of single days free of duty should be monitored and managed. Balancing the distribution of

workload should be a simple and effective metric, especially at busy times of the year, so that one crew member is not being worked significantly more than another. Where the operation is task intensive, a useful metric would be limiting the number of duty periods between weekly rest periods. This will assist in managing the cumulative fatigue built up during the working block.

- Where the planned FDP is routinely being exceeded because of operational issues on the route, airports or weather, the operator needs to develop a re-planning process in the short term. The operator should demonstrate how they have addressed the operational issues or re-crewed the FDP on a seasonal basis.

- The operator should be able to show how they have assessed the rest periods allocated to the crew members showing that they allow for a minimum eight hour sleep opportunity. Consideration should also be given to circadian disruption and whether the eight hour sleep opportunity is during the day or overnight. This may include an assessment of the local conditions at each designated reporting point, including the planning of minimum rest periods within blocks of duties, so that the crew member is sufficiently rested by the start of the following flight duty period.

- Operators should think about rostering additional time within the rest period as a buffer, where it is likely that delays will occur, in order to stabilise the work block. This may be a seasonal issue or specific to the individual rostered FDPs.

- Recognise the different physical and cognitive fatigue effects associated within the crew member‘s duties on the aircraft. This may require an operator developing different levels of assessment and mitigation for flight crew and cabin crew.

- Develop a method to assess the rest periods within trip patterns, taking into account the crew members WOCL and any time zone crossing during the trip. The location and suitability of the accommodation provided down route needs to be taken into account, so that the crew member can report for a FDP adequately rested. This may require the operator to develop mitigations to extend the rest period or minimise the length of or number of sectors post a down route rest period.

- Operators should be able to demonstrate their method of calculation for crew member establishment planning and standby requirements as well as the validity of these calculations in actual operation.

- Roster stability metrics are a key measure in understanding how fatigue is managed within an operation. Historical data on roster and route disruption should be used as well as an assessment of the use of commander‘s discretion and fatigued absence. Operators can develop planning buffers to protect the stability and integrity of the operation as part of their fatigue management processes.

- While commuting/travelling time is the crew member‘s responsibility, operators should be aware and acknowledge its potential impact on their operation. Some airportlocations are likely to increase the commuting time even where the crew member restswithin 90 minutes of their place of report. Operators should consider what they can reasonably do to meet their responsibilities where they know or believe the crew

member will be too fatigued to operate safely; and where necessary establish protocols to meet these responsibilities.

Example of some roster metrics

- Duty length
- Duty placement
- Night duties
- Deep early starts
- Consecutive day sector count
- Transitions between late/early and early/late duties
- Multi-sector FDPs
- Circadian parity in report
- Combined short and long haul flying in a working block
- Combinations of duties crossing time zones
- Combinations duties with east/west time zone crossings
- Rest length
- Rest placement in relation to WOCL
- Recovery days off
- Roster disruption/stability
- Standby usage
- Planned vs. actual

Further to assessing the individual FDP the operator should consider developing additional processes that demonstrate assessment of:

- Schedule regularity – (seasonal norms)
- Turnaround times – applicability to aerodrome and time of day
- Related tasks required during the turnaround
- Nutrition management during the FDP
- Security issues around the aerodrome
- Re-planning/re-crewing long term.

The operator may also want to develop a hazard log/risk register (or include in the SMS's overall register) to aid the development of their roster metrics and mitigations and to show that the relative risks have been assessed. A simple approach would be to list the fatigue hazards against their type of operation, bases and fleets.

Below is an example of a simple table to identify operational specific fatigue hazards:

Fleet 737 – Charter operations				
	Bases			
Fatigue hazard	**CFU**	**ATH**	**SKG**	**HER**
Night duties	X	X	X	
Early starts/late finishes	X	X	X	X
Alternating early/late duties	X	X	X	X
Multi-sector ops (more than 2)	X			X
Combining training and flying in a single duty period		X		
Time zone crossings		X	X	
Eastward westward		X		
Back to back operations		X	X	
Etc.				