

# EASA Flight Time Limitations (FTL) Guidance material for ORO.FTL.110

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# Guidance material for ORO.FTL.110

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## 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 the requirements of ORO.FTL.110.

## Specifics for ORO.FTL.110(a)

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### 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)**

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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 commercial staff when making commercial decisions, appropriate training is recommended as they are 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**

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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 a significant 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 airport locations are likely to increase the commuting time even where the crew member rests within 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:

<b>Fleet 757/767 – Charter operations</b>				
	<b>Bases</b>			
<b>Fatigue hazard</b>	<b>LTN</b>	<b>LGW</b>	<b>MAN</b>	<b>EDI</b>
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.				

Operators may want to review the EASA NPA 2010-14 Hazard & Mitigation Table to support the identification of hazards and possible mitigations which can be found at [www.caa.co.uk/FTL](http://www.caa.co.uk/FTL)