Draft

Certification Specifications for flight time specification schemes

Draft Certification Specifications FTL 1

Commercial Air Transport by Aeroplane — Scheduled and Charter Operations

CS FTL.1.100 Applicability

These Certification Specifications are applicable to commercial air transport operations by aeroplanes other than emergency medical service (EMS), air taxi and single pilot operations.

CS FTL.1.200 Home base

(a) The home base is a single airport location assigned with a high degree of permanence.

(b) In the case of a change of home base, the recurrent extended recovery rest period prior to starting duty at the new home base is increased once to 72 hours, including 3 local nights. Travelling time between the former home base and the new home base is positioning or FDP.

CS FTL.1.205 Flight duty period (FDP)

1 — Night duties

When establishing the maximum FDP in accordance with ORO.FTL.210 (b) and (d) for consecutive night duties, the number of sectors is limited to 4 sectors per duty.

2 — Extension of FDP without in-flight rest

The extension of FDP without in-flight rest under the provisions of ORO.FTL.210(d)(5) is limited to the values specified in the table below.

Table: Maximum daily FDP with extension

Start of FDP	1–2 sectors	3 sectors	4 sectors	5 sectors
0600–0614	Not allowed	Not allowed	Not allowed	Not allowed
0615–0629	13:15	12:45	12:15	11:45
0630–0644	13:30	13:00	12:30	12:00
0645–0659	13:45	13:15	12:45	12:15
0700–1329	14:00	13:30	13:00	12:30
1330–1359	13:45	13:15	12:45	12:15
1400–1429	13:30	13:00	12:30	12:00
1430–1459	13:15	12:45	12:15	Not allowed
1500–1529	13:00	12:30	12:00	Not allowed
1530–1559	12:45	12:15	11:45	Not allowed
1600–1629	12:30	12:00	11:30	Not allowed
1630–1659	12:15	Not allowed	Not allowed	Not allowed
1700–1729	12:00	Not allowed	Not allowed	Not allowed
1730–1759	11:45	Not allowed	Not allowed	Not allowed
1800–1829	11:30	Not allowed	Not allowed	Not allowed
1830–1859	11:15	Not allowed	Not allowed	Not allowed
1900–0359	Not allowed	Not allowed	Not allowed	Not allowed
0400–0414	Not allowed	Not allowed	Not allowed	Not allowed
0415–0429	Not allowed	Not allowed	Not allowed	Not allowed
0430–0444	Not allowed	Not allowed	Not allowed	Not allowed
0445–0459	Not allowed	Not allowed	Not allowed	Not allowed
0500–0514	Not allowed	Not allowed	Not allowed	Not allowed
0515–0529	Not allowed	Not allowed	Not allowed	Not allowed
0530–0544	Not allowed	Not allowed	Not allowed	Not allowed
0545–0559	Not allowed	Not allowed	Not allowed	Not allowed

3 — Extension of FDP due to in-flight rest

The type of in-flight rest facilities in accordance with ORO.FTL.205 (e)(1)(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.

(a) The extension of FDP with in-flight rest under the provisions of ORO.FTL.205(e) complies with the following:

(1) the FDP is limited to 3 sectors; and

(2) the minimum in-flight rest period is a consecutive 90-minute period for each crew member and 2 consecutive hours for those flight crew members at control during landing.

(b) The maximum daily FDP under the provisions of ORO.FTL.205 (e) may be extended due to in-flight rest for flight crew:

(1) with one additional flight crew member:

(i) up to 14 hours with class 3 rest facilities;

(ii) up to 15 hours with class 2 rest facilities; and

(iii) up to 16 hours with class 1 rest facilities; and

(2) with two additional flight crew members:

(i) up to 15 hours with class 3 rest facilities;

(ii) up to 16 hours with class 2 rest facilities; and

(iii) up to 17 hours with class 1 rest facilities.

(c) The minimum in-flight rest for each cabin crew member is:

Extended FDP	Minimum in-flight rest		
	Class 1	Class 2	Class 3

up to 14:30 hrs	1:30	1:30	1:30
14:31 – 15:00 hrs	1:45	2:00	2:20
15:01 – 15:30 hrs	2:00	2:20	2:40
15:31 – 16:00 hrs	2:15	2:40	3:00
16:01 – 16:30 hrs	2:35	3:00	Not allowed
16:31 – 17:00 hrs	3:00	3:25	Not allowed
17:01 – 17:30 hrs	3:25	Not allowed	Not allowed
17:31 – 18:00 hrs	3:50	Not allowed	Not allowed

(d) The limits in (b) may be increased by 1 hour for FDPs that include 1 sector of over 9 hours of continuous flight time and a maximum of 2 sectors.

(e) All time spent in the rest facility is counted as FDP.

(f) The minimum rest at destination is at least as long as the preceding duty period, or 14 hours, whichever is greater.

(g) A crew member does not start a positioning sector to become part of this operating crew on the same flight.

4 — Unforeseen circumstances in actual flight operations — Delayed reporting

(a) The operator may delay the reporting time in the event of unforeseen circumstances, if procedures for delayed reporting are established in the Operations Manual. Delayed reporting procedures establish a notification time allowing a crew member to remain at his/her place of rest 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:

(1) 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;

(2) 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;

(3) when the delay is 10 hours or more, the time between the original and the delayed reporting time counts as a rest period.

CS FTL.1.220 Split duty

The increase of limits on flight duty, under the provisions of ORO.FTL.220, complies with the following:

(a) The break on the ground within the FDP has a minimum duration of 3 consecutive hours.

(b) The break excludes the time for post and pre-flight duties and travelling time which are counted for a minimum of 30 minutes.

(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 WOCL.

(e) In all other cases:

(1) accommodation is provided; and

(2) any time of the actual break exceeding 6 hours or any time of the break that encroaches the WOCL does not count for the extension of the FDP.

(f) Split duty cannot be combined with in-flight rest.

CS FTL.1.225 Standby

The modification of limits on flight duty, duty and rest periods under the provisions of ORO.FTL.230 complies with the following:

1 — Airport standby

(a) A crew member is considered on airport standby from reporting at the reporting point until the end of the notified airport standby period.

(b) Where airport standby does not lead to assignment on an FDP, it is followed by a rest period as specified in ORO.FTL.235.

(c) Airport standby counts in full as duty time.

(d) If an assigned FDP starts during airport standby, the following applies:

(1) 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;

(2) the maximum combined duration of airport standby and assigned basic maximum FDP as specified in ORO.FTL.205 (b) and (d) is 16 hours.

2 —Standby other than airport standby:

(a) the maximum duration of standby other than airport standby is 16 hours;

(b) 25 % of time spent on standby other than airport standby counts as duty time for the purpose of ORO.FTL.210;

(c) standby is followed by a rest period in accordance with ORO.FTL.235;

(d) standby ceases when the crew member reports at the designated reporting point;

(e) if standby ceases within the first 8 hours, the maximum FDP counts from reporting;

(f) if standby ceases after the first 8 hours, the maximum FDP is reduced by the amount of short-call standby time exceeding 8 hours; and

(g) the response time between call and reporting time established by the operator allows the crew member to arrive from his/her place of rest to the designated reporting place within a reasonable time.

CS FTL.1.230 Reserve

An assigned FDP counts from the reporting time. Reserve times do not count as duty time for the purpose of ORO.FTL.210 and ORO.FTL.235. The maximum number of consecutive reserve days and the maximum duration of reserve are defined by the operator.

CS FTL.1.235 Rest periods

1 — Disruptive schedules

(a) When a transition at home base is planned from a late finish/night duty to an early start, the rest period between the 2 FDPs includes 1 local night.

(b) For a crew member performing 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.

2 — Time zone differences

(a) The operator monitors rotations and combinations of rotations in terms of their effect on crew fatigue, and adapts the crew schedules as necessary.

(b) Time zone differences are compensated by additional rest, as follows:

(1) At home base, if an FDP involves a 4 hour time difference or more, the minimum rest is as specified in the following table and includes at least 2 local nights.

Table: Minimum local nights of rest at home base to compensate for time zone differences

Maximum time difference between reference time and local time where a crew member rests during a rotation	**Time elapsed (h) since reporting for a rotation involving at least 4 hour time difference to the reference time**			
	< 48	48 – 71:59	72 – 95:59	≥96
≤6	2	2	3	3
≤9	2	3	3	4
≤12	2	3	4	5

(2) Away from home base, if an FDP involves a 4 hour time difference or more, the minimum rest provided is at least as long as the preceding duty period, or 14 hours, whichever is greater. Notwithstanding (b)(1), this may also apply to home base if the operator provides suitable accommodation to the crew member.

(3) 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.

3 — Reduced rest

(a) The minimum reduced rest periods under reduced rest arrangements are 12 hours at home base and 10 hours out of base.

(b) Reduced rest is used under fatigue risk management.

(c) 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.

(d) 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.

(e) There is a maximum of 2 reduced rest periods between 2 recurrent extended recovery rest periods as specified in ORO.FTL.235(d).

Draft— Acceptable Means of Compliance (AMC) and Guidance Material (GM) to Part ORGANISATION REQUIREMENTS (PART-ORO)

Section VIII — Flight and duty time limitations and rest requirements

GM1 ORO.FTL.105 Defintions

DEFINITION OF '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.

GM2 ORO.FTL.105 Definitions

DEFINITION OF 'ACCLIMATISED' TIME ELAPSED SINCE REPORTING AT REFERENCE TIME

The time elapsed since reporting at reference time for operations applying CS. FTL.1.235 2(b)(2) at home base refers to the time elapsed since reporting for the first time at home base for a rotation.

GM3 ORO.FTL.105 Defintions

ADEQUATE FURNITURE FOR 'ACCOMMODATION'

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

AMC1 ORO.FTL.110(a) Operator responsibilities

PUBLICATION OF ROSTERS

Rosters should be published 14 days in advance.

AMC1 ORO.FTL.110(b)…Operator responsibilities

PLANNING OF FLIGHT DUTY PERIODS ENCROACHING NIGHT HOURS

The fatiguing effect of flight duty periods of more than 10 hours overlapping or encroaching the period between 22:00 and 04:00 at the local time where a crew member is acclimatised should be managed actively in relation to the surrounding duties and rest periods.

GM1 ORO.FTL.FTL.110(b) Operator responsibilities

PLANNING OF FLIGHT DUTY PERIODS ENCROACHING NIGHT HOURS

When rostering flight duty periods of more than 10 hours overlapping or encroaching the period between 22:00 and 04:00, obtaining sufficient sleep before such duties when a crew member is adapted to being awake during day time hours at the local time where he/she is acclimatised, is critical. Rostering practices leading to extended wakefulness before reporting for such duties should be avoided.

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

COMMERCIAL AIR TRANSPORT OPERATORS FRM POLICY

The operator should define its FRM policy, with all the elements of FRM clearly identified.

(a) The FRM policy should define the scope of FRM in terms of the operations to which it applies.

(b) The FRM policy should:

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

(2) clearly state the safety objectives of FRM;

(3) be signed by the accountable manager;

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

(2) declare management commitment to effective safety reporting;

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

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

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

(6) 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

The operator 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 crew, cabin crew and technical 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

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

1. 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:

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

(b) evidence-based scheduling practices; and

(c) bio-mathematical models.

2. Proactive

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

(a) self-reporting of fatigue risks;

(b) crew fatigue surveys;

(c) relevant flight, technical and cabin crew performance data;

(d) available safety databases and scientific studies; and

(e) analysis of planned versus actual time worked.

3. 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:

(a) fatigue reports;

(b) confidential reports;

(c) audit reports;

(d) incidents; and

(e) flight data monitoring (FDM) events.

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

COMMERCIAL AIR TRANSPORT OPERATORS RISK ASSESSMENT

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

(a) operational processes;

(b) their probability;

(c) possible consequences; and

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

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

COMMERCIAL AIR TRANSPORT OPERATORS RISK MITIGATION

An operator should develop and implement risk mitigation procedures that:

(a) select the appropriate mitigation strategies;

(b) implement the mitigation strategies; and

(c) monitor the strategies' implementation and effectiveness.

AMC1 ORO.FTL.120(b)(8) Fatigue risk management (FRM)

COMMERCIAL AIR TRANSPORT OPERATORS FRM SAFETY ASSURANCE PROCESSES

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

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

  (1) hazard reporting and investigations;

  (2) audits and surveys; and

  (3) reviews and fatigue studies;

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

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

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

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

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

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

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

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

AMC1 ORO.FTL.120(b)(9) Fatigue risk management (FRM)

COMMERCIAL AIR TRANSPORT OPERATORS FRM PROMOTION PROCESS

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

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

(a) training programmes to ensure competency commensurate with the roles and responsibilities of management, flight, technical 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.

GM1 ORO.FTL.205 Flight Duty Period

SCHEDULING

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

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

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

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

(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.235(b) Rest periods

MINIMUM REST PERIOD AWAY FROM HOME BASE

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

AMC1 ORO.FTL.240 Nutrition

MEAL OPPORTUNITY

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).

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.

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;

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

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.

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

REPORTING TIMES

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

GM1 ORO.FTL.205(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 operator should take into consideration the shared responsibility of management, flight crew and cabin crew in the case of unforeseen circumstances. The exercise of commander's discretion should be considered exceptional and should be avoided at home base and/or company hubs where standby or reserve crew members should be available. Operators should asses on a regular basis the series of pairings where commander's discretion has been exercised in order to be aware of possible inconsistencies in their rostering.

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

(1) WOCL encroachment;

(2) weather conditions;

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

(4) aeroplane malfunctions or specifications;

(5) flight with training or supervisory duties;

(6) increased number of sectors;

(7) circadian disruption; and

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

GM1 CS FTL.1.205(3)(a)(2) Flight Duty Period (FDP)

IN-FLIGHT REST

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

GM1 CS FTL.1.205(3)(b) Flight Duty Period (FDP)

IN-FLIGHT REST

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

GM1 CS FTL.1.205(4) Flight Duty Period (FDP)

DELAYED REPORTING

Operator procedures for delayed reporting should:

(a) specify a contacting mode;

(b) establish minimum and maximum notification times; and

(c) avoid interference with sleeping patterns when possible.

GM1 ORO.FTL.210(c) Flight times and duty periods

POST-FLIGHT DUTIES

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

GM1 CS FTL.1.220(b) Split duty

POST, PRE-FLIGHT DUTY AND TRAVELLING TIMES

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

GM1 CS FTL.1.225 Standby

MINIMUM REST AND STANDBY

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

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

GM1 CS FTL.1.205 (4) Flight duty period

DELAYED REPORTING NOTIFICATION

Operator procedures for delayed reporting should avoid interference with sleeping patterns when possible.

GM1 CS FTL.1.230 Reserve

RESERVE NOTIFICATION

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

AMC1 CS FTL.1.235(2)(b) Minimum rest periods

MONITORING OF ROTATIONS

The monitoring of combinations of rotations should be conducted under the Operator's Safety Management provisions.