



**PNG**  
**Civil Aviation Rules**  
**Part 122**

**Flight and Duty Time Limitations**

Effective 1 May 2016.

## **DESCRIPTION**

Part 122 prescribes the operating rules governing flight and duty time limitations and applicable to a certificate holder and a crew member performing air operations under Parts 121, 125, 135 and 136. Part 122 sole purpose is to manage fatigue. Fatigue is recognised as a major human factors hazard because it affects people's ability to do their job safely.

## Bulletin

This Part first came into force on 1 January 2004 and now incorporates the following amendments:

<b>Amendment</b>	<b>Effective Date</b>
Amendment 1	1 May 2016

### *Summary of amendments:*

Amendment 1:

(Docket 15/122/1)

Subpart A Rule 122.3 is amended to insert the definition of fatigue.

Subpart B Rule 122.51(a) is amended to include sub paragraph (a)(3) as a consequence to the new Subpart I in this Rule Part.

New Subpart I is inserted to include fatigue risk management system

## Schedule of Rules

<b>Schedule of Rules</b>	<b>4-5</b>
<b>Subpart A — General</b>	<b>6</b>
122.1 Purpose.....	6
122.3 Definitions.....	6
122.5 General limitations.....	7
<b>Subpart B – Responsibilities</b>	<b>7</b>
122.51 Certificate holder responsibilities .....	7
122.53 Crew member responsibilities.....	7
<b>Subpart C – Flight and Duty Time Limitations — One or Two Pilot Flight Crew</b>	<b>8</b>
122.101 Purpose.....	8
122.103 Flight time limitations.....	8
122.105 Duty time limitations and Rest Periods.....	8
<b>Subpart D – Flight and Duty Time Limitations — Three or More Pilot Flight Crew</b>	<b>9</b>
122.151 Purpose.....	9
122.153 Flight time limitations.....	10
122.155 Duty time limitations .....	10
122.157 Rest period .....	10
122.159 In-flight rest period .....	10
<b>Subpart E – Flight and Duty Time Limitations — Tour Duty Pilot</b>	<b>11</b>
122.201 Purpose.....	11
122.203 Flight time limitations.....	11
122.205 Duty time limitations .....	11
122.207 Rest period .....	12
<b>Subpart F — Flight and Duty Time Limitations — Flight Attendants</b>	<b>12</b>
122.251 Purpose.....	12
122.253 Flight time limitations.....	12
122.255 Standby periods.....	12
122.257 Duty time limitations .....	13
122.259 Extended Duty Period .....	13
122.261 In-flight rest period .....	13
<b>Subpart G — Flight and Duty Time Limitations — Helicopter Pilots</b>	<b>14</b>
122.301 Purpose.....	14
122.303 Minimum rest periods .....	14
122.305 Duty time limitations .....	14
122.307 Flight time limitations.....	14
122.309 Type of operation limitations .....	15

---

<b>Subpart H – Crew Member Flight and Duty Time Scheme</b>	<b>16</b>
122.351 Crew member flight and duty scheme.....	16
<b>Subpart I – Fatigue Risk Management System (FRMS)</b>	<b>17</b>
122.401 Purpose.....	17
122.403 Policy .....	17
122.405 Safety Obejectives.....	17
122.407 Roles, Responsibilities and authorities .....	17
122.409 Hazard Indentification.....	18
122.411 Risk Management .....	19
122.413 Safety Assurance Processes .....	19
122.415 Promotion Processes .....	20
<b>Subpart J – Transition Provisions</b>	<b>20</b>
122.501 Transition .....	20

## Subpart A — General

### 122.1 Purpose

This Part prescribes rules governing a fatigue risk management system (FRMS) or flight and duty time limitations applicable to a certificate holder and a crew member performing air operations under Parts 121, 125, 135 and 136.

### 122.3 Definitions

In this Part—

**Active duty time** means the time a crew member is assigned to perform the functions of a crew member:

**Adequate rest facilities** means rest facilities sufficiently segregated and comfortable in terms of horizontal rest, temperature and external noise so as to provide suitable rest for crewmembers:

**Certificate holder** means the holder of an air operator certificate issued under Part 119:

**Disrupted schedule** means a schedule that, by reason of circumstances outside the control of the certificate holder, is unable to be completed within its scheduled time:

**Duty period** means any continuous period throughout which a crew member is required by the certificate holder to be on duty or available for duty, whether on the ground or in the air:

**Equal time tour pilot** means a pilot employed by the certificate holder on the basis of being available for duty for a consecutive number of days not in excess of 30 days following which the pilot concerned is allocated consecutive day rest periods at least equal to the number of duty days:

### Fatigue Risk Management System

**Rest period** means any period of time during which a crew member is relieved of all duties by the certificate holder:

**Standby period** means the period of time during which crew member is required to hold themselves for active duty:

**Stay in an area** means a stopover in an area for a period that includes facility for two night's rest during two consecutive periods between midnight and 6 am local time:

**Tour duty pilot** means a pilot employed by the certificate holder for duty as a pilot of a flight crew consisting of not more than 2 pilots on the basis of a fixed time available for duties followed by a fixed time free of all duties:

**Tour Type A** means a maximum of 28 days availability for duty by certificate holder followed by at least 21 days free of all duties by the certificate holder; or

**Tour Type B** means more than 28 days availability for duty by the certificate holder followed by a minimum of an equal number of days free of all duties by the certificate holder.

**Tour of duty** means the period of time commencing from the start of duties at a base prior to a series of flights and ending at home base on completion of the duties associated with a series of flights:

**Total hours of duty** means the sum of the duty periods within any particular period that a crew member is at the disposal of an operator:

### **122.5 General limitations**

The certificate holder shall ensure that—

- (1) when, during a particular duty period, a crew member is engaged in operations that have differing flight time limitations, the most restrictive limitation shall be applied; and
- (2) when during a duty period, a crew member is required to fly in an aircraft as a passenger, that crew member shall be regarded as being on duty; and
- (3) a person is not designated as a crew member on a flight or series of flights that cannot be completed within the flight and duty time limitations applicable to that crew member on at least 80% of occasions.

## **Subpart B – Responsibilities**

### **122.51 Certificate holder responsibilities**

- (a) The certificate holder shall not cause or permit an aircraft to perform an air operation unless they have ensured that each crew member assigned for duty—
  - (1) does not exceed the flight and duty time limitations prescribed in this Part; or
  - (2) is in accordance with a scheme established under Subpart H for the regulation of flight and duty times for every person flying in that aircraft as a crew member; or
  - (3) is in accordance with a fatigue risk management system under Subpart I for the management of fatigue for every person flying in that aircraft as a crew member.
- (b) The certificate holder shall not designate a person as a crew member if the certificate holder knows or has reason to believe that the person is suffering from, or, having regard to the circumstances of the flight to be undertaken, is likely to suffer from, such fatigue that while they are performing their duties they may endanger the safety of the aircraft or its occupants.
- (c) The certificate holder shall—
  - (1) keep an accurate record of the flight and duty times of each crew member; and
  - (2) retain the record required by paragraph (c)(1) for a period of 12 months from the date on which it was made.

### **122.53 Crew member responsibilities**

- (a) A person shall not act as a crew member of an aircraft performing an air operation if that person knows or suspects that they are suffering from, or, having regard to the circumstances of the flight to be undertaken, are likely to suffer from, such fatigue as may endanger the safety of the aircraft or its occupants.
- (b) A crew member shall not perform other hire or reward flight duties while employed, engaged, or contracted by an air operator when such flying in addition to that in air operations will

exceed the flight and duty time limitations prescribed in this Part or in a scheme established under Subpart H relating to that crew member.

- (c) A person shall not act as a crew member of an aircraft performing an air operation unless that person has ensured that the flight and duty time limitations prescribed in this Part, or the requirements of a scheme established under Subpart H or Subpart I, relating to that person are not exceeded.
- (d) A crew member may exceed the flight and duty limitations prescribed in this Part or, if applicable, those specified in a crew member flight and duty scheme if the pilot-in-command is satisfied—
  - (1) that the flight is for the protection of life or property; and
  - (2) that the safety of the aircraft will not be endangered by reason of any crew member exceeding the flight and duty limitations.

## **Subpart C – Flight and Duty Time Limitations — One or Two Pilot Flight Crew**

### **122.101 Purpose**

This subpart prescribes rules governing flight and duty time limitations applicable to—

- (1) a pilot of a flight crew consisting of one or two pilots; and
- (2) the certificate holder.

### **122.103 Flight time limitations**

- (a) The certificate holder shall ensure that a pilot does not exceed a flight time of—
  - (1) 900 hours in any 365 consecutive day period; and
  - (2) 100 hours in any 30 consecutive day period; and
  - (3) 30 hours in any 7 consecutive day period; and
  - (4) 8 hours in any one duty period.
- (b) Notwithstanding (a)(4), the certificate holder may extend the flight time to 9 hours if the pilot concerned has—
  - (1) a minimum rest period of 9 consecutive hours that includes the period between 10pm and 6am local time and an additional hour for each 15 minutes, or part thereof, the pilot has flown in excess of 8 hours; or
  - (2) a minimum rest period of 10 hours and an additional hour for each 15 minutes, or part thereof, the pilot has flown in excess of 8 hours.

### **122.105 Duty time limitations and Rest Periods**

- (a) The certificate holder shall ensure a pilot—

- (1) does not exceed 11 hours of duty time in any one duty period; and
  - (2) following a duty period, has a rest period of—
    - (i) 9 consecutive hours that includes the period between 10pm and 6am local time; or
    - (ii) 10 consecutive hours.
- (b) The certificate holder may extend a duty period commenced in accordance with paragraph (a)(1) duty time limitation to 12 hours if the pilot concerned has—
- (1) a minimum rest period of 9 consecutive hours that includes the period between 10pm and 6am local time and an additional hour for each 15 minutes, or part thereof, the pilot has been of duty in excess of 11 hours; or
  - (2) a minimum rest period of 10 hours and an additional hour for each 15 minutes, or part thereof, the pilot has flown in excess of 8 hours.
- (c) The certificate holder shall ensure that if a pilot—
- (1) during a duty period that exceeds 12 hours duty time or 9 hours of flight time, that pilot has a rest period of at least 24 consecutive hours at the completion of that duty period; and
  - (2) is on more than one tour of duty in any 24 consecutive hour period, has an applicable rest period between those tours of duty as prescribed in this rule.
- (d) The certificate holder shall ensure that a pilot—
- (1) does not commence a flight unless during the seven day period encompassing that flight the pilot is free of all duties for at least one continuous period between 10pm and 6am on two consecutive nights; and
  - (2) does not exceed 90 hours of duty time in any 14 consecutive days.
- (e) Notwithstanding 122.103(b)(1)(ii), a certificate holder may extend the duty time of a pilot of an aeroplane being operated on non-regular air operations to be on duty in excess of 11 hours but not more than 15 hours if that pilot—
- (1) has a period of 4 consecutive hours free of duty during that duty period; and
  - (2) if on two consecutive duty periods of more than 11 hours, has a period free of all duties of at least 24 hours between those duty periods; and
  - (3) is not on two duty periods in excess of 11 hours within a six consecutive day period

## **Subpart D – Flight and Duty Time Limitations — Three or More Pilot Flight Crew**

### **122.151 Purpose**

This subpart prescribes rules governing flight and duty time limitations applicable to—

- (1) a pilot of a flight crew consisting of three or more pilots; and
- (2) the certificate holder.

### **122.153 Flight time limitations**

The certificate holder shall ensure that a pilot does not exceed a flight time of—

- (1) 900 hours in any 365 consecutive day period; and
- (2) 100 hours in any 30 consecutive day period.

### **122.155 Duty time limitations**

(a) The certificate holder shall ensure that a pilot does not exceed—

- (1) 16 hours consecutive duty hours in an single duty period; and
- (2) 14 hours of active duty in a single duty period; and
- (3) 8 consecutive hours of active duty in a single duty period.

(b) A pilot-in-command may, exercising discretion, extend a duty period commenced under paragraph (a) to 20 hours.

### **122.157 Rest period**

The certificate holder shall ensure that a pilot, has a rest period of—

- (1) not less than 12 consecutive hours prior to commencing a tour of duty; and
- (2) after accumulating 50 hours of duty, not less than 24 consecutive hours prior to commencing the next tour of duty; and
- (3) after a duty period in excess of 18 hours—
  - (i) not less than 18 consecutive hours; or
  - (ii) not less than 12 consecutive hours if the following tour of duty does not exceed 18 consecutive hours; and
- (4) not less than 12 hours after completing a duty period; and
- (5) not less than 24 consecutive hours after 11 consecutive hours of duty or more than 8 hours of flight time.

### **122.159 In-flight rest period**

- (a) The certificate holder shall ensure that, when an in-flight rest period is required, a pilot has access to adequate rest facilities on the aircraft for any period of flight time that they are not assigned for active duty.
- (b) The pilot-in-command shall ensure that a pilot, including that pilot-in-command, is allocated rest periods during flight to ensure that the active duty time limitations in paragraph 122.155(a) are not exceeded.

## Subpart E – Flight and Duty Time Limitations — Tour Duty Pilot

### 122.201 Purpose

This subpart prescribes rules governing flight and duty time limitations applicable to—

- (1) a tour duty pilot; and
- (2) the certificate holder.

### 122.203 Flight time limitations

(a) The certificate holder shall ensure that a pilot does not exceed a flight time in excess of—

- (1) 8 hours in any one tour of duty; and
- (2) 35 hours in any 7 consecutive day period; and
- (3) 900 hours in any 365 consecutive day period; and
- (4) if employed for a tour type A or B, 120 hours in any 28 consecutive day period; and

(b) Notwithstanding paragraph (a)(1), the certificate holder may extend the flight time to—

- (1) 8.5 hours during up to 4 duty periods providing the 8.5 hours are not flown consecutively; or
- (2) 9 hours—

if at the end of that duty period, the pilot has a rest period not less than—

- (3) 9 consecutive hours that include the period between 10pm and 6am local time and an additional hour for each 15 minutes, or part thereof, the pilot has flown in excess of 8 hours; or
- (4) 10 consecutive hours and an additional hour for each 15 minutes, or part thereof, the pilot has flown in excess of 8 hours.

### 122.205 Duty time limitations

(a) The certificate holder shall ensure that a pilot does not exceed a duty time of—

- (1) 11 consecutive duty hours in any single tour of duty; and
- (2) 35 hours in any 7 consecutive day periods; and
- (3) if employed on a tour type A or B—
  - (i) 60 hours in any consecutive 7 day period; and
  - (ii) 110 hours in any consecutive 14 day period;

(b) Notwithstanding paragraph (a)(1), a certificate holder may extend a duty period of a pilot of an aeroplane being operated by one or two pilots on non-regular air operations to be in excess of 11 consecutive hours but not more than 15 consecutive hours if that pilot—

- (1) has a period of 4 consecutive hours free of duty during that duty period; and
- (2) if on two consecutive duty periods of more than 11 hours, has a period free of all duties of at least 24 hours between those duty periods; and
- (3) has no more than two duty periods in excess of 11 hours are within any six consecutive day period.

### **122.207 Rest period**

- (a) The certificate holder shall ensure that when a pilot has undertaken more than one tour of duty in any 24 consecutive hour period—
  - (1) that pilot has a rest period between the first and second tours of duty of at least—
    - (i) nine consecutive hours that includes the period between 10 pm and 6 am local time; or
    - (ii) ten consecutive hours; and
  - (2) if that pilot has exceeded 8 hours of flight time or 11 hours of duty time in any 24 hour period, that pilot has a rest period of at least 12 hours that includes the period between 10 pm and 6 am.
- (b) The certificate holder shall ensure that, during any seven consecutive day period, a pilot has at least one rest period between 10 pm and 6 am or between 9 pm and 5 am on two consecutive nights.

## **Subpart F — Flight and Duty Time Limitations — Flight Attendants**

### **122.251 Purpose**

This subpart prescribes flight and duty time limitations applicable to—

- (1) a flight attendant; and
- (2) the certificate holder.

### **122.253 Flight time limitations**

The certificate holder shall ensure that a flight attendant does not exceed a flight time of—

- (1) 40 hours in any 7 consecutive day period; and
- (2) 150 hours in any 30 consecutive day period; and
- (3) 1500 hours in any 365 consecutive day period.

### **122.255 Standby periods**

- (a) The certificate holder shall ensure that a flight attendant required to be on a standby period has, prior to commencing that standby period, a rest period of at least—
  - (1) 9 consecutive hours that includes the period between 10pm and 6am local time; or

- (2) 10 consecutive hours.
- (b) Notwithstanding paragraph (a)(1), if a flight attendant is not able to commence the rest period at 10pm due to a flight disruption, the rest period may be commenced no later than 11pm if the next duty period does not exceed 6 hours.

### **122.257 Duty time limitations**

- (a) The certificate holder shall ensure that a flight attendant does not exceed—
  - (1) 11 hours of duty time in any one duty period; or
  - (2) 90 hours of duty time in any 14 consecutive day period.
- (b) A flight attendant duty period commenced under paragraph (a) may be extended to—
  - (1) 12 hours if, on completion of the duty period, that flight attendant has a minimum rest period—
    - (i) of 9 consecutive hours that includes the period between 10pm and 6am local time and an additional hour for each 15 minutes, or part thereof, the attendant has been on duty in excess of 11 hours; or
    - (ii) of 10 consecutive hours and an additional hour for each 15 minutes, or part thereof, the attendant has been on duty in excess of 11 hours.
  - (2) more than 12 hours if, on completion of the duty period, that flight attendant has a minimum rest period 24 consecutive hours.
- (c) The certificate holder shall ensure that, if a flight attendant exceeds 11 hours of duty time in any 24 consecutive hour period, the flight attendant has a rest period of not less than—
  - (1) 12 consecutive hours that include the period between 10pm and 6am; or
  - (2) 24 consecutive hours.
- (d) The certificate holder shall ensure that a flight attendant has at least two consecutive hour rest periods embracing the periods between 10pm and 6am within any 7 consecutive day period.
- (e) The certificate holder shall ensure that a flight attendant does not exceed 90 total hours of duty in any 14 consecutive day period.

### **122.259 Extended Duty Period**

Notwithstanding 122.257(a)(1), the certificate holder may extend the duty time of a flight attendant up to a maximum of 16 hours in any single duty period if that flight attendant does not exceed 11 hours of active duty time within that period.

### **122.261 In-flight rest period**

- (a) The certificate holder shall ensure that, when an in-flight rest period is required, a flight attendant has access to adequate rest facilities on the aeroplane for any period of flight time that they are not assigned for active duty.

- (b) The senior flight attendant designated by the certificate holder under 91.517(b)(1) shall ensure that a flight attendant is allocated rest periods during flight time to ensure that the active duty time limitations prescribed in 122.259 are not exceeded.

## Subpart G — Flight and Duty Time Limitations — Helicopter Pilots

### 122.301 Purpose

This subpart prescribes flight and duty time limitations applicable to—

- (1) a pilot of a helicopter; and
- (2) the certificate holder.

### 122.303 Minimum rest periods

The certificate holder shall ensure that, following a duty period—

- (1) a pilot not employed as an equal time tour pilot, is allocated the minimum rest period of 24 consecutive hours on completion of a 6 day consecutive day duty period; and
- (2) a pilot employed as an equal time tour pilot—
  - (i) on attaining 35 flight hours in any 7 consecutive day period, has a 24 consecutive hour rest period; and
  - (ii) on attaining the maximum prescribed flying hours in any 30 consecutive day period, has a 48 consecutive hour rest period. and
- (3) all pilots are allocated a minimum rest period as prescribed in Table 1.

**Table 1 — Minimum rest periods**

Duty periods	Minimum rest periods
Less than 10 hours	10 consecutive hours
More than 10 but less than 11 hours	11 consecutive hours
More than 11 but less than 12 hours	12 consecutive hours
More than 12 hours	24 consecutive hours

### 122.305 Duty time limitations

The certificate holder shall ensure that a pilot not does not exceeded 100 hours of duty time in any 14 consecutive day period; and

### 122.307 Flight time limitations

The certificate holder shall ensure that a pilot—

- (1) assigned as a pilot-in-command on a single pilot helicopter flight under VFR, does not exceed the flight time limitations prescribed in Table 2; and
- (2) assigned as a pilot of a two pilot flight crew operating a multi engine helicopter on a flight under VFR, does not exceed the flight time limitations prescribed in Table 3; and
- (3) assigned as a pilot of a two pilot flight crew operating a multi engine helicopter on a flight under IFR, does not exceed the flight time limitations prescribed in Table 4.

**Table 2 — Flight time limitations – single pilot VFR**

<b>Period</b>	<b>Maximum total flight times</b>
Daily	8 hours
7 consecutive day period	35 hours
30 consecutive day period	110 hours
365 consecutive day period	900 hours

**Table 3 — Flight time limitations – two pilot VFR**

<b>Period</b>	<b>Maximum total flight times</b>
Daily	8 hours
7 consecutive day period	35 hours
30 consecutive day period	125 hours
365 consecutive day period	900 hours

**Table 4 — Flight time limitations – two pilot IFR**

<b>Period</b>	<b>Maximum total flight times</b>
Daily	8 hours
7 consecutive day period	30 hours
30 consecutive day period	100 hours
365 consecutive day period	900 hours

### **122.309 Type of operation limitations**

The certificate holder shall ensure that a pilot does not exceed the flight time limitations and has the minimum rest periods as specified for the type of operation being conducted in Table 5.

**Table 5 — Type of operation limitations**

<b>Type of operation</b>	<b>Flight time limitation</b>	<b>Minimum rest period</b>	<b>Maximum flying hours per day</b>
Single pilot sling load operation	3 consecutive hours	30 consecutive minutes	6 hours total

Two pilot sling load operation	5 consecutive hours	60 consecutive minutes	8 hours total
Low flying <sup>1</sup>	3 consecutive hours	30 consecutive minutes	7 hours total
All other air operations	4 consecutive hours	30 consecutive minutes	8 hours total

*Note 1. Low flying is flight conducted in accordance with paragraph (c) of rule 91.311 Minimum heights for VFR flights.*

## Subpart H – Crew Member Flight and Duty Time Scheme

### 122.351 Crew member flight and duty scheme

Notwithstanding subparts C, D, E, F and G, the certificate holder may establish a scheme for the regulation of flight and duty times applicable to crew members assigned for duty on air operations if that scheme—

- (1) addresses the following factors where appropriate to the operator's type of operation:
  - (i) rest periods prior to flight:
  - (ii) acclimatisation:
  - (iii) time zones:
  - (iv) night operations:
  - (v) maximum number of sectors:
  - (vi) single pilot operations:
  - (vii) two pilot operations:
  - (viii) two pilots plus additional flight crew members:
  - (ix) crew members' qualifications:
  - (x) mixed duties:
  - (xi) dead-head transportation:
  - (xii) reserve or standby periods:
  - (xiii) flight duty period:
  - (xiv) in-flight relief:
  - (xv) type of operation:
  - (xvi) cumulative duty time:

- (xvii) cumulative flight time:
  - (xviii) discretionary increases in flight time limitations or flight duty limitations or both:
  - (xix) circadian rhythm:
  - (xx) days off:
  - (xxi) record-keeping; and
- (2) has a feed back system from crew members to the certificate holder in terms of fatigue; and
  - (3) is acceptable to the Director.

## **Subpart I – Fatigue Risk Management System (FRMS)**

### **122.401 Purpose**

This Subpart prescribes a fatigue risk management system (FRMS) applicable to-

- (1) every person flying in that aircraft as a crew member; and
- (2) the certificate holder.

### **122.403 Policy**

- (a) The certificate holder must establish and implement a documented FRMS policy for the organization.
- (b) The policy required by paragraph (a) must include details of the management commitment to, and responsibility for, fatigue risk management.

### **122.405 Safety Objectives**

The certificate holder must establish documented safety objectives that are consistent with the organisation's FRMS policy.

### **122.407 Roles, Responsibilities and authorities**

The certificate holder must -

- (a) Document the role, responsibilities and authorities of each person in the organization responsible for FRMS processes and procedures by means of a position description or similar; and
- (b) Identify key positions within the organization responsible for FRMS processes and procedures and establish minimum qualification and experience standards for appointment of personnel to those positions; and
- (c) Appoint a FRMS group assigned responsibility for oversight of FRMS related issues.

### **122.409 Hazard Identification**

The certificate holder must develop and maintain three fundamental and documented processes for fatigue hazard identification –

- (a) Predictive – the predictive process shall identify fatigue hazards in regard to crew scheduling and take into account factors known to affect sleep and fatigue and their effects on performance based on one or more of the following methods of examination-
  - (1) Operator or industry operational experience and data collected on similar types of operations;
  - (2) Evidence-based scheduling practices;
  - (3) Bio-mathematical models; and
  - (4) Other methods which the Director considers acceptable to the certificate holder's FRMS.
  
- (b) Proactive – the proactive process shall identify fatigue hazards in regard to flight operations and take into account factors known to affect sleep and fatigue and their effects on performance based on one or more of the following methods of examination-
  - (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;
  - (5) Analysis of planned versus actual time worked.
  
- (c) Reactive – the reactive process shall identify fatigues hazards in regard to reports and events associated with potential negative safety consequences and take into account their effect on fatigue based on one or more of the following methods of examination-
  - (1) Fatigue reports;
  - (2) Confidential reports;
  - (3) Audit reports;
  - (4) Incidents;
  - (5) Flight data analysis events.

### **122.411 Risk Management**

(a) The certificate holder must establish procedures to conduct risk assessments to determine the probability and potential severity of fatigue-related events.

(b) The risk assessment procedures required by paragraph (a) must review identified hazards and link them to –

- (1) operational processes;
  - (2) their probability;
  - (3) possible consequences; and
  - (4) the effectiveness of existing safety barriers and controls.
- (c) The certificate holder must establish and implement risk mitigation procedures that-
- (1) select the appropriate risk mitigation strategies;
  - (2) implement the mitigation strategies; and
  - (3) monitor the strategies' implementation and effectiveness.

### **122.413 Safety Assurance Processes**

The certificate holder must establish and implement FRMS safety assurance procedures and processes to –

- (1) provide for continuous FRMS performance monitoring, analysis of trends, and measurement to validate the effectiveness of the fatigues safety risk controls. The sources of data may include but are not limited to –
  - (i) Hazard reporting and investigations;
  - (ii) Audits and surveillance;
  - (iii) Reviews and fatigues studies;
- (2) provide a formal process for the management of change which must include but is not limited to –
  - (i) Identification of change in the operational environment that may affect FRMS;
  - (ii) Identification of change within the organization that may affect FRMS; and
  - (iii) Consideration of available tools which could be used to maintain or improve FRMS performance prior to implementing changes; and
- (3) provide for the continuous improvement of FRMS. This will include but is not limited to –
  - (i) The elimination or modification of risk controls that have had unintended consequences or that are no longer needed due to changes in the operational or organizational environments;
  - (ii) Routine evaluations of facilities, equipment, documentation and procedures; and
  - (iii) The determination of the need to introduce new processes and procedures to mitigate emerging fatigue-related risks.

### **122.415 Promotion Processes**

The certificate holder must establish and implement promotion processes support as part of its on-going development of FRMS in accordance with the following-

- (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 FRMS; and
- (b) Effective Communication Plan that-
  - (i) Explains FRMS policies, procedures and responsibilities to all key stakeholders; and
  - (ii) Describes communication channels used to gather and disseminate FRMS-related information.

## **Subpart J — Transition Provisions**

### **122.501 Transition**

Transition provisions detailed in Part 20 apply to this Part.