

রেজিস্টার্ড নং ডি এ-১

বাংলাদেশ



গে

অতিরিক্ত সংখ্যা
কর্তৃপক্ষ কর্তৃক প্রকাশিত

মঙ্গলবার, এপ্রিল ৩০, ২০২৪

[বেসরকারি ব্যক্তি এবং কর্পোরেশন কর্তৃক অর্থের বিনিময়ে জারী]

Civil Aviation Authority of Bangladesh

Gazette

Dhaka, ১৭ ফাল্গুন, ১৪৩০/ 01 March, 2024

1. No, CAAB 30.31.0000.111.37.006-3 –In exercise of conferred by Section 47, read with Section 14 of the Civil Act, 2017 (Act No. 18 of 2017), hereinafter referred as the “Airman of the Civil Aviation Authority of Bangladesh is issue the following Air Navigation Order (ANO).
2. It shall come into force from the date of gazette . For the purpose of implementation of this ANO 6-1, a period of twelvemonths shall be accepted for the holders of certificate, permit and authorization. During this transition period A-8 , ANO(OPS) A-9, ANO (OPS) B3, ANO (OPS) OPS) B8 , ANO(OPS) C1, ANO (OPS) A10, ANO(OPS)(OPS)E7 , ANO(OPS) H-1, (CAD-PEL-OPS)13/2020-OPS) 17/2021 and(CAC-OPS) 03/2020 shall sustain.that new applicant(s) shall be obliged to comply with the conditions of this ANO 6-1 from the date of gazette publication.

Air Vice Marshal Rahman
BBP, BSP, BUP, Chairman
Civil Aviation Authority of Bangladesh.

(১৫০৩১)

মূল্য : টাকা ২৪০.০০

**APPENDIX- 11. FLIGHT AND DUTY TIME LIMITATIONST
REQUIREMENTS (FTL) SECTION 1
(Refer to Chapter 4, 4.10.2 a)**

General

1.1 Scope

This Appendix establishes the requirements to be met by and its crew member about flight and duty time limitarest requirements for Flight and Cabin crew members.

1.2 Definitions

For the purpose of this ~~Directive~~ Appendix the followinş shall apply:

- (1) "acclimatized" means a state in which a crew median biological clock is synchronized to the time zone crew member is. A crew member is acclimatized to a 2-time zone surrounding the local time at the point of depa the local time at the place where a duty commences more than 2 hours from the local time at the place where thearts, the crew member, for the calculation of the maxinlight duty period, is considered to be acclimatized in acco the values in the Table 1.

Table 1

Time difference(h) between reference time and local time where the crew	Time elapsed since reporting at ref			
	< 48	48-71:59	72-95.59	96-120
< 4	B	D	D	D
≤ 6	B	X	D	D
≤ 9	B	X	X	D
≤ 12	B	X	X	D

Note:

'B' means acclimatized to the local time of the departue;

'D' means acclimatized to the local time where thnber starts his/her next duty; and

'X' means that a crew member is in an unke of acclimatization.

- (2) "**reference time**" means the local time at thepoint situated in a 2-hour wide time zone band aroun time where a crew member is acclimatized.

- (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 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) **"acceptable means of compliance (AMC)"** means non-binding standards adopted by the operators to illustrate means to establish compliance with Regulations and it's implementing rules;
- (6) **"alternate means of compliance (ALMOC)"** means those means that propose an alternative to an existing acceptable means of compliance or those new means to establish compliance with CAA Act 2017 and CA Act 2017 and it's implementing Rules for which no associate AMC have been adopted by the CAAB;
- (7) **"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;
- (8) **"break"** means a period of time within a flight duty period, shorter than a rest period, counting as duty and during which is free of all tasks;
- (9) **"delayed reporting"** means the postponement of a scheduled FDP by the operator before a crew member has left the place of rest;
- (10) **"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 acclimatized. A schedule may be disruptive due to early starts, late finishes, or night duties.
 - (a) **"early type"** of disruptive schedule means:
 - (i) for 'early start' a duty period starting in the period between 05:00 and 05:59 in the time zone to which a crew member is acclimatized;
 - (ii) for 'late finish' a duty period finishing in the period between 23:00 and 1 :59 in the time zone to which a crew member is acclimatized;

- (b) **"late type"** of disruptive schedule means:
- (i) for 'early start' a duty period starting in the even
between 05:00 and 06:59 in the time zone to which the crew member is acclimatized;
 - (ii) for 'late finish' a duty period finishing period
between 00:00 and 01 :59 in the time zone to which a crew member is acclimatized;
- (11) **"night duty"** means a duty period encroaching on the period between 02:00 and 04:59 in the time zone to which the crew member is acclimatized;
 - (12) **"Duty"** means any task that a crew member performs on board, including flight duty, administrative work, giving training and checking, positioning, and some elements;
 - (13) **"duty period"** means a period which starts when a crew member is required by an operator to report for or to commence duty and ends when that person is free of all duties, including post-duty;
 - (14) **"flight duty period (FDP)"** means a period that begins when a crew member is required to report for duty, whether on a single sector or a series of sectors, and finishes when the crew member finally comes to rest and the engines are shut down at the end of the last sector on which the crew member acts as a crew member;
 - (15) **"flight time"** means, for aeroplanes and touring balloons, the time between an aircraft first moving from its parking position for the purpose of taking off until it comes to rest in a designated parking position and all engines or propellers are shut down;
 - (16) **"GM"** means Guidance Material;
 - (17) **"home base"** means the location, assigned by an operator to a crew member, from where the crew member normally commences a duty period or a series of duty periods and where, in normal circumstances, the operator is not responsible for the operation of the crew member concerned;
 - (18) **"local day"** means a 24-hour period commencing at 00:00 local time;
 - (19) **"local night"** means a period of 8 hours falling between 20:00 and 08:00 local time;
 - (20) **"operating crew member"** means a crew member performing duties in an aircraft during a sector;

- (21) "**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;
- (22) "**rest facility**" means a bunk or seat with leg and foot support suitable for crew members' sleeping on board an aircraft;
- (23) "**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;
- (24) "**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;
- (25) "**rotation**" means 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 rest period where the operator is no longer responsible for the accommodation of the crew member;
- (26) "**single day free of duty**" means the 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;
- (27) "**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;
- (28) "**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;
- (29) "**airport standby duty**" means a pre-notified and defined period of time during which a crew member is required by the operator to be at the airport immediately available to receive an assignment for a flight, positioning or other duty;
- (30) "**other standby**" means a standby either at home or in a suitable accommodation;
- (31) "**window of circadian low**" means the period between 02.00 and 05.59 hours in the time zone to which a crew member is acclimatized.

GM1 1.2 (1) Definitions**ACCLAMETISED**

d) ~~A crew member remains acclametised to the local time of ference time during 47 hours 59 minutes after reporting no matter how many he/ she has crossed.~~

e) ~~The maximum daily FDP for acclametised crew members is by using table 2 in section 2 with the reference time of the point of depaon as 48 hours have elapsed, the state of acclametisation is derived frompsed since reporting at reference time and the number of time zones cross~~

f) ~~A crew member is considered to be in an unknown state of aon after the first 58 hours of the rotation have elapsed unless he or she remarrst arrival destination time zone (either for rest or any duties) in accor table 1 in section 1, 1.2.~~

g) ~~Should a crew member's rotation include additional duties a different time zone than his or her first arrival destination's time zone or she is considered to be in an unknown state of acclimatization, then tiber remains in an unknown state of acclimatization until he or she:~~

1. ~~has taken the rest period required by para 2.8 of section 3 e;~~

2. ~~has taken the rest period required by para 2.8 at the new lo~~

3. ~~has been undertaking duties starting at and returning to the f the new location until he or she becomes acclimatized in accordance w inthe table 1 section 1, 1.2. To determine the state of acclimatization, the ng criteria should be applied.~~

I. ~~the greater of the time difference between the time zone whe was last acclametised or the local time of his or her last departure pointw location; and~~

II. ~~the time elapsed since reporting at home base or the first the rotation.~~

ACCLAMETISED

- a) A crew member remains acclimatized to the local time of his or 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 acclimatized crew members is determined by using table 1 with the reference time of the point of departure. As soon as 48 hours have elapsed, the state of acclimatization is derived from the time elapsed since reporting at reference time and the number of time zones crossed.
- c) A crew member is considered to be in an unknown state of acclimatization after the first 58 hours of the rotation have elapsed unless he or she remains in the first arrival destination time zone (either for rest or any duties) in accordance with table-1.
- d) Should a crew member's rotation include additional duties that end in a different time zone than his or her first arrival destination's time zone while he or she is considered to be in an unknown state of acclimatization, then the crew member remains in an unknown state of acclimatization until he or she:
 1. has taken the rest period required by para 2.8 of section-3 at home base;
 2. has taken the rest period required by para 2.8 at the new location; or
 3. has been undertaking duties starting at and returning to the time zone of the new location until he or she becomes acclimatized in accordance with the value in the table-1.

To determine the state of acclimatization, the two following criteria should be applied:

- I. the greater of the time difference between the time zone where he or she was last acclimatized or the local time of his or her last departure point and the new location; and
- II. the time elapsed since reporting at home base or the first time during the rotation.

GM2 1.2 (1) Definitions**ACCLAMETIZED 'POINT OF DEPARTURE'**

The point of departure refers to the reporting point fcduty period or positioning duty after a rest period.

GM3 1.2 (1) Definitions**ACCLIMATIZED 'TIME ELAPSED SINCE REPAAT REFERENCE TIME'**

The time elapsed since reporting at reference time for opeying Section 3. 7 (b)(3)(ii) at home base refers to the timince reporting for the first time at home base for a rotation.

GM1 1.2 (2) Definitions**REFERENCE TIME**

- (a) Reference time refers to reporting points in a 2-hourone band around the local time where a crew member is d;
- (b) Example: A crew member is acclimatized to the lochaka and reports for duty in Dubai. The reference time is ae in Dubai.

GM1 1.2(3) Definitions**ADEQUATE FURNITURE FOR ACCOMMODATIO**

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

GM1 1.2(10) Definitions**DETERMINATION OF DISRUPTIVE SCHEDULES**

If a crew member is acclimatized to the local time at hibase, the local time at the home base should be used to con!P as 'disruptive schedule'. This applies to operations within the: time zone surrounding the local time at the home base, if a per is acclimatized to the local time at his/her home base.

GM1 1.2 (28) Definitions**ELEMENTS OF STANDBY FOR DUTY**

Section 2.6(c) and (d) and Section 3.5(b)(2) determine wats of standby count as duty.

GM1 1.2 (20) 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 Section-2, 2.3.

1.3 Operator responsibilities

An operator 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 Section 1.2 (10);
- (g) provide rest periods of sufficient time to enable crew members to overcome the effects of the previous duties and to be rested by the start of the following flight duty period;
- (h) plan recurrent extended recovery rest periods and notify crew members sufficiently in advance;
- (i) plan flight duties in order to be completed within the allowable flight duty period taking into account the time necessary for pre-flight duties, the sector and turnaround times;

- (j) change a schedule and/or crew arrangements such that the total flight duty period for any crew member during the operation exceeds the maximum flight duty period or the total flight duty period exceeds 33% of the flight duties in that schedule during the seasonal period.

AMC1 1.3 Operator responsibilities

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 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 should take into account the time needed for pre-flight duties, the flight and turnaround times. Other factors to be considered when planning duty periods should include:
- (1) the allocation of work patterns which avoid unduly fatiguing patterns such as alternating day/night duties, alternating eastward-westward or westward-eastward time zone crossings, positioning of crew members so that a series of such crossings occurs;
 - (2) scheduling sufficient rest periods especially for flights crossing many time zones; and
 - (3) preparation of duty rosters sufficiently in advance with planning of recurrent extended recovery periods and notification of the crew members well in advance to allow adequate pre-duty rest.

AMC1 1.3(a) Operator responsibilities

PUBLICATION OF ROSTERS

Monthly/fortnightly rosters should be published at least 14 days in advance;

AMC1 1.3 (j) Operator responsibilities

OPERATIONAL ROBUSTNESS OF ROSTERS

The operator should establish and monitor performance indicators for operational robustness of rosters.

GM1 1.3 (j) Operator responsibilities**OPERATIONAL ROBUSTNESS OF ROSTERS**

Performance indicators for operational robustness of rosters should support the operator 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.

1.4 Crew member responsibilities

Crew members shall:

- (a) comply with responsibilities of crew members and other personnel involved in operations of motor-powered aircraft (MPA); and
- (b) make optimum use of the opportunities and facilities for rest provided and plan and use their rest periods properly.

1.5 Flight time specification scheme

- (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 this Directive and other applicable national legislation.
- (b) Before being implemented, flight time specification schemes, including any related FRM where required, shall be approved by the CAAB.

SECTION 2

Commercial Air Transport Operators

2.1 Home base

An operator shall assign a home base to each crew member

2.2 Flight duty period (FDP)

a) The operator shall:

- (1) define reporting times appropriate to each individual taking into account 1.3(c);
- (2) establish procedures specifying how the Pilot in Command, in case of special circumstances which could involve fatigue, and after consultation with the crew member, reduce the actual FDP and/or increase the rest period to eliminate any detrimental effect on flight safety;

b) Basic maximum daily FDP.

- (1) The maximum daily FDP without the use of rest for acclimatized crew members shall be in accordance with the following table:

Table 2

Maximum daily FDP- Acclimatized crew members

Starting time of FDP	1-2 sectors (in hours)	3 sectors (in hours)	4 sectors (in hours)	RS
0600-0614	Not allowed	Not allowed	Not allowed	Not allowed
0615-0629	13:15	12:45	12:15	
0630-0644	13:30	13:00	12:30	
0645-0659	13:45	13:15	12:45	
0700-1329	14:00	13:30	13:00	
1330-1359	13:45	13:15	12:45	Not allowed
1400-1429	13:30	13:00	12:30	Not allowed

Starting time of FDP	1-2 sectors (in hours)	3 sectors (in hours)	4 sectors (in hours)	5 sectors (in hours)
1430-1459	13:15	12:45	12:15	Not allowed
1500-1529	13:00	12:30	12:00	Not allowed
1530-1559	12:45	Not allowed	Not allowed	Not allowed
1600-1629	12:30	Not allowed	Not allowed	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

Start of FDP at reference time	1-2 Sectors	3 Sectors	4 Sectors	5 Sectors	6 Sectors	7 Sectors	Seors	10 Sectors
0600-1329	13:00	12:30	12:00	11:30	11:00	10:30	180	09:00
1330-1359	12:45	12:15	11:45	11:15	10:45	10:15	015	09:00
1400-1429	12:30	12:00	11:30	11:00	10:30	10:00	000	09:00
1430-1459	12:15	11:45	11:15	10:45	10:15	09:45	000	09:00
1500-1529	12:00	11:30	11:00	10:30	10:00	09:30	000	09:00
1530-1559	11:45	11:15	10:45	10:15	09:45	09:15	000	09:00
1600-1629	11:30	11:00	10:30	10:00	09:30	09:00	000	09:00
1630-1659	11:15	10:45	10:15	09:45	09:15	09:00	000	09:00
1700-0459	11:00	10:30	10:00	09:30	09:00	09:00	000	09:00
0500-0514	12:00	11:30	11:00	10:30	10:00	09:30	000	09:00
0515-0529	12:15	11:45	11:15	10:45	10:15	09:45	000	09:00
0530-0544	12:30	12:00	11:30	11:00	10:30	10:00	000	09:00
0545-0559	12:45	12:15	11:45	11:15	10:45	10:15	015	09:00

- (2) The maximum daily FDP when crew members are in an unknown state of acclimatization shall be in accordance with the following table

Table 3

Crew members in an unknown state of acclimatization

Maximum daily FDP according to sectors					
1-2	3	4	5	6	7
11:00	10:30	10:00	09:30	09:00	09:00

- (3) ~~The maximum daily FDP when crew members are in an unknown state of acclimatization and the operator has implemented a FRM, shall be in accordance with the following table:~~

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:

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 acclimatized crew members with the use of extensions without in-flight rest.

- (1) The maximum daily FDP may be extended by up to 1 hour 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.

- (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~~

- (2) When extensions are used for consecutive FDPs, the pre and post flight rest between the two extended FDPs under subparagraph 1 shall be provided consecutively.

The use of the extension shall be planned in advance, and 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;
- (iii). 2 sectors, when the WOCL is encroached by more than 2 hours.

- (4) (3) Extension of the maximum basic daily FDP with rest shall not be combined with extensions due to in-flight duty in the same duty period.

- (5) (4) Flight time specification schemes shall specify 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.

- (e) Maximum daily FDP with the use of extensions due to test Flight time specification schemes shall specify the for extensions of the maximum basic daily FDP with it in accordance with the certification specifications applicable of operation, taking into account:

- (i) the number of sectors flown;
- (ii) the minimum in-flight rest allocated to each crew
- (iii) the type of in-flight rest facilities; and
- (iv) the augmentation of the basic flight crew.

- (f) Unforeseen circumstances in flight operations- Pilot in Charge's (PIC) Discretion

- (1). The conditions to modify the limits on flight duty periods by the PIC in case of unforeseen circumstances in flight operations, which start at or after the reporting time with the following:

- (i). the maximum daily FDP which results after paragraphs (b) and (e) of section 2.2 or section 2.5 be increased by more than 2 hours unless the FDP has been augmented, in which case the maximum duty period may be increased by not more than 3 hours;
- (ii). if on the final sector within an FDP the allowed FDP is exceeded because of unforeseen circumstances, the flight may continue to the planned 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 Pilot in Command 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 Pilot in Command shall consult all crew members on their alertness before deciding the modifications under subparagraphs 1 and 2;
- (4). The Pilot in Command shall submit a report to the operator 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 operator shall add its comments, shall be sent by the operator to CAAB not later than 28 days after the event;
- (6). The operator shall implement a non-punitive process for the use of the discretion described under this provision and shall describe it in the operations manual
- (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.

GM1 2.2 (a) (1) Flight Duty Period (FDP)

REPORTING TIMES

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

GM1 2.2(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 acclimatized.

AMC1 2.2 (f) Flight Duty Period (FDP)**UNFORESEEN CIRCUMSTANCES IN ACTUAL OPERATION-PILOT IN COMMAND'S DISCRETION**

- (a) As general guidance when developing a Pilot in Command's discretion policy, the operator should take into account the shared responsibility of management, flight and cabin crew in the case of unforeseen circumstances. The exercise of Pilot in Command's discretion should be considered and should be avoided at home base and/or company hub by or reserve crew members should be available. Operations on a regular basis the series of pairings where Pilot in Command's discretion has been exercised in order to be aware of inconsistencies in their rostering.
- (b) The operator's policy on Pilot in Command's discretion should state the safety objectives, especially in the case of FDP or reduced rest and should take due account 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 since awake, Sleep-related factor, workload, etc.

GM1 2.2(f)(1)(i) Flight Duty Period (FDP)**PILOT IN COMMAND'S DISCRETION**

The maximum basic daily FDP that results after application should be used to calculate the limits of Pilot in Command's discretion. Pilot in Command's discretion is applied to an FDP which is defined under the provisions of 2.2(d).

2.3 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) 120 hours flight time for flight crew and 125 hours flight time for cabin crew in any 28 consecutive days;
 - (2) 1000 hours flight time for flight crew and 1100 hours flight time for cabin crew in any 12 consecutive calendar months.
- (c) Post-flight duty shall count as duty period. The operator shall specify in its operations manual the minimum time period for post-flight duties.

AMC1 2.3 (c) Flight times and duty periods

POST-FLIGHT DUTIES

The operator should count a minimum of 30 minutes as post-flight duty times taking into account the type of operation, the size and type of aircraft and the airport conditions.

2.4 Positioning

If an operator positions a crew member, the following shall apply:

- positioning after reporting but prior to operating shall be counted as FDP but shall not count as a sector;
- all time spent on positioning shall count as duty period.

2.5 Split duty

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

- (a) flight time specification schemes shall specify the following elements for split duty in accordance with the certification specifications applicable to the type of operation:
 - (1) the minimum duration of a break on the ground; and
 - (2) the possibility to extend the FDP prescribed under point 2.5(b) taking into account the duration of the break on the ground, the facilities provided to the crew member to rest and other relevant factors;
- (b) the break on the ground shall count in full as FDP;
- (c) split duty shall not follow a reduced rest.

2.6 Standby and duties at the airport

If an operator assigns crew members to standby or to the airport, the following shall apply in accordance with the provisions and specifications applicable to the type of operation:

- (a) standby and any duty at the airport shall be in the form of a duty period. The start and end time of standby shall be defined 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 the time of reporting at the reporting point until the end of the notified standby period;
- (c) airport standby shall count in full as duty period in the case of FDP in Section 2.3 and in section 2.8;
- (d) any duty at the airport shall count in full as duty in the case of FDP shall count in full from the airport duty report;
- (e) the operator 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 FDP that may be assigned, considering facilities available to the crew member to rest, and other relevant factors:
 - the need for immediate readiness of the crew member;
 - the interference of standby with sleep;
 - sufficient notification to protect the continuity of rest between the call for duty and the assignment;
 - (3) the minimum rest period following standby shall 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.

2.7 Reserve

If an operator assigns crew members to reserve, the following requirements shall apply in accordance with the certification specifications applicable to the type of operation.

- reserve shall be in the roster;
- Flight time specification schemes shall specify the following elements: the maximum duration of any single reserve period;
- the number of consecutive reserve days that may be assigned to a crew member.

GM 12.7 (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.

2.8 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 operator provides suitable accommodation to the crew member at home base.

(b) Minimum rest period away from home base.

The minimum rest period provided before undertaking an FDP starting away from home base shall be at least as long as the preceding duty period, or 10 hours, whichever is greater. This period shall include an 8- hour sleep opportunity in addition to the time for travelling and physiological needs.

(c) Reduced rest

By derogation from points (a) and (b), flight time specification schemes may reduce the minimum rest periods in accordance with the certification specifications applicable to the type of operation and taking into account the following elements:

- (1) the minimum reduced rest period;
- (2) the increase of the subsequent rest period; and
- (3) the reduction of the FDP following the reduced rest.

(d) Recurrent extended recovery rest periods

Flight time specification schemes shall specify recuded recovery rest periods to compensate for cumulative minimum recurrent extended recovery rest peibe 36 hours, including 2 local nights, and in any case then the end of one recurrent extended recovery rest the start of the next extended recovery rest period shaore than 168 hours. The recurrent extended recovery raall be increased to 2 local days twice every month.

(e) Flight time specification schemes shall specify rest periods in accordance with the applicable ion specifications to compensate for:

- (1) the effects of time zone differences and extension;
- (2) additional cumulative fatigue due to disruptive scl
- (3) a change of home base.

GM1 2.B (a) (2) Rest periods**MINIMUM REST PERIOD AT HOME BASE ILE ACCOMMODATION IS PROVIDED**

An operator may apply the minimum rest period away frase during a rotation which includes a rest period at a crew nme base. This applies only if the crew member does not her residence, or temporary accommodation, because the opeles suitable accommodation. This type of roster is known as ack operation".

AMC1 2.B (b) Rest periods**MINIMUM REST PERIOD AWAY FROM HOME BA**

The time allowed for physiological needs should ur. Consequently, if the travelling time to the suitable accommore than 30 minutes, the operator should increase the rest pericthe amount of difference of travelling time above 30 minutes.

2.9 Nutrition

- (a) During the FDP there shall be the opportunity for a ink in order to avoid any detriment to a crew member'ce, especially when the FDP exceeds 6 hours.
- (b) An operator shall specify in its operations manuaew member's nutrition during FDP is ensured.

AMC1 2.9 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.

2.10 Records of Home base flight times, duty and rest periods

- (a) An operator 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, the operator 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.
- (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.

SECTION 3**CERTIFICATION SPECIFICATIONS AND GUIDANCE MATI
COMMERCIAL AIR TRANSPORT BY AEROPLANE-SCHED
CHARTER OPERATIONS****3.1 Applicability**

These Certification Specifications are applicable to air transport by aeroplanes for scheduled and charters, excluding emergency medical service (EMS), air taxi pilot operations.

3.2 Home base

- (a) The home base is a single airport location assignigh degree of permanence.
- (b) In the case of a change of home base, the first recided recovery rest period prior to starting duty at the new is increased to 72 hours, including 3 local nights. Time between the former home base and the new is positioning.

3.3 Flight duty period (FDP)

- (a) Night duties under the provisions of basic maximum FDP [2.2(b)] and maximum daily FDP for acclimatized crew with use of extension without in-flight rest [2.2(d)] with the following:
 - (1) when establishing the maximum FDP for night duties, the number of sectors is limited to 4 sectors.
- (b) Extension of FDP without in-flight rest:

The extension of FDP without in-flight rest under provisions of 2.2(d) (5) is limited to the values specified in the following table:

Maximum daily FDP with extension

Starting time of FDP	1-2 sectors (in hours)	3 sectors (in hours)	4 sectors (in hours)	5
0600-0614	Not allowed	Not allowed	Not allowed	1
0615-0629	13:15	12:45	12:15	
0630-0644	13:30	13:00	12:30	
0645-0659	13:45	13:15	12:45	
0700-1329	14:00	13:30	13:00	
1330-1359	13:45	13:15	12:45	1
1400-1429	13:30	13:00	12:30	1

Starting time of FDP	1-2 sectors (in hours)	3 sectors (in hours)	4 sectors (in hours)	5 sectors (in hours)
1430-1459	13:15	12:45	12:15	Not allowed
1500-1529	13:00	12:30	12:00	Not allowed
1530-1559	12:45	Not allowed	Not allowed	Not allowed
1600-1629	12:30	Not allowed	Not allowed	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

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

In-flight rest facilities in accordance with 2.2(e)(iii) fulfill 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 ew compartment that reclines at least 40° from the vertical, prnd foot support and is separated from passengers by at leas to provide darkness and some sound mitigation, and is not adjacent occupied by passengers.

(1) the extension of FDP with in-flight rest under the prov2(e) complies with the following:

- (i) the FDP is limited to 3 sectors; and
- (ii) the minimum in-flight rest period is a consecutite period for each crew member and 2 consecutive hought crew members at control during landing.

(2) the maximum daily FDP under the provisions of / 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 mem

Maximum extended FDP	Minimum in-flight res		
	Class1	Class 2	
up to 14:30 hrs	1:30	1:30	
14:31 - 15:00 hrs	1:45	2:00	
15:01 - 15:30 hrs	2:00	2:20	
15:31 - 16:00 hrs	2:15	2:40	
16:01 - 16:30 hrs	0:35	3:00	1
16:31 - 17:00 hrs	3:00	3:25	1
17:01 - 17:30 hrs	3:25	Not allowed	1
17:31 - 18:00 hrs	3:50	Not allowed	1

(4)= the limits specified in (2) may be increased by 1 DP's that include 1 sector of more than 9 hours of ccght 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.
 - (8) In case of augmented flight crew compliment, the PIC will log the total hours of the flight while the rest of the crew will log two third (2/3) of the total flight hours..
- (d). Unforeseen circumstances in flight operations-delayed reporting:
- (1) The operator may delay the reporting time in the event of unforeseen circumstances, if procedures for delayed reporting are established in the operations manual. The operator keeps records of delayed reporting. Delayed reporting procedures establish a notification time allowing a crew member to remain in his/her suitable accommodation when the delayed reporting procedure is activated. In such a case, if the crew member is informed of the delayed reporting time, the FDP is calculated as follows:
 - (i). one notification of a delay leads to the calculation of the maximum FDP according to (iii) or (iv);
 - (ii). if the reporting time is further amended, the FDP starts counting 1 hour after the second notification or at the original delayed reporting time if this is earlier;
 - (iii) when the delay is less than 4 hours, the maxi calculated based on the original reporting time and 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 operator 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 operator, such delay of 10 hours or more counts as a rest period.

GM1 3.3 (c) (1)(ii) Flight Duty Period (FDP)

IN-FLIGHT REST

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

GM2 3.3 (c) (1)(ii) Flight Duty Period (FDP)

IN-FLIGHT REST

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

GM1 3.3 (d) Flight Duty Period (FDP)**DELAYED REPORTING**

Operator procedures for delayed reporting should:

- (a) specify a contacting mode;
- (b) establish minimum and maximum notification time;
- (c) avoid interference with sleeping patterns when possible.

3.4. Split duty

The increase of limits on flight duty, under the provision 2.5, complies with the following:

- (a) the break on the ground within the FDP has a minimum of 3 consecutive hours.
- (b) the break excludes the time allowed for post-flight duties and travelling. The minimum total time for pre-flight duties and travelling is 30 minutes. The operator specifies the actual times in its operations manual.
- (c) the maximum FDP specified in Section 2.2 (b) may be extended by up to 50 % of the break.
- (d) suitable accommodation is provided either for a break or more or for a break that encroaches the wind-off time (WOCL).
- (e) in all other cases:
 - (1) accommodation is provided; and
 - (2) any time of the actual break exceeding 6 hours of the break that encroaches the WOCL does not constitute an extension of the FDP.
- (f) split duty cannot be combined with inflight rest.

GM1 3.4 (b) Split duty**POST, PRE-FLIGHT DUTY AND TRAVELLING TIME**

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

3.5 Stand by

The modification of limits on flight duty, duty and rest under the provisions of Section 2.6 complies with the following:

- (a) Airport standby
 - (1) If not leading to the assignment of an FDP, it is followed by a rest period as specified in Section 2.6.

-
- (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 Section 2.2(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 operator's standby procedures are designed to ensure that the combination of standby and FDP do not lead to more than 18 hours awake time;
 - (3) 25 % of time spent on standby other than airport standby counts as duty time for the purpose of Section 2.3;
 - (4) standby is followed by a rest period in accordance with Section 2.8;
 - (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 Section 3.3(c), or to split duty according to Section 3.4, the 6 hours of paragraph (5) and (6) 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), and (7) until the crew member is contacted by the operator;
 - (10) 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 point within a reasonable time; and
 - (11) stand by ceases if a crew member is contacted for duty but not utilized.

GM1 3.5 Standby**MINIMUM REST AND STANDBY**

- (a) If airport or other standby initially assigned is the operator during standby that does not lead to an additional flight duty period, the minimum rest requirements in Section 2.8 should apply.
- (b) If a minimum rest period as specified in Section 2.8 before reporting for the duty assigned during the same period should not count as standby duty.
- (c) Standby other than airport standby counts (partly) the purpose of Section 2.3 only. If a crew member has an assignment during standby other than airport standby, the reporting time at the designated reporting point should be for the purpose of Section 2.8.

GM1 3.5(b) STANDBY**STANDBY OTHER THAN AIRPORT STANDBY NOTIFICATION**

Operator procedures for the notification of assigned duties other than airport standby should avoid interfering with normal patterns if possible.

GM1 3.5(b)(2) Standby**AWAKE TIME**

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

3.6 Reserve

The operator assigns duties to a crew member on reserve in accordance with the provisions of Section 2.7 complying with the following:

- (a) An assigned FDP counts from the reporting time;
- (b) Reserve times do not count as duty period for the purposes of Section 2.3 and 2.8;
- (c) The operator defines the maximum number of reserve days within the limits of Section 2.8(d);
- (d) To protect an 8-hour sleep opportunity, the operator provides a period of 8-hours, taking into account fatigue, for each reserve day during which a crew member on reserve is not contacted by the operator.

GM1 3.6 Reserve**RESERVE NOTIFICATION**

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

GM2 3.6 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 operator.

GM3 3.6(c) Reserve**RECURRENT EXTENDED RECOVERY REST**

Section 2.8(d) applies to a crew member on reserve.

3.7 Rest Period**(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 (two) FDPs includes 1 (one) 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 Section 2.8(d), the second extended recovery rest period is extended to 60 hours.

(b) Time zone differences

- (1) For the purpose of Section 2.8(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 operator is no longer responsible for the accommodation of the crew member.
- (2) The operator 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

Maximum time difference (h) between reference time and local time where a crew member rests during a rotation	Time elapsed (h) since report first FDP in a rotation involving hour time difference to the ref		
	<48	48-71:59	72-95:5
≤6	2	2	3
≤9	2	3	3
≤12	2	3	4

(ii) Away from home base, if an FDI 4-hour time difference or more, the rest following that FDP is at least as long as the duty period, or 14 hours, whichever is greater. In the case of derogation from point (b)(3)(i) and between 2 recurrent extended recovery, as specified in Section 2.8(d), the rest provided under this point (b)(3)(ii) may be provided at home base if the operator provides accommodation to the crew member.

- (4) In case of an Eastward-Westward or Westward-Eastward transition, at least 3 local nights at home base are provided between alternating rotations.
- (5) The monitoring of combinations of rotations is to be determined under the operator's management system procedure.
- (c) Reduced rest
- (1) The minimum reduced rest periods under such arrangements are 12 hours at home base and 10 hours at port of base.
 - (2) The rest period following the reduced rest by the difference between the minimum rest period in Section 2.8 (a) or (b) and the reduced rest period.
 - (3) The FDP following the reduced rest is the difference between the minimum rest period in Section 2.8 (a) or (b) as applicable and the reduced rest period.
 - (4) There is a maximum of 2 reduced rest periods in 2 recurrent extended recovery rest periods in accordance with Section 2.8 (d).

GM1 3.7(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 operator is no longer responsible for the accommodation of the crew member.

GM2 3.7(b)(3) Additional rest to compensate for time zone differences**REST AFTER ROTATIONS WITH THREE OR MORE FLIGHT DUTY PERIODS**

For a rotation with three or more FDPs, the greatest time zone difference from the original reference time should be used to determine the minimum number of local nights of rest to compensate for time zone differences. If such a rotation includes time zones crossings in both directions, the calculation is based on the highest number of time zones crossed in any one FDP during the rotation.

SECTION 4

Guidance Material on Ultra long-range operations

1. Purpose

This section provides policy and guidance material for th of Bangladesh registered aircraft operating worldwide on regong Range (ULR) operations as described in Paragraph 2 –lity below.

This section will provide methods acceptable to the CAAing equivalent means of compliance and equivalent safety. Thnts and characteristics of a fatigue likely to be accumulated ght operations are also addressed.

2. Applicability

This section applies to all Bangladeshi operators whe on ULR Operations as defined in paragraph 4.2;

3. Introduction

3.1 General

The previous approach to long haul operations has benal increment of historical rules and requirements. This een recognized by the aviation industry and in 2000 a ground manufacturers, operators, regulators and crew organized a working group in cooperation with the Flight Safety Fc

The objective was to create a methodology for Ultrnge operations (ULR) based on experience from all grcthe final meeting in Kuala Lumpur in March, 2003 the cup recommended a general acceptance of an initial opercept based on scientifically based modeling of city pairs and Arrival airports). Included in the recommendations vnes to provide for an acceptable means for determining ient in-flight rest/sleep is required so that crewmembers lert enough to perform duties in a safe manner, followher meeting that took place in Montréal, Canada in Noveand was organized by ICAO to introduce a new standard 6 in relation to the Fatigue Risk Management SystemThe guidance material and policy contained in this secthe above. It was also recognized that the present ANO 6: 11 and the ULR concept, do not adequately address arew operations where more than three pilots are carried. this section 4 addresses the deficiency. Operators shouthe definitions of ULR below.

3.2 Definitions

3.2.1 Ultra Long-Range Operation (ULR)

An operation involving any sector between a specific City Pairing (Point A- Point B-Point A) where the scheduled flight time could exceed 17 hours at any time during a calendar year taking into account the mean and seasonal wind changes.

The maximum permitted, duty period (including ground time) is 22 hours on both a scheduled/planned and actual basis and scheduled/planned flight time shall not exceed 20 hours.

Note: A ULR operation applies to both sectors of a city pair.

3.2.2 FRMS

~~"A scientifically based data driven flexible alternative to prescriptive flight and duty time limitations that forms part of an operator's Safety Management System and involves a continuous process of monitoring and managing fatigue risk".~~

~~*Note: Unless otherwise stipulated in the paragraph, the term crew means flight and cabin crewmember throughout this manual.*~~

4. Crew Avoidance of Excessive Fatigue Operational Requirements

ANO (OPS) 6-1 Appendix 11 which specifies the limitations applicable to flight time and flight duty periods for crew members is for operations of all flight. The following, however, are additional requirements for ULR operation.

4.1 Crew Rest Facilities

Designated crew rest facilities shall be provided on board aircraft and should be certified to an industry standard. These rest facilities comprise not less than two independent rest areas with horizontal bunks and shall provide an environment that is conducive to rest/sleep. Each rest area shall be equipped with a sleeping surface (bunk or equivalent), adequate lighting, air conditioning, independent temperature controls and have noise levels which afford rest and are less than 75 dBA. Humidity enhancement shall be provided, Operators may refer to the FAA Advisory Circular AC 121-31 on crew rest facilities, the Crew Rest Facilities shall be subject to the prior approval of the CAAB or be part of the certification exercise.

4.2 Operations Manual

ULR shall not be conducted unless approved by the Captain in accordance with the provisions of the approved Operations Manual. The Operations Manual shall contain specific instructions to the Captain. A ULR flight meets the following requirements:

(a) ULR Pre-flight and In-flight Rest Planning

A scheme shall be established to provide guidance on the expected preflight preparations and in-flight rest. Flight crew are to be appropriately rested for the ULR flight.

(b) ULR pre-flight Rostering Requirements:

Prior to operating a ULR flight or a ULR Starting Bangladesh, all crew members shall be scheduled off including 03 local nights of rest in base.

(c) ULR Flight Rest Period Away from Base

In the ULR Rostered Duty Assignment, the scheduled free of flying duties away from base shall be at least 03 local nights.

(d) Post ULR Rostered Duty Assignment Rest After embarking on the Next Flight:

All crewmembers shall be scheduled for a minimum of 03 local nights of rest in base upon completion of a ULR pairing followed by any other duty or a ULR flight.

(e) No crew member shall be rostered more than 02 ULR in a consecutive 30 days period.

(f) Travelling Time

Travelling time, other than time spent on position, shall not be counted in the computation of the FDP. When travelling time from the crew member's home aerodrome to the departure aerodrome is in excess of 90 minutes, the crew member concerned shall make rest arrangements at the departure aerodrome, so as to ensure that he/she has the minimum rest period as specified in paragraph (b) above.

(g) Cabin crew shall be provided with a minimum rest period of 3h 50m for any ULR flight.

4.3 Flight Disruptions

(a) At base:

Delayed flights will require a replacement of Crew if the FDP would exceed total of 22:00 hours.

(b) Standby Crew

- (i) At base, the standby crew for a ULR Duty shall be roistered such that the standby flight crew meets the requirements of paragraph 4.2 above.
- (ii) At outstation, the ULR flight crew may be called to operate an ULR FDP after achieving a rest period of at least 24 hours including one local night provided the Commander and one other crew have met the rest requirement of paragraph 4.2 (c) above. The flight crew if has been called out for the ULR FDP will be deemed to have completed a ULR pairing and shall be given the rest provided in paragraph 4.2 (d) above.

4.4 Crew compliment and composition

4.4.1 Flight Crew compliment and composition

- (a) Each ULR flight is to be operated by no less than four (4) pilots of whom two (2) must be pilot-in-command qualified.
- (b) On duty flight crew shall comprise at least two pilots of which one crew member is pilot - in-command qualified.

4.4.2 Cabin Crew Complement and Composition

Each ULR flight is to be operated by the following Cabin Crew complement which will be in accordance with following table:

Aircraft Type	Crew Composition
B787/900	14
B777/300	16

~~*** The provisions for cabin crew compliments for B777/300 ER has been kept as the aircraft has the capability for ultra long range flights. However, the provisions will be implemented as and when the aircraft is ready with appropriate ULR rest facilities for the cabin crew.~~

The required crew complement shall include at least two Chief Pursers for each ULR sector with at least one Chief Purser on duty at all times.

5. Application and Approval Process

5.1 General

In order to obtain approval to conduct ULR operations, an operator must satisfy the CAAB that the proposed operation can be conducted safely. The application and approval process sequentially are as follows:

- (a) Submission of an operational plan by the operator including the fatigue management;

- (b) Authorization to commence trial by the CAAB;
- (c) Validation by the operator,
- (d) Validation results and final approval by the CAAB, and
- (e) Ongoing safety oversight/audit;
- (f) Deviations from this circular requirement are not permitted if the operator based on the CAAB FRMS requirements has the FRMS.

Areas to be considered by the Operator:

The following areas are to be considered by the Operator at the submission of an ULR Operational Plan:

- (a) Aircraft entry into service and/or proposed route schedule
- (b) Rostering and scheduling procedures, including rostering software programmes;
- (c) Training and education requirements;
- (d) The regulatory process;

5.2 Approval Process

The approval process will require at least the following:

- (a) Evaluation phase
 - (i) Submission of the proposed operational plan;
 - (ii) Consideration of the proposed operational plan by the CAAB. This should be an interactive process between the operator and the CAAB;
 - (iii) Submission of a draft Operations Manual amending the proposed operational plan;
 - (iv) Initial approval by the CAAB as a Letter of Approval for a limited time period.
- (b) Final approval
 - (i) Submission of the validation results based on the validation programme;
 - (ii) Consideration of the validation results by the CAAB. If the CAAB has any requirements for modification of the regulations, further validation is required;
 - (iii) Final approval as an amendment to the Operations Manual.

6. Operational Plan

6.1 General

The operational plan must be developed using a scientifically-based approach, or equivalent, to achieve an acceptable level of safety. The objective is to determine the best strategies for preflight, in-flight and recuperative rest, scheduling and rostering.

6.2 Equivalent Approach

An equivalent approach to achieve an acceptable level of safety may be based on operational experience. It may include the applicant's previous experience in operations to long haul flights, as defined by the CAAB in ANO 6-1 Appendix 11 (Section 4) or another operator's modelling information or validation programme between similar flights. However, it must be considered that another operator's schedule to the same or similar flights may not be appropriate due to their individual work practices, departure time windows, crew complement and rest facilities etc.

6.3 Content of Operational Plan

6.3.1 General:

The operational plan, and associated modelling, must be predicated on specific schedules and rest strategies based on those schedules. The operational plan is therefore only valid for those schedules and strategies.

6.3.2 Schedules:

Scheduling is normally a commercial function of an operation. However, the operational management must ensure that the commercial department is fully aware of these requirements so that the schedule is realistic and generally not changed.

6.3.3 Flight Crew Complement:

For initial operations on a ultra-long range flight, the number of crew required would need to be assessed by acceptable scientific means and industry operational experience available at the time. Following this assessment, if there is a discrepancy between the two recommendations, best practice would advocate adopting the higher crew complement. Initially, the CAAB shall require a minimum of 4 pilots for ULR operations.

6.3.4 Crew Qualifications:

Crews should have adequate operational experience including previous long- haul flights where augmented crew and time zone change rest strategies have been utilized. For ULR flights, the crew complement must include at least two pilots, who hold Pilot -in-Command qualifications and at least two, but preferably all, should be qualified for the take-off and landing phases of flight. A Pilot-in-Command qualified crewmember must be at the controls at all times excluding operator authorized breaks.

6.3.5 Cabin Crew Complement:

The cabin crew complement shall be at least the minimum required by the CAAB. Sufficient augmented cabin crew shall be provided to enable adequate rest on board for all cabin crew. The operator shall have a policy to address last minute changes to ensure the complement is met and the rest strategy is not compromised. The operator must develop a cabin crew requirements and include it in the Operations Manual.

6.3.6 Standby System

There shall be a robust standby crew system in place. The operator shall demonstrate to the CAAB that their standby system will ensure that a crewmember assigned to a ULR or special operation duty from standby can fulfil the rest requirements. Where a standby crew system is utilized, crewmembers shall be aware of the planned assignment to address the departure window.

6.3.7 Departure Time Windows

Departure time windows from base and outstation shall be clearly defined in the operational plan and should be derived by efficient or equivalent means.

6.3.8 Rest Strategy

There shall be a rest strategy for flight and cabin crew on duty. Rest must be provided to the operating flight and cabin crew as standby crew members. It is required that for the rest strategy requirements should take into account both primary and recuperative rest that meets the modelled needs or equivalent, covering the strategies for:

- (a) Pre-flight rest
- (b) In-flight rest
- (c) Post-flight rest

6.3.9 Contingencies:

The operational plan must also include strategies for the following operational considerations such as:

- (a) Standby activation;
- (b) Exceptional circumstances/commander's discretion;
- (c) MEL limitations on crew rest facility;
- (d) Plans to cope with delays and disruptions, including;

7. Documentation

The Operations Manual shall address all of the above, in the appropriate operational, cabin crew and training sections, as well as any additional MEL items associated with a crew rest facility.

An operator will need to revise existing sections of an approved Flight and Duty Time scheme to address these long-range operations as the ANO 6-1 Appendix I I basis of a scheme may no longer apply. For example, standby provisions, duty flight crew, crew augmentation, crew rest facilities and the use of dedicated standby crew.

8. Validation Programme

8.1 Responsibility

Validation is the operator's responsibility and is required from the commencement of operations.

8.2 Objective

The objective is to validate the agreed assumptions on which the operational approval is based.

For example, the particular flight, aircraft type(s), departure windows, routing pre-flight and recuperative rest, crew complement, in flight rest strategy, adequacy of facilities etc.

8.3 Process

The operator must constitute a committee to supervise the validation process; Validation may consist of both objective and subjective measures and must be shown to be statistically significant with due consideration to sampling size and sampling interval. It should be conducted in two phases:

(i) Initial Validation:

The initial validation should be sufficiently rigorous to ensure operational safety is equivalent to, or better than, current long-haul operations. As a result of initial validation, the operational plan, including any model, may then be adjusted as required and ongoing monitoring will take place.

(ii) On-going Monitoring:

This is the operator's responsibility and should be part of the duties of the operator's selected committee for validation;

8.4 Validation Re-assessment

An assessment should be conducted to determine if re-validation is required whenever there is any change to;

- (a) The operational model;
- (b) City pair/cluster;

- (c) Departure window;
- (d) Major route changes;
- (e) Aircraft type; and
- (f) Periodically, as an on-going monitoring process should also assess human and social factors, such as:
 - (i) Crew demographic change (age distribution, etc);
 - (ii) Crew basing;
 - (iii) Medical input
- (g) It may use software validated for reliability and in
- (h) Includes a crew reporting mechanism with associated.

8.5 CAAB's Recommendations to the operators:

- (a) Ensure that the operator's FTL ULR policy identifies commitment to open and positive fatigue-relief mechanisms and describe the conditions under which action would be applicable. This is to be carried out following consultation with the designated line flight crew representatives in order to establish a mutually agreeing system for identifying fatigue risks. A clear statement of the mechanisms and disciplinary policy is particularly important to build the trust required to assure the reliable return is fundamental to FTL policy;
- (b) Operators shall define the FTL for ULR through management in consultation with other stakeholders including flight and cabin crew representatives, in the spread responsibility for the FTL and they shall enable the level its objective;
- (c) Reports or data including notifiable events that suggest safety issues should be provided timely to the CAAB. The operators should propose satisfactory processes to mitigate safety issues;
- (d) Operators should develop a mechanism for providing continuous feedback to the stakeholders including flight crew and should periodically assess whether the communication channels are effective;

- (e) Operators should develop and use a methodology that will continually assess the effectiveness of fatigue management systems implemented by operators through FTL, including their ability to improve sleep and alertness, mitigate performance errors, and prevent incidents and accidents;
- (f) Operators have to develop fatigue management training guidance material which is route specific to include rest strategies, Duty/rest provisions to cover the entire ULR operation from pre-duty, in-flight, layover, and return-to-base rest for both flight crew and cabin crew and follow up on the crew responsibility to implement those strategies;
- (g) Operators have to publish in advance the flight/cabin crew on-board rest cycle to plan their rest before reporting for duty;
- (h) Operators have to establish and implement process for adapting best practices for assessment & evaluation of fatigue management programs;
- (i) Operators have to ensure flight and cabin crew fatigue data is motored from actual operating environments.

9. Training

Operators shall provide appropriate training, and where appropriate educational awareness, to ground and flying staff associated with these operations. This should include, but is not limited to, operational and commercial management, flight and cabin crew, scheduling and rostering staff, operational control staff and airline medical service providers. Training and educational awareness should be tailored to the job description, as appropriate. The curricula should include, but is not limited to, the following:

- (a) Consequences of fatigue on aviation safety;
- (b) Physiology of sleep;
- (c) Circadian rhythms and consequences;
- (d) Sleep and alertness strategies;
- (e) Diet and hydration;
- (f) Prescription and non-prescription medication;
- (g) In-Flight environment;
- (h) Work scheduling;
- (i) Consequence of delays, flight disruptions and diversions.