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**Circular**

Sub: **Additional Flight & Duty Time Guidance for Ultra Long range Operations (ULR) and Other Specific Long Range (SLR) Operations**

**1. Purpose**

This Civil Aviation Advisory Circular provides policy and guidance material for the operation of Bangladesh registered aircraft operating worldwide on regular Ultra Long Range (ULR) operations as described in Paragraph 2 – Applicability below.

This circular will provide methods acceptable to the CAAB for showing equivalent means of compliance and equivalent safety. The requirements and characteristics of a fatigue likely to be accumulated in ULR flight operations are also addressed.

**2. Applicability**

This guidance material applies to all Bangladeshi operators when operating on ULR Operations as defined in paragraph 4.2;

**3. Introduction**

**3.1 General**

The previous approach to long haul operations has been an informal increment of historical rules and requirements. This has long been recognized by the aviation industry and in 2000 a group of concerned manufacturers, operators, regulators and crew organizations created a working group in cooperation with the Flight Safety Foundation.

The objective was to create a methodology for Ultra Long-Range operations (ULR) based on experience from all groups. After the final meeting in Kuala Lumpur in March, 2003 the working group recommended a general acceptance of an initial operational concept based on scientifically based modelling of city pairs (Departure and Arrival airports). Included in the recommendations were guidelines to provide for an acceptable means for determining what sufficient in-flight rest/sleep is required so that crewmembers would be alert enough to perform duties in a safe manner, followed by another meeting that took place in Montréal, Canada in November 2009 and was organized by ICAO to introduce a new standard of Annex 6 in relation to the Fatigue Risk Management System (FRMS). The guidance material and policy contained in this CAAB circular reflects the above.

It was also recognized that the present ANO 6-1 Appendix 11 and the ULR concept, do not adequately address augmented crew operations where more than three pilots are carried. This Circular addresses this deficiency. Operators should refer to the 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” (ICAO).

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 CAAB and in accordance with the provisions of the approved Operations Manual. The Operations Manual shall contain specific instructions to ensure that the ULR flight meets the following requirements:

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

A scheme shall be established to provide guidance to the crew on the expected pre-flight preparations and in-flight rest to be taken. 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 Standby departing Bangladesh, all crew members shall be scheduled for 02 days 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 period free of flying duties away from base shall be at least 48 hours.

(d) Post ULR Rostered Duty Assignment Rest At Base Before embarking on the Next Flight:

All crewmembers shall be scheduled for a minimum of 2 days off including 03 local nights of rest in base upon completion of a ULR pairing followed by any other duty or a ULR pairing.

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

(f) Travelling Time

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

(g) Cabin crew shall be provided with a minimum in flight 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 projected FDP would exceed total of 22:00 hours.

(b) Standby Crew

- (i) At base, the standby crew for a ULR Duty shall be rostered such that the standby flight crew meet 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) The 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 ER***	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 class 1 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 unless the operator based on the ICAO FRMS requirements has established the FRMS.

Areas to be considered by the Operator:

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

- (a) Aircraft entry into service and/or proposed route schedule;
- (b) Rostering and scheduling procedures, including roosting computer 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 CAAB and the operator;
  - (iii) Submission of a draft Operations Manual amendment reflecting 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. There may be requirements for modification of the regulatory basis and further validation required;
  - (iii) Final approval as an amendment to the operator's 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 pre-flight, 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 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 carried to enable adequate rest on board for all cabin crew members. The operator shall have a policy to address last minute cabin crew "no -shows" to ensure the complement is met and the proposed rest strategy is not compromised. The operator must develop the 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 specific long-range operation duty from standby can fulfil the pre-flight rest requirements. Where a standby crew system is utilized, crewmembers shall be aware of the planned assignment to address delays beyond the departure window.

### **6.3.7 Departure Time Windows**

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

### **6.3.8 Rest Strategy**

There shall be a rest strategy for flight and cabin crew. Guidance on rest must be provided to the operating flight and cabin crew as well as standby crew members. It is required that for the operation, rest requirements should take into account both preparatory and recuperative rest that meets the modelled assumptions, 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 dealing with 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 diversions;





## **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 11 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 et c.

### **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 which should also assess human and social factors, such as:
  - (i) Crew demographic change (age distribution, gender distribution, etc);
  - (ii) Crew basing;
  - (iii) Medical input
- (g) It may use software validated for reliability and integrity;
- (h) Includes a crew reporting mechanism with associated feedback.

#### 8.5 CAAB'S Recommendations to the operators:

- (a) Ensure that the operator's FTL ULR policy identify management commitment to open and positive fatigue-related reporting mechanisms and describe the conditions under which disciplinary action would be applicable. This is to be carried out in an ongoing consultation with the designated line flight and cabin crew representatives in order to establish a mutually agreeable reporting system for identifying fatigue risks. A clear statement about the mechanisms and disciplinary policy is particularly important to build the trust required to assure the reliable reporting that is fundamental to FTL policy;
- (b) Operators shall define the FTL for ULR policy through management in consultation with other stakeholders, including flight and cabin crew representatives, in the spirit of shared responsibility for the FTL and they shall enable the FTL to achieve its objective;
- (c) Reports or data including notifiable events that suggests negative safety issues should be provided timely to the CAAB and the operators should propose satisfactory processes to mitigate any safety issues;
- (d) Operators should develop a mechanism for providing open and continuous feedback to the stakeholders including flight and cabin 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.



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