

**Quick Reference Guidance
(QRG)**

Alleviation Title	Variations to existing flight and duty time limitations
Version	1.1
Publication Date	21 May 2020
Relevant Standard(s)	<p>Annex 6 Part I – 4.10 Fatigue Management Annex 6 Part III, Section II – 2.8 Fatigue Management</p> <p>This guidance applies to the entire sections as listed above, with particular reference to:</p> <p>Annex 6 Part I – International Commercial Air Transport — Aeroplanes ... 4.10.2 The State of the Operator shall require that the operator, in compliance with 4.10.1 and for the purposes of managing its fatigue-related safety risks, establish either:</p> <ul style="list-style-type: none"> a) flight time, flight duty period, duty period limitations and rest period requirements that are within the prescriptive fatigue management regulations established by the State of the Operator; or b) a Fatigue Risk Management System (FRMS) in compliance with 4.10.6 for all operations; or c) an FRMS in compliance with 4.10.6 for part of its operations and the requirements of 4.10.2 a) for the remainder of its operations. <p><i>Note. — Complying with the prescriptive fatigue management regulations does not relieve the operator of the responsibility to manage its risks, including fatigue-related risks, using its safety management system (SMS) in accordance with the provisions of Annex 19.</i> ... 4.10.3 Where the operator adopts prescriptive fatigue management regulations for part or all of its operations, the State of the Operator may approve, in exceptional circumstances, variations to these regulations on the basis of a risk assessment provided by the operator. Approved variations shall provide a level of safety equivalent to, or better than, that achieved through the prescriptive fatigue management regulations.</p>

	<p>Annex 6 Part III – International Operations – Helicopters</p> <p>...</p> <p>2.8.2 The State of the Operator shall require that the operator, in compliance with 2.8.1 and for the purposes of managing its fatigue-related safety risks, establish one of the following:</p> <ul style="list-style-type: none"> a) flight time, flight duty period, duty period limitations and rest period requirements that are within the prescriptive fatigue management regulations established by the State of the Operator; or b) an FRMS in compliance with regulations established by the State of the Operator for all operations; or c) an FRMS in compliance with regulations established by the State of the Operator for a defined part of its operations with the remainder of its operations in compliance with the prescriptive fatigue management regulations established by the State of the Operator. <p><i>Note. — Complying with the prescriptive fatigue management regulations does not relieve the operator of the responsibility to manage its risks, including fatigue-related risks, using its safety management system (SMS) in accordance with the provisions of Annex 19.</i></p> <p>...</p> <p>2.8.4 Where the operator complies with prescriptive fatigue management regulations in the provision of part or all of its services, the State of the Operator:</p> <p>...</p> <p>b) may approve, in exceptional circumstances, variations to these regulations on the basis of a risk assessment provided by the operator. Approved variations shall provide a level of safety equivalent to, or better than, that achieved through the prescriptive fatigue management regulations.</p>
CCRD entry required	No
Problem Statement	<p>Due to Covid-19 generated circumstances (such as restrictions / quarantine requirements at flight destination or origin, or the need to enable urgent medical supply flights and flights for repatriation of people) temporary measures to increase flight and duty limits and/or reduce rest requirements (period and / or facilities) may be required.</p> <p>These extended operations need to consider all risks and implement the appropriate mitigations to be done safely. As some of these extended operations are beyond current operational experience with little or no evidence as to their safety implications, it is particularly important for States to ensure operators apply safety management principles to manage fatigue</p>

	<p>risk linked to extended operations, in a way that supports adequate crew performance and recovery.</p>
<p>Applicability</p>	<ul style="list-style-type: none"> • All other options have been evaluated and have been found to have an unacceptable level of safety risk for the operating crew and/or passengers carried. • Alleviations are to be limited to one-off flights or very short-term operations and should be applicable only for the duration of the COVID-19 outbreak. • The Operator’s SMS demonstrates effective identification and management of fatigue hazards or the Operator has an approved FRMS.
<p>Alleviation summary</p>	<p>An alleviation to permit, under controlled and monitored conditions, flight operations beyond those normally permitted either under a State’s prescriptive limitations or an Operator’s approved FRMS.</p>
<p>Operational context</p>	<ul style="list-style-type: none"> • The operator develops a comprehensive risk assessment related to the proposed operation including the cumulative effect of multiple alleviations. (See <i>OPS QRG Recency</i> and <i>OPS QRG Flight Crew Training Programmes</i>, <i>OPS QRG Cabin Crew Recurrent Training Requirements</i> and <i>OPS QRG minimum cabin crew requirements when transporting cargo in the passenger cabin</i>). • The Operator’s safety risk assessment should be based on the framework detailed in 4.2.3 of Doc 9966. • The Operator’s safety risk assessment has identified: <ul style="list-style-type: none"> – The circumstances in which the alleviation may be used; – The operations to which the variations may be applied; – The necessary mitigations to address the increased fatigue risks; – The flight and duty period limits and rest requirements (including pre- and post-trip pattern); – How the need for adequate sleep, for limiting periods of wake, circadian effects and workload are to be addressed; – A contingency plan(s) that covers operational and fatigue related issues that may arise during the flight (i.e. technical problems, weather, delays, crew unfit to continue duty); – The effect of a combination of multiple alleviations; – The number and qualifications of crew members necessary to ensure safe operations. • The State of the Operator has evaluated and approved the operator’s route-specific safety risk assessment and the proposed mitigations. <i>(Refer to additional information provided below this QRG)</i>

<p>Possible Mitigations and Solutions</p>	<p>With increasing extensions to FTLs, fatigue-related considerations, the range of necessary mitigations and contingency options, will also increase. Everything is proportionate to the level of safety risk posed by extension being requested.</p> <ul style="list-style-type: none"> • Additional pre-trip rest to ensure fitness for duty, and post-flight rest after the specific operation to reduce fatigue carried over to subsequent duties • Plan to use pre-notified crew for extended duty operations, and ensure reserve/standby crew is aware of potential for extended duty. • At the commencement of the initial duty, the crew is acclimatised to the time zone of departure • Avoiding use of the same crews for subsequent extended operations • Appropriately augmented flight and cabin crews as required by the safety risk assessment for each rotation • Adjusting rosters to avoid critical phases of flight during the window of circadian low (WOCL) • Methods to maximise in-flight rest time allocation for all crew in support of optimising crew alertness • Provision of appropriate facilities for on-board sleep and protected cabin spaces (away from passengers, cargo) to support rest • Food and beverages are readily available for the duration of the duty • Revised dispatch criteria to avoid issues that might cause undue workload or fatigue • Operating within the weekly / monthly limits for duty, rest and flight time • Crew are provided with the flexibility to allocate rest and operational duties on the day to manage actual sleep / alertness needs of the crew • Fatigue awareness and management briefings to crew sufficiently ahead of commencement of operations • Provision of airport hotel facilities to limit transit time and challenges generated by the Covid-19 situation • Enhanced fatigue monitoring to be established for operations under this alleviation
<p>Alleviations likely to be unacceptable to other States</p>	<ul style="list-style-type: none"> • Alleviations without documented approval from the State of the Operator • Operators using this temporary alleviation for reasons not associated with Covid-19 restrictions

References:

- Manual for the Oversight of Fatigue Management Approaches (Doc 9966), Second Edition, Version 2 – with particular reference to Section 4.2.3
- IATA/ICAO/IFALPA Fatigue Management Guide for Airline Operators

Both can be found at:

<https://www.icao.int/safety/fatiguemanagement/Pages/Resources.aspx>

This guidance has been developed by ICAO with the support of SME's made available from States and Industry through different ANC panels, study groups and other expert groups.

Further Examples of Fatigue-related Safety Case Considerations

Where alleviations to flight and duty limits are sought, the Operator must provide a safety case. Such a safety case needs to clearly identify and address ALL risks, including those related to fatigue. Within a safety case, particular attention is needed when multiple alleviations are being used at the same time.

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The lists below complement the flight and duty time alleviations QRG and are designed to support the regulator in evaluating an Operator's safety case to use such alleviations. They provide additional bullet points on possible fatigue-related considerations and contingencies that may need to be addressed within a safety case to support temporary extended operations during the COVID-19 pandemic. They identify areas that have frequently been included in approved safety cases to support FTL variations or FRMS applications.

It would be insufficient for a safety case to only list such items, without providing more details and evidence of methods and procedures to be used.

States are reminded to review the guidance in Doc 9966 for further information on evaluating fatigue aspects in safety cases. This includes more detailed background on the scientific principles, fatigue risk assessment processes and assurance methodologies. They are also reminded to review the associated supporting implementation manual. These manuals are available for free download at: <https://www.icao.int/safety/fatiguemanagement/Pages/Resources.aspx>

Considerations

- Levels of augmentation and qualification of crew members should be commensurate with the risk level of the operation. Emphasis should be placed on having the most rested crew members in control seats (and at crew stations / assigned exits for cabin crew) during the critical phases of flight.
- For multiple sector augmented flights, the sector length must allow for adequate inflight sleep. If the sectors are too short, there might not be adequate opportunity for sleep. If the flight duty period has a long sector followed by short sectors, it can drive greater time awake.
- Where crew are expected to obtain in-flight sleep, in-flight facilities must be in line with the fatigue-related science and adequate to facilitate sleep.
- Pre and post flight rest periods must be enable the crew to be fully rested prior to operation and allow for a full recovery from an unknown level of sleep loss after the operation. Examples include:
 - For FDP's of up to 21 hours, all crew shall be acclimatised at the start of the FDP with a minimum rest time free from all duties, which includes pre-notified 3 local nights, prior to operating flights and 3 local nights upon return to base under this Exemption

- For FDP's over 21 hours, all crew shall be acclimatised at the start of the FDP with a minimum rest time free from all duties, which includes pre-notified 3 local nights, prior to operating flights and 4 local nights upon return to base,
- The departure times should reflect a window(s) for optimal crew alertness.
- Fatigue can accumulate across a roster pattern, not just in relation to a single trip. Does the operator identify a method, either within the SMS process or within an approved FRMS, to assess cumulative fatigue of the full roster pattern?
- Where bio mathematical models are used by the operator to predict fatigue levels associated with the proposed flight and duty extensions, does the operator clearly understand its limitations? Was operational experience also used to develop the safety case for these flights?
- Is there evidence of crew support and involvement in the development of the safety case, where possible?
- Is there evidence that the operator has considered other Human Factors considerations, (e.g. confinement to room on layover, stress, etc.) within the safety case?
- What processes has the operator put in place to ensure timely analysis and processing of FDM, ASR/MORs and crew fatigue reports generated from these flights in order to address any issues without delay?
- The period to which a Captain can use his/her discretion to extend an operation may need to be reduced in already extended operations.
- Has the impact of State restrictions on entry/exit and quarantine of crew members been addressed?
- How will crew members make it home safely at the end of the extended duty?

Contingency Planning

- Use of controlled rest: In accordance with Fatigue Management Implementation Guide for Airline Operators
- Diversions: Operators should identify safe airports for diversions for either operational or fatigue related issues during the operation.