

Assessment of Flight and Duty Time (FDT) Schemes Procedure

Purpose

This procedure presents the CAA's position on flight and duty time (FDT) schemes and the assessment methodology in the current regulatory framework. It lays out the expectations of the CAA and the process it currently uses to assess schemes for the regulation of flight and duty times.

This procedure needs to be applied alongside the general requirements under the Health and Safety at Work Act 2015 (HSWA) for persons conducting a business or undertaking (PCBU¹) and workers to manage fatigue risk in the workplace.

Scope

This procedure applies to all air operators certificated under Civil Aviation Rule Parts 119/121, 119/125 or 119/135, and adventure aviation operators certificated under Part 115. In the context of this procedure these participants will all be referred to as "operators".

These operators are required to establish schemes for the regulation of flight and duty times of flight crew members as per Rules 121.803, 125.803, 135.803 and 115.401.

Although these Rules pertain to flight crew members, the CAA *recommends* that operator's FDT schemes include provision for flight attendants, consistent with international standards².

The CAA recognises that the effective management of fatigue risk is more than just prescribing flight, duty, and rest times and that there have been scientific and regulatory developments since the rules were established.³

Managing fatigue

Operators must establish schemes for the regulation of flight and duty times (FDT schemes) of flight crew members as a means to manage fatigue-related risk. These are assessed by the CAA and must be acceptable to the Director.

1. Air operators are required to establish flight crew member FDT schemes
2. The Director must assess and accept these
3. AC119-2 provides guidance on schemes that are acceptable to the Director
4. The procedure outlines CAA's assessment process, and the elements it will consider if operators submit schemes outside of AC119-2

¹ PCBU is defined in s17 of the Health and Safety at Work Act 2015.

² Refer ICAO Annex 6 Part I – *International Commercial Air Transport – Aeroplanes* and ICAO, IATA, IFALPA *Fatigue Management Guide for Airline Operators*.

³ Refer ICAO Annex 6 Part I – *International Commercial Air Transport – Aeroplanes*, Appendix 7.

FDT schemes require the definition of limits on flight, duty, and rest times. These must be set after consideration of certain factors impacting fatigue (for example type of operation, circadian rhythm, etc.). There are 21 factors in Rules 121.803, 125.803 and 135.803, and 11 in 115.401.

Acceptable schemes

CAA Advisory Circular AC119-2 Air Operations – Fatigue of Flight Crew provides guidance and different sets of limits. When applied and followed in full, this AC is deemed to be an acceptable means of compliance for all types of air operations – air transport operations, commercial transport operations and adventure aviation operations.

Alternative schemes

The options in AC119-2 are not the only FDT schemes the Director can find acceptable. They were established to provide an acceptable means of compliance in certain, generic operating circumstances. The Rules provide operators with the flexibility to develop schemes that fit their specific operations.

Although the Rules do not specify that FDT schemes must be supported by a risk management process, the CAA considers that risk management is an essential part of any management system or safety-related process. This is supported by section 12 of the Civil Aviation Act 1990 and is consistent with SMS principles. This is also consistent with operator responsibilities for managing risks under HSWA.

Operators are best placed to understand the hazards and risks in their operations and thus establish flight crew rostering and scheduling systems that minimise fatigue-related risk given their operating context, and flight and pilot profiles. At the same time, it is difficult for operators to have the in-house expertise to draft a scheme that would give them reasonable confidence that the rostering and scheduling system would suitably mitigate fatigue risk and achieve the same or a greater level of safety as the published prescriptive limits.

The CAA therefore expects an operators' proposed scheme to be based on appropriate scientific principles thus providing confidence that the fatigue risk is being managed appropriately. Seeking validation and endorsement of their proposed schemes by a qualified and recognised fatigue management expert⁴ prior to presenting it to the CAA provides confidence that expert scientific advice was applied to the scheme(s).

The Sleep/Wake Research Centre at Massey University and the Human Factors & Safety University Research Centre of CQ University in Australia are recognised for their expertise in fatigue and fatigue management schemes in transport. They are not the only options, but if an operator chooses another institution, we suggest they seek the CAA's advice to determine if they are acceptable before committing and spending resources to develop or assess a scheme.

⁴ A recognised fatigue management expert would satisfy the following criteria:

- They are regularly published and cited in peer-reviewed scientific publications.
- They regularly contribute to fatigue management events.
- They are regularly sought by transport operators to develop and review fatigue management schemes.
- They are established in accredited universities and have recognised research facilities.

Roles and responsibilities

The Deputy Chief Executive Aviation Safety is responsible for this procedure, ensuring it is regularly reviewed and maintained in accordance with CAA document control policies and procedures.

CAA inspectors are responsible for applying this policy, assessing FDT schemes and, within the scope of their delegations, approving them. For schemes falling outside of the requirements of AC119-2 they are to assess whether the scheme has been endorsed by a recognised fatigue management expert.

Operators are responsible for establishing and maintaining FDT schemes, submitting schemes for CAA acceptance, and demonstrating that the schemes meet the requirements of AC119-2, or that they provide the same or a greater level of safety if the parameters are outside AC119-2.

Operators are also responsible for monitoring the effectiveness of their schemes in achieving desired safety performance, consistent with SMS or quality assurance principles, as applicable.

Process

This section outlines how the CAA will process applications and assess FDT schemes.

Application

1. Initial and re-entry into the civil aviation system

The FDT scheme is a mandatory programme that operators must have before they can be certificated and participate in the New Zealand civil aviation system. It must be documented in the operator's exposition required by 119.81 or 119.125, or 115.79.

It is the operator's responsibility to demonstrate to the CAA that they meet all the regulatory requirements and can operate safely. For FDT schemes, this means the application should make it clear whether the proposed scheme follows AC119-2 or not. Good and clear demonstration through well documented policies, systems and procedures will facilitate the CAA's assessment.

2. Amendment

Operators may wish to make changes to their FDT schemes to reflect changes in their operations or to make potential efficiency gains for instance. They are required to seek prior acceptance of the changes by the Director as per 119.165(b)(9) or 115.109(b)(8). Such changes must follow this same process.

Assessment

1. Meeting AC119-2 requirements

Where an operator has indicated that their FDT scheme meets the requirements of AC119-2, it is likely the CAA's assessment will be straightforward, provided it is convinced through the exposition that all the requirements are met and the scheme is appropriate, taking into account the size of the organisation, the nature of its operations and the complexity of the activities undertaken.

2. *Alternative schemes outside AC119-2*

Where an operator has indicated that their FDT scheme is outside the requirements of AC119-2, the application must be supported by evidence that the scheme has appropriate fatigue management scientific endorsement. This endorsement will signify that the scheme:

- is consistent with scientific principles regarding the management of fatigue;
- has taken into account operational experience from the operator; and
- meets the criteria of Rules 121.803, 125.803, 135.803, or 115.401 as relevant.

Alternative FDT schemes must demonstrate an equivalent or greater level of safety than prescribed schemes and must fit into the organisation's system for safety management or internal quality assurance currently required by the Rules. The presence and effectiveness of the following processes and systems will provide confidence to the CAA that an operator's application meets the required standards including the HSWA responsibility to manage fatigue in the workplace:

- Procedures and tools for creating flight assignments and assigning crew members (roster, schedule) which incorporate the FDT scheme and related risk management;
- Operator policies which outline crew responsibilities for managing fatigue and reporting fatigue related hazards and occurrences;
- Internal fatigue reporting system (this is part of hazard identification);
- Monitoring system that is both reactive (analysing the data from the reporting system) and proactive (for example interviewing staff on various rosters without waiting for fatigue reports in an effort to gain insight into as yet undisclosed fatigue related issues);
- Training and competency assessment processes, for personnel who may be affected by or have an impact on fatigue, including crew rosterers and schedulers. This should include training on the causes and consequences of fatigue, mitigation strategies, as well as company policies and procedures;
- Engagement and communication processes to ensure the participation of staff, providing them reasonable opportunity to contribute to the decision-making process;
- Consideration of any other relevant factors including non-work-related factors that may increase fatigue, such as personal stressors, adequate sustenance, taking into account the type of organisation, the nature and complexity of its operations, and the contribution workload has on fatigue, etc.

In essence, the CAA will assess the operator's process of developing / validating an FDT scheme and will consider the supporting processes that provide assurance that risks are being managed. These assessments will be on a case-by-case basis and FDT schemes will be assessed on their individual merits.

Demonstration

The CAA's assessment process may not be limited to a desktop review. Certification requires the operator to demonstrate that they have the capability and competence to implement the proposed scheme effectively. This means that process, tools, training, etc. are in use and there is evidence the objectives of the FDT scheme are achieved.

Certification

The CAA will record the acceptance of an FDT scheme on the operator's Operations Specifications as per 119.15 or 115.13.

Further information

Advisory Circular AC119-2 *Air Operations – Fatigue of Flight Crew* (<https://www.aviation.govt.nz/rules/advisory-circulars>).

Advisory Circular AC119-3 *Air Operator Certification – Part 135 Operations* provides general guidance on the development of FDT schemes (<https://www.aviation.govt.nz/rules/advisory-circulars>).

The acceptance of FDT schemes falls within the general activity of certification of aviation organisations. Refer to the CAA's *Certification Policy – Organisations* on the CAA's operational policies webpage (<https://www.aviation.govt.nz/about-us/what-we-do/operational-policies>) for general information on CAA's regulatory approach.