

Fatigue Risk Management Systems (FRMS) Overview & Guidance

Note: This paper supersedes 12HUPBL04 and updates it as a Position Paper

INTRODUCTION

In July 2011, ICAO, IATA, and IFALPA developed and co-branded the first edition of the Fatigue Risk Management Systems (FRMS) Implementation Guide for Operators. This guidance has been adopted around the world as a successful path to implement an FRMS.

Through a process of continuous improvement, the second (2015) edition renamed the Fatigue Management Guide for Airline Operators¹ builds upon the successful collaboration between ICAO, IATA, and IFALPA to describe science-based and operationally orientated fatigue management processes that can be applied to both prescriptive and performance-based (FRMS) fatigue management approaches. The FMG for Airline Operators is designed to be read in conjunction with the [ICAO Manual for the Oversight of Fatigue Management Approaches \(Doc 9966\)](#); the content of both these manuals is based on the work of the ICAO Fatigue Risk Management Systems (FRMS) Task Force. IFALPA participated fully in the work of this Task Force and recommends MAs to develop SMEs specialising in fatigue management who are familiar with contents of these manuals.

ICAO STANDARDS AND RECOMMENDED PRACTICES (SARPs)

The ICAO SARPs for Fatigue Management (including FRMS) are contained in ICAO Annex 6 Part I Section 4.10 Fatigue Management. The Requirements for FRMS are detailed in Appendix 7 of Annex 6 and form part of the ICAO SARPs. The intent of the ICAO SARPs is further amplified in Appendix A to ICAO DOC 9966 Manual for the Oversight of Fatigue Management Approaches 2nd Edition 2016.

In respect to FRMS the following key requirements should be noted:

¹ <https://www.ifalpa.org/media/2279/fmg-for-airline-operators-2nd-ed.pdf>

REQUIREMENTS FOR FRMS

- Prior to the implementation of FRMS, States must have prescriptive fatigue management regulations based on scientific data, since these establish the baseline for benchmarking an FRMS.
- All stakeholders (operators, regulators, and crew) must be involved in FRMS.
- An open reporting and positive safety culture are essential for an FRMS to function as intended.
- A functioning Safety Management System (SMS) is fundamental for the establishment and maintenance of an FRMS.
- All stakeholders need to make themselves fully conversant with the specific requirements for FRMS as detailed in ICAO Annex 6 and the supporting guidance material. A lack of training, knowledge and understanding of the causes and consequences of fatigue will inhibit stakeholders to meet their responsibilities in relation to FRMS.
- States authorising FRMS are required to establish a process that ensures that an FRMS provides a level of safety equivalent to, or better than, prescriptive fatigue management regulations.

FRMS DEVELOPMENT AND IMPLEMENTATION

FRMS is not an off-the-shelf fatigue management solution; each operator must develop their own FRMS that works in their unique operational environment. Building a genuine and functioning FRMS takes time, usually at least one to two years.

It is suggested that FRMS components are developed gradually and an attempt to implement an FRMS all at once should be avoided. This can be achieved by establishing committees, such as an FSAG, prior to the implementation of the FRMS.

The cost of additional resources required for FRMS must be carefully considered before committing to an FRMS approach, and a proper balance maintained between the competing goals of reducing fatigue risk and the productivity gains offered by increased flexibility afforded by FRMS.

FRMS requires considerable resources at both the operator and regulatory level.

The development of an FRMS starts with an FRMS plan. It needs to include items such as a gap analysis, identification of key personnel and the establishment of a FSAG (or its equivalent), FRMS policy statement, FRMS processes, a safety case and an FRMS implementation plan (supported through SMS Management of Change processes).

A gap analysis will reveal the missing aspects to be able to implement FRMS.

The FRMS plan must identify the scope of the operations for which the FRMS is to be applied, and all operations not covered by the FRMS must operate under the applicable prescriptive fatigue management regulations based on scientific data.

The FRMS plan should detail the development of each of the FRMS processes, how they will proceed, and that the operations under the FRMS will demonstrate an equivalent (or reduced) level of fatigue risk compared to the operations that remain within the prescriptive limits. This requires identifying Safety Performance Indicators (SPIs) that will allow a comparison of baseline measures of safety to those expected under the FRMS plan.

Having a variety of SPIs is expected to give a more reliable indication of fatigue levels and of the performance of the FRMS. Implementation of the FRMS requires communication of the FRMS plan to all stakeholders, training for involved personnel (such as crew and those with operational control), a functioning FSAG or equivalent and safety assurance processes for monitoring and managing changes to the FRMS.

A paradigm shift in mindset is needed from both the regulator and operators when considering a change from prescriptive to performance-based regulations.

An FRMS should have continuous monitoring and a regular assessment of the fatigue risk mitigations in the plan. The process should also provide for continuous improvement to the overall performance of the FRMS.

CONCLUSION

Correct FRMS implementation should enhance safety and additionally permit an operator flexibility to conduct operations as an alternative to prescriptive limits. This is achieved through an honest, co-operative participation and data-driven system that can identify fatigue hazards to be assessed, managed, and monitored to reduce fatigue-related risk. The success of an FRMS will depend on management commitment and the allocation of appropriate resources.

However, improper implementation of FRMS that exploits increased operational flexibility to the detriment of safety outcomes will erode safety standards. IFALPA therefore urges all Member Associations to be proactive in engaging in the development and implementation of FRMS regulations where their State regulatory authority makes the option for FRMS available to operators.

Member Associations should continuously monitor the implementation and ongoing practices of the FRMS to ensure the intended safety objectives are achieved. To achieve this, IFALPA encourages MAs to establish and build relationships with key fatigue management personnel in their regulator and those in the management of their operator(s). Member Associations should also adopt a plan to improve the fatigue management expertise of key pilot representatives within their association.

Member Associations should keep in mind that FRMS is not fully understood by many regulators; the implementation of performance-based regulations such as FRMS may be beyond the capabilities of some regulators.
