European Union Aviation Safety Agency

Explanatory Note to ED Decision 2023/023/R

in accordance with Article 4(2) of MB Decision 01-2022

Flight and duty time limitations and rest requirements for commercial air transport with aeroplanes — night duties and late finish duties

RMT.0492, SUBTASK 2

EXECUTIVE SUMMARY

This Decision incorporates the scientific recommendations of the first study on 'Effectiveness of Flight Time Limitation (FTL)' in relation to night duties and late finish duties into the regulatory framework under Commission Regulation (EU) No 965/2012 to mitigate the risk of the onset and accumulation of fatigue for aircrews.

The objective is to prevent the accumulation of abnormal amounts of fatigue for aircrews by considering the latest scientific knowledge and best practices available as regards fatigue risk management.

This is expected to improve safety.

REGULATION(S) TO BE AMENDED	**ED DECISIONS TO BE AMENDED**
N/A	Decision 2014/002/R — 'CS-FTL.1 — Initial Issue' Decision 2014/017/R — 'AMC and GM to Part-ORO — Issue 2'

AFFECTED STAKEHOLDERS

CAT operators of fixed-wing aircraft for the purpose of scheduled and charter operations; flight and cabin crews.

WORKING METHOD(S)		
Development	**Impact assessment(s)**	**Consultation**
By EASA	Light	Focused: EASA Advisory Bodies through NPA 2023-103

Related documents / information

- ToR RMT.0492 (former RMT.0346 (OPS.071(a)), issued on 18.4.2012
- EASA BIS 'Aircrew fatigue', EPAS 2021–2025, February 2020
- First study on 'Effectiveness of Flight Time Limitation (FTL)', published on 28.2.2019
- European Commission's impact assessment of EASA Opinion No 04/2012
- NPA 2023-103 'Flight and duty time limitations and rest requirements for commercial air transport with aeroplanes — night duties and late finish duties'

PLANNING MILESTONES: Refer to the latest edition of the EPAS Volume II.

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1. About this Decision

In 2017, EASA launched research task RES.006 to review the effectiveness of the rules concerning flight and duty time limitations and rest requirements (FTL) contained in Annexes II and III to Commission Regulation (EU) No 965/2012[1] (the Air OPS Regulation). The first phase of RES.006 focused on 'duties of more than 10 hours at the less favourable time of the day' and 'disruptive schedules', and the final report was published on 28 February 2019. This report recommended some enhancements to the applicable rules in relation to safety, and further recommended that EASA include in its safety programming a rulemaking task to amend them.

In 2020, EASA developed a Best Intervention Strategy (BIS) on 'Aircrew Fatigue', which was shared with the Advisory Bodies. It was concluded that the recommendations of the first phase of RES.006 should be included in the current regulatory framework as a specific subtask within the scope of RMT.0492.

Subsequently, the rulemaking activity was included in Volume II of the European Plan for Aviation Safety (EPAS) for 2023–2025[2] as Rulemaking Task (RMT).0492, Subtask 2.

The regulatory material presented in this Decision was developed in line with Regulation (EU) 2018/1139[3] (the Basic Regulation) and the Rulemaking Procedure[4], as well as in accordance with the objectives and working methods described in the related Terms of Reference (ToR)[5].

A first draft incorporating the scientific recommendations of the final report was circulated to experts from industry, aircrew unions and national competent authorities (NCAs), having relevant flight time limitations/fatigue risk management (FTL/FRM) expertise.

Following the initial supportive comments from most of those FTL/FRM experts, EASA prepared Notice of Proposed Amendment (NPA) 2023-103 and submitted it to a focused consultation with the EASA Advisory Bodies. Comments were received from operators, NCAs and aircrew unions. EASA duly considered the comments received. A summary of all written comments to NPA 2023-103 and EASA's reaction to these comments can be found in Section 2.6.

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1 Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 296, 25.10.2012, p. 1) (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32012R0965&qid=1700833848259).

2 https://www.easa.europa.eu/en/document-library/general-publications/european-plan-aviation-safety-epas-2023-2025

3 Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91 (OJ L 212, 22.8.2018, p. 1) (https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1535612134845&uri=CELEX:32018R1139).

4 EASA is bound to follow a structured rulemaking process as required by Article 115(1) of Regulation (EU) 2018/1139. Such a process has been adopted by the EASA Management Board (MB) and is referred to as the 'Rulemaking Procedure'. See MB Decision No 01-2022 of 2 May 2022 on the procedure to be applied by EASA for the issuing of opinions, certification specifications and other detailed specifications, acceptable means of compliance and guidance material ('Rulemaking Procedure'), and repealing Management Board Decision No 18-2015 (https://www.easa.europa.eu/the-agency/management-board/decisions/easa-mb-decision-01-2022-rulemaking-procedure-repealing-mb).

5 https://www.easa.europa.eu/en/document-library/terms-of-reference-and-group-compositions/tor-ops071a-rmt0346

EASA developed this Decision based on the input received during the focused consultation, as well as the feedback received from experts with FTL/FRM expertise.

2. In summary — why and what

2.1. Description of the issue

Aircrew fatigue is a safety risk. Air operators address it through their safety risk management (SRM) process by applying appropriate fatigue risk management (appropriate FRM) or through a dedicated FRM system having a dedicated organisation structure, policy, and procedures. Both means should ensure that fatigue risk is mitigated to a level as low as reasonably practicable.

In addition, regulatory authorities establish legal requirements, also called 'flight time limitations' (FTL), which define the minimum rest and maximum duty times to mitigate fatigue risk in aviation.

The requirements for FTL and SRM/FRM at the EU level are contained in the Air OPS Regulation. Its Article 9a mandates EASA to conduct a continuous review of the provisions concerning flight and duty time limitations and rest requirements.

The first phase of RES.006 studied the impact of night duties and disruptive schedules (including early starts and late finish duties) on the alertness of aircrew, since the results of biomathematical model analysis and of an online aircrew survey indicated that these were the two duty periods ranked as the ones causing increased levels of fatigue. These were further studied by means of field data collection and its analysis.

The research found out that there is an increased probability of high levels of fatigue during night duties and late arrivals, and that the effectiveness of FRM may be improved by increasing operators' and aircrews' awareness of the types of duties amid night duties/disruptive schedules where the risk of fatigue is higher, and by promoting prior sleep opportunities, as well as resting opportunities, during such duties.

This Decision addresses the issues highlighted in the report and its recommendations.

2.2. Assessment of the issue

The final report[6] of the first phase of RES.006 included the following observations:

— Night duties, both those longer and those shorter than 10 hours, are associated with an increased probability of high levels of fatigue at Top of Descent (TOD), which is not fully reflected in the regulatory framework. The current requirements explicitly state the need for appropriate FRM, as well as the importance of obtaining sufficient sleep, in relation to night duties longer than 10 hours, but not for those shorter than 10 hours.

— There is an increased probability of high levels of fatigue at TOD during non-consecutive late finish and non-consecutive night duties, while the prevalence of high levels of fatigue during early starts is very low.

— Three subtypes of night duties can be distinguished and ranked based on the probability of occurrence of high levels of fatigue at TOD:

  • Flight duty periods (FDPs) starting between 2.00 h and 4.59 h;

  • FDPs ending between 2.00 h and 5.59 h, and starting at 1.59 h or earlier;

6 https://www.easa.europa.eu/en/document-library/general-publications/effectiveness-flight-time-limitation-ftl-report

- FDPs ending at 6.00 h or later and starting at 1.59 h or earlier.

— The existence of these three subtypes is currently not considered in the regulatory framework and distinguishing between them could help operators design more effective FRM strategies.

— No significant increase of the probability of high levels of fatigue at TOD is found for disruptive schedules with early starts. A marginal increase is found for mixtures of disruptive FDPs.

— There is a relatively high prevalence of fatigue for consecutive night duties (i.e. at least two in a row). For consecutive late finishes, the results are inconclusive. For consecutive early starts, the prevalence of high levels of fatigue was very low.

The report recommended, among other things, that night duties and disruptive schedules be more closely aligned to an established and science-based model used to predict fatigue and thus ensure its better management.

In particular, the final report made the following six recommendations:

1. to amend the definition of 'night duty' to include the three subtypes mentioned above;
2. that operators apply appropriate FRM to mitigate the fatiguing effect of late finish FDPs, regardless of FDP duration;
3. that operators apply appropriate FRM to mitigate the fatiguing effect of all night FDPs, regardless of FDP duration;
4. that operators pay specific attention to night FDPs ending at 6.00 h or later and starting at 1.59 h or earlier, when applying appropriate FRM to night duties;
5. that the regulatory material clearly states that it is critical for the crew member to obtain sufficient sleep before all night duties, regardless of FDP duration;
6. that operators promote optimum use of sleep opportunities (i.e. before reporting and during the FDP).

Furthermore, the report suggested certain ways to implement the above recommendations:

A. Providing rest facilities to crew members at or near the airport as this would improve the probability of obtaining sleep as close as possible to the start of the night duty. This might imply providing suitable accommodation at the reporting point for napping in the afternoon prior to a night duty and during the FDP when the crew member is on the ground, such as during a long turnaround.

B. A way of improving opportunities for in-flight sleep is the use of an augmented crew on longer flights.

C. Promoting the development and use of controlled rest procedures to enable pilots and cabin crew to take a nap during night FDPs to manage unexpected fatigue. Operators should track the use of controlled rest as it is a very useful indication as to where additional, more effective controls may be necessary.

2.3. Who is affected by the issue

Flight and cabin crew assigned to scheduled and charter CAT operations with aeroplanes.

2.4. What we want to achieve — objectives

The overall objectives of the EASA system are defined in Article 1 of the Basic Regulation. This Decision will contribute to achieving the overall objectives by addressing the issue described in Section 2.1 and adapting the current regulatory framework by considering the latest scientific knowledge.

More specifically, with this Decision, EASA intends to further mitigate the potential fatigue risk entailed by night duties and late arrivals by increasing the effectiveness of the existing mitigation measures. This is expected to be achieved by expanding the application of appropriate FRM to night and disruptive duties and facilitating its use by CAT operators.

2.5. How we want to achieve it — overview of the amendments

In deciding how to implement recommendation #1 of the first phase of RES.006, EASA assessed whether the Air OPS Regulation (namely the definition of 'night duty' in point ORO.FTL.105(9)) needed to be amended or whether the amendment of CS FTL.1 (namely CS FTL.1.205(a)(2)) and the associated GM would suffice.

'Night duty' is defined in point ORO.FTL.105(9) as 'a duty period encroaching any portion of the period between 02:00 and 04:59 in the time zone to which the crew is acclimatised'. This definition is not affected by the three subtypes of night duty identified in the report. The purpose of the subtypes is to support the planning and implementation of appropriate measures to reduce fatigue.

Therefore, through this Decision EASA is amending CS FTL.1.205(a)(2) to include the three subtypes to help CAT operators tailor effective FRM strategies.

Regarding recommendations #2, #3 and #4, the current rules already protect against fatigue at night by reducing the length of the FDPs that encroach the window of circadian low (WOCL) and by compensating the cumulative effects of curtailed sleep.

In fact, all duties starting in the period from 17.00 h to 04.59 h are de facto night duties and have a maximum duration of 11 hours. Furthermore, the current rules prescribe that crew duty schedules are 'disruptive' if they comprise an FDP, or a combination of FDPs, starting, finishing during, or encroaching on any portion of the day/night which disrupts the sleep opportunity during the optimal sleep time window. Disruptive schedules are compensated for by additional rest.

Considering the study results, no amendments to those rules were found necessary. Nevertheless, the amendments introduced through this Decision will further enhance the protection against fatigue in relation to night duties and disruptive schedules by including other 'non-schedule-related' strategies in the related guidance material, as suggested in the report (suggestion A).

Regarding recommendation #5, CS FTL.1.205(a)(2) stipulates that the operator apply appropriate FRM to actively manage the fatiguing effect of night duties of more than 10 hours. The amendments introduced through this Decision will further enhance this protection by making the requirement applicable to *any* night duty, regardless of its duration, and to disruptive schedules.

CS FTL.1.205(a)(1) limits the maximum FDP for consecutive night duties to 4 sectors (maximum 10 hours). Based on the study results, no amendment to this specification is necessary.

Considering recommendation #6 and suggestion A, it should be noted that the current GM1 CS FTL.1.205(a)(2) already recommends that crew members obtain sufficient sleep as close as possible to the start of the night duty and that the operators' rostering practices specifically avoid duties that may lead to extended wakefulness before such duty.

Nevertheless, the amendments introduced through this Decision will further detail this guidance material as regards the provision and optimum use of sleep opportunities before reporting, considering the principle of shared responsibility of the operator and its crew members towards aircrew fatigue, laid down in the Air OPS Regulation.

Regarding suggestion B, CS FTL.1.205(c) stipulates that duty periods be extended only if the operator augments the flight crew and provides in-flight rest facilities to all crew members. No amendment to this CS is included in this Decision.

With regard to suggestion C, it should be recalled that point CAT.OP.MPA.210 already specifies that a controlled rest procedure, organised by the commander, may be used when unexpected fatigue is experienced, and workload permits. Further, GM1 CAT.OP.MPA.210 clarifies how a controlled rest procedure may be used.

In summary, controlled rest is non-proactive fatigue management and may be performed only to manage unexpected fatigue.

The second phase of the study on 'Effectiveness of Flight Time Limitation (FTL)', which was launched in 2022, will specifically address the use of controlled rest and whether it should be promoted as a nominal fatigue mitigation strategy.

It is, therefore, premature to make any amendments to the requirements of Subpart FTL of Part-ORO in this regard. Any possible amendments regarding controlled rest, such as tracking and reporting as recommended by the study, if necessary, should be specified in the context of Part-CAT.

Based on all considerations mentioned above, EASA concluded that there is no need to amend the implementing rules of the Air OPS Regulation, and that the recommendations of the first phase of RES.006 could be addressed by amending only CS FTL.1 and the associated GM.

In summary, this Decision introduces amendments so that appropriate FRM is applied to all night duties and late finishes, and includes guidance material with elements pertinent to the implementation of appropriate FRM in order to clarify the process and its safety objectives.

2.6. What are the stakeholders' views

More than 60 comments were received during the focused consultation of NPA 2023-103 with the Advisory Bodies.

A comprehensive summary of all written comments received during the consultation of NPA 2023-103 and EASA's reaction to those comments, is provided here below.

The title of NPA 2023-103

Two NCAs commented that the title of the NPA was misleading as it refers to AEMS, whilst the proposal only includes changes regarding scheduled and charter operators. These comments were accepted, and the title of the Decision was defined accordingly.

Delay in implementing the recommendations of the FTL research

Aircrew unions claimed that '…EASA has delayed the implementation of the recommendations…' and that by that '… EASA have been carrying a known fatigue risk'.

While it is true that the recommendations coming from the first phase of the FTL research were not implemented immediately, EASA disagrees with the assertions that this delay carried a safety risk. It should be noted that, in fact, the study showed only an 'increased probability' of high levels of fatigue during night flights and late finishes. An increased probability does not mean a factual situation and may be mitigated. This was already possible before the amendments included in this Decision.

Appropriate FRM

Some stakeholders claimed that 'appropriate FRM' was not defined.

One NCA proposed to clarify as much as possible in guidance material to CS FTL.1.205(a)(2) that the CS does not refer to FRM as per ORO.FTL.120.

One aircrew association also suggested that to avoid ambiguities and different interpretations, explanations for 'appropriate FRM' and 'fully-fledged FRM' need to be incorporated into the FTL Regulation.

What is referred to as 'fully-fledged fatigue risk management (FRM)' or sometimes 'fatigue risk management system (FRMS)' is the system referred to in ORO.FTL.120, which is required only in very limited cases: to allow an extension of the maximum daily flight duty period, under ORO.FTL.205(b)(3); and to allow reduced rest, under CS-FTL.1.235(c)(2).

Nevertheless, it needs to be understood that, under ORO.GEN.200, fatigue needs to be managed as part of an operator's management system and safety risk management (SRM) process, even when a fully-fledged FRMS is not required.

In certain cases, the need to focus on the management of fatigue risks has been reinforced in the regulatory material. In these cases, the expressions 'appropriate fatigue risk management' and 'fatigue risk management principles' are used. This was already the case with night duties, under CS-FTL.1.205, and, with this Decision, will also be the case with late finish duties.

EASA has tried to clarify these differences to stakeholders. Nevertheless, it is recognised that the use of very similar expressions in the Air OPS Regulation and in CS-FTL.1 to refer to two different things can cause confusion. Therefore, in the current Decision there is GM specifically dedicated to facilitating the distinction between appropriate fatigue risk management and the fully-fledged FRM specified under ORO.FTL.120.

EASA will also further consider clarifying the existing requirements, i.e. by including further guidance in future deliverables under RMT.0492.

'Early starts'

Aircrew unions insisted that 'early starts' should be included in the proposed amendments as are 'late finish' duties and night duties.

This proposal was not accepted. As pointed out in the NPA (Section 2.3), the final report of the first phase of RES.006 made the following observations:

— 'There is an increased probability of high levels of fatigue at TOD during non-consecutive late finish and non-consecutive night duties, while the prevalence of high levels of fatigue during early starts is very low.';

— 'No significant increase of the probability of high levels of fatigue at TOD is found for disruptive schedules with early starts. A marginal increase is found for mixtures of disruptive FDPs.'

Subsequently, the report did not recommend any actions with respect to 'early starts', nor recommended extrapolating the results obtained for 'late finish' duties and night duties to 'early starts'.

Level of regulatory material proposed

Aircrew unions requested that the recommendation of the FTL research be addressed by amending the relevant certification specification (CS) and by including new AMC to this CS, claiming that guidance material (GM) cannot ensure compliance. More specifically, it was proposed that all GM texts to CS FTL.1.205(a)(2) are 'upgraded' to CS or, at least, AMC level.

The choice of using GM to give flexibility for implementation is a conscious one. 'Appropriate FRM' may only be 'appropriate' if it has been customised to the operational needs to achieve a satisfactory mitigation of crew member fatigue. CS FTL.1.205 explicitly refers to 'appropriate FRM' for the management of night duties and 'late finish' duties. The proposed GM is expected to further assist operators and their personnel in selecting appropriate FRM tools (not necessarily those mentioned in the GM), based on their specific needs. This approach follows the recommendations of the study, which focused on soft law changes to reflect best practices.

Finally, it should be noted that in the air operations regulation AMC are not used to implement CSs.

The three subtypes of night duties

Aircrew associations asked that the three subtypes of night duties be added to CS FTL.1.205. This proposal was accepted.

Fatigue Safety Action Group (FSAG)

Aircrew associations asked that the setting up of a Fatigue Safety Action Group (FSAG) is made mandatory for operators in the context of 'appropriate FRM' for disruptive schedules.

Operators using a fully-fledged FRM typically set up a Fatigue Safety Action Group (FSAG) within their organisation, although this is not a mandatory requirement under ORO.FTL.120. The current amendment only concerns 'appropriate FRM'. Therefore, EASA's view is that an FSAG is not proportionate to the concept of appropriate FRM.

Controlled rest

Aircrew associations commented that the use of 'controlled rest' needs to be tracked within the operator and reported to NCAs.

One operator commented that 'controlled rest' had been successful and well received by operating crew, and that it would be unnecessary to force flight crews to report it, since once reported it would require dedicated operator's resources to process the relevant data.

EASA's view is that the proposal to mandate tracking and reporting on the use of 'controlled rest' is today not sufficiently substantiated by operational and scientific evidence. Furthermore, it was not

part of the recommendations of the FTL study. Therefore, it is outside the scope of this amendment. Part-CAT already contains sufficient guidance on controlled rest for flight crew. Additional requirements regarding controlled rest, such as tracking and reporting, may be specified in the context of Part-CAT, if such need is identified by the ongoing study on the effectiveness of FTL (FTL#2).

Promotion of optimum use of sleep opportunities

Aircrew associations proposed to complement AMC1 ORO.FTL.250, adding to the syllabus for fatigue management training the topic of optimum use of sleep opportunities (i.e. before reporting and during the FDP) for disruptive schedules.

This proposal was accepted, and a new point (k) is introduced to AMC1 ORO.FTL.250 through this Decision. Since this will trigger amendments to the operators' OM, the applicability of this point is deferred by 6 months.

The Prior Sleep Wake Model (PSWM)

One operator commented that GM5 CS FTL.1.205(a)(2) (former GM4 CS FTL.1.205(a)(2)) recommending the use of the PSWM in the context of 'appropriate FRM' was very prescriptive and implied that either PSWM or some other equivalent was required.

Indeed, the PSWM is one among other possible tools to feed the SRM process.

The PWSM may be the choice of non-complex operators as it is simple and inexpensive, compared to a bio-mathematical model (BMM). Complex operators may choose other tools (e.g. BMM) tailored to their operational needs.

In any case, there should be tools to feed the operator's SRM process in order to achieve the objectives of the 'appropriate FRM'.

A flight crew association strongly opposed the inclusion of a reference to the PSWM in the legal framework, claiming that it is not scientifically anchored. In particular, they saw a problem with the table proposed in GM5 CS FTL.1.205(a)(2) for the calculation of fatigue scores, claiming that it does not consider the quality of sleep or the intensity of workload during duty hours/awake time.

EASA disagrees with the statement that the PSWM is not sufficiently scientifically anchored; in fact, there are scientific publications[7] containing evidence of the effectiveness of the model. While the PSWM has some limitations, this is also the case for even some of the more sophisticated BMMs today. For example, most BMMs used in FRMS today do not assess the quality of sleep either and yet they have been amply used in fatigue risk management.

The reason behind recommending the PSWM, which has been used as the basis for many BMMs, is that it provides a simple alternative tool to BMMs used in fully-fledged FRM, both to support the implementation of appropriate FRM by operators and for crew members to use for their own assessment of potential fatigue levels.

[7] Thomas MJ, Ferguson SA. Prior sleep, prior wake, and crew performance during normal flight operations. Aviat Space Environ Med. 2010 Jul;81(7):665-70. doi: 10.3357/asem.2711.2010. PMID: 20597246;

Dawson D, McCulloch K. Managing fatigue: it's about sleep. Sleep Med Rev. 2005 Oct;9(5):365-80. doi: 10.1016/j.smrv.2005.03.002. PMID: 16099184.

The Agency believes that the use of individual subjective assessment of prior sleep as a component of an appropriate FRM should be reinforced. Fatigue levels on duty are affected by prior sleep patterns and by waking activities outside duty hours. The single most influential cause of fatigue is sleep loss.

Data collected from the scientific research supporting the model showed that restricted sleep in both the 24-h and 48-h period prior to each duty is associated with changes in crews' threat and error management performance. Restriction to less than 6 h sleep in the prior 24 h was associated with degraded operational performance and increased error rates. The study findings underpin that prior sleep is a critical fatigue-related variable.

Crew members may calculate for themselves how much sleep they have had and how long it has been since their last sleep period. The operator may decide that crew members, after assessing their own fitness for duty, report to their supervisor when they do not meet the minimum limits. This simple and practical process can flag sleepiness and fatigue issues before they lead to a safety issue.

When crew members report to a supervisor that they have had insufficient sleep, it is important that clear procedures be in place to manage the risk in a consistent manner.

GM5 CS FTL.1.205(a)(2) does not intend to be exhaustive, as the PSWM is simply one element of the overall process of appropriate FRM.

Since EASA is aware that the PSWM has limitations, some clarifications are provided in GM5 CS FTL.1.205(a)(2), highlighting that the PSWM is one among other models that may be used in the context of 'appropriate FRM' and also clarifying that:

— thresholds (for sleep and time awake) should not be treated as targets;

— the PSWM may also be used by crew members;

— the PSWM has limitations which operators and crew members should be aware of.

One operator proposed an alternative to the PSWM to manage fatigue risks, under the responsibilities of the crew members, based on the following measures:

'1) The in-flight controlled rest procedure implemented by the captain with the contribution of the cabin crew members.

2) Training and awareness on the wakefulness and sleeping principles, applicable to the organisation of the ground sleep opportunities and in flight rest periods.

3) Communication on the use of the rest facilities at the main base as well as the identification of the more sensible night flights or late finish duties.

4) The construction of rosters and pairings in accordance with wake and sleep time thresholds is ensured by a bio mathematical model.'

The measures proposed under points 1) and 2) are already provided for in the current legal framework.

The proposed measure in point 3) has been included in GM2 CS FTL.1.205(a)(2) in the context of shared responsibility for obtaining sufficient sleep.

The proposal in point 4), to use a BMM in the context of appropriate FRM for 'the construction of rosters and pairings in accordance with wake and sleep time thresholds (…)' was not accepted. BMM is typically used by complex operators having established a fully-fledged FRM.

The following table provides details on the differences between the original proposals made by EASA in NPA 2023-103 and the amendments introduced through this Decision, following the review of the comments summarised above.

Current reference	Post-NPA 2023-103 changes
CS FTL.1.205(a)(2)	Includes under a new point (a)(3) the three subtypes of night duties which were initially included in GM thus upgrading the subtypes to a CS level.
GM1 to CS FTL.1.205(a)(2)	New GM that compiles text previously contained in other GM to provide a better distinction between 'appropriate fatigue risk management' and the FRM system specified under ORO.FTL.120.
GM2 CS FTL.1.205(a)(2)	No change to the content.
GM 3 CS FTL.1.205(a)(2)	Point (b) is deleted as the three subtypes of night duties are moved to CS FTL.1.205(a)(2). Point (c) is complemented with two additional measures, which the operators should consider, ensuring that their crew obtain sufficient sleep.
GM4 CS FTL.1.205(a)(2)	No change to the content.
GM5 CS FTL.1.205(a)(2)	Point (a) includes new content clarifying that the Prior Sleep Wake Model (PSWM) is one among other models that may be used in appropriate FRM. It also clarifies that: — thresholds (for sleep and time awake) should not be treated as targets; — PSWM may be used by crew members as well; — PSWM has limitations which operators and crew members should be aware of.
AMC1 ORO.FTL.250	New point (k) on training syllabus on the optimum use of sleep opportunities.

2.7. Other relevant information

Regarding the applicability, in NPA 2023-103 EASA did not propose a deferred applicability date for the amendments but invited stakeholders to provide their views in that regard. None of the stakeholders mentioned the need for transitional measures. However, as further explained in Section 2.6, a new element was included in AMC1 ORO.FTL.250 because of the comments received, and for this new element only a deferred applicability of 6 moths is considered appropriate.

In addition to the amendments included in this Decision, EASA will consider the recommendations from the first phase of RES.006 when finalising the upcoming Opinions on CAT operations of emergency medical services by aeroplanes (AEMS) (RMT.0492) and on CAT operations by aeroplanes for air taxi and single-pilot operations (RMT.0493).

3. Expected benefits and drawbacks of the regulatory material

EASA has assessed the best options for intervention regarding the study recommendations in the BIS on 'Aircrew Fatigue' and has shared the draft BIS with its ABs. In that BIS, it was concluded that rulemaking intervention was necessary to incorporate the recommendations from the first phase of RES.006 into the current regulatory framework.

The amendments introduced through this Decision are expected to pave the way for better fatigue management as they align night duties and disruptive schedules more closely to an established and scientifically based model used to predict fatigue.

In particular, since prior sleep is a strong determinant of fatigue during night duties, highlighting the need for operators to provide resting opportunities to crew members and for crew members to make optimum use of these opportunities is believed to be an effective way of obtaining more sleep.

In terms of safety, no drawbacks are expected from the amendments. In terms of economic impact, the amendments may have a small negative impact on operators, since they extend the scope of activities that need to be covered by appropriate FRM. However, it is assumed that the operators to which the provisions will apply have already implemented appropriate FRM, and that its extension to further areas of their operations will have limited costs.

Therefore, the safety benefits expected from the amendments outweigh the potential economic impact.

EASA has concluded that the amendments introduced through this Decision are the simplest and most proportionate way to integrate the recommendations from the first phase of RES.006 into the current regulatory framework.

4. Monitoring and evaluation

EASA will monitor the implementation of the amendments introduced through this Decision through its regular standardisation activities.

Moreover, in accordance with Article 9b of the Air OPS Regulation, on a long-term basis, EASA will conduct a continuous review of the effectiveness of the flight and duty time limitations and rest requirements through scientific methods for operational data collection and analysis, with the assistance of the Member States.

The second phase of RES.006 was launched in 2022. It will assess duties of more than 11 hours for crew members in an unknown state of acclimatisation; duties including a high number of sectors (more than 6); duties of more than 13 hours at the most favourable time of the day; and on-call duties such as standby or reserve, followed by flight duties.

Once the results of the second phase of RES.006 are known, EASA will assess the need to further amend the current regulatory framework applicable to flight time limitations.

5. Proposed actions to support implementation

The following means will be used to support and facilitate the implementation of the amendments:

— Communication with stakeholders and national competent authorities' FTL/FRM experts

— Dedicated thematic workshop(s)/webinar(s)

6. References

6.1. Affected EU regulations

n/a

6.2. Affected EASA decisions

— Decision 2014/002/R of the Executive Director of the Agency of 31 January 2014 adopting Certification Specifications and Guidance Material to Annex III (Part ORO) of Commission Regulation (EU) No 965/2012 — 'CS-FTL.1 — Initial Issue'.

— Decision 2014/017/R of the Executive Director of the Agency of 24 April 2014 adopting Acceptable Means of Compliance and Guidance Material to Part-ORO of Regulation (EU) No 965/2012 and repealing Decision 2012/017/R of the Executive Director of the Agency of 24 October 2012 'AMC and GM to Part-ORO — Issue 2'.

6.3. Other references

— Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 296, 25.10.2012, p. 1)

— COMMISSION STAFF WORKING DOCUMENT — IMPACT ASSESSMENT *accompanying the document* — COMMISSION REGULATION amending Regulation (EU) N° 965/2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) N° 216/2008 of the European Parliament and of the Council (SWD(2014) 24 final, 29.1.2014)[8]

— Report on the first phase of RES.006 'Effectiveness of Flight Time Limitation (FTL)', published on 28.2.2019[9]

— EASA BIS on 'Aircrew Fatigue', February 2020

— ToR RMT.0492 'Development of FTL for CAT operations of emergency medical services (EMS) by aeroplanes and helicopters' (former RMT.0346/OPS.071(a)), issued on 18.4.2012[10]

— EASA NPA 2017-17 'Development of FTL for CAT ops of EMS by aeroplanes and helicopters & Update and harmonisation of FTL for CAT by aeroplane for air taxi ops and single-pilot ops taking into account operational experience and recent scientific evidence', published on 30.10.2017[11]

— NPA 2023-103 'Development of flight and duty time limitation rules for commercial air transport operations of emergency medical services by aeroplanes (AEMS) — Flight and duty time limitations and rest requirements for commercial air transport with aeroplanes — night duties and late finish duties'.

8 https://ec.europa.eu/smart-regulation/impact/ia_carried_out/docs/ia_2014/swd_2014_0024_en.pdf

9 https://www.easa.europa.eu/en/document-library/general-publications/effectiveness-flight-time-limitation-ftl-report

10 https://www.easa.europa.eu/en/document-library/terms-of-reference-and-group-compositions/tor-ops071a-rmt0346

11 https://www.easa.europa.eu/en/document-library/notices-of-proposed-amendment/npa-2017-17