

European Aviation Safety Agency

Report N° IFTSS/2015/003/FR on the notification by The Republic of France on its intention to grant an approval for a flight time specification scheme deviating from certain provisions of CS FTL-1 on the basis of Article 22(2) of Regulation (EC) No 216/2008.

A) BACKGROUND

By letter of 18 December 2015, the Republic of France notified the European Commission and the Agency of its intention to deviate from CS FTL.1.235 (c)(1), on the basis of article 22(2) of Regulation (EC) 216/2008¹ (the Basic Regulation).

In the notification the French competent authority (hereafter DSAC) explained its intention to approve an individual flight time specification scheme for the three operators of the Hop! Group (HOP!–Airlinair FR.AOC.0029, HOPI–Brit Air FR.AOC.0001, HOPI–Régional FR.AOC.0034) (hereafter the operator), deviating from the certification specification provision requiring a minimum reduced rest period of 10 hours out of base to demonstrate compliance with ORO.FTL.235 (c).

DSAC quotes the operator's proposed measures as follows:

- 1) *The duration of the reduced rest period is no shorter than 7.5 hours;*
- 2) *During a reduced rest period, a local hotel is made available to the crews to reduce transport time between the terminal and the hotel to less than 15 minutes. If the transport time (t) is over 15 minutes, the rest period (TR) must be increased by twice the difference, i.e. TR higher than or equal to 7.5 hours + 2 * (t-15);*
- 3) *The consequences of the provisions in paragraph ORO.FTL.205 (f) "Unforeseen circumstances in flight operations — commander's discretion" must not conduct to a reduction of the reduced rest period below 7.5 hours. Consequently, in case of use of the commander's discretion, all the other dependent variables (in particular the reduction of the following day's FPD and increase of the following rest according to the difference between standard and reduced rest) is updated;*
- 4) *The rest period following a reduced rest period is increased by the difference between the minimum rest period defined in article ORO FTL 235 (a) or (b) and the duration of the reduced rest period. The duration of that rest is not less than 18H;*
- 5) *The rest period following a reduced rest period includes one local night;*
- 6) *There is a maximum of 2 reduced rest periods between 2 periodic rest periods as defined in article ORO FTL 235 (d);*
- 7) *The flight duty period following a reduced rest period is reduced by the difference between the minimum rest period defined in article 235 (a) or (b) and the duration of the reduced rest period;*
- 8) *The flight duties immediately before and after a reduced rest period do not feature flights of over 3 hours station to station.*

¹ Regulation (EC) No 216/2008 of 20/02/2008 of the European Parliament and of the Council on common rules in the field of civil aviation and establishing a European aviation Safety Agency and repealing Council Directive 91/670/EEC, regulation (EC) No 1592/2003 and Directive 2004/36/EC.



- 9) *The flight duties immediately before and after a reduced rest period do not move the crew member more than two time zones from their home base.*
- 10) *A maximum of five sectors are performed during the duty period before a reduced rest.*
- 11) *A maximum of three sectors are performed during the FDP following a reduced rest.*
- 12) *In addition to respecting the provisions above, an extended FDP due to a split duty may be followed by a reduced rest period only if,*
 - a) *The break duration exceeds 4 hours continuously.*
 - b) *The operator shall make an suitable accommodation available to the crew members*
 - c) *The crew is in function on three sectors at most;*
 - d) *The next FDP only contains a single sector.*
- 13) *For each full activity month, two period rest periods are increased, respectively to 4 civil days and to 2 days;*
- 14) *11 rest days are guaranteed per full month;*
- 15) *There are 43 annual rest days for a full time activity;*
- 16) *The number of sectors is limited to five per FDP,*
- 17) *There is no more than one sequence of 7 consecutive activity days per month;*
- 18) *There is no more than a total of 56 duty hours over 7 rolling days;*
- 19) *Each rest period includes a duration of 5 hours within the period 11pm/6am;*
- 20) *The reduced rest period includes a duration of 5 hours within the period midnight/6am;*
- 21) *The number of consecutive early starts ($\leq 6:59$) is limited to three;*
- 22) *Each crew member has a room in a hotel which is at least 3-star with air conditioning;*
- 23) *For each FDP preceding a reduced rest, a meal and drinks is to be provided on board.*
- 24) *The rosters are communicated 3 weeks in advance;*
- 25) *No roster is published as soon as its level of fatigue measured on Samn Perelli (SAFE) is >5*
- 26) *The scheduled inactivity days cannot be modified without the crew member's agreement.*

B) LEGAL FRAMEWORK

Article 22 (2) of the Basic Regulation states the following:

"With regard to flight time limitation:

- (a) the Agency shall issue the applicable certification specifications to ensure compliance with essential requirements and, as appropriate, the related implementing rules. Initially, the implementing rules shall include all substantive provisions of Subpart Q of Annex III to Regulation (EEC) No 3922/91, taking into account the latest scientific and technical evidence;*
- (b) a Member State may approve individual flight time specification schemes which deviate from the certification specifications referred to in point (a). In this case the Member State shall without delay notify the Agency, the Commission and the other Member States that it intends to grant approval for such an individual scheme;*
- (c) upon notification the Agency shall, within one month, assess the individual scheme on the basis of a scientific and medical evaluation. Thereafter the Member State concerned may grant the approval as notified, unless the Agency has discussed the scheme with that Member State and proposed changes thereto. Should the Member State agree with these changes, it may grant the approval accordingly;*
- (d) in the event of unforeseen urgent operational circumstances or operational needs of limited duration and non-repetitive nature, derogations to certification specifications may apply provisionally until the Agency expresses its opinion;*



- (e) should a Member State disagree with the Agency's conclusions concerning an individual scheme, it shall refer the issue to the Commission to decide whether that scheme complies with the safety objectives of this Regulation, in accordance with the procedure referred to in Article 65(3);
- (f) the contents of individual schemes which are acceptable to the Agency, or on which the Commission has taken a positive decision in accordance with point (e), shall be published."

The deviations refer to CS FTL.1.235 (c)(1), which reads:

"The minimum reduced rest periods under reduced rest arrangements are 12 hours at home base and 10 hours out of base."

C) EVALUATION

The Agency reviewed the proposal with the help of a panel of experts². The experts were provided in advance with the documents submitted by DSAC and the Agency's comments to the documents submitted by DSAC. The experts were invited to comment on the operator's proposal, DSAC's assessment of the operator's proposal and on the Agency's comments. The Agency's and experts' comments and questions were forwarded to DSAC. Documents and comments were discussed during a WebEx meeting on 25 February 2016. DSAC was invited to reply to questions and comment on remarks concerning the proposed deviation during the Web Ex meeting on 25 February 2016.

The following remarks result from the examination of the documents submitted by DSAC to support the proposed deviation:

- The minimum duration of rest applying commander's discretion in accordance with ORO.FTL.205 (f) is 10 hours. Applying commander's discretion resulting in/leading to a rest period of less than 10 hours would require a derogation from ORO.FTL.205 (f) under the provisions of Article 14(6) of Regulation (EC) No 216/2008.
- Crew members should not start a duty sequence with reduced rest while affected by sleep debt from their previous duties.
- The rest period after a reduced rest period should allow for a high quality rest period with at least one unrestricted sleep opportunity during the hours most favourable for sleep to avoid accumulation of slept debt.
- The level of fatigue accrued during the FDP preceding a reduced rest period might have an impact on the recovery from fatigue during a reduced rest period. The proposed mitigating measures 8) and 10) are aimed at controlling workload before a reduced rest period. Limited information about workload related fatigue issues, particularly for cabin crew, is available. Additional information to better understand workload related fatigue accumulation is needed to assess the effectiveness of the proposed mitigating measures 8) and 10).
- The effectiveness of the operator's measures to comply with ORO.FTL.240 and AMC1 ORO.FTL.240 to ensure appropriate nutrition during a reduced rest cycle³ impacts on the overall effectiveness of the proposed measures.
- Ensuring that crew members have access to food and drink not only on board but also during the rest period in the suitable accommodation at all times might help reducing the time required for

² Panel composition IFTSS 2015/004/FR published on Circabc

³ A reduced rest cycle means a duty period followed by reduced rest period followed by an FDP.



- physiological needs. This measure therefore helps crew members to optimise the efficiency of the reduced rest period by maximising the time available for sleep.
- The quality of the break during split duty determines the effectiveness of the proposed measures to manage fatigue when split duty is combined with reduced rest. The quality of a break during split duty depends on:
 - the duration of the break;
 - the quality of the accommodation (quietness, light and temperature control, comfort of the sleeping surface etc.); and
 - the placement of the break in relation to the circadian rhythm.
 - Sleep is the only countermeasure against cumulative sleep debt. For acclimatised crew members accustomed to operate during the day achieving high quality consolidated sleep periods is easiest during the night. The effectiveness of rest periods to counteract cumulative sleep debt highly depends amongst other factors on how many nights of unrestricted sleep are offered in one rest period.
 - Subpart-FTL does not regulate days off and annual leave. Days off and annual leave are regulated by Council Directive 2000/79⁴. Days off and annual leave have, however, an important mitigating effect against cumulative fatigue.
 - A more restrictive limit for cumulative duty hours is a useful means to avoid that the combination of reduced rest periods and long duty days leads to an unbalanced proportion of rest time and duty time. The proposed more restrictive duty time limit for 7 consecutive days is an appropriate but in itself incomplete measure. It is necessary to ensure that the effectiveness of this countermeasure is not weakened by reaching maximum duty hours over longer time periods. Not applying an equivalent reduction to the cumulative duty hours in 14 and 28 consecutive days could potentially jeopardize the continued effectiveness of having reduced the maximum cumulative duty hours for 7 consecutive days.
 - Although at present there is no clear operational definition of workload, it is reasonable to state that flight time is one important contributing factor to workload. ORO.FTL.210 (b)(1) limits the total flight time in any 28 consecutive days to 100 hours. ORO.FTL.245 (a)(1)(i) requires operators to keep records of flight times. For the case at hand the average cumulative flight time in 28 consecutive days has been lower than the legal limit during the data collection period of the studies that have been carried out to support the deviation. Consequently the statements regarding the equivalence of safety of the proposed system are based on data collected from crew members having accumulated a certain amount of cumulative flight time in 28 consecutive days lower than the legal limit flight time in 28 consecutive days. The absence of an individually defined limit of cumulative flight time in 28 consecutive days, based on the observation of the concrete conditions during the data collection, could potentially lead to an unmitigated increase of cumulative fatigue due to an increase of cumulative flight hours.
 - A guaranteed period of at least 5-hour during favourable hours for high quality sleep (between 23:00 or 00:00 and 06:00) is an effective measure to ensure highly efficient rest periods.
 - The limitation of early starts is an effective measure to control the curtailment of sleep due to having to rise during the hours of the circadian rhythm most conducive to sleep. It should be noted, however, that the combination of the different other disruptive schedules (late arrivals and night duties) with early starts may have an equally or even more negative effect on the ability to achieve sleep of adequate quality and in sufficient quantity between two reduced recovery rest periods with reduced rest cycles.

⁴ [COUNCIL DIRECTIVE 2000/79/EC of 27 November 2000 concerning the European Agreement on the Organisation of Working Time of Mobile Workers in Civil Aviation concluded by the Association of European Airlines \(AEA\), the European Transport Workers' Federation \(ETF\), the European Cockpit Association \(ECA\), the European Regions Airline Association \(ERA\) and the International Air Carrier Association \(IACA\)](#)



- Assessing rosters with a fatigue prediction software during the planning phase is an appropriate means to detect fatigue hotspots. It is, however, equally important to assess the actually operated rosters to fully understand the fatigue risk originated by the rostered combination of pairings during a duty cycle.
- A broader participation in fatigue data collection is desirable to ensure obtaining more statistical relevant data about the effectiveness of the proposed system. Getting more crew members to participate in surveys and objective data collection could furthermore improve the general crew member support to the operator's FRM. Making available easy-to-access data collection tools (e.g. smartphone apps) may increase crew members' willingness to contribute to future fatigue studies.
- A functional proactive fatigue reporting system is crucial to continuously verify the effectiveness of the proposed mitigating measures and become aware of potential new fatigue hazards.

D) CONCLUSION

Having reviewed the deviation notified by The Republic of France, the Agency sees no reason to consider that the proposed measures do not lead to an equivalent level of protection to that attained by the application of CS FTL-1, provided the following additional mitigating measures are included in the operator's individual flight time specification scheme:

- The IFTSS shall not include the reduction of reduced rest under commander's discretion below 10 hours.
- The IFTSS shall include a measure to avoid that crew members report for a reduced rest cycle with slept debt.
 - Future data collection for a study to verify the effectiveness of the proposed scheme should include the observation of slept debt before reporting for the first FDP of a reduced rest cycle.
- The proposed mitigating measures 4) "*The rest period following a reduced rest period is increased by the difference between the minimum rest period defined in article ORO FTL 235 (a) or (b) and the duration of the reduced rest period. The duration of that rest is not less than 18 h*" and 5) "*The rest period following a reduced rest period includes one local night.*" shall be improved by including a measure aimed at avoiding disruption after a reduced rest cycle.
- The mitigating measures against cumulative fatigue (periodic increase of extended recovery rest periods) should be measured in local nights rather than days.
- The wording of mitigating measures around days off (11 rest days per full months and 43 annual rest for a full activity year) should make reference to days off and annual leave as mentioned in Directive 2000/79.
- The IFTSS shall include additional limits for cumulative duty hours in 14 and 28 consecutive days as well as an additional limit for cumulative flight time in 28 consecutive days.
 - To establish these limits DSAC should examine the average duty and flight hours during the study that has been presented to support the deviation.
- DSAC should agree performance indicators on the length of the first FDP of a reduced rest cycle in relation to the legal maximum. (This relates to the performance of proposed mitigating measure 8) and 10)).
- Pairings delivering during the planning phase or in execution a predicted fatigue level above a defined threshold shall receive special FRM attention. The threshold shall be agreed between DSAC and the operator. This agreed fatigue level shall be formalised in the scheme.



- The wording of the mitigating measure limiting the number of consecutive early starts to three should be complemented by an additional measure preventing the combination of reduced rest and late arrivals/night duties between two extended recovery rest periods.
- DSAC shall include a requirement in the IFTSS to ensure that crew members on reduced rest have access to food and drink at any time in the suitable accommodation. DSAC should agree with the operator on a continuous efficiency verification of the proposed measures to comply with ORO.FTL.240 (Nutrition).
- DSAC shall require that a study on the impact on fatigue of the proposed measures shall start no later than the 3rd quarter of 2016 and deliver at least a preliminary report on the results no later than 2nd quarter of 2017. This study shall include at least two sources of objective data. Such study should verify the effectiveness of the proposed measures and should at least examine:
 - Workload related effects on cumulative fatigue originating from operating a high number of sectors also on cabin crew;
 - the quality and quantity of sleep during breaks when split duty is combined with reduced rest.
- DSAC shall give an approval for the planned reduced rest cycles of each seasonal flight programme and for each location where the reduced rest takes place.

Signed on ...15. MRZ. 2016.

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