



## COMMENT RESPONSE DOCUMENT

EASA PAD No. 18-153

[Published on 08 November 2018 and officially closed for comments on 06 December 2018]

### Commenter 1: Air Tahiti – Jean-Baptiste Justin – 10/11/2018

#### Comment # 1

We understand that the Thales Topstar 200 LPV GPS/SBAS may provide an erroneous position with compromised safety margins when the receiver is used for LPV and RNP-AR operations in specific conditions. Be informed that Air Tahiti ATR-600 fleet is equipped with involved GPS receiver Topstar 200 identified P/N C17149HA01 and P/N C17149JA02. But we would like to point out that our ATR-600 fleet has not the LPV and RNP-AR capability as our aircrafts are pre Mod 7180 and pre Mod 7182. As a consequence we should not be impacted by the AD as it should only concern operators using the LPV and RNP-AR functions.

Could you please review the PAD applicability taking into account aircrafts Pre and Post LPV and RNP-AR capability (Pre and Post Mod 7180 & 7182)?

#### EASA response:

**Comment agreed. The Applicability of the revised PAD has been amended accordingly.**

### Commenter 2: Stobart Air – Kevin Mulligan – 13/11/2018

#### Comment # 2

With reference to the applicability section on Page 1 of PAD No: 18-153: Would it be possible to add a clear sentence that states that 'this AD will not be applicable to ATR 42-500 (600 version) aircraft that are pre ATR SB 42-34-0194 and ATR 72-600 version aircraft that are pre ATR SB 72-34-1142 (Activate LPV Function)?

#### EASA response:

**Comment agreed. See EASA answer to Comment #1 above.**



**Commenter 3: Sikorsky Aircraft Corporation – Brian Flanagan – 21/11/2018**

**Comment # 3**

Through detailed technical discussions with Thales, Sikorsky understands the GPS problem and its theoretical applicability to the S-76D, although it has yet to occur on this type aircraft. Sikorsky will support the EASA AD by issuing a letter reminding S-76D operators to promptly update their navigation database upon receipt in accordance with proposed action (1) of this PAD.

With respect to proposed action (2), Sikorsky's position is that an S-76D RFM temporary revision (TR) is not required because the operational tempo of the rotorcraft provides a sufficient frequency of GPS resets to adequately mitigate the potential occurrence of an undetected GPS erroneous position event in combination with the effect of proposed action (1).

In the period from October 2017 through October 2018, there were 13,274 flights recorded by the S-76D Health and Usage Monitoring System (HUMS). The average flight duration, as measured between aircraft electrical resets, was 1 hour. 99.7% of flights were 3 hours or less. All flights were less than 5 hours. Increasing the frequency of electrical power OFF/ON cycles may indeed have the unintended effect of reducing the reliability of the aircraft's avionics and electrical systems in general. The following additional rationale is offered, understanding that the time between resets is a factor in mitigating this potential issue, as well as geographic location or mission radius.

1. A GPS receiver reset is defined as power-off, followed by power-on.
2. On the S-76D, the GPS receiver is powered-off when the aircraft electrical power is turned off and it is powered-on when the aircraft electrical power is turned on.
3. In accordance with published procedures (S-76D Maintenance Manual SA S76D-AMM-000, 12-11-00 page 202, Fuel Loading Procedures, TASK 12-11-00-600-803), it is required "prior to fueling, make sure all electrical power to the helicopter is off".
4. The maximum duration between refueling (and therefore an electrical reset) is limited by fuel tank capacity.
5. Since rotorcraft often fly short distances, frequently within a smaller radius of operation and returning to their point of origin more often than other aircraft types, requiring an aircraft electrical/GPS reset prior to each take-off would offer little increase in the mitigating effect of the reset, impose an unnecessary burden on operators, and potentially have an adverse effect upon aircraft reliability.

**EASA response:**

**Comment noted and appreciated. The PAD has been revised to remove the requirement from §(2) for all aircraft to update the AFM/RFM, except for certain ATR aeroplanes.**



**Commenter 4: Bangkok Airways Public Co. – Chalermkiat Chumniphaiboon – 23/11/2018**

**Comment # 4**

We've made a request to ATR (a copy of TR of AFM before December 6, 2018), but ATR evaluate that PAD is not found satisfactory, operationally speaking. As aircraft operator, we may require extension of compliance deadline. Should there be any new upcoming revision of this PAD to inform operators?

**EASA response:**

**Comment not agreed. EASA consider the compliance time for the proposed action/requirement to be proportional to the risk, In addition, the AFM update is a simple and straightforward action that should not create undue burden on operators.**

**No changes have been made to the revised PAD in response to this comment.**

**Commenter 5: ATR Aircraft – Nicolas Brevot – 06/12/2018**

**Comment # 5**

Please find here below ATR comments to the PAD 18-153:

Paragraph 'Applicability':

- A. 'Thales Global Positioning System/Space Based Augmentation Systems (GPS/SBAS)': within GPS community and inside our documentation, the 2nd S from SBAS acronym refers to Satellite.

ATR proposal: 'Thales Global Positioning System/Satellite Based Augmentation Systems (GPS/SBAS)'

- B. '... using SBAS and having Localizer Performance with Vertical guidance (LPV).': we believe this sentence may be confusing for operators as the issue does not only concern GPS receivers with LPV mode activated.

ATR proposal: '... using SBAS and providing Localizer Performance with Vertical guidance (LPV) capability.'



- C. 'identified by Part Number (P/N) C17149HA01 and P/N C17149JA02': after investigation, we came to the conclusion that GPS P/N C17149JA02 is required for LPV operations on ATR A/C. Nevertheless, RNP AR 0.3/1 can be performed with either GPS P/N C17149JA02 or P/N C17149HA01. Therefore GPS P/N C17149HA01 shall be kept in the applicability of the AD.

Paragraph 'Required Action(s) and Compliance Time(s)' – Sub paragraph 'Flight Manual Update':

- D. 'Within 30 days after the effective date of this AD, amend the AFM or RFM or RFMS of the aircraft by inserting the TR, containing instructions to reset the GPS receivers before each flight, inform all flight crew and, thereafter, operate the aircraft accordingly.': we believe the GPS reset should be limited to SBAS areas. The flight crew is able to know if its A/C is inside SBAS area through FMS GPS NAV page. If the A/C is in SBAS area, then the GPS reset has to be performed. If the A/C is not in SBAS area and the flight will enter/arrive in SBAS area, then the GPS reset at the beginning of the flight has no use

ATR proposal: 'Within 30 days after the effective date of this AD, amend the AFM or RFM or RFMS of the aircraft by inserting the TR, containing instructions to reset the GPS receivers before each flight in SBAS area, inform all flight crew and, thereafter, operate the aircraft accordingly.'

**EASA response:**

- A. Comment agreed. The PAD has been revised accordingly.**
- B. Comment agreed. The PAD has been revised accordingly.**
- C. Comment noted.**
- D. Comment partially agreed. The PAD has been revised for clarification.**

