



適航指令發布單

Airworthiness Directive Issuance Form

民航局 AD 編號 AD number	CAA-2022-02-001	發布日期 Date issued	2022/2/8
適用之航空產品 Applied to (models, serial numbers or part numbers, as applicable)	Thales Flight Management Computer (FMC) 2 Navigation Modules (NAVM), identified by Part Number C13084CA03. and These FMC2 NAVM are known to be installed on, but not limited to, Dassault (formerly Bréguet) Br.1150 Atlantique 2 (ATL2) maritime patrol aeroplanes.		
主旨摘要 Subject	Navigation - Flight Management Computer 2 / Navigation Modules - Operational Limitations / Amendment		
民航局 CAA <input type="checkbox"/> 本國產品 Native product <input type="checkbox"/> 其他個案 Other	設計國民航主管機構 Original Authority <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> FAA <input checked="" type="checkbox"/> EASA <input type="checkbox"/> Brazil <input type="checkbox"/> Transport Canada Civil Aviation <input type="checkbox"/> DGAC </div> <div> <input type="checkbox"/> Germany LBA <input type="checkbox"/> CAA-NL <input type="checkbox"/> UK CAA <input type="checkbox"/> Japan CAB <input type="checkbox"/> CAA of Israel <input type="checkbox"/> Other _____ </div> </div>		
	設計國 AD 編號 Original AD number	2022-0024	
	1. 直接採用原 AD 之內容?(Is the original AD directly adopted?) <input checked="" type="checkbox"/> 是(Yes) <input type="checkbox"/> 否(No) _ a. 生效日期另訂為(Re-specify the effective date as) : _____ b. 執行時限另訂為(Re-specify the compliance time or period as) : _____ 2. 使用人是否需要將 AD 執行結果向民航局提出報告?(Do Users need to report the status of compliance to the CAA?) <input type="checkbox"/> 是(Yes) <input checked="" type="checkbox"/> 否(No)		
備註 Note	ATA 34. Ref. Publications: Thales FMS User Manual reference J68952AA Revision 01 dated 30 June 2021. and Thales SIL F9111-J70859DN-00 dated 27 January 2022.		
註： 1. AD 內容後附。 2. 航空器產品使用人得向民航局提出豁免、替代符合方法、執行時限之展延之申請。 3. 如有任何問題，請聯絡交通部民用航空局初始適航科。Tel：(02)2349-6331~3, Fax：(02)2545-8464, e-mail： adcaa@mail.caa.gov.tw Note： 1. The AD text is enclosed. 2. Exemption, an alternative method of compliance or adjustment of the compliance time may be proposed to the CAA for approval. 3. For further information, please contact Civil Aeronautics Administration on Tel：(02)2349-6331~3, Fax：(02)2545-8464, e-mail： adcaa@mail.caa.gov.tw			



Airworthiness Directive

AD No.: 2022-0024

Issued: 04 February 2022

Note: This Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EU) 2018/1139 on behalf of the European Union, its Member States and of the European third countries that participate in the activities of EASA under Article 129 of that Regulation.

This AD is issued in accordance with Regulation (EU) 748/2012, Part 21.A.3B. In accordance with Regulation (EU) 1321/2014 Annex I, Part M.A.301, the continuing airworthiness of an aircraft shall be ensured by accomplishing any applicable ADs. Consequently, no person may operate an aircraft to which an AD applies, except in accordance with the requirements of that AD, unless otherwise specified by the Agency [Regulation (EU) 1321/2014 Annex I, Part M.A.303] or agreed with the Authority of the State of Registry [Regulation (EU) 2018/1139, Article 71 exemption].

Design Approval Holder's Name:

THALES AVS FRANCE SAS

Type/Model designation(s):

FMC2 Navigation Modules

Effective Date: 18 February 2022

ETSOA Number(s): EASA.21O.10043999 Rev A.

Foreign AD: Not applicable

Supersedure: None

ATA 34 – Navigation – Flight Management Computer 2 / Navigation Modules – Operational Limitations / Amendment

Manufacturer(s):

Thales AVS France SAS (Thales), formerly Thales Avionics SAS

Applicability:

Thales Flight Management Computer (FMC) 2 Navigation Modules (NAVM), identified by Part Number C13084CA03.

These FMC2 NAVM are known to be installed on, but not limited to, Dassault (formerly Bréguet) Br.1150 Atlantique 2 (ATL2) maritime patrol aeroplanes.

Definitions:

For the purpose of this AD, the following definitions apply:

Affected Airborne Navigation Procedures of the Flight Management System: (1) Procedure 'turn', 'tear drop trajectory', 'specified turn direction' or 'arc to fix leg' in more than one application cases; (2) 'Direct to' while established in 'turn'; (3) Performing revision of the flight plan in case of 'missed approach'; (4) Performing initialization of the flight plan when no intermediate waypoint exists between departure and destination; (5) Fly over a waypoint required into a procedure or associated 'missed approach' procedure; (6) Using 'vertical step' function, (7) Activating the data save command, (8) Using FMS Offset function.

The FMS user manual: Thales Flight Management System (FMS) User Manual reference J68952AA Revision 01.



The SIL: Thales NavDB Service Information Letter (SIL) F9111-J70859DN-00.

Reason:

It has been determined that, due to issues in the software, Thales FMC2 NAVM provide erroneous guidance for affected airborne navigation procedures of the flight management system (FMS), as defined in this AD.

This condition, if not corrected, could possibly compromise the safety margins of the aeroplane.

Prompted by these findings, Thales updated the FMS user manual, as defined in this AD, informed the respective aeroplane manufacturer(s), and published the SIL accordingly to inform affected operators.

For the reasons described above, this AD requires the amendment of the applicable Aircraft Flight Manual (AFM) by introducing operational instructions for the affected airborne navigation procedures of the FMS. This AD also requires a related update of the navigation software database.

Required Action(s) and Compliance Time(s):

Required as indicated, unless accomplished previously:

Operational Limitation(s):

- (1) Within 30 days after the effective date of this AD, amend the applicable AFM to refer to Thales FMS User Manual J68952AA-01, containing the limitations specified in Table 1 of this AD, inform all flight crew and, thereafter, operate the Flight Management System (FMS) in accordance with Table 2 of this AD.

Table 1 – Limitations to Operate the FMS of the Aeroplane
(Formulated as Instructions to the Flight Crew)

No.	Limitation / Instruction
1	For Procedure Turn, Tear Drop trajectory, specified turn direction or arc to fix leg in published navigation procedure, disengage FMS Navigation mode and engage Track mode with the expected Track target.
2	When coupled to the AFCS, do not perform a Direct To while established in Turn.
3	Do not revise the flight plan until GO AROUND safe altitude (as per Standard Operating Procedure) has been reached.
4	Initialize the flight plan with at least an intermediate waypoint between departure and destination.
5	Before flying a procedure (including associated missed approach) that requires to fly over a waypoint, check that the fly-over flag is displayed on MCDU FPLN page beside the constrained fix, as expected in the published chart. If the fly-over is missing, it shall be set manually.
6	Do not use Vertical Step function.
7	Do not activate the data save command.
8	Do not use Offset function.



Table 2 – FMS User Manual Limitations

- Operate the FMS respecting the limitations.
- Only operate the FMS of the aeroplane with a specifically trained crew, as defined in the FMS User Manual, for awareness and training on the mitigation means to recover from the issue “straight leg bypassing following arc to fix leg”.

Amending the AFM can be accomplished by inserting a copy of this AD into the Section ‘Limitations’ of the applicable AFM.

Use of Navigation Database:

- (2) Within 30 days after the effective date of this AD, update the navigation database delivered to installers and operators to remove some navigation procedures as defined in the SIL, and, thereafter, use only a regularly updated navigation database where the above-mentioned procedures have been removed.

Ref. Publications:

Thales FMS User Manual reference J68952AA Revision 01 dated 30 June 2021.

Thales SIL F9111-J70859DN-00 dated 27 January 2022.

The use of later approved revisions of the above-mentioned documents is acceptable for compliance with the requirements of this AD.

Remarks:

1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD.
2. Based on the required actions and the compliance time, EASA have decided to issue a Final AD with Request for Comments, postponing the public consultation process until after publication.
3. Enquiries regarding this AD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: ADs@easa.europa.eu.
4. Information about any failures, malfunctions, defects or other occurrences, which may be similar to the unsafe condition addressed by this AD, and which may occur, or have occurred on a product, part or appliance not affected by this AD, can be reported to the [EU aviation safety reporting system](#). This may include reporting on the same or similar components, other than those covered by the design to which this AD applies, if the same unsafe condition can exist or may develop on an aircraft with those components installed. Such components may be installed under an FAA Parts Manufacturer Approval (PMA), Supplemental Type Certificate (STC) or other modification.
5. For any question concerning the technical content of the requirements in this AD, please contact: Thales AVS France SAS, E-mail: continued.airworthiness@thalesgroup.com.

