



AIRBUS Status

IPACG 48 / FIT35 presentation
EC_FR_NL ; EC_US_EAR99

September 2023

AIRBUS

General Information

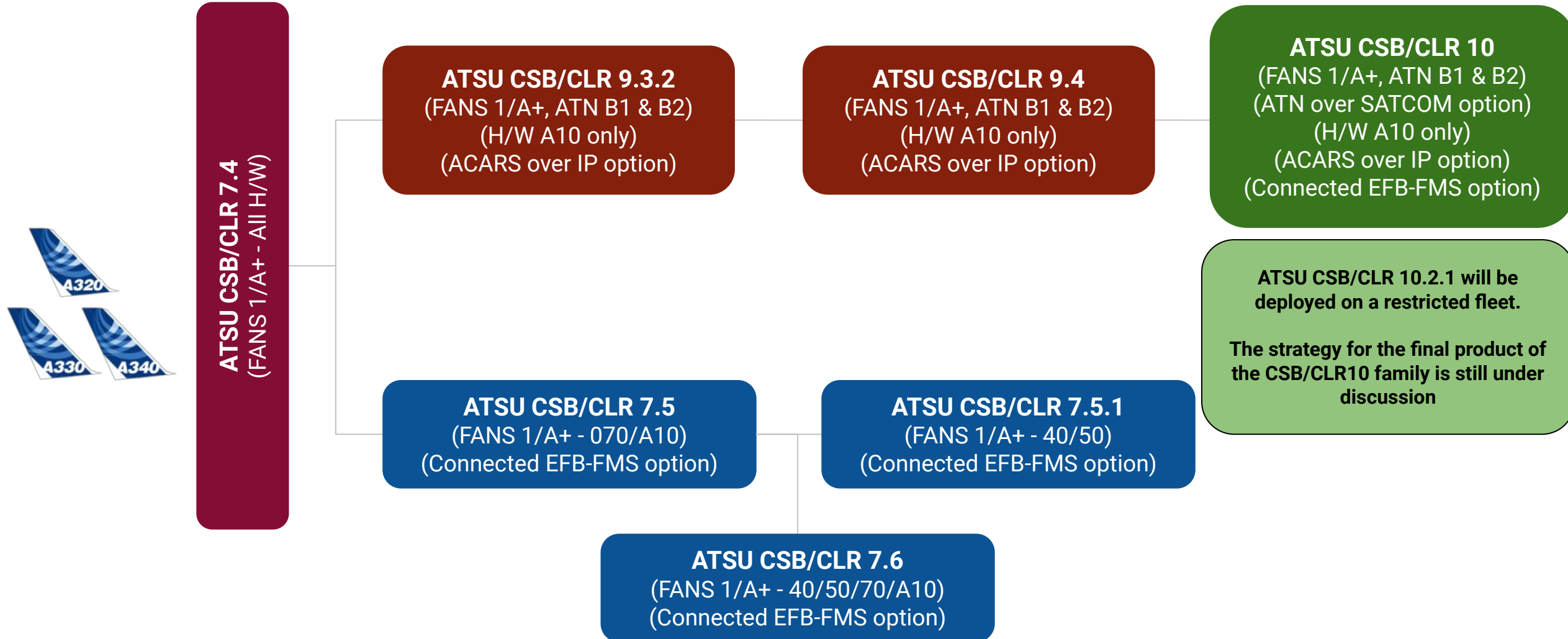
Status on AIRBUS FANS-related developments

Airbus developments status (1/4)



S/W version	H/W prereq.	Capabilities	Major Fixes contained	Certification
CSB/CLR7.5	070/A10	FANS 1/A+	<u>Fixes:</u> Ack'n'Toss , Spurious WILCO, Max Uplink Delay (incl. Midnight issue) , Next on Busy HF DL removal, Media Transition improvements (A618-8 RAT1/SAT7 timers) , VDL2 hand-offs improvements	Certified SB available Except for H/W 40 & 50 (Dataloading issue)
CSB/CLR7.5.1	None	FANS 1/A+	<u>Fixes:</u> Dataloading issue on H/W 40 & 50	Certified SB available
CSB/CLR7.6	None	FANS 1/A+	<u>Fixes:</u> VDL2 related improvement for the US-domestic area	CSB/CLR 7.6 development launched
CSB/CLR9.4	A10	FANS 1/A+ Or FANS 1/A+ & ATN B1 Or FANS 1/A+ & ATN B1 & B2	<u>Features:</u> ATS B2 (CPDLC & ADS-C) capability, MCDU & DCDU HMI rationalization and improved FMS loading mechanisms... <u>Fixes:</u> ADS-C not starting at power-on (CSB9.3.2) , Ack'n'Toss , Spurious WILCO, Max Uplink Delay , Next on Busy HF DL removal, Unrecognized MRN, VDL2 hand-offs improvements, Invalid CRC	Certified SB available
CSB/CLR10	A10	FANS 1/A+ Or FANS 1/A+ & ATN B1 Or FANS 1/A+ & ATN B1 & B2	<u>Features:</u> ATN over SATCOM capacity, D-VOLMET (D-ATIS ENR), display of the # of active Monitorings on the DCDU <u>Fixes:</u> Media Transition improvements (A618-8 RAT1/SAT7 timers) , Max Uplink Delay Midnight issue , VDL2 ATN-related improvements...	CSB/CLR 10.2 certified (limited deployment to evaluate performances) CSB/CLR 10 family final product to be developed

Airbus developments status (2/4)



Airbus developments status (3/4)



S/W version	Capabilities	Major Fixes/Evolutions contained	Certification
A380 ATC CLA4.2	FANS 1/A+ & ATN B1	Spurious WILCO, Max Uplink Delay	Certified
A380 ACR S3		Media Transition improvements	Certified
A380 ACR PRODB		Enhanced VHF M2 Ground Station Hand-Off management (QoS-based criteria)	Certified SB S2 2023



S/W version	Capabilities	Major Fixes/Evolutions contained	Certification
A350 CLV1.4	FANS 1/A+ & ATN B1	Spurious WILCO, Max Uplink Delay	Certified
A350 ACR S4		Media Transition improvements	Certified
A350 ACR PRODB		VGS Hand-Off management (QoS-based criteria)	Certified (SB available)
A350 CLV2	FANS 1/A+ & ATN B1 & B2 ADS-C	Introduction of B2 ADS-C capability (including transmission of EPP data) for compliance with European CP1 mandate. Correction of anomalies leading to ATC menu freezes, ADS-C undue disconnection or rejection of CPDLC Uplink messages. Enhanced loading mechanism TMPY/SEC with nFMS	2027
A350 ACR S5		ACARS enhancements including compliance with A618-8 for UL duplicate detection VDL2 enhancements including compliance with ED-276, improved Hand-off management ATN over SATCOM capability; implementation of Non use of IDRP; Additional ATN/OSI enhancements including compliance with ED276	2027

Airbus developments status (4/4)



S/W version	Capabilities	Major Fixes/Evolutions contained	Certification
IMAA BL7.5	ATN B1	ATN B1 initial certification	Certified
IMAA BL8.0A	FANS 1/A+ or ATN B1	FANS 1/A+ initial certification and ATN altitude req fix	Certified
IMAA BL8.0A2	FANS 1/A+ or ATN B1	No changes to CPDLC application	Certified
IMAA BL8.0A3	FANS 1/A+ & ATN B1	FANS/ATN seamless transfer, Eurocontrol blacklist fixings, Clearance format, AFM limitations (dm59/dm26, WHEN CAN WE + altitude, flight plan loads)	Q2 2024

How can operators help in investigating “NO COMM” & other issues?

Operators assistance in retrieving internal ATSU/ACR traces is welcome!



- **On A320/A330/A340**

- Internal ATSU (router) ISM traces can be retrieved with a capable Dataloader, following a specific AMM task
- These traces are stored during about 10 to 15 days (depending on A/C activity and datalink use)
- They are only available from ATSU S/W CSB/CLR7.x, and with H/W version A10

- **On A380/A350**

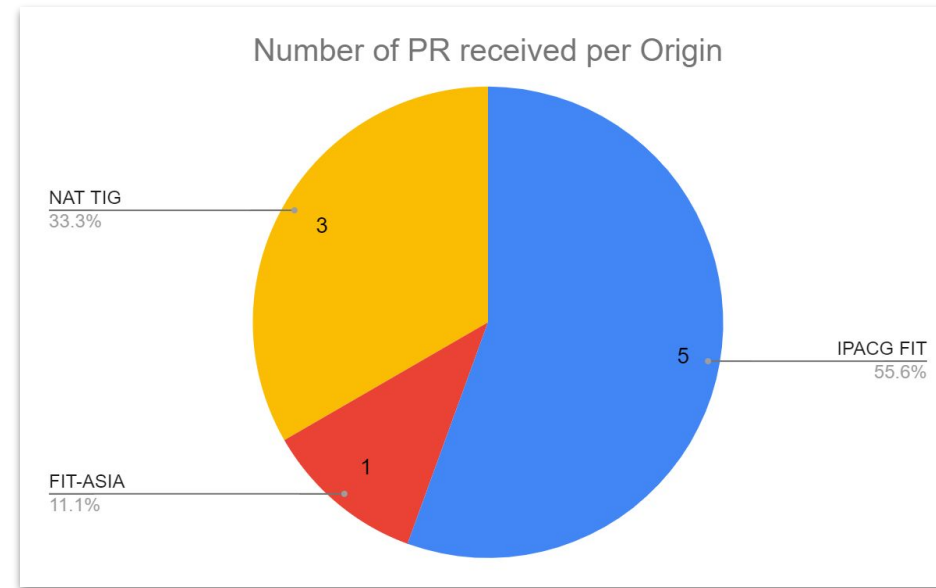
- Internal ACR (router) NAIF traces can be retrieved via a USB key, following a specific AMM task
- These traces are stored during a few days (depending on A/C activity and datalink use)



Problem Reports Analyses

Airbus received PRs - overall status

Since the last FIT meeting, a total of 9 PRs were received with the following origins:



Among the 5 PRs received for the IPACG FIT area:

- 2 PRs could not be analyzed as they were just received (PR-3562, PR-3549) and will not be detailed hereafter
- 1 PR could not be analyzed since the operator did not provide the requested data to analyze even after 3 reminders (PR-3489)
- 1 PR was analyzed but the reported behavior could not be explained (PR-3555)
- 1 PR was analyzed and is linked with an avionic evolution introduced on the CSB/CLR 9.x standard (PR-3493)

Please note that this Report will also provide feedback for:

- PR-3230: PR still under investigation (Duplicate position in ADS-C WCE report from A359)
- PR-3476: PR closed - under monitoring since previous FIT for which Airbus has an answer.

PR 3476: A21N - Unable to send CPDLC reports

PR analysis

After receiving a CPDLC Uplink message UM#129 "REPORT LEVEL 370" the crew from an A21N observed that the message automatically created by the ATC avionic to answer the deferred clearance and displayed on the DCDU (Avionic Mailbox for CPDLC exchanges) when the FL370 is reached (DM#37 "MAINTAINING FL370") appeared with the status "SEND FAILED" shortly after being sent by the crew.

This behavior correspond to an anomaly introduced on the Airbus avionics ATSU CSB/CLR9.x standard.

Indeed, the CSB/CLR9.x standard uses an incorrect Timer value when waiting for the DSP ack for the answer to a FANS 1/A report message or a confirm assigned route message.

The Timer value was incorrectly set to 40s instead of 360s which induces the incorrect apparition of "SEND FAILED" status for these messages when they take more than 40s to be answered by the ground, which is the case in the reported occurrence. Please note that despite the status displayed on DCDU, the message was properly received on the ground side.

This behavior is not systematic and any DM#37 acknowledged within 40s is properly displayed with the status SENT on the DCDU.

Conclusion

- This behavior is only present on the ATSU CSB/CLR9.x and is not present on any other FANS A capable products (CSB/CLR7 products on A320, A330 and A340, or any ATC product on A350 / A380).
- Airbus will consider this issue for the next ATSU development

PR 3493: A339s send contract acknowledgment and report separately

PR analysis

This PR was raised to report that the acknowledgment and report responses to ADS-C demand contracts were sent separately for A339 airframes, which is not compliant with the DO258A/ED100A requirements.

In the latest FANS Avionic product, whenever the Aircraft receives an ADS-C request from the ground containing the “Predicted Route Group”:

- it first sends in answer the ACK for the ADS-C request
- it then sends the Report response in a separate ACARS message

This behaviour was introduced on the latest Airbus FANS avionic in order to mitigate the risk of sending ADS-C reports with default values and thus improve the avionic issue referenced A19 in the FANS problem Solution Tracker (*Default data for predictions in predicted route while FMS is recomputing*). Nevertheless, this behaviour seems to cause an issue on some ATC ground implementation that are expecting the ADS-C acknowledgement and the report in the same message.

After analysis, it appears that the Avionic implementation does not conform to the DO258A/ED100A that states that:

The initial response to a valid Periodic Contract Request shall be an Acknowledgement or a Non-compliance Notification, and a report (with the exception described in subparagraph 4.5.1.4.n). This message shall be assembled and sent with the Basic ADS Group and all specified on-request groups that can be complied with.

Please note that the acknowledgment and report responses to ADS-C requests are sent separately when one of these two groups is requested:

- Predicted Route Group => object of this PR
- Aircraft Intent Group => not an issue as this is in compliance with the DO258A/ED100A requirements (§4.5.1.4.n)

Conclusion

- This behavior is only present on the ATSU CSB/CLR9.x and is not present on any other FANS A capable products (CSB/CLR7 products on A320, A330 and A340, or any ATC product on A350 / A380).
- Airbus will consider this issue at the earliest opportunity

PR 3555 : Unable to establish a CPDLC and ADS-C connection with an A333

PR analysis

This PR indicates that during a flight of an A330 aircraft, the active ATC center received 36 AFN Logon Requests. CPDLC CR1s and ADS-C contracts were uplinked, but there were no corresponding CC1s or ADS-C downlinks (ACKs or position reports) received although the ACARS uplinks received a MAS/S response.

The traces analyzed confirm the reported behavior and show that after a VHF loss, the ATC application on-board was unresponsive. All the ATC Uplink messages sent afterwards were acknowledged but no applicative answer was sent by the Aircraft. The avionic ATC behavior came back to normal after the Flight Number was changed.

This observed scenario was replayed on Airbus test facilities, without reproducing the same issues. In order to further investigate, additional data have been requested from the operator.

Conclusion

- Airbus propose to let this PRs open until further information is received from the operator.

PR 3230: Duplicate position in ADS-C WCE report from A359

PR analysis

The PR concerns ADS-C Waypoint Change Event reports where the current A/C position was almost that of the reported "TO WPT", with an invalid, null or close to 0 "time to go".

Several investigations are on-going, on FMS side, on ATC software side with both theoretical analysis, post-flight data analysis and replays attempts. The issue could not yet be reproduced and the subject is still on-going with analysis and tests to be performed.

Conclusion

- Airbus propose to let this PR open until further analysis could be performed.

Thank you