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Joint EUROCAE WG-129 / RTCA SC-244
"Takeoff Performance Monitoring System Strategy" Meeting Minutes

DATE: August 5th – 7th, 2025
TIME: Tuesday, Wednesday, and Thursday (0900 to 1700 EDT)

PLACE:

RTCA
1150 18th Street NW, Suite #910
20036 Washington, DC (U.S.A.)

CONTACTS:

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PARTICIPANTS:

Last, First Name	Organization
Forni, Andre*	Embraer
Baillargeon, Alex*	Garmin
Jespersen, Allan*	Gulfstream
Roberts, Brian	CAA UK
Fenton, Bryce*	Textron Aviation
Guillaume, Clavière	ATR
(Group)*	COMAC
Olmstead, Dayne	ALPA
Barhoum, Erek	Boeing
Genissel, Philippe	Airbus
Carvosso-White, Helen*	CAA UK
MacLaren, Ian*	FAA
Spaude, Ian*	FAA
Nance, Kirk	Avix Aero
Landers, Tom	Gulfstream
Hogestad, Marie*	FAA
Vigen, Matt*	Southwest Airlines
Magalhães, Paulo C.	Embraer
Godwin, Ross*	Boeing
Smelser, Ryan	Collins Aerospace
Vanderkamp, Travis	Collins Aerospace
Brown, Troy*	FAA
Véras, Vinícius*	Gulfstream
Ishihara, Yasuo	Honeywell

* Indicates virtual attendance

8/5/2025

1 Introductions, Administrative Remarks and Agenda Review

After a round-table introduction, Alex Para (RTCA) welcomed the participants, presented the EUROCAE and RTCA Intellectual Property (IP) policies and membership statements on behalf of Atiqah Pillain (EUROCAE), and formally started the meeting.

2 Review of the approved Terms of Reference for SC-244 and WG-129

The group reviewed the Terms of Reference and no issue was raised.

2.1 Calendar and Due Dates

The published plan to was reviewed and was considered optimistic. The possibility of having to specify the real-time monitoring of the OEI scenario can make the discussions more complex and longer.

3 RTCA and EUROCAE review of drafting guide for Minimum Operational Performance Standards (MOPS) and document creation

The group reviewed the document and no issue was raised.

4 Review and approval of Meeting Minutes (Meeting #6)

The Meeting Minutes from the last meeting were approved without comments.

5 Presentations of Take-off Preparation Overviews

5.1 ATR (Guillaume Clavière)

ATR presented the specificities of the takeoff preparation process for ATR aircraft and the expected challenges to implement the TOPAAS in the avionics.
The key points were:

- Single takeoff configuration (Flaps 15)
- No FLEX takeoff
- Typical case is V1=VR, but may use V1<VR when field-limited
- The Performance computation is done by both pilots and cross-checked
- Performance computation requires manual inputs such as
    - Zero-fuel weight (ZFW)
    - Fuel onboard (FOB)
    - CG
- The Performance is computed using the EFB, not by an actual aircraft system

The main challenges were:

- There is no IRS installed, only GPS
- A TOPAAS would require manual input from pilots such as Runway, wind, temperature, etc. for the Performance checks

5.2 Gulfstream (Allan Jespersen)

Gulfstream presented the G600 Symmetry Flight Deck. The system requires manual input from pilot, such as

- Weights (ZFW & FOB)
- CG
- Pressure altitude
- Wind
- Runway data (SID, runway condition)

- Thrust configuration (FLEX, Anti-ICE, TRs operative)

From the inputs, the system provides the takeoff performance, that includes the takeoff speeds, accelerate-go and accelerate-stop distances.

The TOLD input for runway threshold might be used to account for the runway behind at the takeoff initiation point.

5.3 Embraer (Paulo Cypriano Magalhaes)

Takeoff preparation is done in 3 levels: AFM, FMS, CAFM.
AFM (paper) presents minimum information, only for dry runway.
FMS provides more complete information using TOLD
CAFM provides the optimum Performance using a full list of options, including derate and flex takeoff procedures.

Embraer started to work on a dispatcher feature, capable to calculate performance for all intersections.

EFB don't communicate with the aircraft systems. If TOLD is used, then the speeds are automatically passed over to PFD. One pilot inserts the data and the other checks it. TOPAAS will likely do what the 2nd crew member is now supposed to do.

Will Performance checks be based only on the input? Only for Mode 1. We want to validate the plan first. Then, in Mode 2 we may want to use actual data from aircraft systems.

5.4 ALPA (Dayne Olmstead)

Most operators are now paperless. TOFU (Taxi-out Flaps up) rule is often used. Dispatch information on the tablet (Wi-Fi + cell), may include flight plan, MEL Lookup, Company Remarks (notes and assumptions used prior to dispatch).

Approximately 95% are dry & wet. Noted TOPAAS NPA asks for dry/wet only.
Dayne: Could we inhibit Mode 3 without compromising Modes 1 and 2 [and use TOPAAS for other runway conditions]?
Travis: MOPS should not specify other runway conditions but should allow design space in case one designer wants to provide such capability.

For aircraft that there is no takeoff config button, throttles are often advanced all the way forward and all the way back to try to trigger a takeoff config warning before entering the runway.

5.5 Gulfstream (Tom Landers)

Interesting Airport for TOPAAS: Aspen

Aspen 7840ft field elevation

Mainly operated by CRJ700 & E175 and business aircraft

Takeoff and Landing at opposed runway

On Feb 21, 2022, one Hawker 800XP had an RTO followed by runway excursion

How would TOPAAS help with the tailwind?
Erek: Average wind may be used during Mode 3, since it may lead to lower accelerations in terms of KCAS.

Vinicius: VR is airspeed. TOPAAS should help as it will have to have the ability to know actual aircraft position.

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5.6 Embraer (Paulo Cypriano)

Presented challenging airports for TOPAAS

- Santos-Dumont Airport - SDU
- Congonhas - CGU
    - Fokker 100 accident
    - Airbus landing accident on July 17, 2007

5.7 Gulfstream (Vinicius Veras)

Presented preliminary classification of the events considering the number of occurrences, main characteristics and effects during takeoff phases.

"Wind" causes could be segregated by "wind" and "gust".

ACTION: Will update the slides and share on the AEROPUS website.

Dayne asked if higher thrust could be a scenario of interest since might impact controllability.

Erek said there might be some sort of system for that already.

Vinicius said that there might be already some regulation (14 CFR 25.149) or systems in place to take care of those high-thrust scenarios. That could be an example of the kind of issue that would be considered as "out of scope" for TOPAAS.

Functions/systems already available might also be covered by the MOPS.

6 Discussion of vision from Regulator

6.1 Discussion of the NPA

The committee looked at the EASA's NPA 2025-01 draft. After a long discussion, it was agreed that all the comments are going to be presented formally as comments to EASA.

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6.2 FAA (Marie Hogestad)

Vision for TOPAAS (and ROAAS)

In response to incidents and accidents, the FAA has received recommendations from the Investigative Technologies Aviation Rulemaking Committee - Runway Safety Alerting Subgroup as well as the NTSB to implement and require (harmonizing with EASA) systems aligned with the intended function of TOPAAS (and ROAAS). The FAA is still coordinating internally to address the recommendations; however, Administration limitations on rulemaking may require relying on EASA mandates for equipage for in-production airplanes. The FAA would strongly encourage airplane equipage and use via an Advisory Circular.

Technical Standard Order (TSO) and Advisory Circular (AC):
- The FAA currently plans to develop a TSO based on the SC-244 MOPS for Takeoff Performance Awareness and Alerting Systems.
- The FAA currently plans to develop a new AC for ROAAS & TOPAAS or revise AC 25-23 for TAWS to bring that AC up-to-date and incorporate these new systems/functions
- A ROAAS TSO is currently TBD. An IP is required for installation approval.

TAWS AC 25-23 will probably combine ROAAS & TOPAAS.

7 Continued work on the new MOPS

7.1 Review of Draft Document - Current State

New revision will be available on the EUROCAE website.
Sec. 2.5: Draft recommendations and requirements
A change history table will be added to help during working sessions
Sec. 3 will have new content.

A numerical simulation study that showed extreme weight errors that could occur in normal operations. It was discussed if one TOPAAS implementation was able to provide alerts for those weight errors, then would it be considered nuisance?

Dayne: Mentioned that in ATL, the same runway may be used with different lengths to account for the possibility of one aircraft taxiing after the end of the runway. Similar scenario as the boat on the harbor in SDU (like an obstacle).

7.2 Intended Function

It was discussed a proposal to state that TOPAAS is a supplement function and so, it will not alleviate crew duties.

7.3 Modes and States Update

See Item 7.5.

7.4 Discussion on runway databases and declared distances

N/A

7.5 Discussion of the take-off distance to be used (OEI / AEO / other)

Takeoff modes proposal:

Mode 1: The TODA and ASDA distances will be checked against the maximum (TOD / ASD) distances between OEI/AEO.

Mode 2: Similar check, except that remaining runway is to be considered.

Mode 3: The predicted distance to the point where 35 ft height is reached (AEO) should be before the end of TORA and ASDA.

Vinicius suggested to use the same definitions of required distances from 25.113. Using the definitions (or referring to) 25.113 should be recommended.

Brian thinks it is easier to reference the current regulation.

AFM model may need to be incorporated in the system (Guillaume). Will provide a proposal

7.6 Review of new material from participants

N/A

7.7 Review ED-250 Converted requirements and placement

N/A

7.8 Discussion of Test Procedures Section

It was discussed that the rotation will happen after TOPAAS is out. How can we say the result the algorithm is good enough?

Proposal presented by Tom L.

At a given speed before VR, given W, run TOPAAS. The bounds below may be used as criteria:

Upper bound: 1.15 AEO Accel-go distance
Lower bound: AEO Accel-go distance

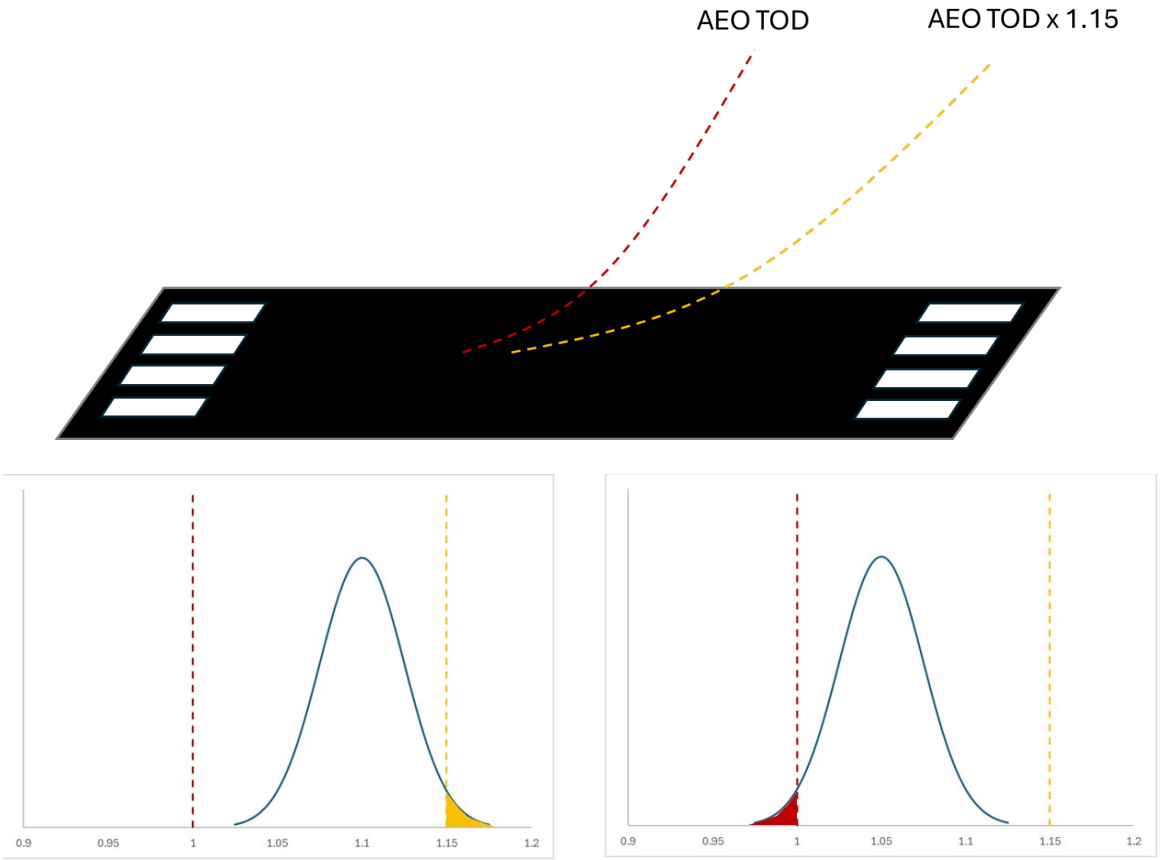

Figure 1 – Predicted Distance Accuracy Criteria Proposal

This accuracy criteria would only be applicable to Mode 3.
ACTION: Paulo will write a proposal for this in about 3 weeks.

8 Set Next Meeting Date

Next plenary sessions were planned for:

- Oct 14th to 16th in Toulouse – France (tentative)
- Jan 27th to 29th in Savannah, GA – USA (tentative)

9 New Business

N/A

10 Close

The meetings occurred normally, without any technical issues. The next plenary session will be held in Toulouse pending confirmation from Airbus / ATR.
RTCA hasn't yet received the proposal from Gulfstream to hold the meetings in Savannah in January 2026.