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January 27-29, 2026
Savannah GA, USA

TAKEOFF PERFORMANCE MONITORING SYSTEM STRATEGY
RTCA SC-244 WITH EUROCAE WG-129

DATE: January 27th – 29th, 2026
TIME: Tuesday, Wednesday, and Thursday (0900 to 1700 EST)

PLACE: Gulfstream Aerospace RDC III
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PARTICIPANTS:

Last, First Name	Organization
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Barhoum, Erek	Boeing
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Véras, Vinícius	Gulfstream
Vigen, Matthew*	Southwest Airlines
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* Indicates virtual attendance

1 Welcome and Introductions, Administrative Remarks and Agenda Review

Gulfstream's Airworthiness Assurance Vice-President Kim Lascell welcomed the group and restated Gulfstream's commitment to safety across the aviation industry.
After a round-table introduction, RTCA and EUROCAE representatives welcomed the participants.

2 EUROCAE and RTCA policies

EUROCAE and RTCA representatives presented their Intellectual Property (IP) policies and membership statements without any question from the attendance.

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

The group requested RTCA to harmonize dates with EUROCAE's ToR and to mention Vinicius as the secretary.

3.1 Calendar and Due Dates

The group proposed RTCA to revise ToR dates as below:

- FRAC Completion due date to be updated to April 2027
- Projected Publication date to be updated to June 2027

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

After a brief discussion, the group decided to skip this item.

5 Review and approval of Meeting Minutes (Meeting #8)

The Meeting Minutes from the last meeting were approved after minor changes.

6 Discussion of vision from Regulators

CAA-UK expects that MOPS serves as a harmonized guidance document for the industry to follow, supporting regulatory activities such as

- Requirements for TOPAAS
- Possible UK TSO
- Possible TOPAAS guidance material to be developed

After TOPAAS MOPS is released, the TOPAAS introduction on UK registered aircraft is to be defined. The introduction of rulemaking and guidance for TOPAAS in the UK would be harmonized with FAA & EASA and is likely to take 5 years to be part of CAA's certification basis. CAA hasn't decided if they will issue a mandate.

CAA may need to come to the EUROCAE to ask for a revised ToR target date.

7 Review of comments from EASA/NPA if available

Skipped since EASA has not responded to the NPA comments.

8 Continued Work on the new MOPS

8.1 Review of Draft Document - Current State

Tom presented a coverage map proposal correlating requirements, recommendations for types of checks and modes.
A discussion started about the definitions of takeoff intent, and mode transitions raised.
Vinicius suggested that a definitions section could be useful for the benefit of the MOPS preparation. That could make discussions more effective. Brian R. suggested that examples could be added as well. If any designer need different definitions, they can always do that.

Airbus: likes the table. Helps discussions and requirements view.

The word for takeoff will be "takeoff", not "take-off".

We should focus on the TOPAAS function itself, and not on the categories as proposed by EASA NPA.

8.2 Intended Function

The intended function was reviewed, and a slight change was made. May be revisited in the next plenary session.

8.3 Modes and States Update

TOPAAS will "detect unsafe" takeoffs.

Tom: Should we consider a scenario with a very low acceleration, such that the aircraft may not even reach a speed at which an alert would be triggered (in Mode 3)?

Brian R.: This is similar to the Kuusamo scenario.
- Could be a pure acceleration check

Airbus had an event with residual brakes. The system raised an alert.

No consensus was reached on whether the very low acceleration alert should be required by the MOPS.

TOPAAS behavior when data was not entered was discussed.
Allan J.:
- Gulfstream's ROAAS works even when nothing is programmed within the avionics.
- TOPAAS should be able to work the same way

Tom L.:
- Presented a proposal of check types that could be executed. The proposal had several scenarios, and types of check that could be provided by each mode.

Assumptions:
MODES are more related to the type of algorithm that runs the checks
MODE 1: Gross errors detection
MODE 2: Plan validation at the start of the takeoff acceleration / run
MODE 3: Real-time checks

Vinicius:
- We should find a way to clearly define operational modes. If it is not possible, MOPS could provide examples for the designer to consider in their system.

Tom's proposed check types:

- Gross error detections
  - GEDE - Gross Error of Data Entry
  - GEAC - Gross Error check of Aircraft Configuration (i.e., the horizontal stabilizer position within the green band)

- Plan Validation

- CA2PLAN - Plan validation using data from aircraft systems
- STIQ - "Safe Takeoff in Question"

Tom shares a Gross error definition proposal.

The group recognized gross error checks may not be enough for all error types and possible scenarios.

Vinicius: Proposed to first focus on the gross error checks for each parameter/variable and proceed to discuss other check types as needed. The MOPS may require other types of checks that are more robust.

Discussion over the weight checks type CA2PLAN. Should it be a recommendation? How to write it?

Check types discussed:

- Take-off weight and CG: Could start as soon as in Mode 1, but requirement could be conditional as many aircraft models will not be equipped with an On-board Weight and Balance System.
- Pitch trim: Could start as soon as in Mode 1 but complemented in Mode 2.
- FMS takeoff speeds: Could start as soon as in Mode 1 but complemented in Mode 2.
- FMS thrust: Could start as soon as in Mode 1 but complemented in Mode 2.
- Manual Thrust Lever Angle: Should only be required for Mode 2 (after take-off intent).
- Engine Bleed Configuration: Should only be required for Mode 2 (after take-off intent).
- Wind Conditions: Could start as soon as in Mode 1 but complemented in Mode 3.
- Temperature: Could start as soon as in Mode 1 but complemented in Mode 3.
- Flap Setting: Could start as soon as in Mode 1 but complemented in Modes 2 and 3.
- Take-off Position: Could start as soon as in Mode 1 but complemented in Mode 2.
- Take-off Distance: Could start as soon as in Mode 1 but complemented in Modes 2 and 3.
- Real-time Acceleration: Will be required only for Mode 3.
- Runway Condition: Although it may be out of scope of the MOPS, there should be a requirement for an indication of system unavailable.
- Tire Speed Limit: Doesn't need to be required as is already considered as a limitation during dispatch.
- Assumed / FLEX Temperature: May be required as a gross error check for Mode 1

8.4 Alerting

Discussed case by case during the types of check discussions from section 8.3.

8.5 Alerting terminology

Postponed to the next plenary session.

8.6 Review of new material from participants

8.6.1 Airbus (Alexandre Buisson)

Airbus shared the number of alerts their TOS solution has triggered in the A320 fleet. The numbers are summarized in Table 1.

Table 1 – TOS Alerts

System	Alert	Alerts / TO (x 10^{-6})
TOS1	T/O SPD DISAGREE	5000
	T/O SPD NOT INSERTED	700
	T/O SPD TOO LOW	100
TOS2	NAV NOT ON FMS RWY	300
	NAV ON TAXIWAY	80
	RWY TOO SHORT	10

8.6.2 Gulfstream (Vinícius Véras)

Vinícius presented a few slides to show that the V1 may need to be considered when defining the limit distances OTOD, TOMD, and PTOD, otherwise the OEI distance to LOF for the minimum V1 may too close to or even longer than the OEI distance to 35 ft for V1=VR, leading to a scenario that OTOD would be encroached by PTOD (Figure 1).

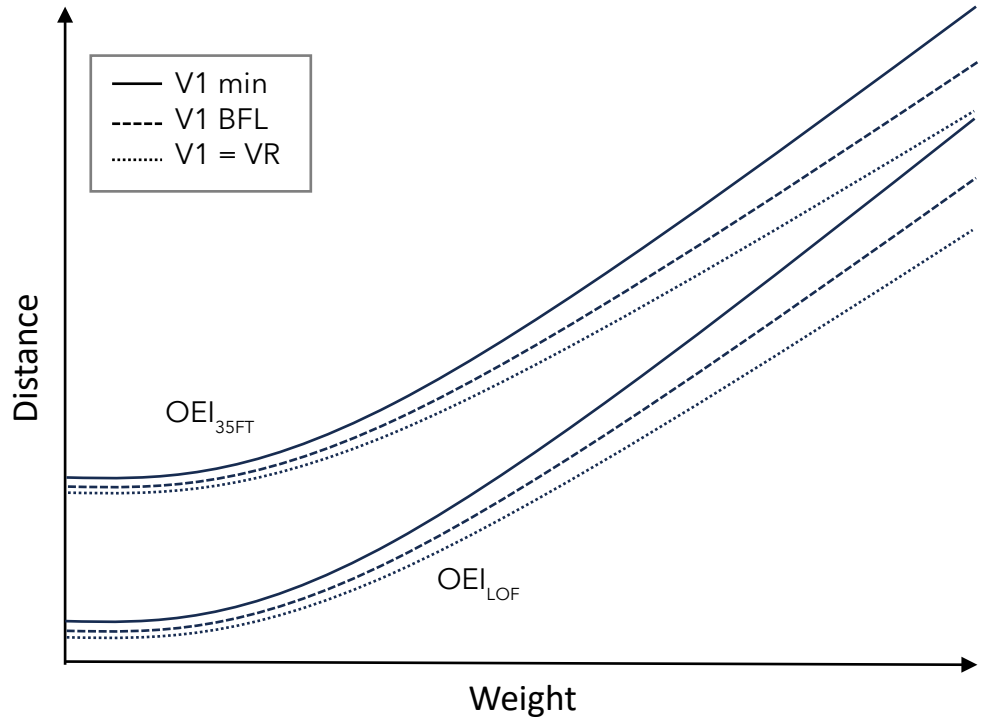

Figure 1 OEI accelerate-go distances

8.6.3 Embraer (Paulo Cypriano Magalhães)

Paulo presented the proposed requirements that have been converted from ED-250.

8.7 Review ED-250 Converted requirements and placement

See item 8.6.3.

8.8 Further Discussion of Distance for Testing of Real-Time Computation

This was postponed for next plenary sessions as the meetings ran out of time.

8.9 Discussion of Scenario-based testing

This was postponed for next plenary sessions as the meetings ran out of time.

9 Set Next Meeting Date

Next plenary sessions were planned for:

- Plenary #10: April 28th to 30th (Tentatively in Europe). Dassault will evaluate if can host the meetings in Bordeaux.
- Plenary #11: August 4th to 6th (Location not defined)

10 New Business

N/A

11 Close

The meetings occurred normally, without any technical issues. The group thanked Gulfstream for hosting the event.