

Business Jets Workshop 2025



21st – 22nd January 2025
EASA Headquarters
Cologne, Germany

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CATA Worklist Item (CWI) FAA-004

Runway Excursion Hazard Classification



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Presentation Overview

- CATA & CWIs
- CWI FAA-004 Runway Excursion Hazard Classification
 - Description of Issue
 - The Task
 - Result
 - Harmonized Practice
- Conclusion
- Where to find the CWI decision documents

CATA and CWIs

- The Certification Authorities for Transport Airplanes (CATA) is a group established by the CMT Authorities (ANAC, EASA, FAA, TCCA) to support the safety mission of State of Design authorities for transport category airplanes.
- CATA Worklist Items (CWIs) typically address **subjects that have required significant effort in certification/validation** programs. They aim to document an agreed compliance methodology for the subject certification issue.
- Applicants incorporating a closed CWI methodology should benefit in the certification and validation processes.
- The use of CWIs by applicants is purely voluntary – their **purpose is to streamline the validation process**.

CWI FAA-004: Description of Issue(s)

- Lack of harmonization in existing guidance material for classifying the severity of failure conditions that could result in runway excursion events.

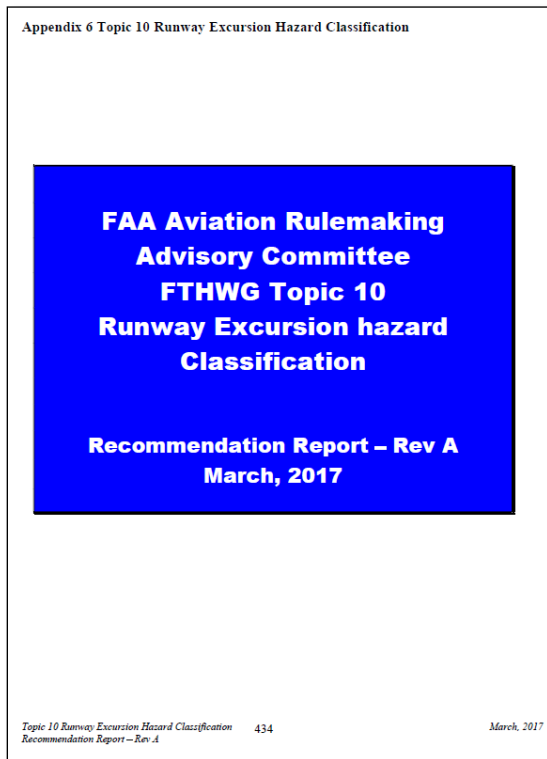
EASA CRI Interpretative Material

- minimum classification of runway excursions as a function of excursion speeds

FAA PS-ANM-25-11

- emphasis on failure prevention, any runway excursion above “high taxi speeds” potentially Catastrophic

CWI FAA-004: Description of Issue(s)



- The FAA tasked the ARAC FTHWG to develop harmonized guidance for classification of runway excursion hazard levels
- The FTHWG recommended excursion speed-based hazard classification criteria, together with a list of operational and environmental factors that affect excursion speed
- Some aspects of the FTHWG recommendation had dissenting opinions from FAA, EASA and ALPA.

*ARAC: Aviation Rulemaking Advisory Committee
FTHWG: Flight Test Harmonization Working Group*

CWI FAA-004: The Task

- Establish a working group comprised of Safety Assessment SME(s) from each member's organization and representative from Flight Test Engineering to take a fresh look at the runway excursion hazard classification methodology, with support from other disciplines as needed.
- Review the CA approaches, the ARAC recommendation also taking into consideration the dissenting opinions, and industry compliance showing to §/CS 25.1309 (and other system safety related rules).



The goal is to develop a **harmonized approach to enhance predictability and consistency in the validation** process across the CMT authorities.

CWI FAA-004: The Result

- This guidance paper presents a **harmonized practice** that provides additional guidelines for demonstration of compliance with §25.1309 for runway excursion hazard classification.
 - It does not replace any existing §25.1309 guidance but it should be used as supplementing material for the specific subject of classification of failures leading to runway excursion.
- The harmonized practice addresses:
 - Runway excursion definition
 - Design considerations
 - Speed-based criteria
 - Operational and environmental conditions
 - Additional considerations

CWI FAA-004: Harmonized Practice

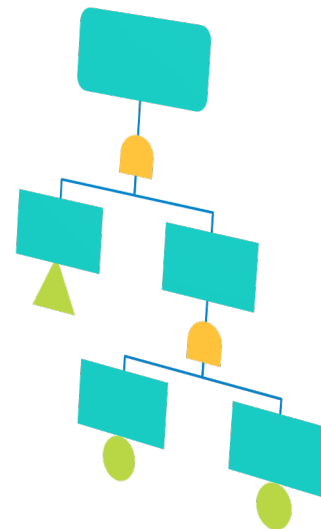
Runway excursion definition

*“A runway excursion is considered to occur when **any landing gear first departs the runway/taxiway** laterally or longitudinally during taxi, takeoff, or landing ground roll.”*

CWI FAA-004: Harmonized Practice

Design considerations

- Emphasizes the primary **focus on ensuring development of state-of-the-art designs** to prevent runway excursion failures regardless of speed.
- Systems should be designed to ensure required levels of reliability of ground deceleration, directional control, and crew indication functions.



CWI FAA-004: Harmonized Practice

Speed-based criteria

Parameter	Criteria	
	Runway Excursion Speed Interval	Minimum Classification Based on Speed
Longitudinal / Lateral Runway Excursion	$V > 60 \text{ kts}$	Catastrophic
	$30 \text{ kts} < V \leq 60 \text{ kts}$	Hazardous
	$V \leq 30 \text{ kts}$	Major

The speed-based criteria in this table are guiding principles only and should not be used as an absolute design criterion. Experienced engineering and operational judgment should always be applied when assessing failure condition effects.

CWI FAA-004: Harmonized Practice

Operational and environmental conditions

- Outcome of each analysis likely depends on the assumed environmental and operational conditions, even if same speed-based criteria are used.
- The harmonized practice provides **acceptable approaches** on how to consider some operational and environmental conditions in the analysis.
 - Note: This CWI covers only a subset from all the parameters affecting runway excursions.

Runway width

Field elevation

Airplane configuration

Crosswind

Field length

Weight and CG

Surface condition

Off-runway conditions

TO failure speed

CWI FAA-004: Harmonized Practice

Operational and environmental conditions

Example: Field Elevation

- A default value of 5,000 ft should be adequate for most designs to satisfactorily cover the certified envelope.
- Involvement of stability and control, performance, or propulsion experts may be needed to assess the validity or extrapolation of such data to cover significantly higher field elevations.

Runway width	Field elevation	Airplane configuration
Crosswind	Field length	Weight and CG
Surface condition	Off-runway conditions	TO failure speed

CWI FAA-004: Harmonized Practice

Additional considerations

- Applicant's methodology for assessment of failure condition leading to runway excursions should be **incorporated into the existing safety assessment process**, which is also an integral part of the **development assurance process (ARP4754/ED-79)**.
- **Consistent application** of harmonized runway excursion criteria and conditions for failure assessment is essential to ensure that safety objectives are established and the resulting or corresponding designs are evaluated, including **type design changes** as determined by application of CPR guidelines.
- Clarifies the use of the **§25.735(b)(1) exception*** and its relationship with the hazard classification assessment for runway excursion.

**Certain single failures covered by §25.735(b)(1) are excepted from the requirements of §25.1309(b).*

Conclusion

- The CWI FAA-004 guidance paper presents guidelines and criteria related to runway excursion hazard classification based on the objective of **harmonization improvement**. It does not supersede any guidance material.
- It represents an agreement that the guidance paper is harmonized and **accepted by all CMT authorities**.
- The use of the guidance paper is expected to **enhance the predictability and consistency for type design validation** involving the CMT authorities.
- As with any CWI, the **use of this guidance paper is voluntary**.
 - The applicants may still coordinate with their certification authority to develop and agree on their own specific parameters, criteria and analysis.

Where to find the CWI decision documents

Document Library

- Application Services
 - Approval Data Library
- Rulemaking Process
- Agency Decisions
- Regulations
- Public Consultations
- Product Certification
- International Cooperation
 - Overview
 - Bilateral agreements
 - Working arrangements


CATA Worklist Item (CWI) Decision Documents

CATA Reference	Subject	Closure Date
FAA-003 (PDF)	CNS Guidance Harmonization	09/01/2025
FAA-004 (PDF)	Runway Excursion Hazard Classification	09/01/2025
EASA-002 (PDF)	2D Nacelle Fire Resistance	23/10/2024
ANAC-001 (PDF)	Fuel Line installation – Crashworthiness	05/09/2024
TCCA-006 (PDF)	Evacuation slide system installed in non-pressurized compartment	17/04/2024
TCCA-005 (PDF)	MRB task interval escalation	20/10/2022
FAA-005 (PDF)	Flight Control System - Operation Tests	19/10/2022



Where to find the CWI decision documents

United States Department of Transportation



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Supplemental Type Certificates

Transport Airplanes

Certification Authorities for Transport Airplanes (CATA)

The Certification Authorities for Transport Airplanes (CATA) comprises aircraft certification management representatives from ANAC (Brazil), EASA (EU), FAA (US), and TCCA (Canada). The CATA is tasked to identify and pursue, through collaborative activity, certification policy and guidance harmonization opportunities. The [full CATA Charter](#) has been established by the certification director-level [Certification Management Team \(CMT\)](#).

For further information, please contact the FAA CATA management representative:
James Wilborn, AIR-62A, James.Wilborn@faa.gov

CATA Harmonization Decisions

CATA harmonization decisions are documented in closed CATA Worklist Item (CWI) forms, signed by the CATA principals from all four authorities. CATA closure decisions vary depending on the nature of the issue.

Most CATA CWI forms document an agreed compliance methodology for the subject certification issue. If an applicant follows the documented methodology, and their certifying authority endorses that methodology for a certification project, the other three CMT authorities will accept the methodology for validation. The objective is to offer to industry harmonized compliance approaches, which if adopted, will streamline the validation process. Typically, the subjects addressed in CATA decision documents are those that have required significant authority and industry resource expenditure to resolve in multiple projects.

CATA Worklist Item (CWI) Decision Documents

CATA Reference	Subject	Closure Date
FAA-003	Communication, Navigation, and Surveillance (CNS) Guidance Harmonization	12/05/2024
FAA-004	Runway Excursion Hazard Classification	11/26/2024
EASA-002	CS/FAR 25.867 Fire Protection: other components – 2D Nacelle	10/23/2024



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Thank you

Any questions?