



EUROPEAN AVIATION SAFETY AGENCY
AGENCE EUROPÉENNE DE LA SÉCURITÉ AÉRIENNE
EUROPÄISCHE AGENTUR FÜR FLUGSICHERHEIT

ECAST
Component of ESSI



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EOFDM Working Group A

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Your safety is our mission.



- I. Objectives & Scope
- II. Current Status
- III. Working Group A methodology
- IV. Next steps



I. Scope & Objectives

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Scope of Working Group A:
Operational safety issues to be
monitored via FDM

Risk domains to be worked on:

- Runway Excursions (REX)
- Loss of Control (LOC)
- Controlled Flight Into Terrain (CFIT)
- Mid Air Collision (MAC)

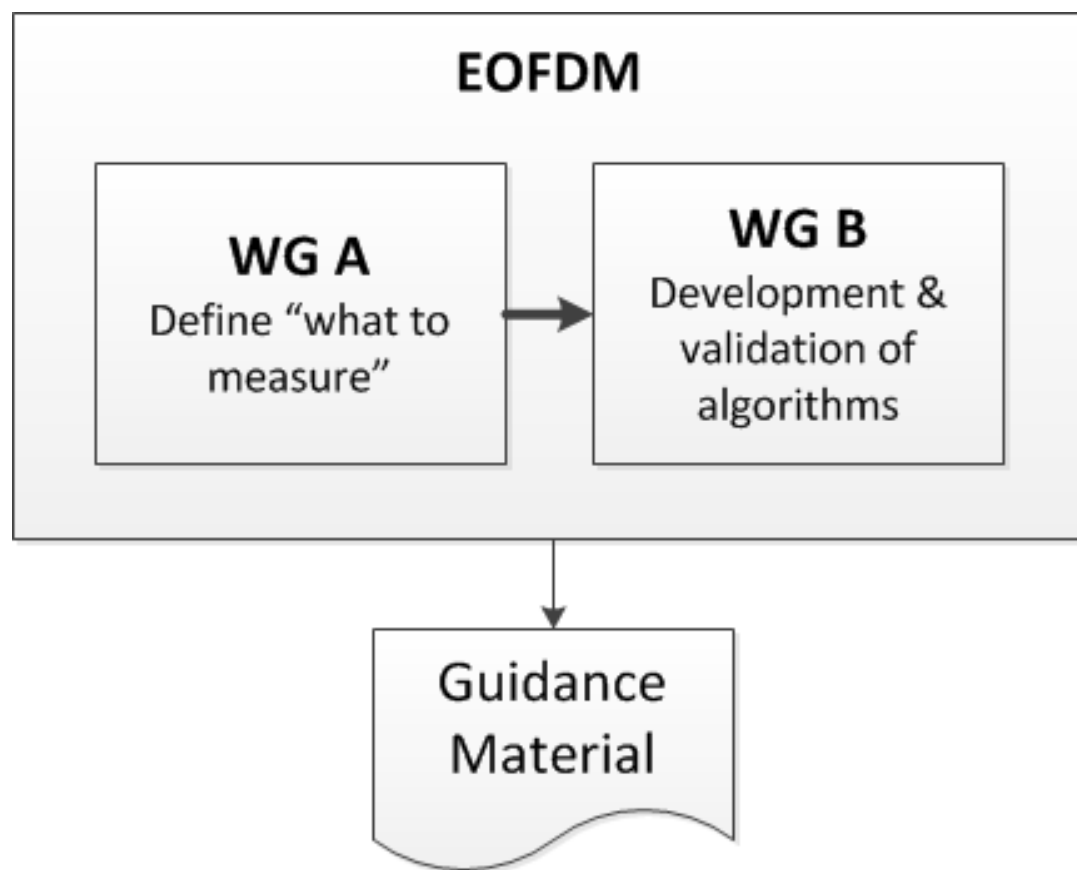


I. Scope & Objectives

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WG A and WG B work closely and in 'tandem'





II. Current Status

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- WG A proposed 31 recommendations to be followed-up by WG B about Runway Excursions
- Preliminary work done by WG A on CFIT



III. WG A methodology

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- « Blank sheet» design (vs starting from existing event set)

- Top-down approach:
 1. Accident type
 2. Accident scenarios
 3. Precursor factors
 4. Recommendations for WG B



III. WG A methodology

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1. Accident type:

Runway excursion

2. Accident scenarios:

Runway overrun after RTO

Runway overrun on takeoff (no RTO)

Runway veer-off on takeoff (no RTO)


Runway veer-off after RTO

Runway overrun after landing

Runway veer-off after landing



3. Precursor factors (scenario 1: Overrun after RTO)

Increasing "proximity" to the accident 			
Incorrect performance calculation	slow acceleration		Insufficient runway remaining after RTO
Incorrect aircraft configuration	Aircraft malfunction	Rejected takeoff	Inadequate use of stopping devices
GC out of limits	Slow rotation		insufficient deceleration
Reduced elevator authority	Late rotation		
	No liftoff after rotation		



III. WG A methodology

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4. Recommendations

WGA03 “GC out of limits”

Develop means to detect CG out of limits on takeoff or not consistent with pitch trim settings.

Precursor	Excursion Scenario						Recommendation
	1	2	3	4	5	6	
Incorrect Performance calculation	X	X			X		WGA01
Incorrect aircraft configuration	X	X					WGA02
GC out of limits	X	X					WGA 03
Reduced elevator authority	X	X					WGA 04
Insufficient acceleration	X	X					WGA 05
Aircraft malfunction	X						WGA 06
Slow rotation	X	X					WGA 07
Late rotation	X	X					WGA 08
No liftoff after rotation	X	X					WGA 09
Rejected takeoff	X			X			WGA 10
Insufficient runway after RTO	X						WGA 11
Inadequate use of stopping devices	X				X	X	WGA 12
Insufficient deceleration	X				X		WGA 13
Engine power increased		X					WGA 14
Insufficient runway before liftoff		X					WGA 15
Pilot technique			X				WGA 16
Crosswind			X				WGA 17
Forward thrust asymmetry			X				WGA 18
Steering problem			X				WGA 19
Lateral deviation			X	X		X	WGA 20
Reverse thrust asymmetry				X		X	WGA 21
Braking asymmetry				X		X	WGA 22
Poor visibility					X	X	WGA 23
Tailwind					X		WGA 24
Crosswind					X	X	WGA 25
Unstable approach					X	X	WGA 26
High over threshold					X		WGA 27
Long flare					X		WGA 28
Deep landing					X		WGA 29
Abnormal runway contact					X	X	WGA 30
Go-around							WGA 31



IV. Next Steps

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- Continue work started for CFIT
- Extend methodology to LOC and MAC
- Get more help:
 - More WG A members
 - New WG A co-leader



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Thank you for your attention.

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