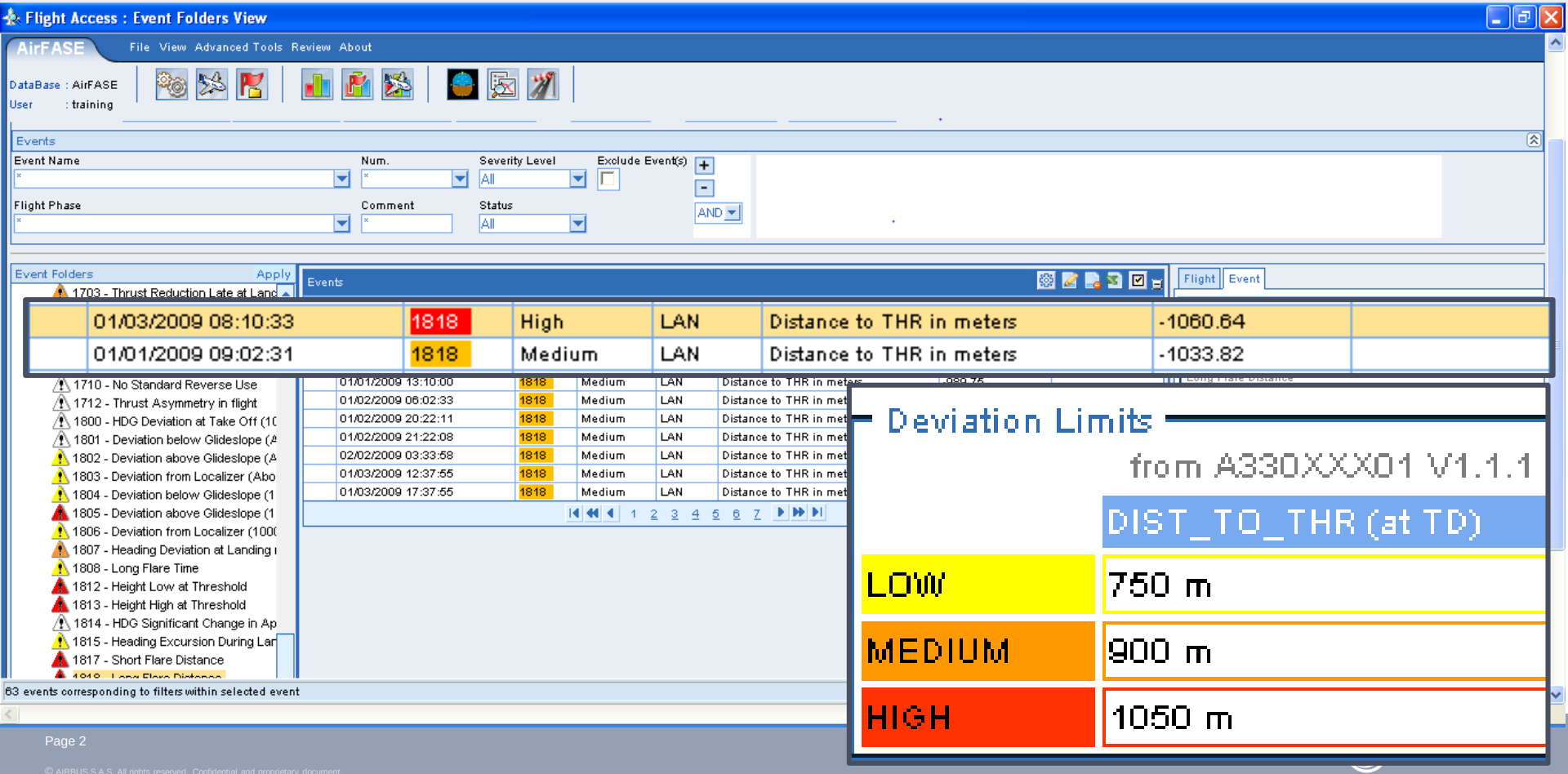
International Aviation Forum
Bogota
March 30 - 31, 2017

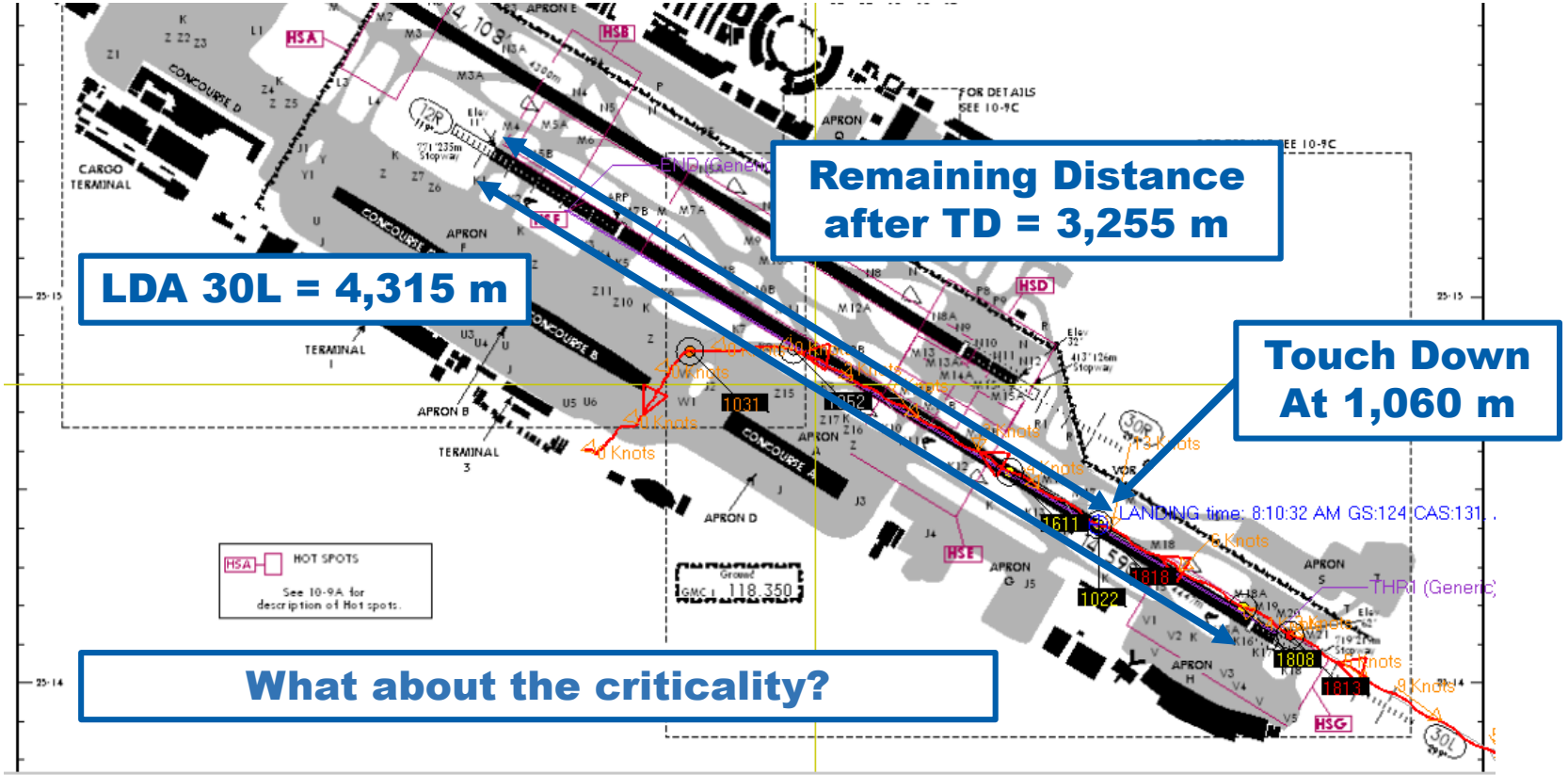
FDA Fundamentals

Capt Paul DUBOIS
Manager SMS & FDA Assistance
AIRBUS

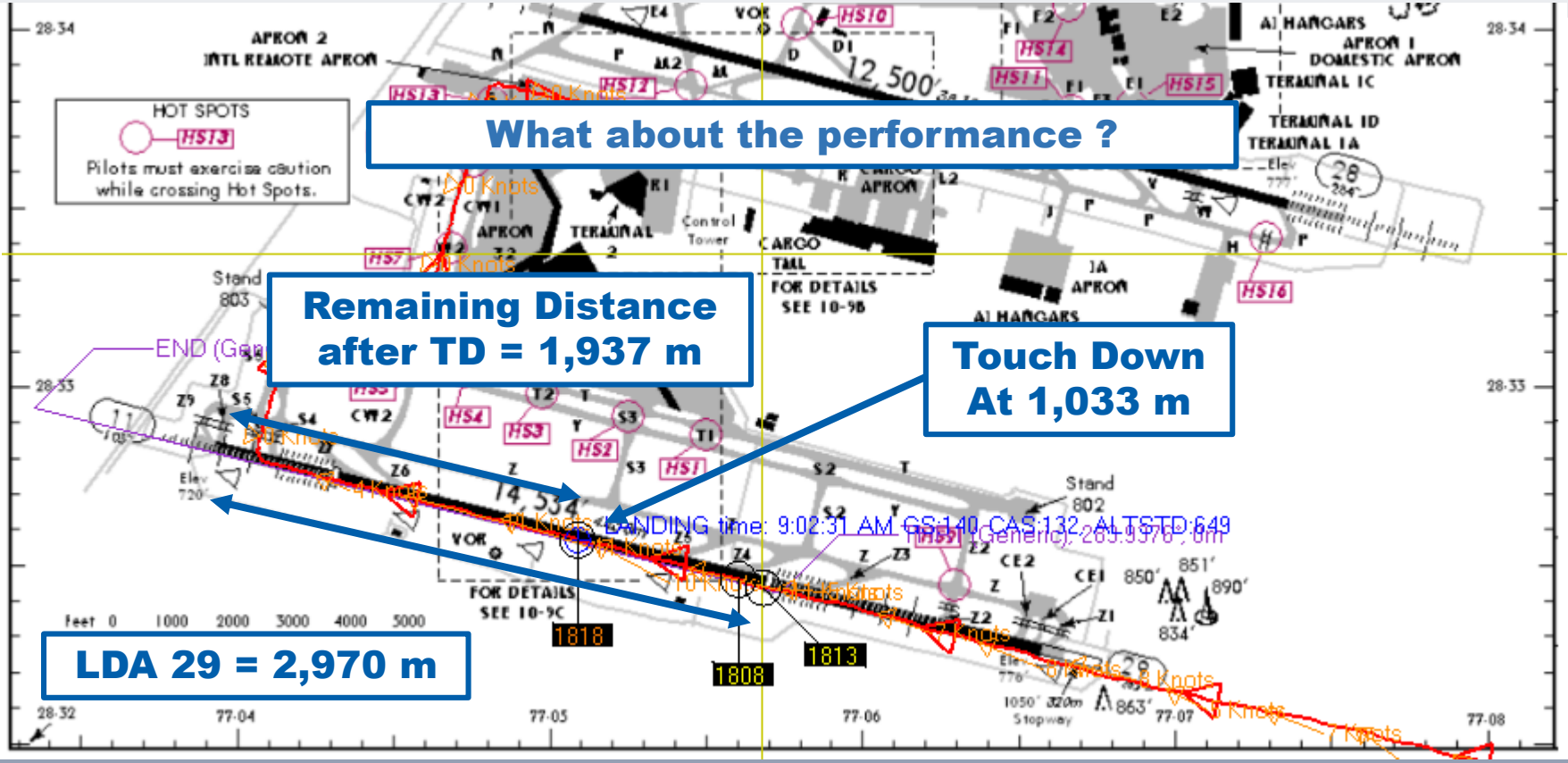
FDA Introduction



Long Flare Distance Event

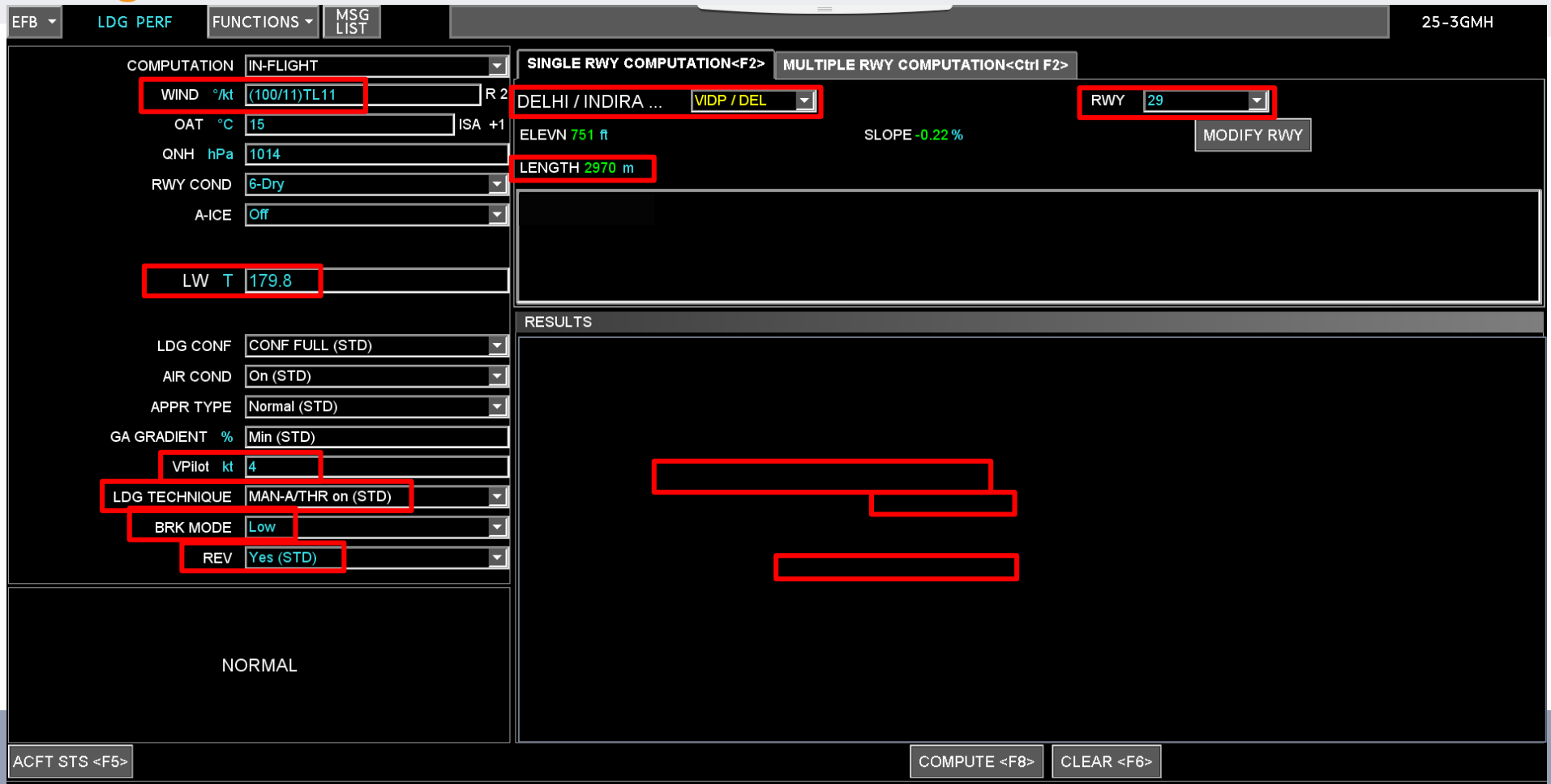


Long Flare Distance Event

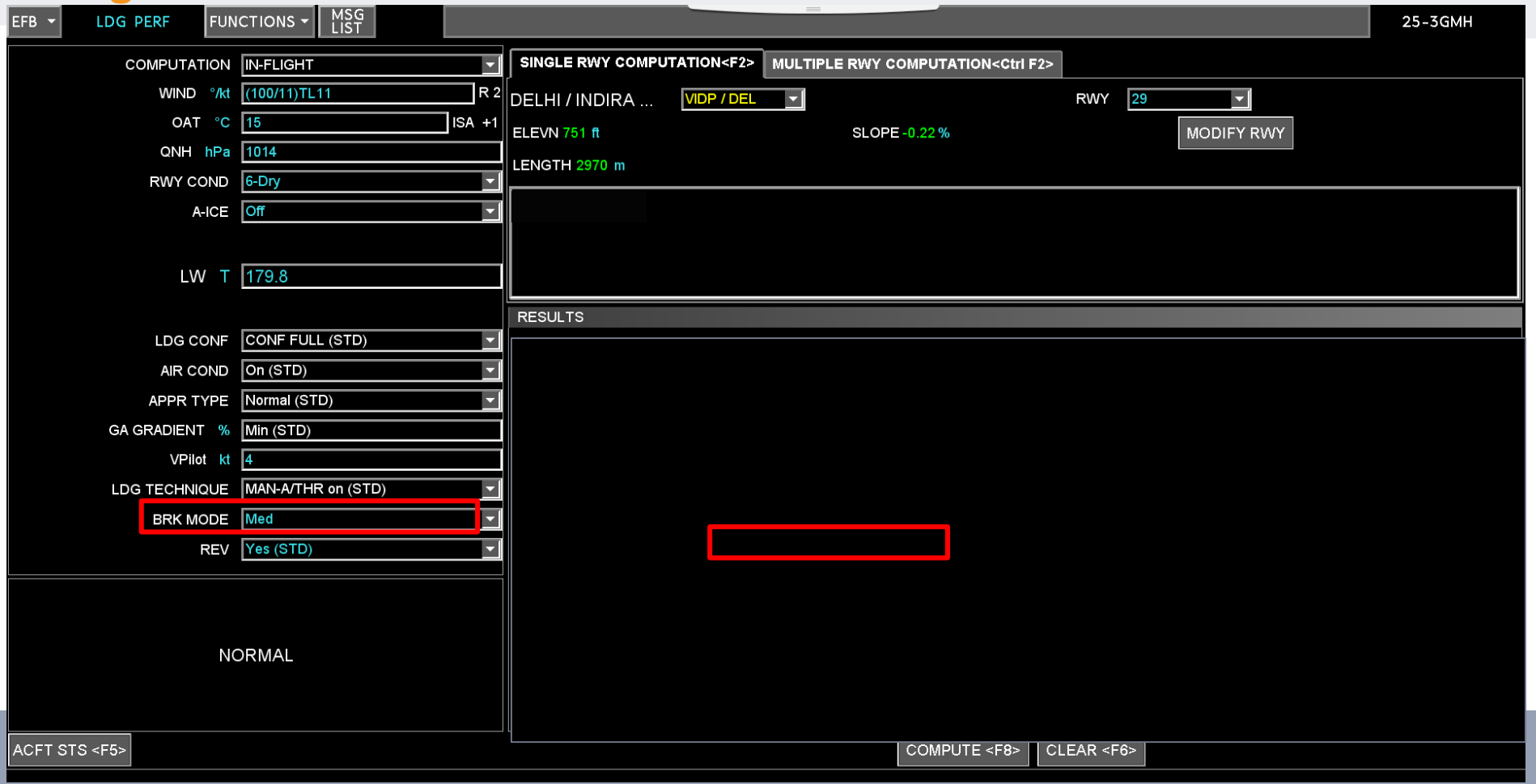


AIRBUS

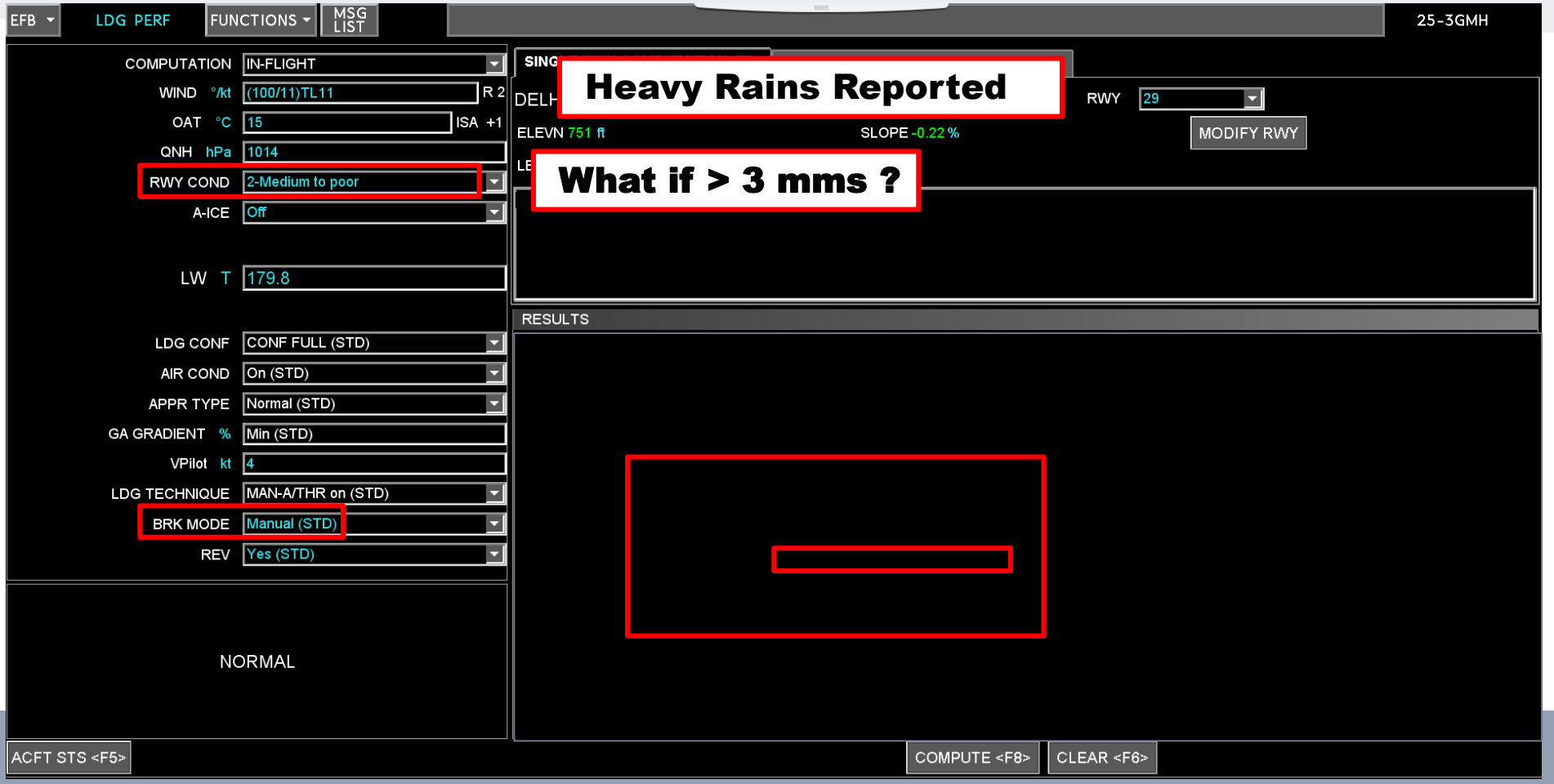
Long Flare Distance Event



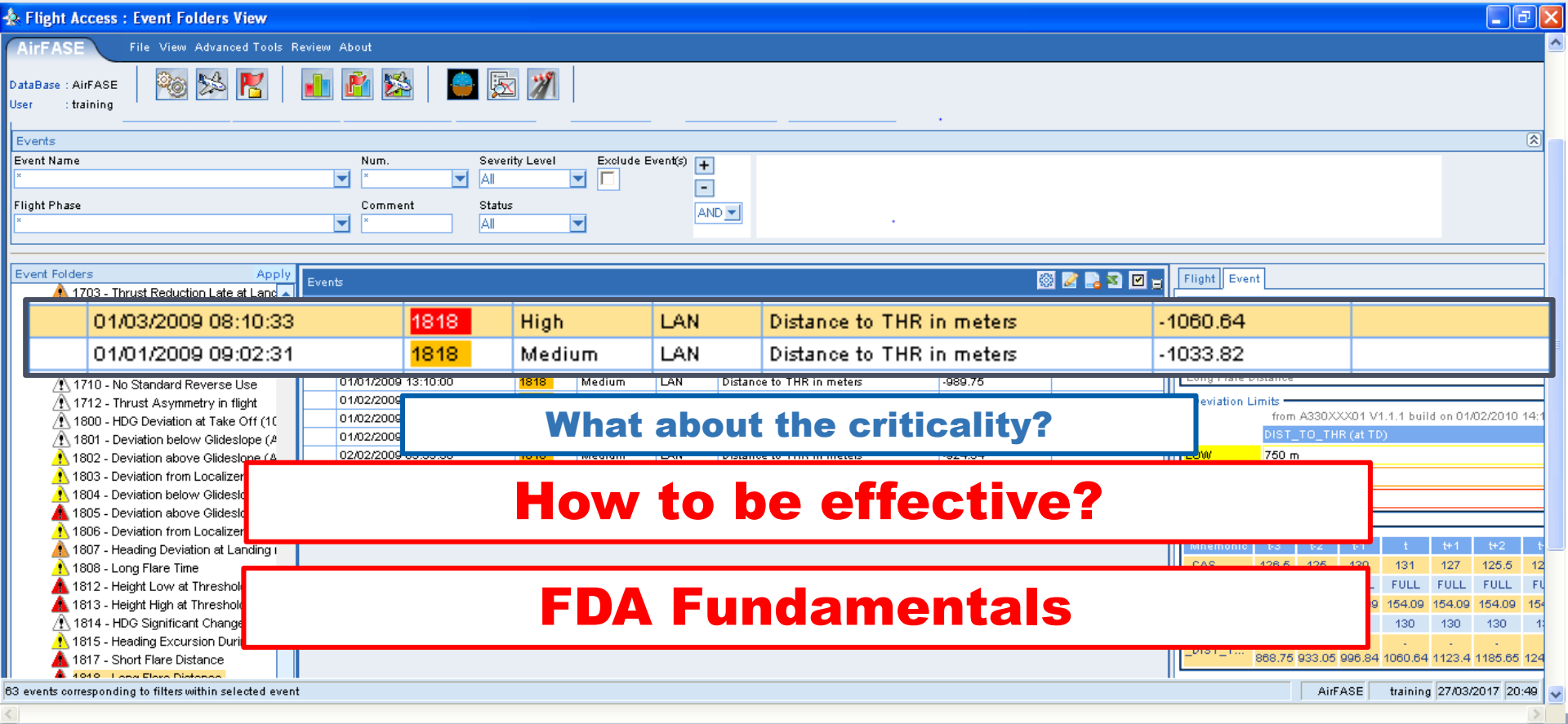
Long Flare Distance Event



Long Flare Distance Event



FDA Introduction



A Non-Punitive Programme

Data Into Perspective

Challenge The Read-Outs

AIRBUS


A Non-Punitive Programme
Data Into Perspective
Challenge The Read-Outs

A Non-Punitive Programme

Manual of Flight Data Analysis Programmes

ICAO Doc 10000 / 1st Ed 2014

"an FDAP may be described as a **non-punitive programme** for the routine collection and analysis of flight data to develop objective and predictive information **for advancing safety**".

Why a non-punitive programme?

AIRBUS

Runway Overrun

Precursors

+ Late Descent
+ Too High
+ Too Fast
+ Long Flare

+ **Landing after an unstabilized Approach**

AIRBUS

Runway Overrun

Contributing Factors

+ Fatigue
+ No Crew Communication
+ No Crew Coordination
+ F/O Lack of Assertiveness

➢ **Many Pitch and Thrust adjustments during the flare**

Latent Handling Problem?

AIRBUS

Runway Overrun

Handling Skill

+ No reported training issue

Recent Crew Interview

+ Called for a Hard Landing

Safety Policy

- **The “Three Strikes Law” in force at that airline**

Three Hard Landings  **You are Fired**

Contributing Factor

AIRBUS

Hard Landing

Hazard Identification

+ Numerous **High Vertical G at Landing** FDA event

Mitigation Action

+ Put **Fine** on Captain triggering an event

Monitoring the Effectiveness

+ Less High vertical G at landing after few months

Safety Improvement?

AIRBUS

Hard Landing

Side Effects

+ No more landing by FO
+ Increase number of **Long Flare distance** FDA events

+ **Flying the Software**
+ **Killing Voluntary reporting**

A Non-Punitive Programme

AIRBUS


A Non-Punitive Programme
Data Into Perspective
Challenge The Read-Outs

Hard Landing

- We **do not** monitor **Hard Landings**
- We monitor **High Vertical G at Landing**

Goal :

- **To Identify Handling Issue at Landing**
- **To Prevent Hard Landing**

AIRBUS

High Vertical G at Landing

- High Vertical G at Landing **Triggering Values**
  - VRTG > 1.50 G → Low Severity Event
  - VRTG > 1.60 G → Medium Severity Event
  - **VRTG > 1.75 G → High Severity Event**

- A320 Vertical G Hard Landing Threshold = **2.6 G**

A High severity event "High Vertical G at Landing" is NOT a hard landing as per the maintenance definition.

AIRBUS

High Vertical G at Landing

An FDA Tool is Not a Maintenance Tool

To Identify Trends

Predictive Safety Management

AIRBUS

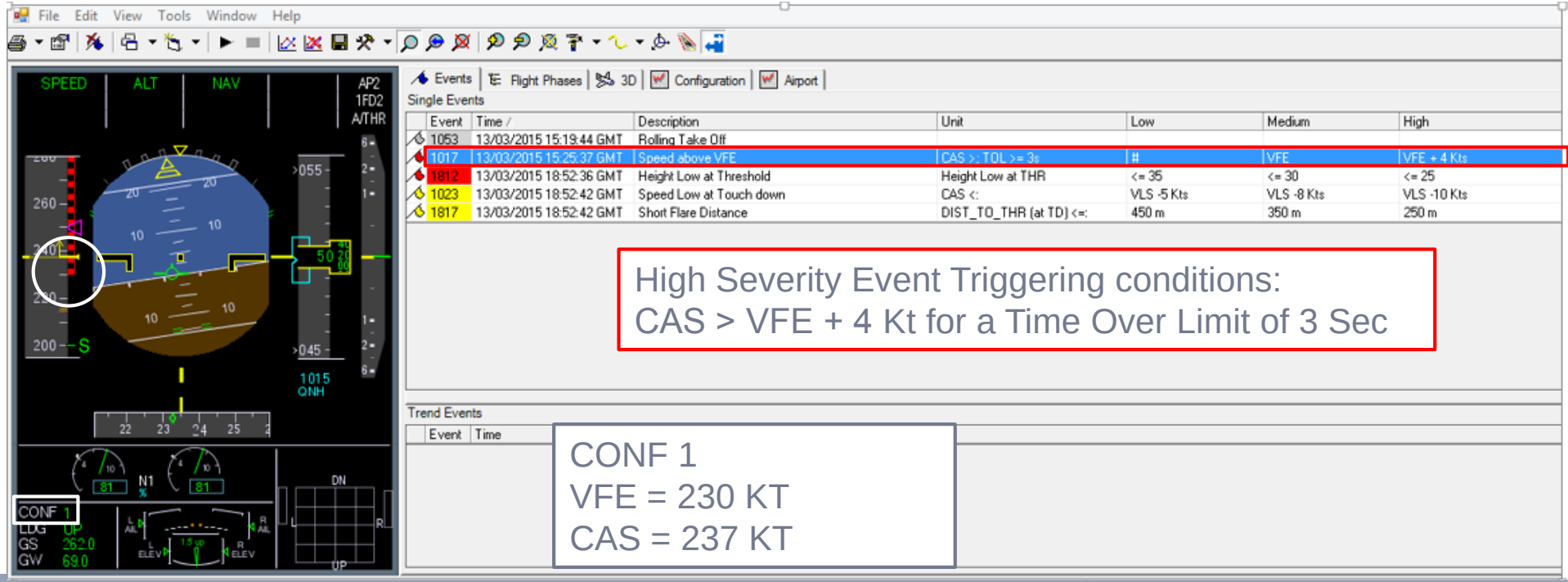
Hard Landing Risk

Precursors

+ Path High at Landing (below 20ft)
+ Vertical Speed High before touchdown
+ Pitch and/or Roll Cycling at Landing
+ Pitch High at Landing
+ Speed Low
+ etc.


A Non-Punitive Programme
Data Into Perspective
Challenge The Read-Outs

Speed Above VFE



AIRBUS

Speed Above VFE

Recording Limitation

+ VFE not recorded
+ Flaps lever position not recorded
+ Configuration not recorded

Solution

+ Slats and Flaps Angles

Speed Above VFE

To Sum up to get the VFE

Slats_Angle values

_Slats_Angle

Algorythm
Range, offset,
0 position value

_Slats_Position

Algorythm
Range, offset,
0 position value

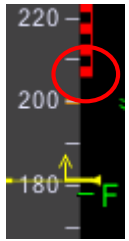
_Flaps_Position

Flaps_Angle values

_Flaps_Angle

_Config

_VFE



AIRBUS

Speed Above VFE

Issue

- Slats & Flaps Angles at the next configuration position to get the right VFE
- On board VFE is linked with the Flaps Lever Position

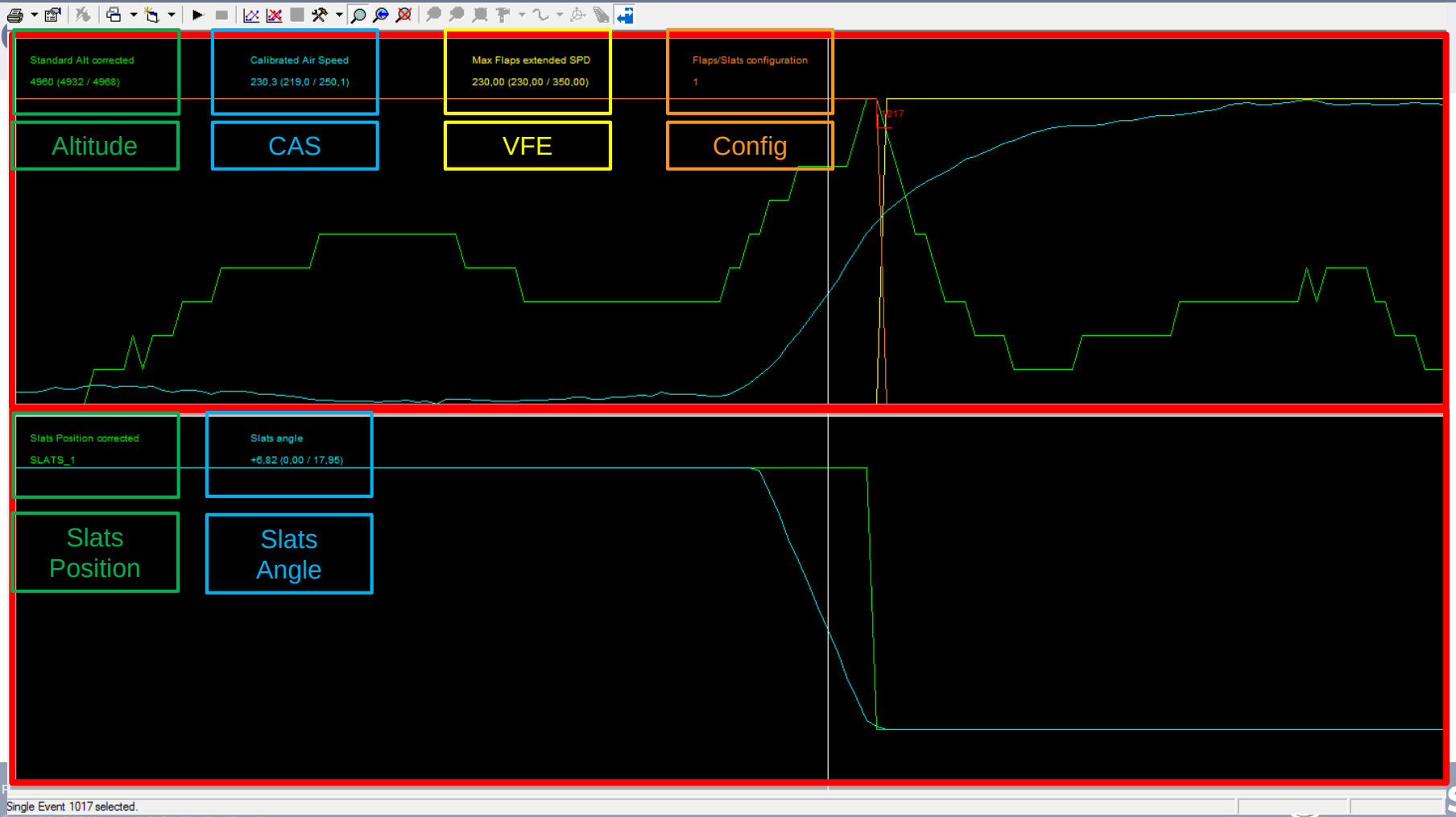
Consequence

- Delay in updating the VFE

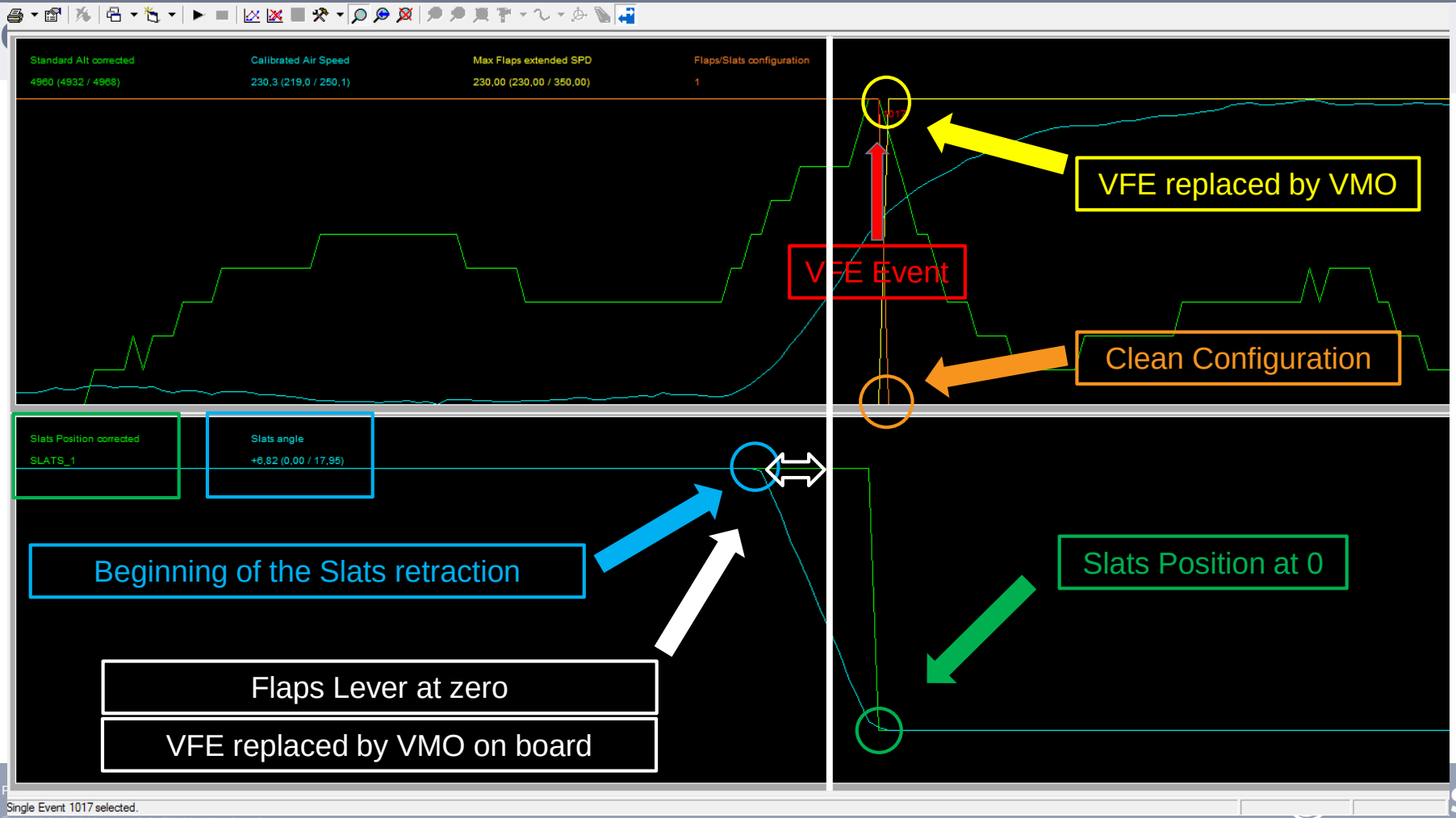
Solution

- Call the right parameter

AIRBUS



Single Event 1017 selected.



Event Investigation

Requirements

- Investigation without delay
- Competent FDA team member
- Ability to challenge in order to validate the results

Risks

- Loss of time on wrong events
- Focussing at finding solutions on unexisting issue
- Loss of Confidence in the FDA programme by the crew

Fundamentals for FDAP Efficiency

A Non-Punitive Programme

+ De-identification process - Confidentiality
+ Safety Policy promoting a just culture endorsed by the Management

Competent FDA Team Members

+ A Critical Eye
+ Put the data into perspective
+ Able to challenge the results

Improving Safety

AIRBUS