

# **Problems and Dangers encountered in setting up FDM for a new airplane variant**

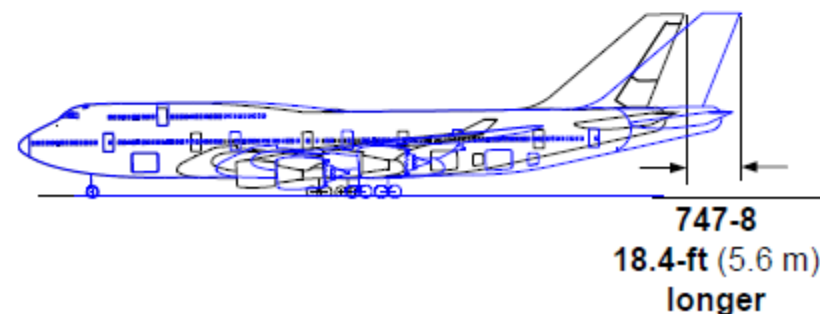
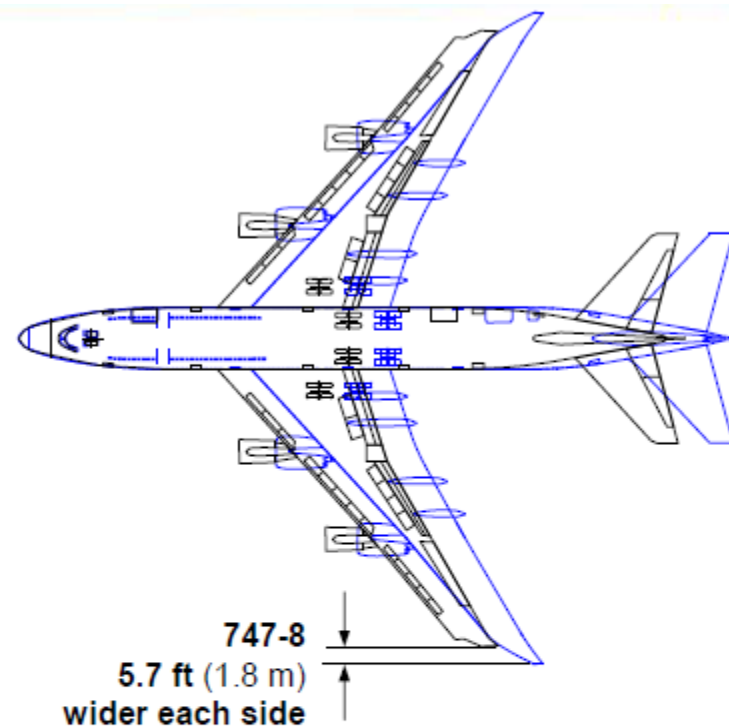
Presented  
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Cargolux Airlines International  
12<sup>th</sup> January 2013

- ✈ Where are the differences?
- ✈ What triggered our questioning?
- ✈ Why are they not clear?
- ✈ What is the danger of subtle differences?
- ✈ How does your FDM Software react to subtle differences?
- ✈ Technology used to validate / compare data

# It is the same or not?

	747-8 (ft/m)	747-400 (ft/m)
Span	224.4/68.4	213.0/64.9
Length	250.2/76.3	231.8/70.7
Height	64.2/19.6	64.0/19.5

■ 747-8  
■ 747-400

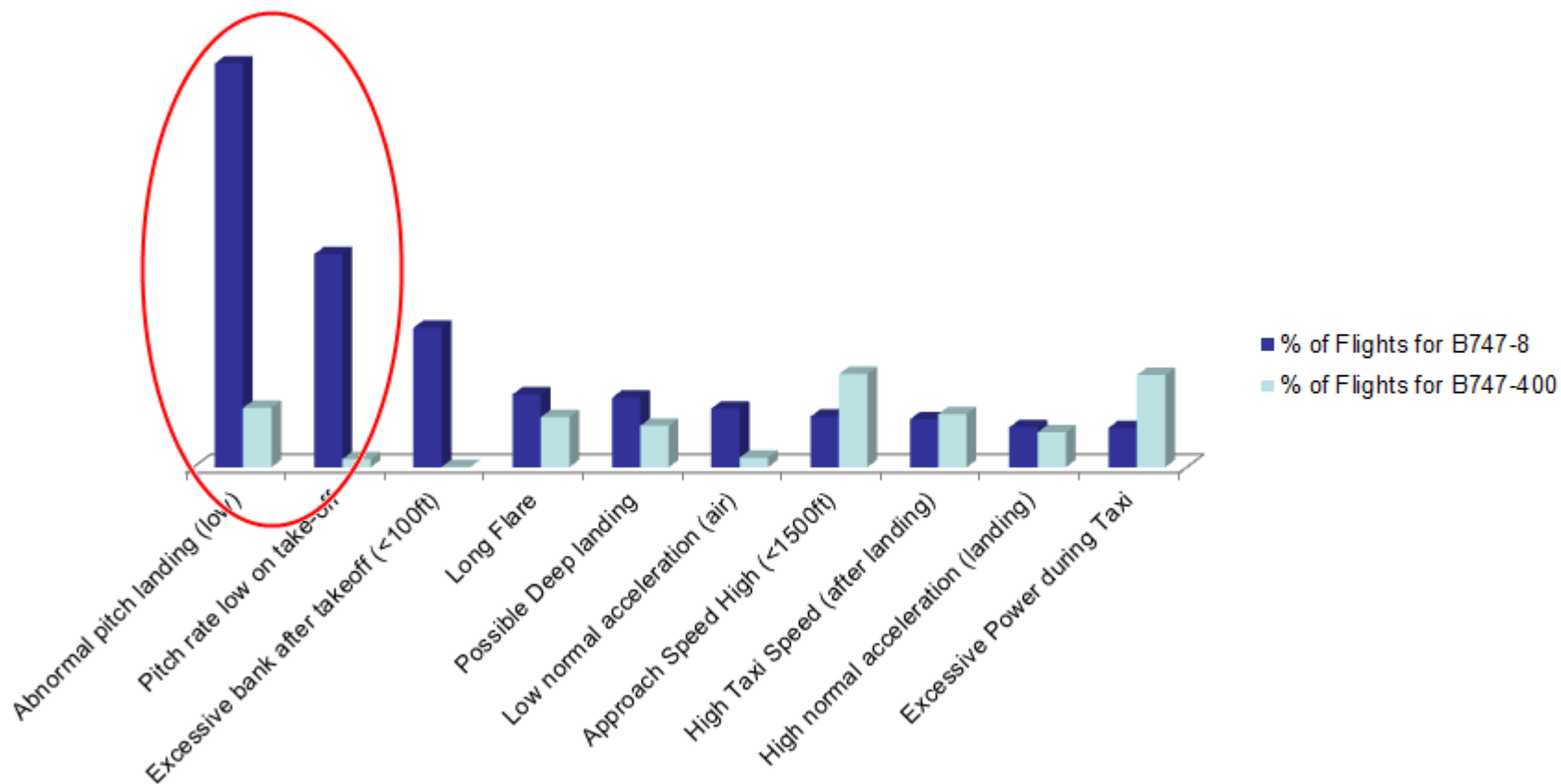


# Where are the differences

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- Different DMU (Data Management Unit)
- Different QAR
- Partially different “Pickup” points?
- Higher recording rate

# What triggered the questions?

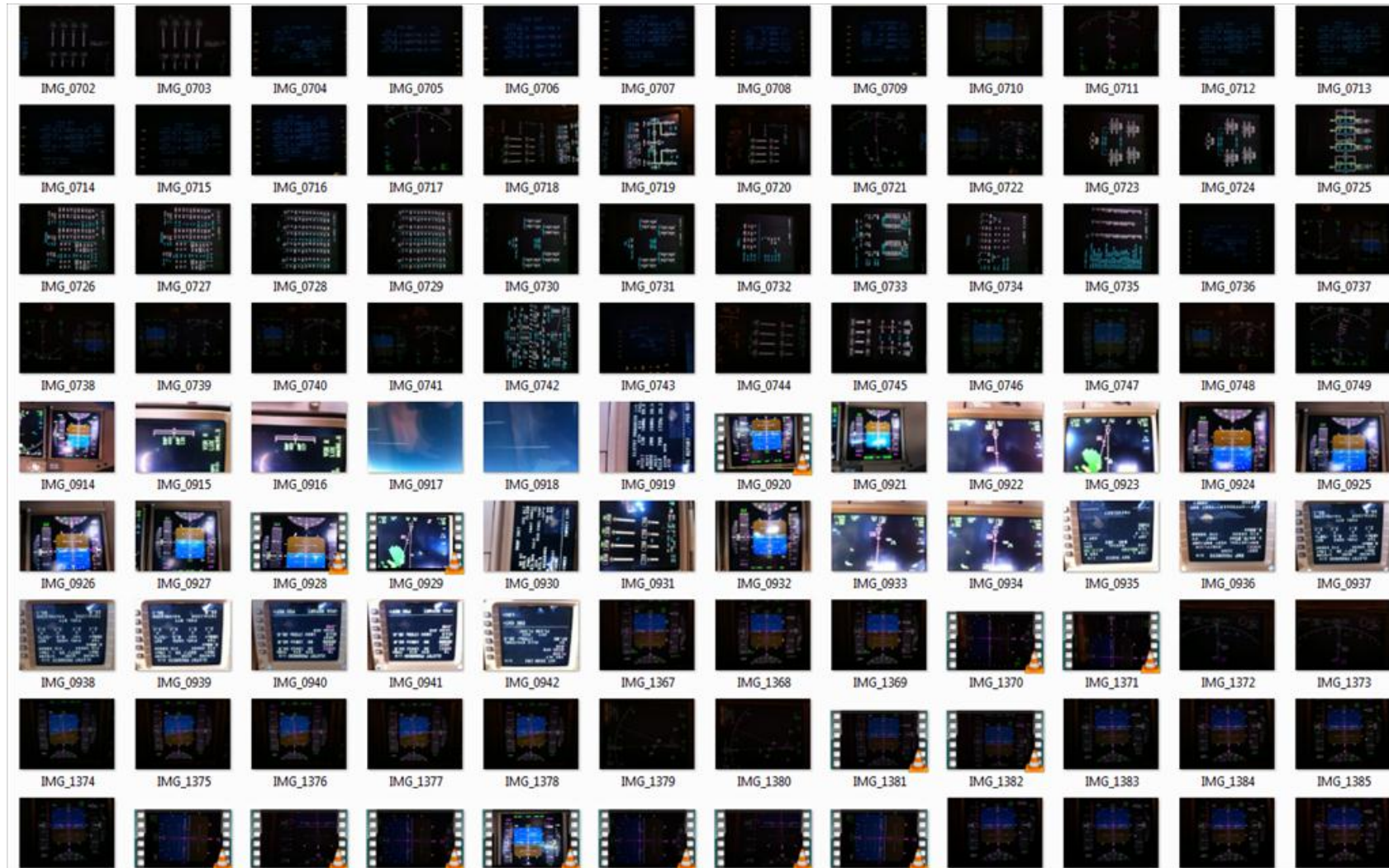


# Initial Analysis

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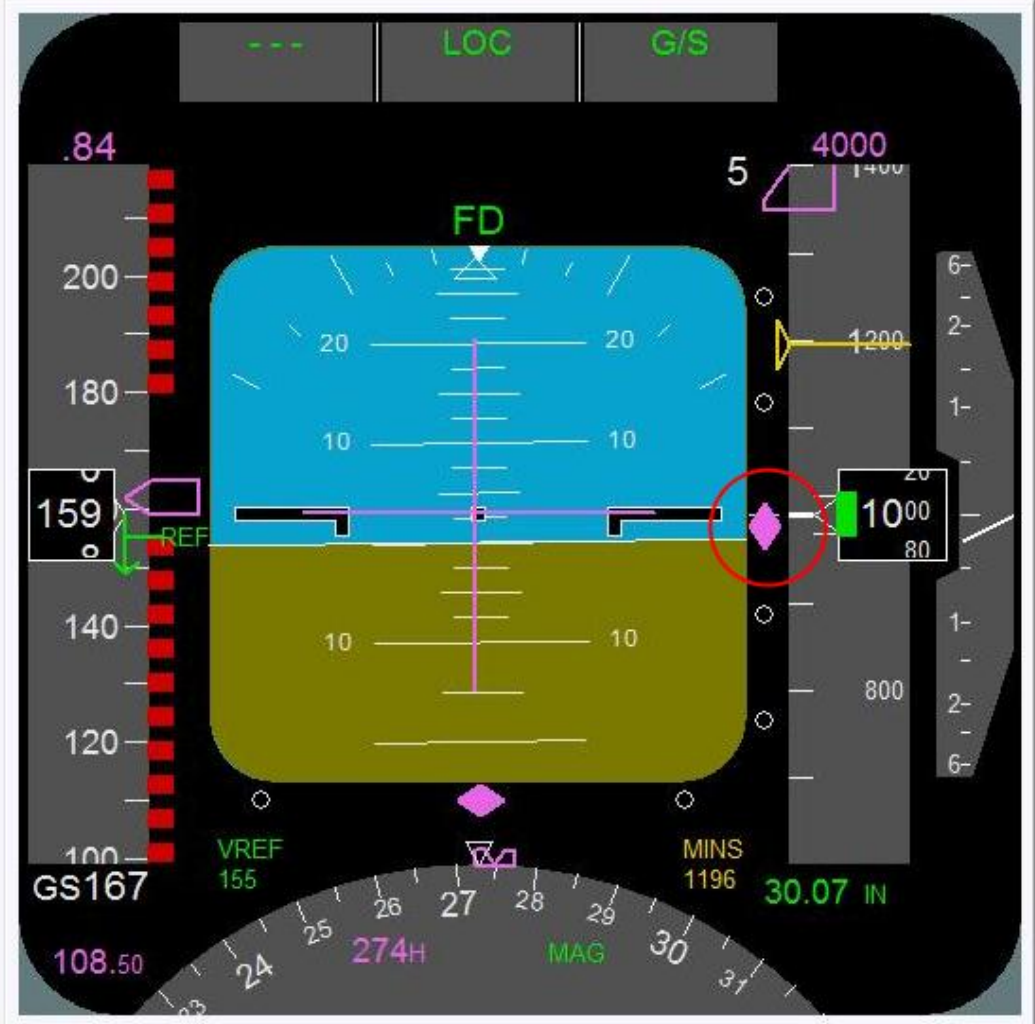
- Partially strange differences in values recorded for the same parameter
- FDM Software reacting strange to “normal” recorded parameters
- High rate of some events which turned out as false

# Data Collection



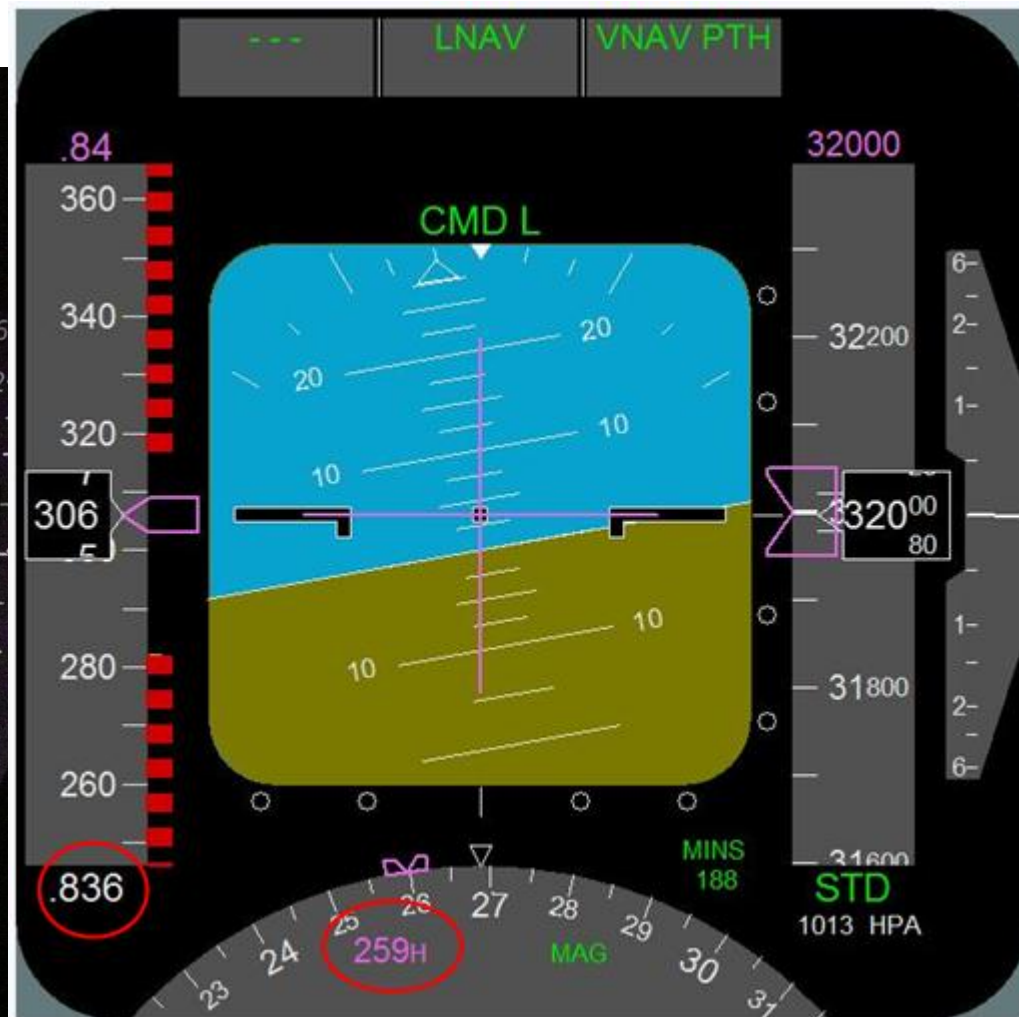


# ◆ The Subtle Differences



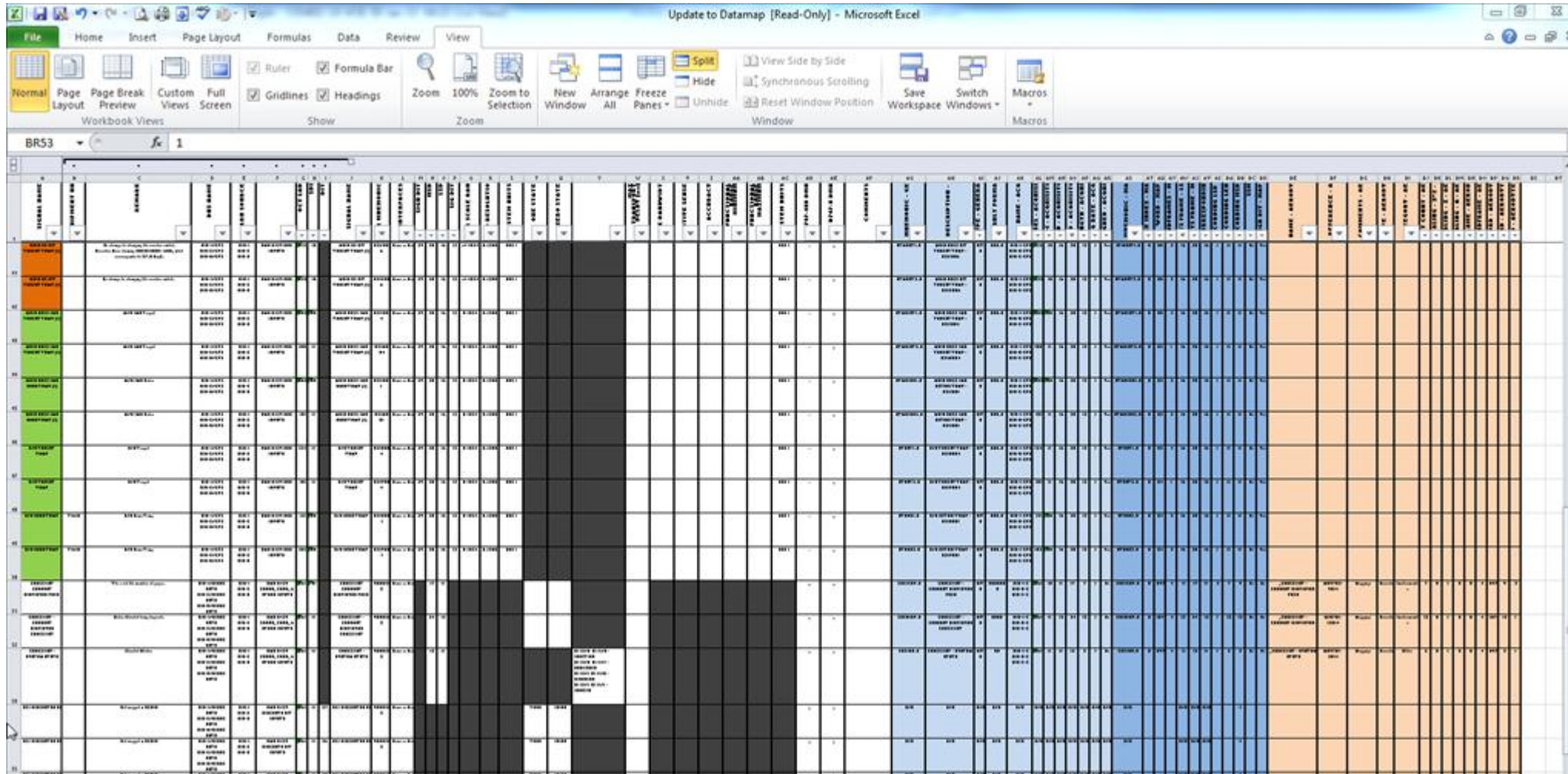


# The Subtle Differences



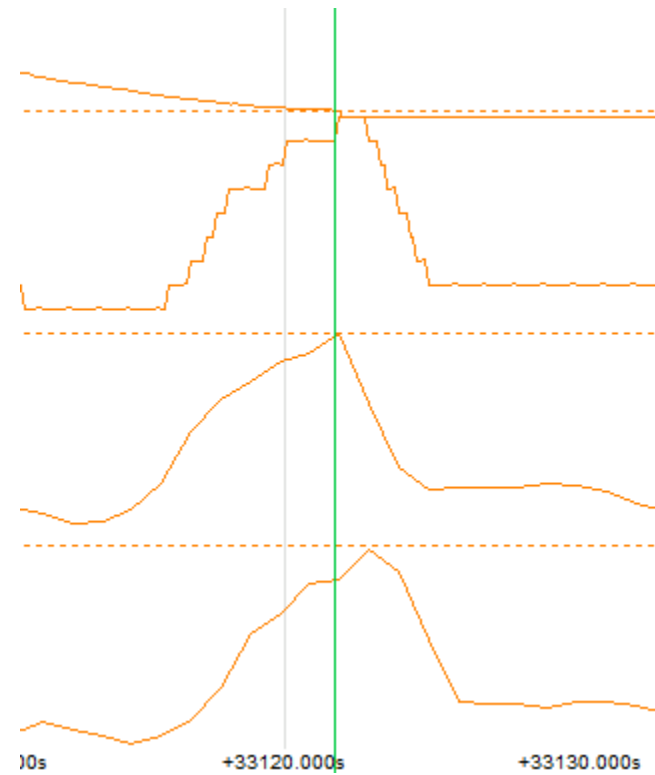


[illegible]





# Example Pitch



# Where is the Problem?

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- Lack of documentation
- Lack of information/support from the manufacturer(s)
- Issues pertaining to “trade secrets”
- Very similar Airplanes

# Findings?

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- ✈ Higher recording rates do not automatically mean better results – they need to be tuned to become better
- ✈ A/C Manufacturer Documentation partially incomplete and/or incorrect
- ✈ Documentation provided by the A/C manufacturer to the DMU/QAR vendor incomplete and/or incorrect
- ✈ Same parameter recorded several times, using several sources, providing different readings
- ✈ Some values picked up a split second later/earlier than on the old variant causing large variations in event definition

# Lessons Learned?

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Same A/C but new Variant with Subtle Differences require:

- ✈ Complete New Setup of FDM Software
  - ✈ Treat like a new airplane
- ✈ Tuning of most FDM Event Definitions is required
- ✈ Don't trust the documentation / information provided to you by the manufacturer/vendor – check it – confirm it!