Cargo Compartment Fire Verification System
- Image based fire/smoke detection (Video-detection)

International Aircraft Systems Fire Protection Working Group
Meeting in London on June 13-14th, 2002

Klaus Schmoetzer
Airbus, Dept. ECYM
Fire Protection &
Conveyance Systems
28183 Bremen / Germany
E-mail: klaus.schmoetzer@airbus.com

Today's Situation

- False cargo compartment smoke warnings occur in service

- A lot of efforts have been spent by concerned parties to reduce the false alarm rate – but it's not zero

    (it's between 200:1 & 10:1 depending on consideration)

- False alarms may still be caused by equipment failure, too long cleaning intervals, not well packed freight e.g. vegetables, perishables, seafood etc.

    As long as the crew is unable to differentiate between a true and a false warning, they have to land the aircraft as soon as possible

Background
- Diversions (US reg. A/C's 1974 – 1999)

Diversions Caused by Cargo Compartment False Smoke Alarms

Legend:
- Alarms
- Expected Diversions
- Reported Diversions

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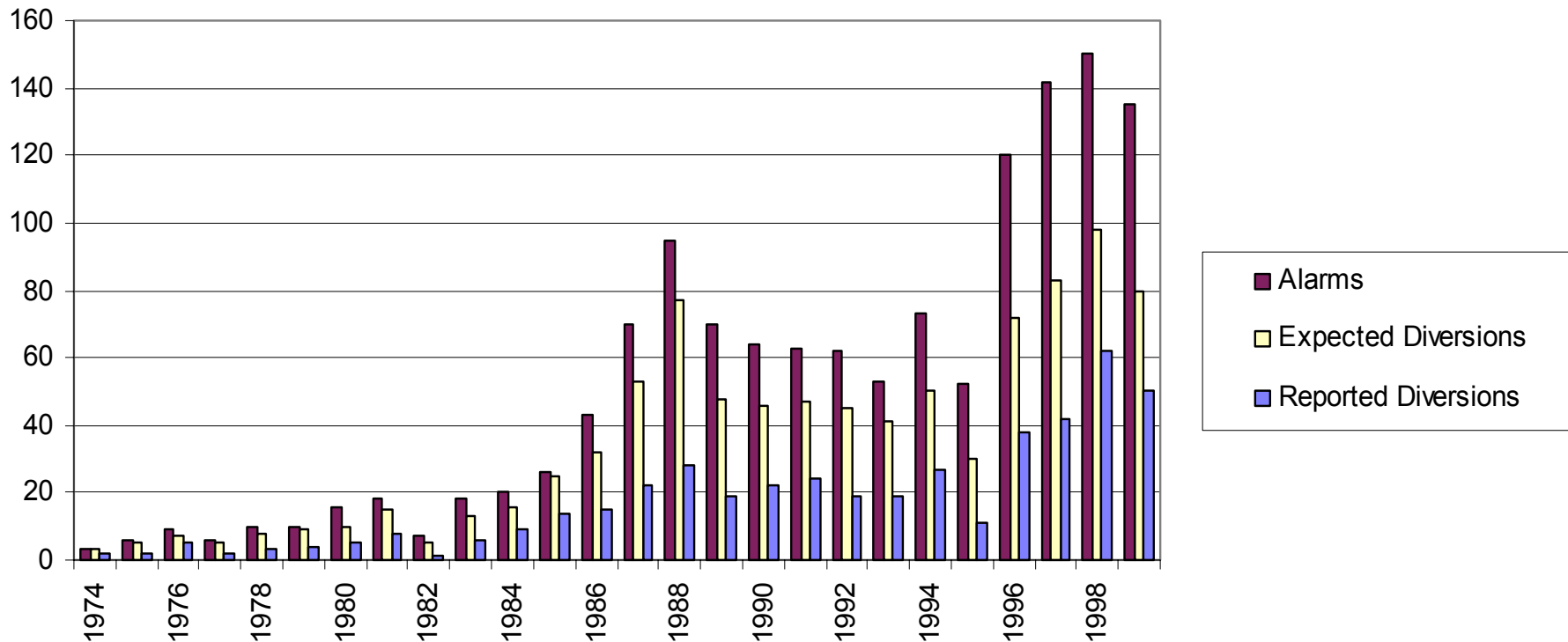
How to enhance flight safety

- Each emergency landing comprises additive risks etc. …..

- A cargo fire verification system can support the flight deck crew in the decision making process

- Image based information would be preferred by the pilots but must not mislead them

An image based Cargo Fire Verification System with high quality HMI in consideration of fire/smoke verification aspects would help the crew to better evaluate the true urgency of the situation

Cargo Fire Verification System (CFVS)

Airbus has conducted technological work and feasibility studies on image based fire verification systems.

Conclusion:

The **C**argo **F**ire **V**erification **S**ystem (CFVS) will support the crew in LAND ASAP decision making process
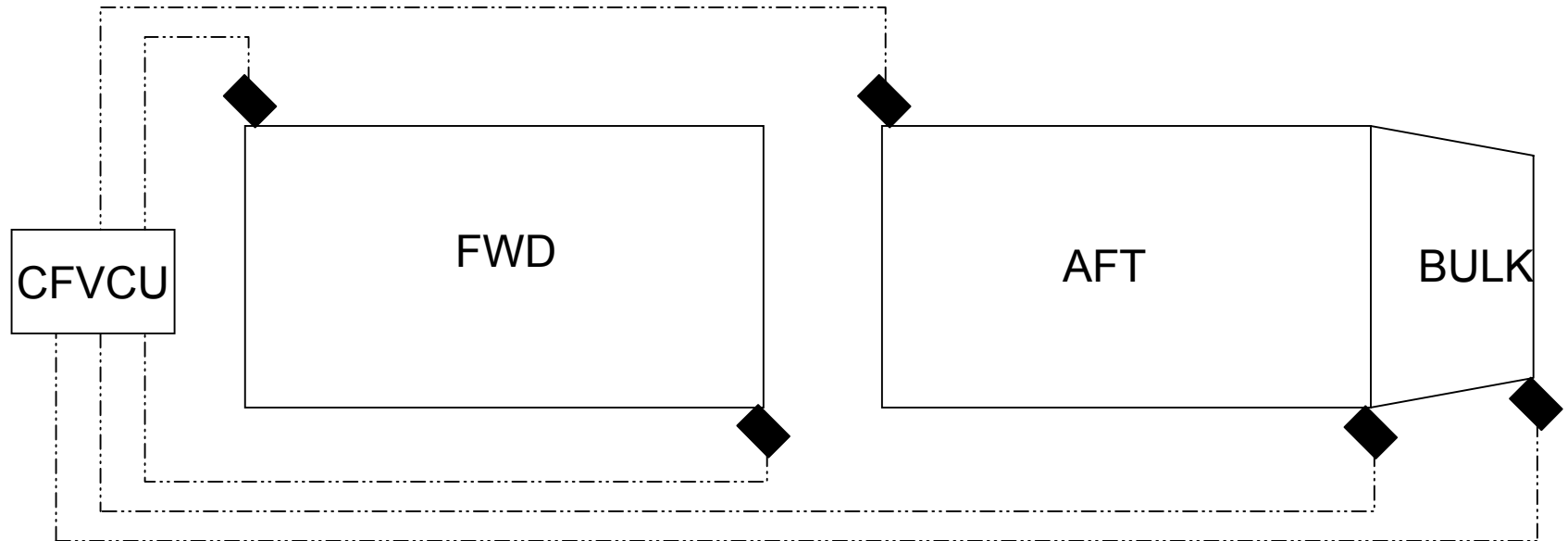
- CFVS will be designed to be installed in class C cargo holds
- Provides an image based information on flight deck
- It's an additional system to the smoke detection system (LROPS)
- Based on CCD & Infra Red cameras (multi sensor units)

It's a new detection technology and some algorithms need still to be developed / validated (Long lead-time item)

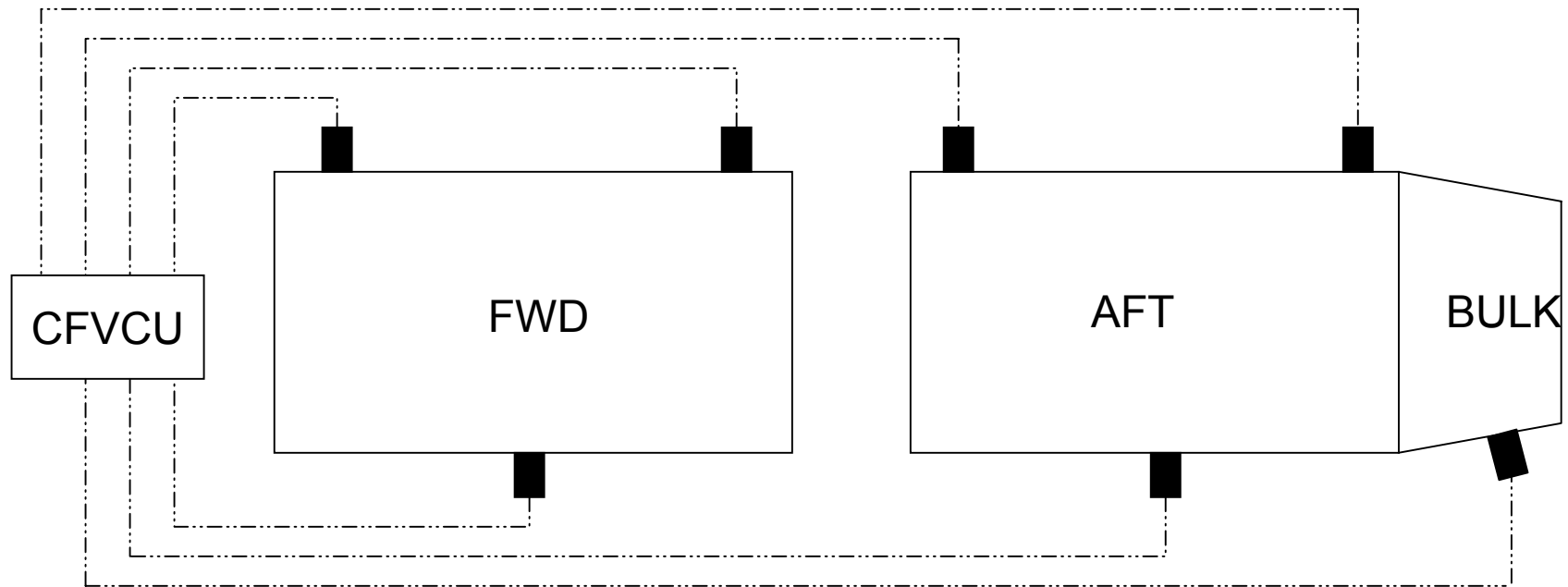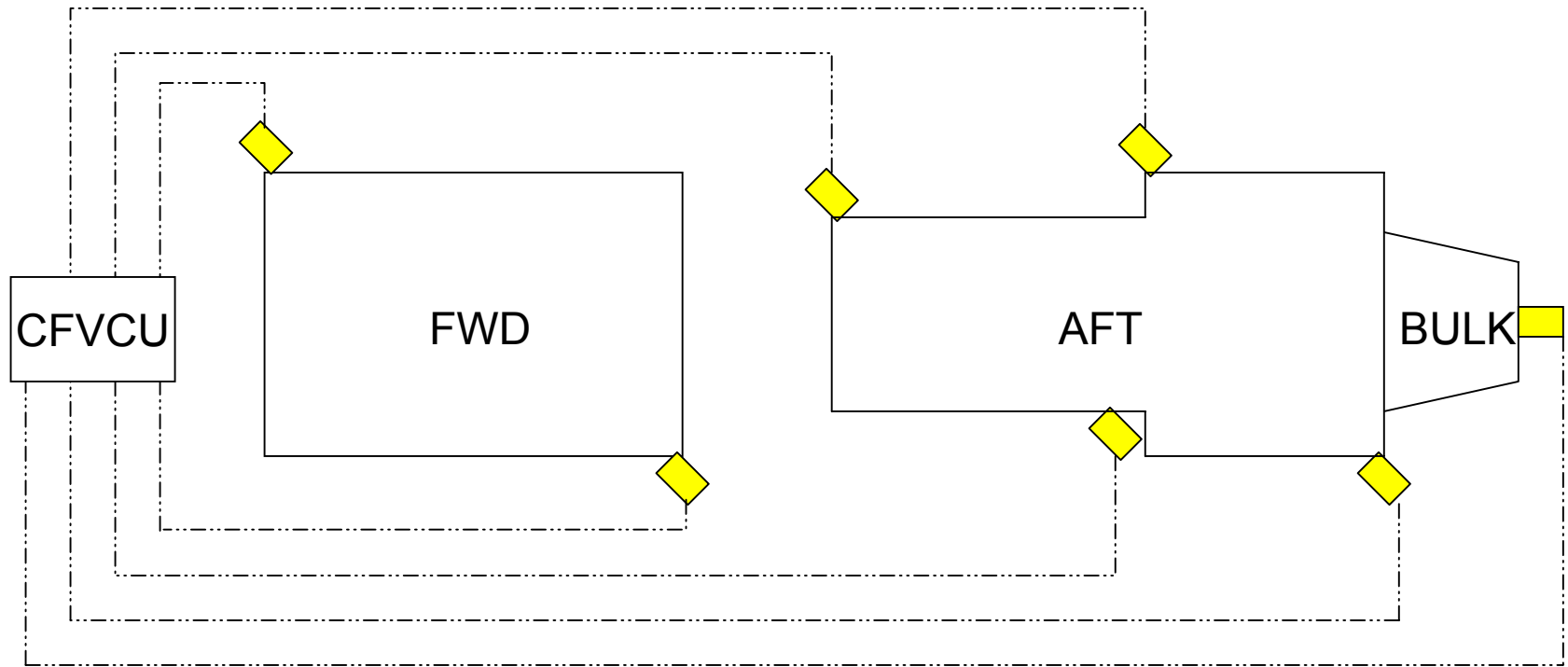# CFVS – Lower Hold - Sensor Unit Locations A340-600 Example

Solution 1

Solution 2

CFVCU   FWD   AFT   BULK

Cargo Fire Verification System – Images on EIS (study item)

(only for demonstration)

Fire & non Fire Algorithms are mandatory for image processing

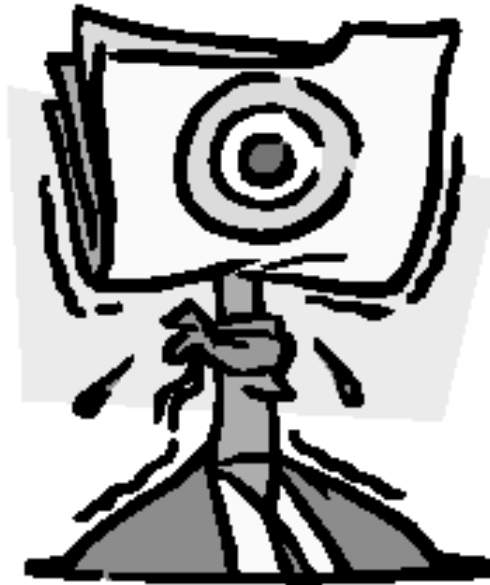- Fog / condensation should be discriminated from real smoke

Fog after opening the cargo door at Hong Kong

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Your Turn

Questions?