

**ARINC EFB subcommittee**

# **AIRBUS printing proposal Communication KIT**

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# On board printing

## Status

- Various users:
  - Avionics
  - EFB
  - Maintenance
  
- Various printers types:
  - Connection: A429 – Ethernet
  - Format: B5 – A4
  - Data: Text – Semi graphics – Graphics
  - Black and white – Color
  - Standards: A740 – A744
  
- EFB applications/devices based on IT COTS

## Objective

- Standardize EFB printing function

## Challenges

- Simplify EFB applications development
  
- Support various printers types
  
- Be independent from the printer type
  
- Keep avionics printing function « as is »
  
- Same interface as for printing on ground

# On board printing needs

✓ Application users (sample)

Function	Data format
LTS	Text
Nav. Chart	Graphic
AOC message	Text
Weather report	Text Graphic
Procedure	Text Graphic
ATC long message	Text
Logbook	Text
PFR	Text

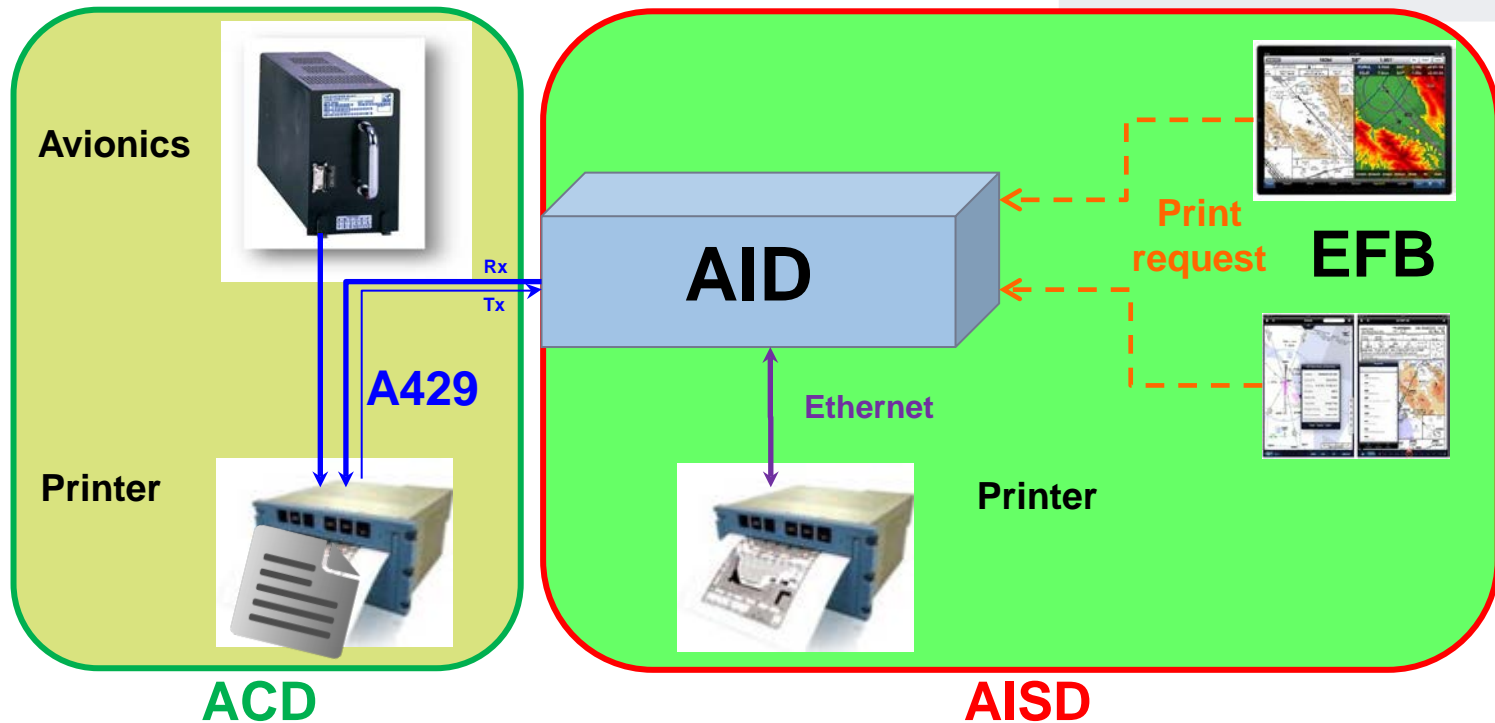
✓ Special advantages vs. display

Context	Detail
Turbulence	Paper could be brought close to the eyes
Under fatigue	Reading paper is less tiring than watching a screen
Share data	Data sharing between pilots when EFB is A/C attached and no cross view available
Crew annotation	Writing something on printed sheet is easier than on screen (flight plan, clearance, etc.)

ROUTE D EVITEMENT FRONTS DRAGEUX/HORS TRACKS/VIA FIR TORONTO  
 AFR 033/16.12.00 IAH/CDG KIAH/LFPG A340(311)/FGLZH  
 CDB HOR. DEP 22.30 BLOC DEP DECDLL.  
 OPL HOR. ARR 07.50 BLOC ARR ATERR.  
 DPL TPS. HOR 09.20 TPS B/B TPS. VOL  
 CARBURANT PPV REEL TEMPS DSOL DAIR VENT FL  
 DEL. CDG 060100 08.46 4597 4034 330  
 DEG. ORY 002300 00.22 0000 M002 070  
 RES. ROUT 002400 00.19  
 RES. FIN. 002600 00.30  
 ATTENTE 000000 00.00 PERPOS  
 TR. CARB. 000000 00.00 CFM56-3C2  
 ROULAGE 000600 00.25 CCM 24.30  
 TTL CARB 060000 09.57 330. M82  
 BILAN CARBURANT -0413 RESERVES ARRIVEE  
 CARBU DEFINITIF 10.000 AEROP. DEGAG. ORY (LEED) ..  
 K 1.285 .....



# A429 / Ethernet printing overview

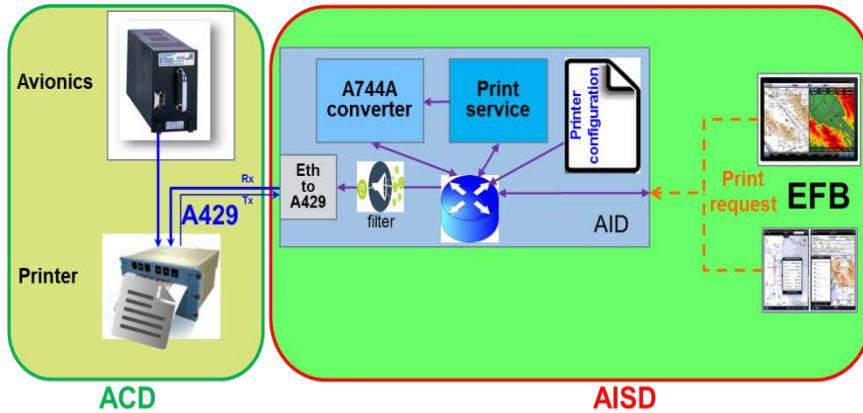


## ASSUMPTIONS

- **Only one printer is installed (either the A429 one or the Ethernet one)**
- Printer shared between avionics applications (e.g.: on A429 computers) and EFB applications (i.e.: on IT devices)
- Printer can be either A429 or Ethernet (wireless possible)
- Printer is either A740 or A744A with various features
- Avionics applications shall continue to print "as is" (i.e.: no changed expected)
- EFB devices and applications are based on IT consumer market components (i.e.: COTS)

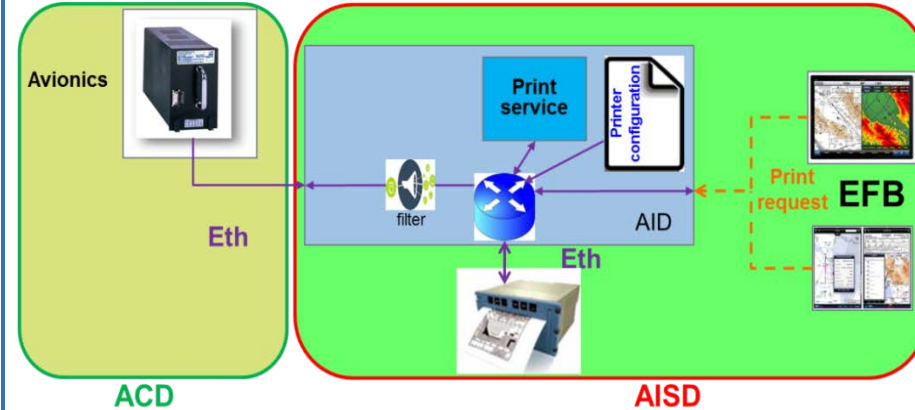
# Two cases: one solution

## A429 printer in ACD



- AID hosts a FLS “printer configuration” (e.g.: B5, black and white, 300 DPI, text).
- A print service manages the EFB printing requests and provides the status of the printer.
- An A744A conversion module transforms the print request data to a format the printer understands.
- A secured filter ensures print data don't impair ACD systems (*considered outside the printing topic*).
- AID is identified by its System Address Label; the printer polls the system to know if there is a print job to process.
- Formatted print flow on Ethernet is converted to A429 and printed.

## Ethernet printer in AISD



- AID hosts a FLS “printer configuration” (e.g.: Eth, A4, color, semi-graphic).
  - A print service manages the EFB printing requests and provides the status of the printer.
  - A secured filter ensures print data don't impair ACD systems (*considered outside the printing topic*).
  - Formatted print flow on Ethernet is sent to the printer.
- ➔ A744A converter is not used for printing on Ethernet printer (i.e.: it is bypassed)

- ✓ **Print service is based on standard IT protocol: IPP (e.g.: with a CUPS server)**
- ✓ **EFB applications can print on-board and on-ground the same way**

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