



EFB

Regulatory Update

IATAAFI 2018-1,
Johannesburg, March 2018

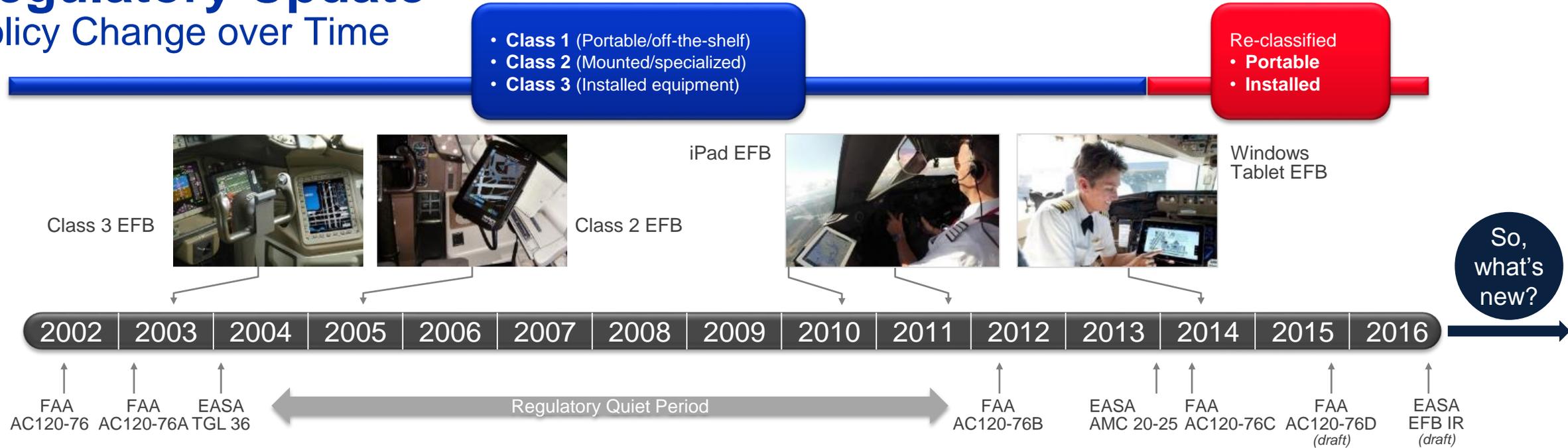
Volker Meyer

Manager
International Relations



Regulatory Update

Policy Change over Time



Electronic Flight Bag (EFB)

- Electronic display system, incl. hardware, software...
- Used by flight deck crew or cabin crew
- Can display a variety of aviation information
- Can perform basic calculations (e.g., performance)
- Replaces traditional materials
 - Paper (e.g., charts, docs)
 - Flight dispatch information

Installed EFBs (ICAO definition)

- Integrated into the aircraft
- Subject to normal airworthiness requirements and design control
- Included in A/C type certificate (TC) or supplemental type certificate (STC)

Portable EFBs (ICAO definition)

- Not part of the aircraft configuration, most often pilot-issued
- Considered Portable Electronic Devices (PEDs)
- Typically have self-contained power
- May rely on power and/or data connectivity to achieve full functionality
- Any aircraft mods to support portable EFB must be design approved

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The goal: A well-meshed machine

EASA

- Expected outcome from EASA Rulemaking
- Specifics for own-ship inflight (enroute only)
- Next steps

FAA

- Expected changes in AC 120-76D
- Specifics for own-ship inflight (all phases)
- Timelines

Discussion: What's next?



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You must understand your local policies; global harmonization is improving



EASA

- AMC 20-25

EASA
NPA 2016-12



FAA

- AC 120-76C
- AC 20-173
- FSIMS 8900.1
Vol 4 Chap 15
- InFO #11011
- InFO #13010, 13010-SUP
- EMC Standard Checklist
- Taxi Own-ship Job Aid

FAA
AC120-76D



Local CAAs

- Local Policy Docs

Often refers to FAA and/or EASA policies, sometimes with local differences and allowances.



ICAO

- Annex 6 EFB SARPs
 - EFB Manual
 - published 2016
 - 1st Amendment soon



RTCA

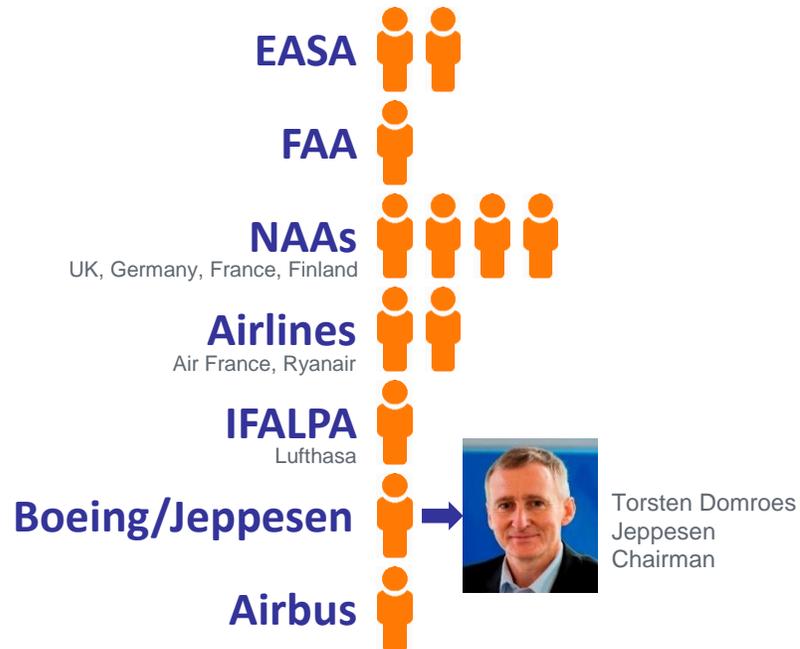
- RTCA DO-160
- RTCA DO-294



EUROCAE

Regulatory Update

EASA EFB Rulemaking: Activities & Timeline



Schedule

- NPA published end of Q3/2016
- 3 months public comment period (ended Jan 2017)
- Public comments being reviewed (266 comments)
 - Did not contain provisions for own-ship inflight
- Focused consultation (expected Oct 2017)
- EASA Opinion published in Q4/2017
- Implementing Rules by Q3/2018
- AMCs will explain the rules

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EASA EFB Rulemaking: Outcome of Public Consultation



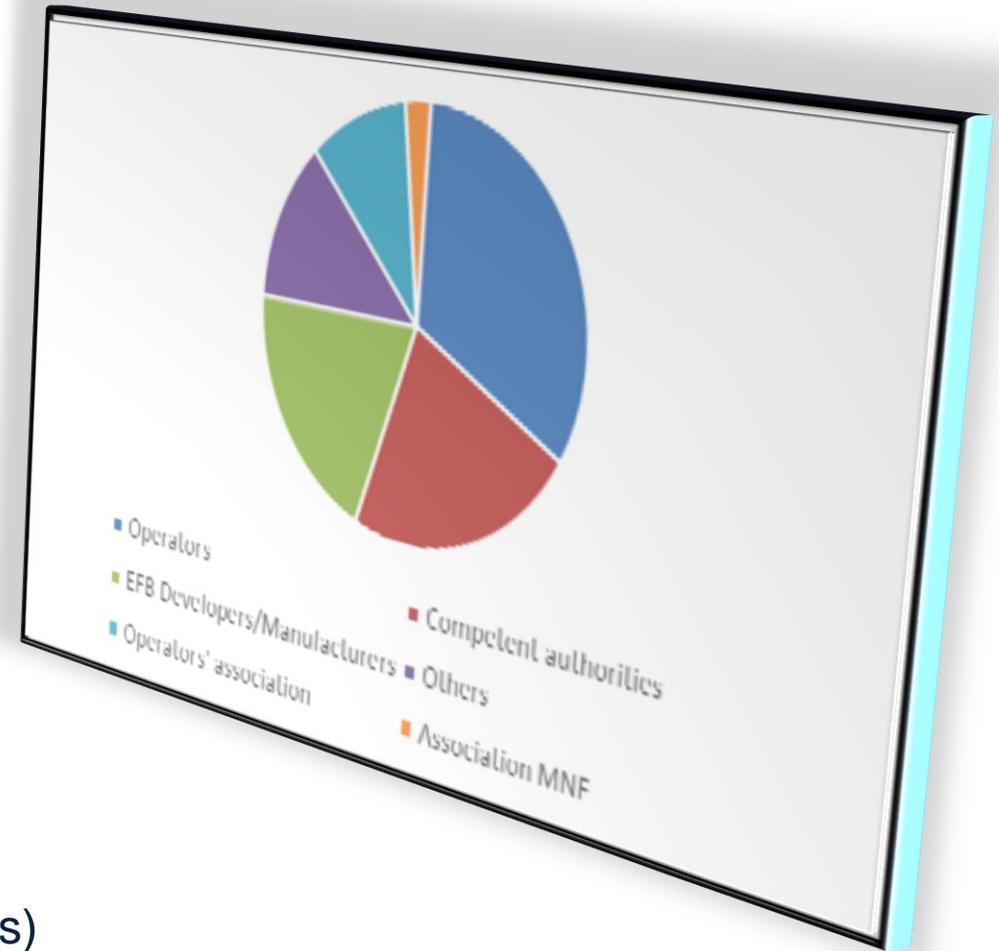
Comments received: 266

Main comment topics

- AMMD
- Inflight weather
- Own-ship
- Viewable stowage
- Application classification / list
- Data connectivity
- Hardware suitability

General

- Complexity increased
- Provisions not proportional (too hard for GA type of ops)



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EASA EFB Rulemaking: In-Flight Weather (IFW)



IFW applications added to the type B application list

- Some considerations related to IFW applications have been added at AMC level.
- Provisions are based on those developed by the ICAO OPSP EFB SG.
 - Alignment with latest amendment of ICAO Doc 10020 provisions
- Clarification of weather data sources
- Clarification between strategic and tactical
- Recommend colour graphical depiction

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EASA EFB Rulemaking: In-Flight Own-Ship

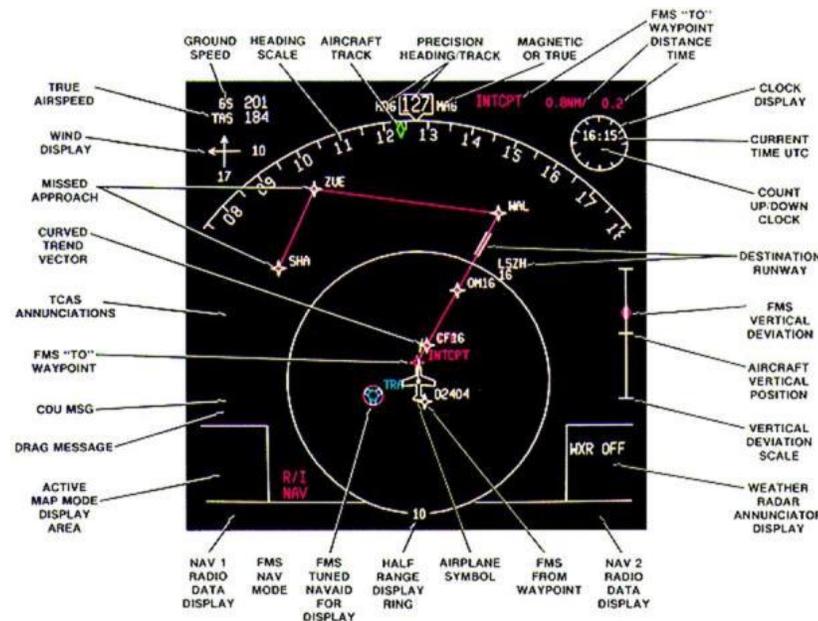
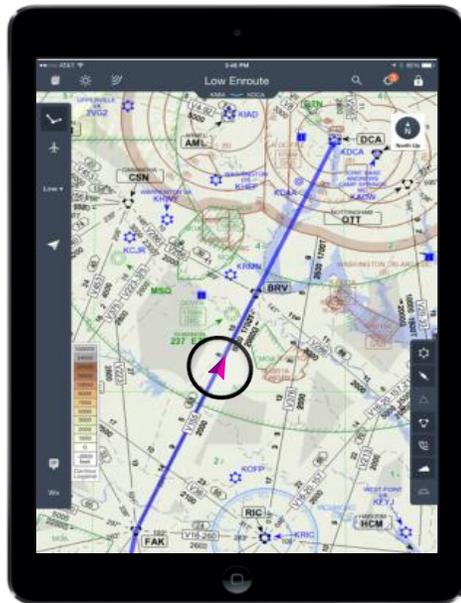


- NPA 2016-12 proposals
 - Use of own-ship position application in flight for CAT VFR by day allowed
 - No change for CAT IFR flights (i.e., not allowed)
- Numerous comments received, asking for own-ship to be allowed in-flight
- Industry working group to perform a study related to the use of own-ship to demonstrate it has a minor safety effect under certain conditions:
 - En-route phase (taken as sample; intent was to expand conclusions to terminal phase)
 - Glass cockpit aeroplanes
 - Detailed HF assessment
- Many recommendations (design, procedures and training) as an outcome
- Agreement to allow own-ship in en-route phase with adequate limitations/conditions
- EASA is now working on the development of such conditions/limitations

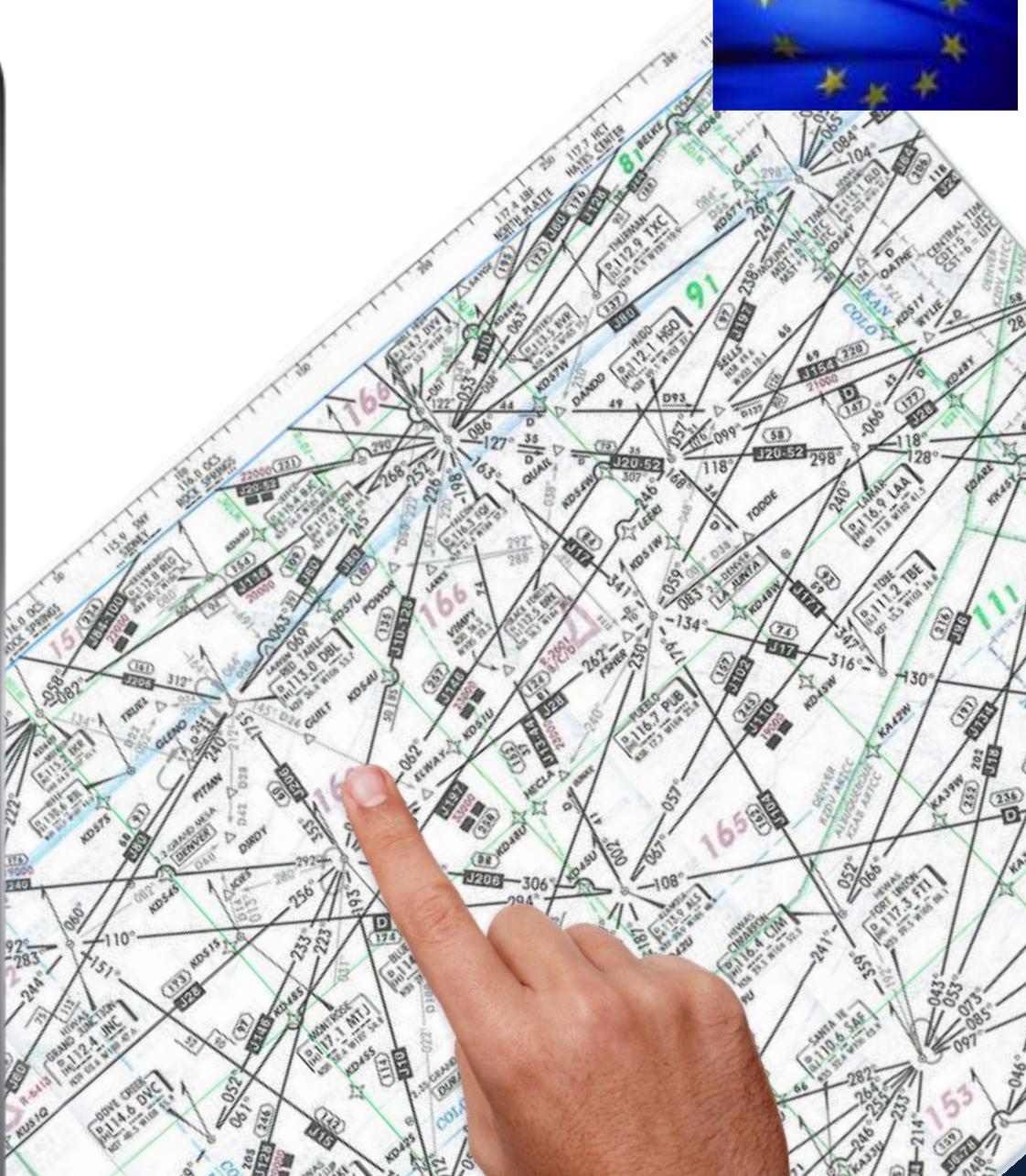
Own-ship inflight – How?



- The use is for **situation awareness only**; not for primary navigation or maneuvering
- The function is **supplemental** to certified avionics.
- It enables the user to quickly and effectively locate, correlate, and use flight information, especially valuable in certain scenarios
- **‘Concurrent Use’ model**
- **Clear differentiation** between EFB functions and avionics functions



Own-ship inflight – How?



Conclusion



The risks associated with the failure conditions related to the display of own-ship, inflight, on EFB Charting and In-Flight Weather applications is deemed not worse than minor (slight increase in flight crew workload only due to the additional cross check task).

This slight increase in crew workload is largely offset by the following benefits:

- Significant decrease of cognitive resources needed to get the aircraft position on the e-charts
- Enhanced detection of “something wrong” between e-charts and ND.
- Improved ability to compare 2 sources (e-charts and ND) of own-ship depiction even with different orientation (North up vs. Track-up).
- Better detection of systems (avionics, EFB) errors , ATC errors and human errors.

EFB Policy Change – AC 120-76D

FAA EFB Rulemaking – Overview



Class 3 EFB approved

Class 2 EFB approved

iPad EFB approved

MS Surface EFB approved



AC 120-76

AC 120-76A

AC 120-76B

AC 120-76C

AC 120-76D

- Initial publication
- A good first attempt at comprehensive EFB policy
- Developed by joint FAA/Industry team

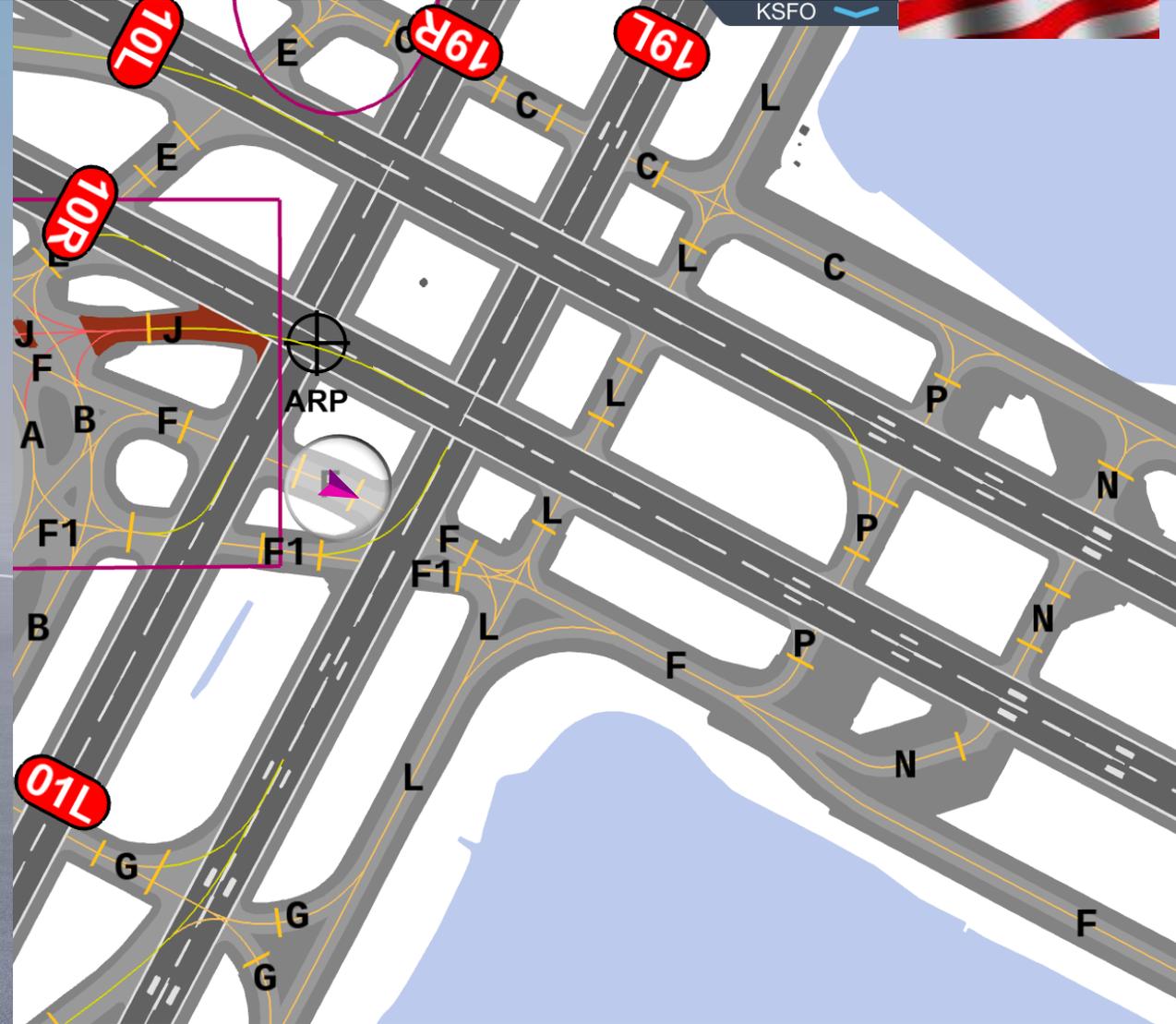
- Significant update to fill in gaps and cover topics not anticipated
- First truly usable version of the AC
- Focused on Class 2 and 3 EFB

- AC adapted to embrace Class 1 (portable) EFB, iPad-friendly
- Concept of “viewable stowage” and “secured & viewable”
- Methods to qualify COTS tablets (EMC, batteries, rapid decompress.)
- Alignment with AC 20-159 (AMMD) and AC 20-173 (installed hardware)
- Addresses data connectivity (20-173)
- Clarifies Type A, B & C applications
- Starts shifting responsibility of certain EFB aspects from FAA to operator

- Allows own-ship on Type B applications during taxi only
- Adds a Job Aid for qualifying own-ship during taxi
- Retires AC 20-159 (AMMD)
- Updates EMC testing, including new methods to help operators
- Clarifies support for suction cup to secure for all phases of flight
- Clarifies PED vs. EFB
- Type C apps no longer covered

- Allows own-ship on Type B applications during taxi AND all phases of flight
- Taxi own-ship Job Aid retired
- Continues shifting more EFB responsibility to operator
- New “Program Catalog” as method operators must use to track hardware and apps in their EFB program
- Methods for major vs. minor updates to existing programs

EFB Policy Change – AC 120-76C



COMMERCIAL TAXI OPERATIONS WITH APPROVED OWN-SHIP ON PORTABLE EFB

20,000,000+ own-ship taxi ops enabled by AC 120-76C + iPad + Jeppesen FliteDeck Pro

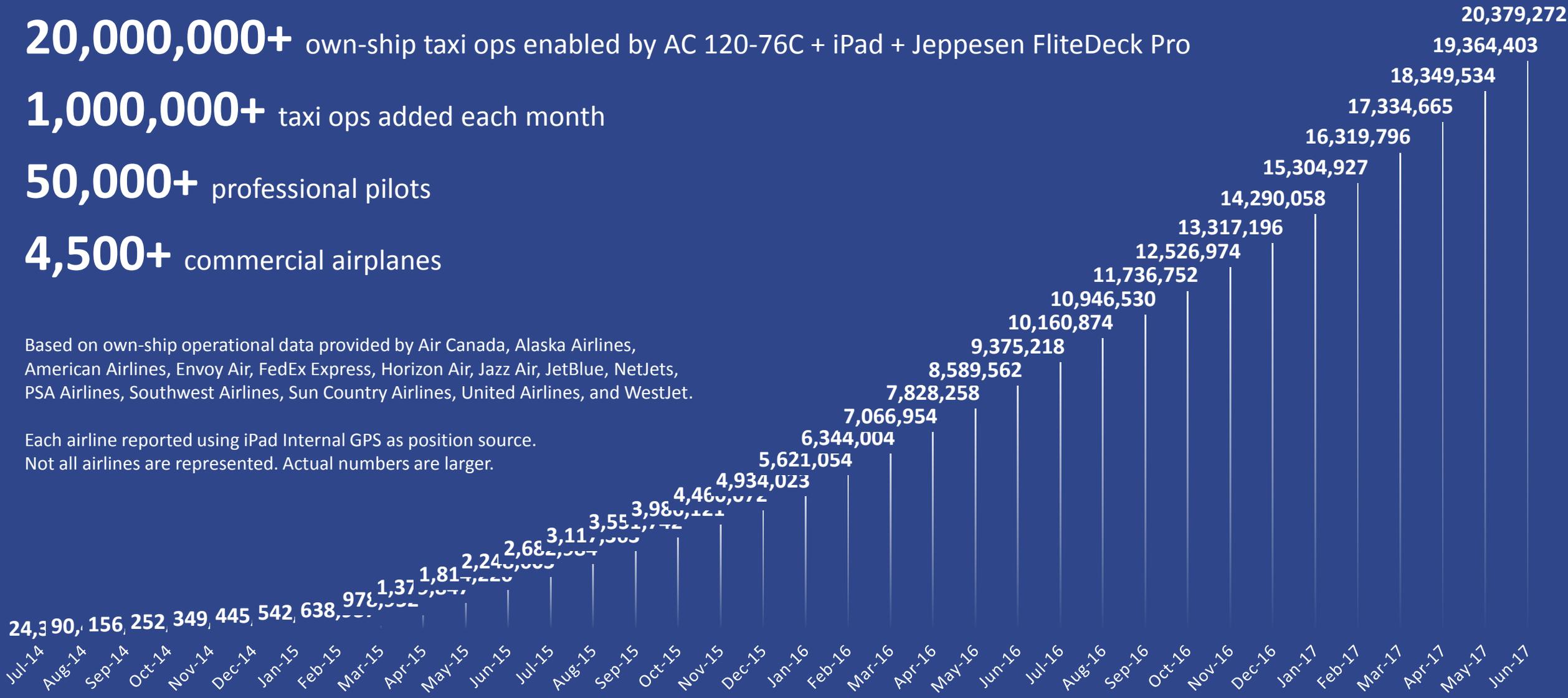
1,000,000+ taxi ops added each month

50,000+ professional pilots

4,500+ commercial airplanes

Based on own-ship operational data provided by Air Canada, Alaska Airlines, American Airlines, Envoy Air, FedEx Express, Horizon Air, Jazz Air, JetBlue, NetJets, PSA Airlines, Southwest Airlines, Sun Country Airlines, United Airlines, and WestJet.

Each airline reported using iPad Internal GPS as position source.
Not all airlines are represented. Actual numbers are larger.



EFB Policy Change – AC 120-76D

FAA EFB Rulemaking – Key Changes



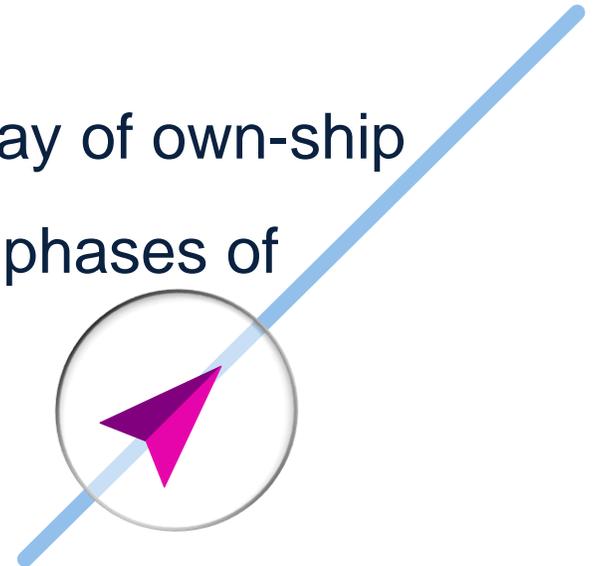
FAA EFB Advisory Circular AC 120-76D

Expected publication mid-end September

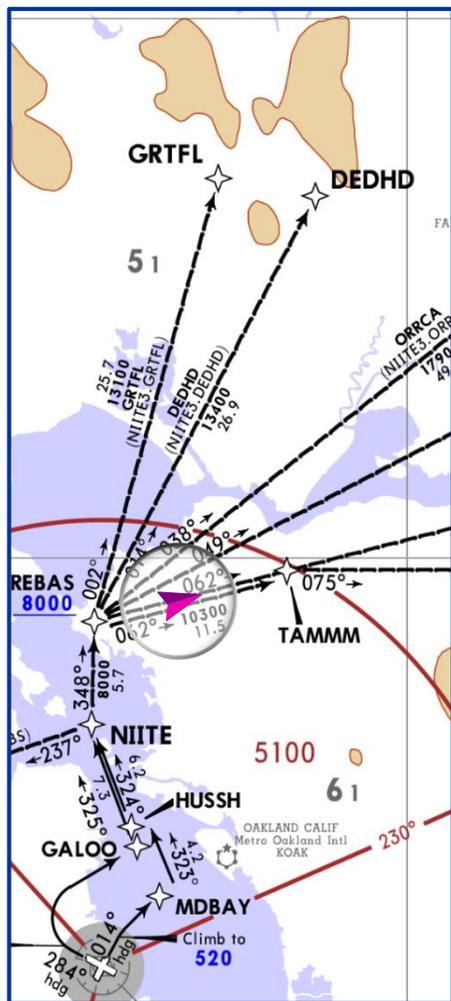
Streamlined authorization
process for updating existing
EFB programs



Display of own-ship
in all phases of
flight



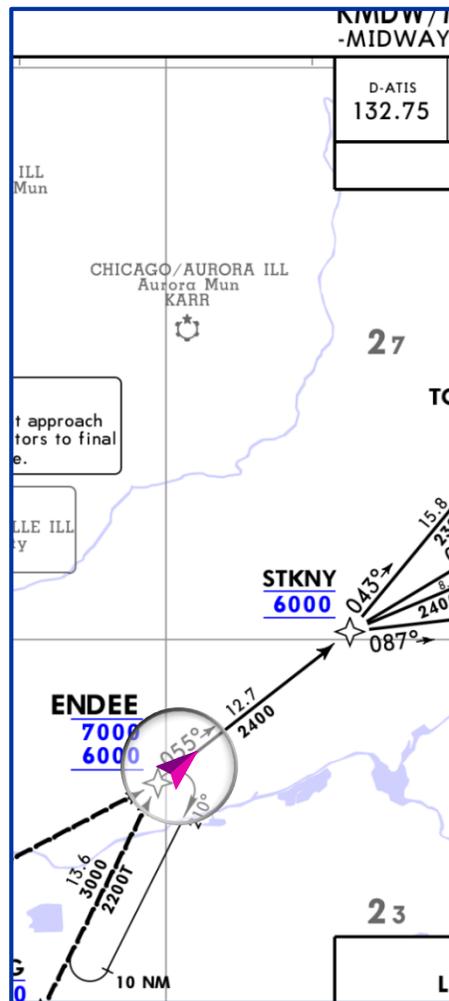
EFB Policy Change – AC 120-76D



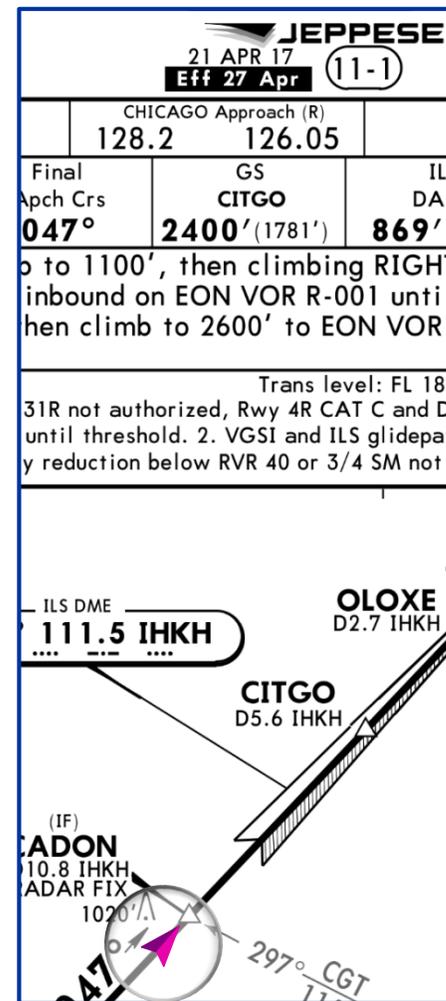
DEPARTURE



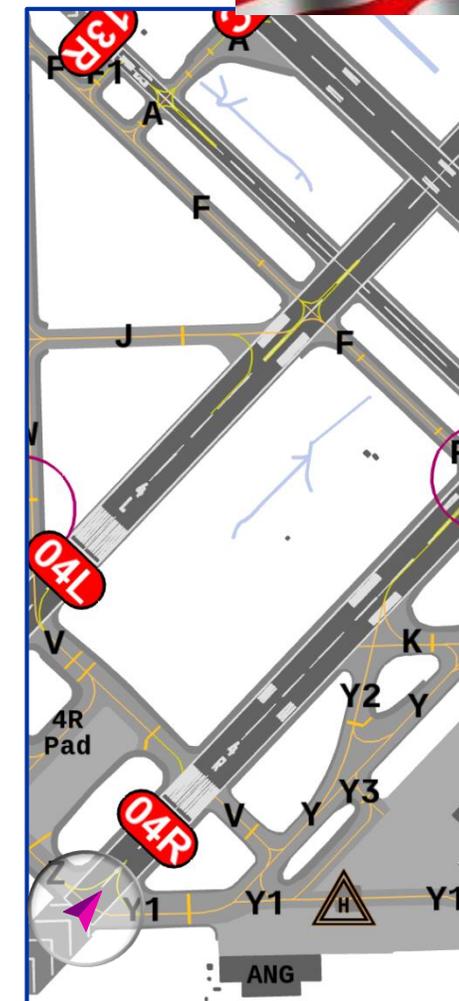
ENROUTE



ARRIVAL



APPROACH



LAND/TAXI

EFB Policy Change – AC 120-76D



Courtesy: Teledyne



Courtesy: Astronics



Courtesy: bad Elf



Courtesy: Apple

Airplane Interface Device (AID)

Portable GPS

Portable EFB Internal GPS



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