



Federal Aviation  
Administration

# Policy for Terrain and Obstacle Data

Presented to: SVS Workshop  
Seattle, Washington

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Date: February 15, 2006



# Issues Related to Database Certification

- For government-supplied data (AIP), the state government assumes responsibility for any incorrect data. Downstream parties can assume state-supplied data is correct
- Data not received through AIP, must be verified
- Approval must not re-approve every database or delivery
- Goal is to eliminate redundant approvals
- Allow a single approval for each company
- Approve the processes – not the vast amounts of data

# Issues Related to Terrain and Obstacle Data

- **What are the data requirements need to support SVS intended functions**
  - Are accuracy and resolution requirements compatible with TAWS
    - Is data comprised solely of DTED (NIMA) level 1 data?
  - Can current databases meet the DQR's in DO-276A, sections 3 and 4 and are these requirements adequate for all intended use
  - What drives the timeliness of data
    - Event driven changes may not be adequate to ensure data is current.
    - Obstacles are updated per the AIRAC cycle. How are NOTAMs for obstacles addressed
- **What is the verification/validation method?**
- **Are cultural features included (man made formations and structures)?**
- **Based on Intended function, is there a requirement to chart all obstacles >200 ft?**

# Background

- **Prior to issuance of AC 20-153, there were no procedures for data suppliers (e.g. Jeppesen) to obtain FAA acceptance of their aeronautical data processes**
- **RTCA/DO-200A scope includes standards for processing aeronautical data used for navigation, flight planning, terrain awareness, flight simulators and other applications**



# Policy Options

Three options for addressing database updates:

1. Data is accepted through Flight Standards (AFS), no certification involvement — Acceptable for SV
2. Put the data into the approved type design and under the certification process
3. Use database LOA (AC 20-153) to oversee data process acceptance

# Option 1 (Data acceptance through AFS)

- **Current situation for most terrain awareness displays (e.g. not TAWS)**
- **Acceptance of data updates are handled through AFS**
- **This option does not provide data integrity**



# Option 2 (Data Approval)

- **Many Terrain databases have been approved as part of the design approval of the TAWS; database updates are considered to be a design change (TSO C-151b) and require certification approval**
- **As part of TSO C-151b approval, the manufacturer must present the development and methodology used to validate and verify the terrain and airport information**
- **TSO C-151b requires that the operating instructions and equipment limitations contain processes by which the terrain database can be updated**
  - This approach can be very cumbersome as it is under the certification process and particularly problematic for databases requiring frequent update (e.g. obstacle database)

# Option 3 (Data Process Acceptance-LOA)

- **Use new AC 20-153 policy that provides front-loaded supplier acceptance using DO-200A**
- **Currently AC 20-153 is limited in scope to navigation databases**
- **DO-200A was written for navigation, flight planning, terrain awareness, flight simulators and other applications**
- **Operators that obtain data from suppliers that have an LOA have some assurance of quality data.**
- **Until such time that an LOA can be obtained, Data updates will have to be managed through option 2 (Data Approval method)**



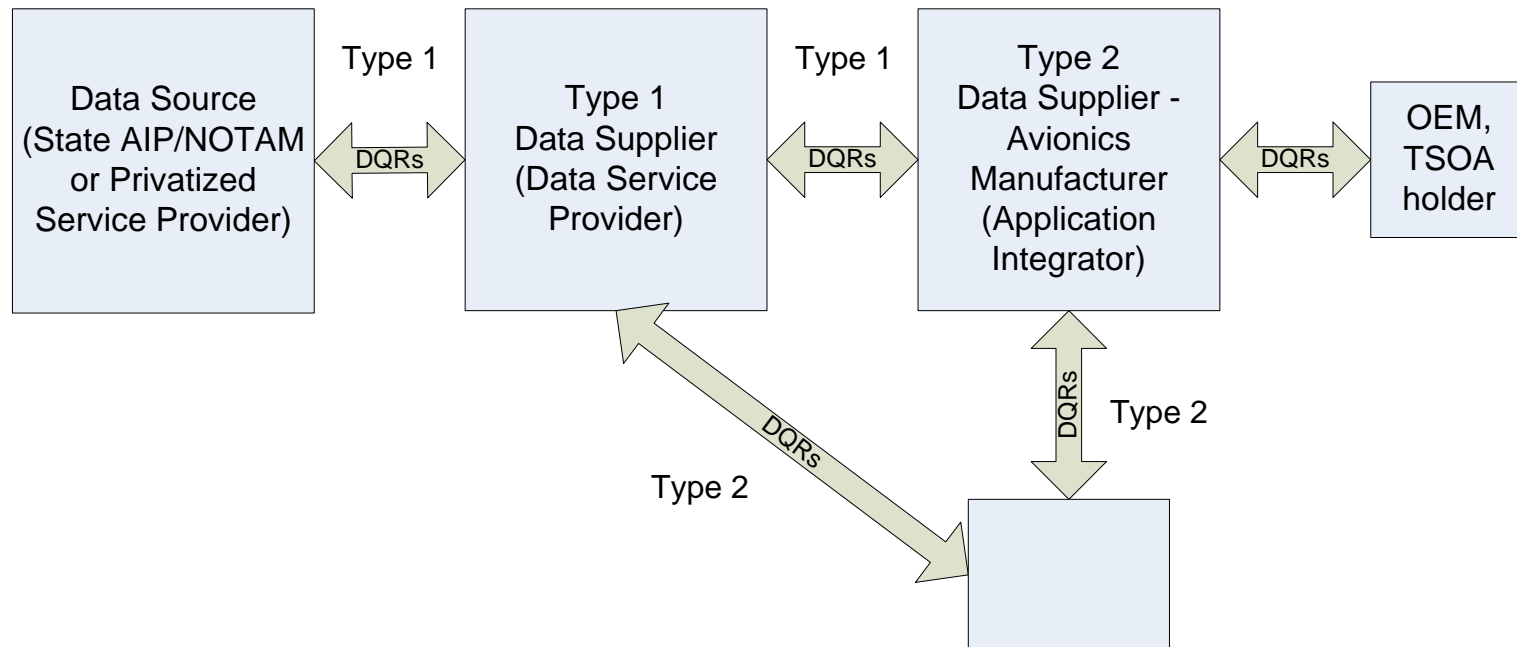
# Database Letter of Acceptance (LOA)

- **A Letter signed by ACO**
- **Applicant defines data quality requirements, compatibility with avionics**
- **Establishes ability to process data per requirements**
- **Minor/major changes to data requirements and processes classified per terms in LOA**
- **Policy for navigation databases already harmonized with EASA/JAA**

# 2 Types of Data Suppliers/LOAs

- **Type 1 - recognition of a data supplier's compliance with DO-200A with no identified compatibility with an aircraft system (Data Service Provider)**
- **Type 2 – processes Type 1 data to ensure compatibility with target hardware to support intended function (Application Integrator)**

# Flow of Aeronautical Data



# Supplier Acceptance

- **Data supplier finds compliance with DO-200A per AC 20-153**
- **FAA conducts audit to verify DO-200A compliance per AC 20-153**
- **Evidence of approval is FAA “Letter of Acceptance (LOA)”**



# DO-200A Overview



- **Aeronautical Data Chain concept**
- **Standard has Interface and Data Process Requirements**
- **Interface Requirements**
  - **Document “data quality requirements”:**
    - Accuracy, resolution, assurance level, format, timeliness, completeness, traceability
  - **Agree on requirements with previous supplier and customer**
    - State requirements in ICAO Annexes

# DO-200A Overview (continued)



- **Data Process Requirements**
  - Document processes to ensure customer requirements are met
  - Places emphasis on error reporting and correction
  - Provides Quality Management approach with continuous improvement

# Current Status

- **AC 20-153 signed on July 8, 2005**
- **Type 1 audits already conducted and LOAs issued:**
  - EAG, Jeppesen - Frankfurt, and Lido (EASA)
  - Jeppesen – Denver (FAA)
- **Type 2 LOA issued to Honeywell-Phoenix**
- **Type 2 Audits conducted at Rockwell-Collins and Smiths Aerospace**
- **Additional Type 2 Audits being scheduled**
- **Audit program has been highly successful and well received**

# Current Status (continued)

- **FAA Order 8110.55, “How to Evaluate and Accept Processes for Aeronautical Database Suppliers” signed 9/30/05**
- **Order provides field with implementation guidance for AC**
- **Covers audit process, LOA maintenance, and DER guidance**



# FAA Position

- **The applicant should demonstrate that the Terrain and Obstacle Data Quality Requirements (DQRs) meet the requirements for its intended function and should document the means by which the data will be maintained. Guidance on DQRs for terrain data is provided in DO-276, section 3.**
- **The applicant should validate the data which does not come from State AIPs. DO-276, section 6 provides one means for demonstrating the acceptability of a terrain and obstacle database.**

# FAA Position (continued)

- **Applicant should define the process, from origination of data through loading the data into the SVS application, of ensuring the quality of the data**
  - ICAW should include definition of requirements and conditions for updating:
    - Periodicity of update
    - Source of update data
    - Process for updating
    - Verification that data satisfies DQRs (e.g. DB LOA)
- **Applicant should state any restrictions/limitations concerning operating with an expired database**

# Aeronautical Information Publication (AIP)

- **State Aeronautical Information Services are already understood in terms of the Aeronautical Information Publication (AIP) issued by each contracting state**
- **Terrain Data Agencies are typically not considered AIP and are not subject to Aeronautical Information Regulation and Control (AIRAC) cycle**
- **Latest edition of ICAO Annex 15 indicates AIP will include Area 1 (entire territory of a state) and 4 (category II/III) data by November 2008, and Area 2 (terminal area) and 3 (aerodrome/heliport) data by November 2010**

# Summary

- **DO-200A can apply to terrain and obstacle databases**
- **Since an LOA in these cases would not be required as part of an operational approval, the Instructions for Continued Airworthiness should require that prior to updating the aeronautical database, the effectivity of the LOA is verified**
- **Operator responsibilities identified in Paragraph 9 of AC 20-153 do not apply to non-navigation databases**

# Any Questions?

