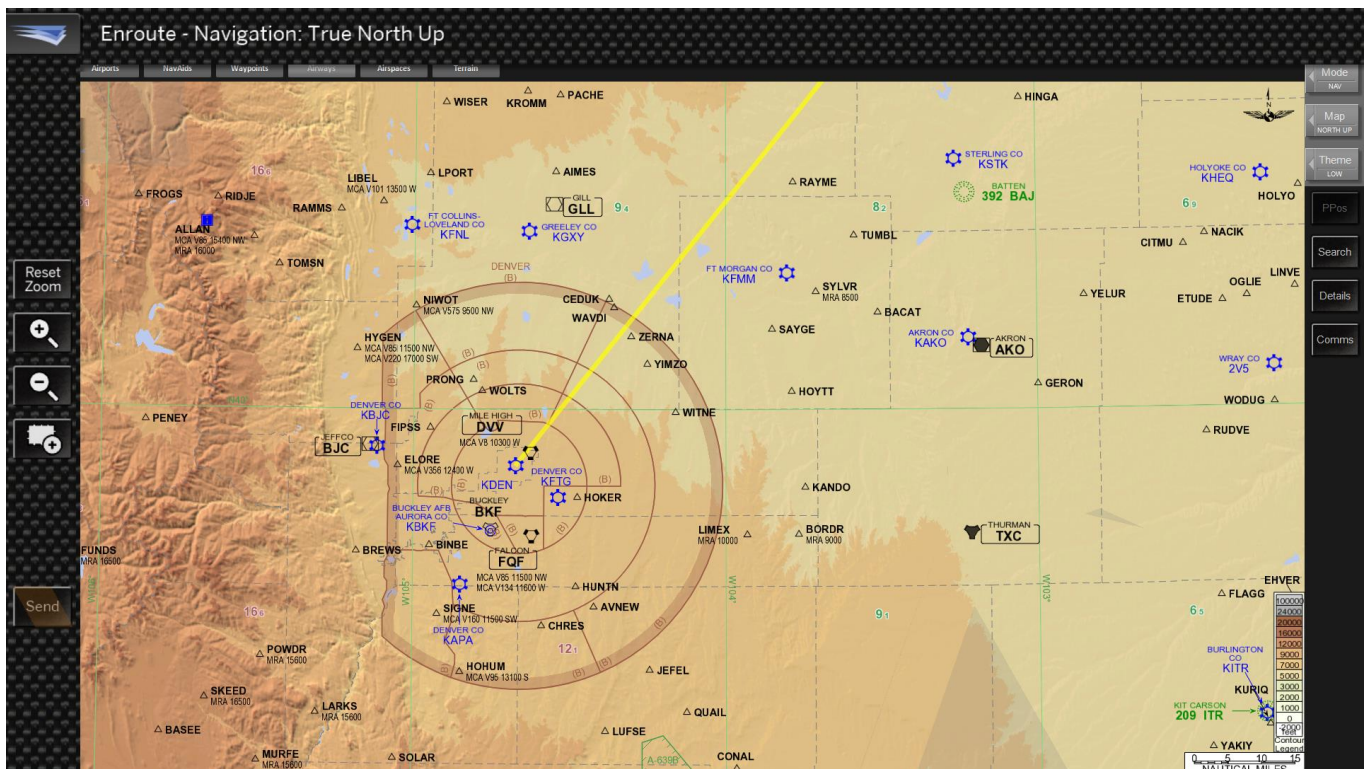


EUROPEAN AVIATION SAFETY AGENCY

ELECTRONIC FLIGHT BAG (EFB) EVALUATION REPORT



Jeppesen

FliteDeck Pro for Windows – V7.1.8

15 Jul. 2016

REVISION RECORD

REVISION NO:	DATED	SUMMARY
0	15 Jul. 16	Initial Issue.

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EVALUATION TEAM

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Date: 15 Jul. 2016

ACRONYMS AND ABBREVIATIONS

AMC	Acceptable Means of Compliance
AMMD	Airport Moving Map Display
CBT	Computer Based Training
CDL	Configuration Deviation List
EASA	European Aviation Safety Agency
EFB	Electronic Flight Bag
EMI	Electromagnetic Interference
FAA	United States Federal Aviation Administration
FCOM	Flight Crew Operating Manual
FSTD	Flight Simulation Training Device
HMI	Human Machine Interface
LIFUS	Line Flying Under Supervision
MFD	Multi-function Display
MMEL	Master Minimum Equipment List
NAA	National Aviation Authority

EXECUTIVE SUMMARY

The evaluation found that FliteDeck Pro 7.1.8 satisfies the guidelines of AMC 20-25.

This current evaluation has been performed using the following methods:

- Desktop review of the software specifications;
- Review of the results from the software evaluations performed by Jeppesen;
- Review of compliance documents;
- Limited functional tests on the application.

Requirements contained in Commission Regulation (EU) N° 965/2012 of 5 October 2012 (Air Operations Rules) have been considered together with guidance material in AMC 20-25 (Airworthiness and Operational considerations for Electronic Flight Bags).

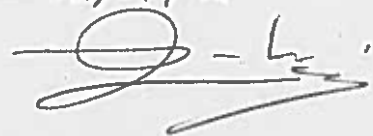
This report does not substitute for, or prevail over, any of the terms of the Jeppesen End User License Agreements (EULA) or other hardware and software Product Agreements. The operators must read the EULA and take the responsibility to accept the different agreements prior to using the applications.

EASA sees no technical objections to the grant by the National Authorities of an operational approval for the use of FliteDeck Pro 7.1.8 taking the recommendations proposed in this report into account.

Colin Hancock
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Date: 15/07/16



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Date: 15/07/16



EFB SOFTWARE EVALUATION REPORT

1 PURPOSE AND APPLICABILITY

1.1 Purpose

This Report specifies EASA requirements and recommendations applicable to operators seeking Operational Approval to use FliteDeck Pro 7.1.8 under Commission Regulation (EU) No 965/2012 of 5 October 2012 (referred to in this Report as “Part-OPS”), and it additionally provides guidance to National Aviation Authorities (NAAs) responsible for granting such approvals.

1.2 Applicability

This report is applicable to FliteDeck Pro version 7.1.8, as well as subsequent versions added via addendum or not requiring a further evaluation by EASA (see chapter 1.2.1 below).

Findings of compliance and recommendations of approval contained in this report are consistent with the guidance specified in AMC 20-25 and ETSO-C165a.

This Report assumes that the parts not covered by this report regarding the evaluation of the compliance of the software will be performed by the operator and evaluated by its competent authority. Jeppesen’s compliance matrix summarizes which parts are covered by this report and which are not.

This report includes:

- Minimum requirements which should be applied by the NAA when considering the grant of an Operational Approval;
- Information which is advisory in general, but is mandatory for particular operators if the designated configurations apply and if approved for that operator.

Provisions of this Report are effective until amended, superseded, or withdrawn.

The structure of this report (paragraphs 4 and 5) has been adapted to follow the structure of the AMC 20-25.

1.2.1 Changes

Updates to the evaluated software (version 7.1.8) which do not bring any change to the HMI, are not susceptible to change the application classification, or do not introduce new functionalities, do not require an approval and can be considered to be covered under this report. The changes should nevertheless be controlled and properly tested prior to use in flight.

As detailed in AMC 20-25 chapter 7.3, other modifications to the software require a supplemental evaluation. If applicable this may be done by the operator through the procedure approved by the competent authority in accordance with rule ARO.GEN.310(c).

Changes to the operating system are addressed in chapter 5.6.1.

1.3 Use of the AMC 20-25 as Acceptable Means of Compliance

The requirements of Commission Regulation (EU) No 965/2012 and of AMC 20-25 have been considered during this evaluation.

The structure of this report (chapters 4 and 5) has been adapted to follow the structure of the AMC 20-25.

2 GENERAL DESCRIPTION OF THE SOFTWARE

Jeppesen FliteDeck Pro 7.1.8 is an open-architected EFB suite of applications, running on the Windows Operating System.

It includes the following applications:

2.1 Enroute charts

Enroute is an application that renders dynamically and aids in pilots situational awareness relative to the surrounding geographical and navigational entities. Pilots can alternate between map themes and render the map at multiple range scales to optimize readability and to support appropriate phases of flight.

The Enroute application can be used to perform the following tasks:

- Information view on a moving map.
 - Route of flight vision
 - Depiction of terrain contours
- Search for navigational objects.
- Retrieval of navigational data.
- Modification of preloaded routes, as well as creation of ad-hoc routes.
- Display of Regional or Reference Notes

The Enroute application features four different modes:

- Navigation mode—Displays a dynamic map in True North Up or Track Up orientation for situational awareness.
- Plan Route mode—Displays the route-planning tools for planning purposes.
- Regional Notes mode—Displays notes that are the functional equivalent of “floating notes” or “cover/end panel notes” on a precomposed (paper) chart.
- Reference Notes mode—Displays information that is the functional equivalent of end/cover panel information or of references to Airway Manual text on a precomposed chart.

Enroute acquires its map information from an Enroute database, which Jeppesen updates every 28 days based on the ARINC cycle.

2.2 Terminal charts

The Terminal Charts application displays Terminal Area procedural charts and chart NOTAMs to the pilot. The charts are pre-composed digitally to replicate paper Terminal Area charts.

ORIGINATION and DESTINATION data are pre-populated within the application after a FLIGHT INIT event. Upon initial selection of the application after a FLIGHT INIT, the ROUTE SETUP screen is displayed. The pilot can check the ORIG and DEST information in the ROUTE SETUP page as well as enter up to four ALTERNATE airports. The pilot can also SEARCH for an airport in the Terminal Charts database following the entry of any search string.

The main Terminal Charts page is the CHART CLIP page. The CHART CLIP page borrows from the familiar pilot chart clip metaphor to display pilot selected chart clips for Origin, Destination, and all Alternate

aerodromes. For each aerodrome, the main airport chart (10-9, 10-8, etc.) and chart NOTAMs for the airport are pre-selected into the chart clip. The pilot can add or remove individual charts to or from the chart clip through the EDIT CHART CLIP function. The EDIT CHART CLIP function also allows pilots to PREVIEW individual chart content for inclusion into the chart clip. In the EDIT CHART CLIP mode, charts are organized by Chart Index number and all chart procedures are clearly listed on PROCEDURE ID menu buttons. Charts can also be filtered according to chart type (AIRPORT, INFORMATION, APPROACHES, DEPARTURES, ARRIVALS). Charts in the CHART CLIP may be printed.

Airport diagram data (10-9 chart or equivalent) is available with a single button press from the Airport Moving Map application.

2.3 Airport Moving Map

The Airport Moving Map Display (AMMD) has two modes for displaying an airport map:

- In Moving Map mode, the taxi map is in a Heading-Up orientation. That is, the map moves, translates, and rotates, under a stationary aeroplane symbol to show the aeroplane's relative position on the airport. The aeroplane symbol position and orientation is fixed with respect to the viewing area. The aeroplane must be on the ground at the airport being viewed and the EFB must be receiving valid heading and position input to use this mode.
- In Static Map mode, the aeroplane symbol moves on a stationary map that is orientated North-Up. If valid aeroplane position and heading information is not being received or if the aeroplane is not on the ground at the airport selected for viewing, the aeroplane symbol does not appear (see below right). However, the map is still available for viewing.

Flight crew must use existing normal taxi procedures and visual observation of external references as the primary means of taxi navigation. The AMMD is intended as a supplemental flight crew aid to provide increased positional awareness to support taxi planning and assist in monitoring taxi progress and orientation.

This capability must incorporate, or be supplemented by, applicable operational information from electronic or paper airport diagrams and any applicable NOTAMs. Reference to an airport diagram and NOTAMs provides the pilot with information (e.g. radio frequency change points, taxiway weight restrictions) relevant to own-ship operation on the aerodrome movement areas.

Runway, Taxiway, Ramp, Concourse and Gate identifiers on the airport map aid the flight crew to do either of the following:

- Cross check the ATC cleared taxi route using external visual references;
- Ascertain an appropriate taxi route to the runway, ramp, or the terminal, in the absence of specific taxi instructions.

The AMMD is NOT intended to replace outside visual references, the required paper or digital aerodrome diagrams (10-9 chart etc.), nor to provide taxi navigation guidance. Specifically, the AMMD is NOT intended to enable:

- A pilot to establish the own-ship position or orientation on the aerodrome solely by reference to the airport map;
- Taxi operations without adequate external visual references (poor weather or low visibility);
- Taxi operations below normal approved weather minima;

- Initiation or termination of a turn or stop by reference to the depicted own-ship position on the aerodrome map.

On the Ground:

Crews must use normal taxi procedures and use direct visual observation from the cockpit window as the primary taxi navigation reference for planning and initiating turns and required stops etc. During AMMD use, the flight crew are expected to detect any significant difference in displayed and actual own-ship position by cross-checking displayed position with outside visual references, such as signage and geometry. The AMMD enhances own-ship position awareness and can be used by the crew to:

- Aid taxi planning per the ATC assigned route;
- Monitor taxi progress and direction;
- Cross-check present position, upcoming turns and required stops (pilot not taxiing).

In-Flight:

The pilot briefing the approach and landing may review the airport diagrams (e.g. 10-8, 10-9) and then display the Airport Map as a visual aid to discuss runway exit planning, runway length, width, the probable taxi route, restrictions, and NOTAMs. The other pilot may also display the Airport Map during the briefing, as required, to gain a mutual understanding of the plan.

Upon completion of briefing of the runway exit plan and selecting the appropriate zoom level for viewing, the pilot may “arm” the Heading-Up mode which will enable the application to automatically activate upon touchdown.

3 SOFTWARE CLASSIFICATION

3.1 Classification

The applications proposed in FliteDeck Pro 7.1.8 are classified as type B. The following considerations apply:

The AMMD has been considered a type B application and evaluated against the guidance of AMC 20-25 and ETSO-C165a. Further details are found in the [Appendix A](#) of this report.

In order for the Enroute application to be classified as a type B application, the ownship position function shall not be activated, as well as weather information overlays, and the display of detailed navigation or flight parameters (e.g. height, speed, present position...).

3.2 Non-EFB Applications

The Windows operating systems provide default applications not related to flight operations and allows installation of additional applications.

These applications are out of the scope of this document. An operator’s EFB administrator should ensure that non-EFB software applications do not adversely impact the operation of the EFB (see [paragraph 4.7.4](#)) and include them in the EFB configuration management.

It is reminded that third party applications enabling a display of own-ship position or flight parameters are considered to be normal avionics functions (as provided by AMC 20-25), if the present position function is not inhibited and locked by the administrator.

4 HARDWARE OPERATIONAL EVALUATION

The hardware operational evaluation is not covered by this evaluation and remains under the responsibility of the operator. This include:

- Electromagnetic Interference (EMI) Demonstrations (AMC 20-25 §6.2.1.1)
- Battery (AMC 20-25 §6.2.1.2)
- Power Source (AMC 20-25 §6.2.1.3)
- Environmental Testing (AMC 20-25 §6.2.1.4)
- Display Characteristics (AMC 20-25 §6.2.1.5)
- Viewable Stowage if applicable (AMC 20-25 §6.2.1.6)

5 SOFTWARE OPERATIONAL EVALUATION

5.1 Risk Assessment

The Risk Assessment process of AMC 20-25 corresponds to the former Operational Risk Analysis from TGL-36.

Elements of the Risk Assessment required by AMC 20-25 §7.2 were elaborated during this evaluation and are provided in Jeppesen's compliance dossier detailed in chapter 8.

These elements can be reused by operators to produce a Risk Assessment tailored to their operations, as required by AMC 20-25 §7.2.

5.2 Changes to the EFB system

As stated in AMC 20-25, the modifications to the EFB applications that do not bring changes to the calculation algorithms or HMI, or introduce new functionalities, do not require an approval from the competent authority. See chapter 5.10.

5.3 Dispatch Considerations

Dispatch considerations remain under operator's responsibility and should be carried out with regard to the EFB system specificities. Refer to AMC 20-25 §7.4. However Jeppesen provides generic dispatch considerations in the EFB risk assessment that can be considered by operators.

5.4 Human Factors and HMI Assessment

The following elements are based on a limited EASA evaluation and on supporting material provided by Jeppesen during the evaluation.

These elements have led to the content of the chapters below, including recommendations for the flight crew training. In addition, several HMI points raised during the evaluation were discussed with Jeppesen, and upon agreement several modifications were brought to the applications.

The HMI is deemed satisfactory and compliant with AMC 20-25 appendix D, provided the training recommendations are implemented.

The results of this evaluation may be reused by operators. It is reminded however that operators should carry out a complementary HMI assessment of the integration of the EFB in the flight deck environment (see AMC 20-25 §7.5).

5.4.1 *Human Machine Interface*

The HMI was found consistent and satisfactory after an initial training on the application.

5.4.2 *Legibility of Text*

The legibility under the full range of lighting conditions expected on the operator's flight deck, including use in direct sunlight, is out of scope of this document and remains to be evaluated by the operator. It depends in particular on the characteristics of the screen used to display the applications.

5.4.3 *Input Devices*

The assessment of the input devices was out of scope of this evaluation since it depends on the EFB Host Platform. The choice of the input devices and their assessment are under operator's responsibility. Refer to AMC 20-25 §D.2.3.

5.4.4 *User Interfaces Consistencies*

Consistency between EFB applications:

The various applications of FliteDeck Pro are all developed following consistent HMI guidelines.

Consistency with flight deck applications:

Operators and their competent authorities should evaluate on a case by case basis if applicable.

5.4.5 *Messages and Use of Colours*

Use of colour:

In general, FliteDeck Pro satisfies the guidance provided by the AMC 20-25. The use of red is limited and is not deemed to be confusing.

Messages:

Various information and failure-related messages are implemented in the applications.

5.4.6 *System Error Messages*

The applications are deemed compliant. The errors trigger appropriate notifications (e.g. loss of data connectivity) and system status messages, which are documented in the User Guide.

Non-EFB applications should be assessed in order to avoid the triggering of undue error messages. This is particularly true on the Windows operating system.

The stability of the applications has been good during the evaluation. In case "crashes" of the EFB applications occur, it is recommended that there is a process for the crew to report this to the EFB administrator.

5.4.7 *Data Entry Screening and Error Messages*

The application is deemed compliant.

5.4.8 Error and Failure Modes

5.4.8.1 Flight Crew Error

The applications have been designed to be consistent with common flight deck systems, through the use of the colour coding and entry formats.

5.4.8.2 Identifying Failure Modes

Application failure identification is ensured by the use of error messages (see 5.4.6 & 5.4.7).

5.4.9 Responsiveness of Applications

During the limited hands-on trial by EASA the responsiveness of the applications was satisfactory. It is however dependent on the hardware used by the operator and on the configuration and number of applications simultaneously running on the EFB. Ensuring that the responsiveness is acceptable therefore remains under EFB administrator responsibility.

5.4.10 Off-Screen Text and Content

The Terminal Charts application indicate the existence of off-screen content if certain portions of map are not visible, for example during zoom operations.



5.4.11 Active Regions

The application uses the standards widgets and shapes and there is no ambiguity concerning the active regions.

5.4.12 Managing Multiple Open Applications and Documents

The application does not allow to open multiple documents at the same time. The toggling between applications is achieved through the menu which is accessible at all times.

5.4.13 Flight Crew Workload

The crew workload evaluation can be considered partially out of the scope of this document since it depends on operator specificities, like positioning of the device and standard procedures.

Operators and their competent authorities should evaluate the EFB positioning, stowing, and intended use during applicable phases of flight (including possible use of a viewable stowage device), to insure there is no unacceptable increase of flight crew workload or adverse safety implications.

This evaluation should be performed taking into account the specific operators SOPs, in an operationally representative context, and using adequate Human Factors methodology.

5.6 Flight Crew Operating Procedures

5.6.1 Procedures for using EFB systems with other flight crew compartment systems

Procedures for using the EFB with other flight deck systems is out of scope of this evaluation and remain under the operator's responsibility.

5.6.2 Flight crew awareness of EFB Software / Databases Revisions

Flight Crew must be made aware of the applicable revision status. This can be achieved through the verification in the information panel available for each document (see 5.4.8.1).

It is recommended that the crew is trained to ensure before flight that the necessary documents are properly loaded in the application and can be accessed without connectivity. Indeed, online documents can appear in the application and disappear later when connectivity is lost, if they were not downloaded earlier. See also 5.12.

5.6.3 Procedures to mitigate and/or control workload

The flight crew procedures are out of scope of this evaluation and remain under the operator's responsibility.

Specificities mentioned in 5.3.5 should however be taken into account, as well as the elements provided by the Jeppesen documents (see [chapter 8](#)).

5.7 Compliance Monitoring

The operators' compliance monitoring programme (required by Part-OPS, ORO.GEN.200) should include procedures related to the EFB system.

These procedures should ensure that the EFB operations and administration are conducted in accordance with all applicable requirements, standards and operational procedures.

5.8 EFB System Security

The operator's EFB Administration procedures must be capable of ensuring an appropriate level of EFB security as described in the AMC 20-25.

The operator should use technologies and/or procedures to assure that unauthorized content cannot enter the EFB system.

5.9 EFB Administration

The operator should appoint a person to the role of EFB Administrator. The EFB Administrator is responsible for hardware and software configuration management and for ensuring, in particular, that no unauthorised software is installed. The EFB Administrator is also responsible for ensuring that only a valid version of the application software and current data packages are installed on the EFB system.

The EFB Administrator should have received detailed training in both the ground systems hardware and the software applications used to configure the EFB.

Administration procedures for the configuration of the EFB system, its updating, operational feedback, quality assurance functions and software configuration control should be established by the operator and documented in an EFB Policy and Procedures Manual. Details of the content of a typical EFB Policy and Procedures Manual may be found in AMC 20-25 at Appendix G.

Although EFB administration remains an operator's responsibility, the paragraphs below address some aspects that were discussed during the evaluation and deemed important.

The administration workflows are to be defined by the operator. The administrator should in particular be responsible to set up the applications properly, and ensure that revision data are dispatched correctly.

5.10.1 *EFB Policy and Procedures Manual*

The EFB policy and procedures manual is under operator's responsibility. Refer to AMC 20-25 7.11.1.

5.10.2 *System updates*

This evaluation is not applicable to a particular operating system.

In any case, the configuration management responsibilities are with the EFB administrator.

Any new OS version should imply a complementary evaluation to verify that it has no adverse effect on the EFB applications.

It is also recommended that operators implement administrator procedures to check with Jeppesen that no compatibility issues exist between the operating system and the FliteDeck applications.

5.10.3 *Non-EFB Software applications*

These applications are out of the scope of this evaluation, however their use is subject to the applicable operational rules and to chapter 6.2.2.3 of the AMC 20-25.

It is recommended that the EFB administrator inhibits the possibility to install new applications for non-administrator users.

5.11 *System Maintenance*

The EFB system maintenance is under operator's responsibility. AMC 20-25 7.12 applies.

The operator is in particular responsible for the maintenance of the batteries, and should ensure that they are periodically checked and replaced as required.

5.12 *Flight Crew Training*

Training for the use of the EFB should be for the purpose of operating the EFB itself and the FliteDeck Pro applications hosted on it and should assume basic competence in the functions addressed by the software applications installed. Where flight crew do not have the necessary experience, additional requirements may have to be applied by the NAA.

Training programmes for the EFB may take credit for previous EFB experience, in particular if using other Jeppesen applications.

In addition to the areas provided in AMC 20-25 chapters 7.13 and E.1.3.1, it is recommended that the initial training include the following areas of emphasis:

- All aspects linked to the use of the EFB hardware such as the need for proper adjustment of lighting etc. when the system is used in-flight;

- The intended use of each application of FliteDeck Pro, together with limitations and prohibitions on their use;
- Importance of verifying prior to flight the proper validity of the charts and documents database;
- Use of the application during night operations and use of the independent brightness settings with respect to other EFB applications that might be installed.
- Proper verification of the applicability of the information (e.g. NOTAMs) and charts being used;
- Use of the enroute application in case of Flight Management System failure or in complex operational environments, as well as mitigations procedures in case of application failure;
- Activation and monitoring of the enroute auto-centering (moving map) function. Conditions leading to automatic deactivation of the function;
- Need to avoid fixation on the map display:
 - The AMMD should not be used as primary means and should always be cross-checked with external references;
 - The enroute moving map function should not be used to check, control, or deduce the aircraft position or trajectory;
- Detection and procedures in case of failure messages in the AMMD and enroute applications, in particular concerning position or heading failures.

5.13 Operational Evaluation Test

Before the granting of an Operational Approval, the operator should ensure, and the NAA should verify by means of an Operational Evaluation Test, that the guidance and recommendations of AMC 20-25 and those contained in this Report have been satisfied.

5.13.1 Initial Retention of Paper Back Up

Where paper is initially retained as back-up for the purpose of validating the paperless-solution provided by FliteDeck Pro, the Operational Evaluation Test will consist of an in-service proving period typically performed via an operationally-appropriate number of test and evaluation flights. The purpose of the in-service proving period is for the operator to demonstrate to the NAA that the EFB system provides an acceptable level of accessibility; usability and reliability to those required by the applicable operational requirements (see AMC1 to CAT.GEN.MPA.180). In particular that:

- The operator's flight crew are able to operate the EFB applications without reference to paper;
- The operator's administration procedures are in place and function correctly;
- The operator is capable of providing timely updates to the applications on the EFB where a database is involved;
- The introduction of the EFB without paper back up does not adversely affect the operator's operating procedures and that alternative procedures for use when the EFB system is not available provide an acceptable equivalent;
- The six month period dedicated to this check should take the frequency of the flights into account.

The results of the demonstration may be documented in the form of a Report from the in-service proving period on the performance of the EFB system.

The operator may then be granted an Operational Approval of the EFB to allow removal of the paper back up by their NAA if they have shown that the EFB system is sufficiently robust.

5.13.2 Commencement of Operations Without Paper Back Up

Where an operator seeks credit to start operations without paper back up, in addition to the above, the Operational Evaluation Test should also consider the following elements:

- A detailed review of the EFB Risk Assessment – see Jeppesen document;
- A simulator LOFT session to verify the use of the EFB under operational conditions including normal, abnormal and emergency conditions. Items such as a late runway change, diversion to an alternate, and taxiing in low-visibility conditions should be included;
- Observation by the NAA of the initial line flights.

The operator should demonstrate to the NAA that they will be able to continue to maintain the EFB to the required standard through the actions of the Administrator and the Quality Assurance Programme.

5.14 Final operational report

Operators should produce and retain a final operational report, which summarises all activities conducted and the means of compliance used, supporting the operational use of the EFB system. Refer to AMC 20-25 §7.15 and Appendix I.

6 APPLICATION OF EFB EVALUATION REPORT

This EFB Software Evaluation Report is applicable to both operators and NAAs when considering an application for Operational Approval with use of FliteDeck Pro 7.1.8 for Windows. EASA has found that the software as evaluated satisfy the corresponding guidance of AMC 20-25.

However, the EFB Risk Assessment, the crew and administrator procedures and evaluation of the hardware and its compliance with regulations remain a responsibility of the operators and their competent authority. The findings of this report do not constitute an Operational Approval and individual operators must obtain approval from their NAA prior to use of these applications.

A Compliance Matrix lists items of the AMC 20-25 that are considered to remain under operator's responsibility. It is available on request to Jeppesen.

More considerations regarding AMMD compliance are found in [Appendix A](#).

7 ALTERNATE MEANS OF COMPLIANCE

Alternate means of compliance to the recommendations contained in this Report may be approved by National Authorities. If alternate means of compliance are proposed, operators may be required to establish that any proposed alternate means provides an equivalent level of safety to the recommendations of AMC 20-25 and this report. Analysis, demonstrations, proof of concept testing, differences documentation, or other evidence may be required.

8 JEPPESEN COMPLIANCE DOSSIER

The evaluation of the FliteDeck Pro 7.1.8 for Windows application was supported by Compliance documents provided by Jeppesen and reviewed by EASA.

The following documents are part of the dossier:

FD Pro 7 - EFB Compliance Statement (dated 15th April 2015)

FD Pro 7 - AMMD Compliance Statement (dated 15th April 2015)

Operational Risk Analysis (Final version, dated 12th May 2015)

Guides: Pilot Users Guide, Maintenance Users Guide, Installation Guide, Configuration Guide

9 APPENDICES

The following Appendix is part of the report:

Appendix A AMMD With Ownship Position

APPENDIX A: AMMD WITH OWN-SHIP POSITION

The AMMD has been considered as a type B application, under the following conditions:

- It shall not be used as the primary means of taxiing navigation, and used only in conjunction with other materials and procedures identified in the operator's operating concept (see AMC 20-25 Appendix H chapter H.3).
- Malfunctions and misuses must be properly mitigated by operator's SOPs and training as detailed in this report.

The evaluation of the AMMD against guidance and requirements of AMC 20-25 and ETSO-C165a (and DO-257A as modified by ETSO-C165a) has been conducted for those parts where compliance could be demonstrated by Jeppesen.

Areas of compliance are left to the operator:

- **AMC 20-25 H.2.3:** Installation in the EFB, in coordination with Jeppesen - See below
- **AMC 20-25 H.3:** Operating concept
- **AMC 20-25 H.4:** Training requirements – See chapter 5.12 of this report.

The evaluation also identified the following specific considerations:

Evaluation Scope:

The evaluation has covered the AMMD releases 3.0, 3.1.0 and 3.1.1, and taken credit from the FAA TSOA (TSO-C165) obtained by those applications.

Deviations to ETSO:

Several formal deviations to the ETSO-C165a chapter 2.2.4 (items 18 and 25) have been identified as expected for applications running on a non-real-time operating system. The evaluation has nevertheless found that the AMMD in FliteDeck Pro is satisfactory provided the recommendations provided in this report are followed.

AMMD Installation and verification:

Jeppesen does not provide installation instructions as required per AMC 20-25 H.2.2 (b) and (c). The evaluation has therefore found that in order to be acceptable, the installation and verification activities mentioned in AMC 20-25 appendix H.2.3 need to be conducted in operator's facilities by a Jeppesen deployment team.

As per AMC 20-25 H.2.3 (d), it is also required to ensure the compatibility and the compliance of the aircraft position source, on various aspects such as latency and accuracy. Further considerations are found below.

AMC 20-25 recognizes that the use of an airworthiness-approved GPS sensor in combination with the DO-272 compliant AMMD database from Jeppesen is considered an acceptable means of compliance.

Antenna lever arm setup:

The AMMD should be configured during the installation process so as to compensate the antenna lever arm (i.e. the lever arm should account for 0 meter in the total system accuracy budget).

Total System Accuracy:

The installation should ensure that the Total System Accuracy of the AMM system as installed and configured for a specific operator and aircraft type does not exceed 50 meters (95%) – See AMC 20-25 H.2.1.

The guidance to compute the Total System Accuracy is provided in ETSO-C165a.