Checklist EFB Approval

Operator [1]	Aircraft type/variant	Date	Inspector (Name/signature) [2]	Ref.
Purpose:				

[2] By signing this checklist, I hereby confirm that, at the time of performing this activity, I did not have any conflict of interest to declare regarding the above-mentioned operator [1].

OM amendment information			
Rev. No		**Date**	

List of non-compliances identified			
No	Ref Non-compliance	Ref OM	Non-compliances

List of remarks	
Ref remarks	Remarks

Additional notes/comments:

NA = Not Applicable; C = Compliant; NC = Not Compliant; R = Remark; N/R = Not Reviewed

Reference	Requirement	Specific requirements/expectations	Eval. operator	Eval. CA	Description
EFB application					
Annex I: definitions AMC1 CAT.GEN.MPA.141(b)	**Classification of EFB application:** (120a) 'type A EFB application' means an EFB application whose malfunction or misuse has no safety effect; (120b) 'type B EFB application' means an EFB application: (a) whose malfunction or misuse is classified as minor failure condition or below; and (b) which neither replaces nor duplicates any system or functionality required by airworthiness regulations, airspace requirements, or operational rules;	- Check eligibility of the type B EFB application planned to be used by the operator. 2 possibilities: ○ Application contained in the list provided in AMC3 CAT.GEN.MPA.141(b); or ○ Application not in the list. It should be demonstrated by the operator that the application is not belonging to application not eligible as an EFB application and that the failure conditions are limited to minor.		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
SPA.EFB.100(b)(2) AMC1 SPA.EFB.100(b)(2)	**Human machine interface (HMI) assessment** (a) The operator should perform an assessment of the human–machine interface (HMI), the installation, and aspects governing crew resource management (CRM) when using the EFB system. The HMI assessment is key to identifying acceptable mitigation means, e.g.: (1) to establish procedures for reducing the risk of making errors; and (2) to control and mitigate the additional workload related to EFB use.	- Check that the operator has conducted an HMI assessment for every type EFB application used; - Check that all the following criteria have been considered: ○ Interface ○ Input devices ○ Consistency between EFB applications and with flight deck applications ○ Message and use of colours ○ System error messages ○ Data screening and error messages ○ Error and failure modes ○ Responsiveness of applications ○ Off-screen text and content ○ Active regions ○ Managing multiple open applications and documents ○ Flight crew workload. - Check the human factor competencies of the person having performed the HMI assessment.		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
Performance and mass and balance applications					
AMC5 SPA.EFB.100(b)(3)	**General:** - No extrapolation beyond the information contained in the published data for the particular aircraft.	- Check that all calculation are recorded by the system and are stored by the operator for a period of 3 months.		☐ N/A ☐ C	

Reference	Requirement	Specific requirements/expectations	Eval. operator	Eval. CA	Description
	- Integrity of the database files related to performance and to mass and balance checked by the program before performing any calculations. - Identification of each software version by a unique version number. - All computation performed (inputs and outputs) recorded and records kept for at least 3 months.			☐ NC ☐ R ☐ N/R	
AMC5 SPA.EFB.100(b)(3)	**Testing:** - Software testing activities performed with the software version candidate for operational use. - Human–machine interface (HMI) testing, reliability testing, and accuracy testing, to be part of the test.	- Check the adequacy of the tests performed by the operator to demonstrate the compliance of the application - Check that the testing method is described. .		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
AMC5 SPA.EFB.100(b)(3)	**Procedures:** - Calculations to be performed independently by each FC. - Formal cross-check to be made; - Gross-error check to be performed; - Possible loss of the application to be adequately mitigated.	- Check the consistency of the operator's procedures with the operating concept of the application.		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
AMC5 SPA.EFB.100(b)(3)	**Training:** Importance of executing all take-off and landing performance or mass and balance calculations in accordance with the SOPs to assure fully independent calculations.	- Check that an adequate training programme has been established.		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
AMC5 SPA.EFB.100(b)(3)	**Diagram for mass and balance applications:** Diagram displaying the mass and its associated centre-of-gravity (CG) position provided as an output.			☐ N/A ☐ C ☐ NC ☐ R	

Reference	Requirement	Specific requirements/expectations	Eval. operator	Eval. CA	Description
				☐ N/R	
AMC5 SPA.EFB.100(b)(3)	**Human-factors-specific considerations**	- Check that the following criteria are met: ○ Input and output clearly separated ○ Unambiguous input and output names and units ○ Adequate airspeed presentation ○ Differentiation between user entry and default values ○ Possibility for the FC to check if a specific obstacle is included ○ Calculation assumptions clearly displayed ○ Unachievable operations clearly indicated ○ Easy modification of the calculations ○ Results and outdated data to be deleted after modification, after the EFB is shut down or after a long stand-by.		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
Airport moving map display with own-ship position					
AMC6 SPA.EFB.100(b)(3)	**Operating concept:** An AMMD application should not be used as the primary means of navigation for taxiing and should be only used in conjunction with other materials and procedures identified within the operating concept	- Check that the operator's procedure clearly describe the operating concept and the limitations associated.		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
AMC6 SPA.EFB.100(b)(3)	**Minimum requirements** - Compliance with ETSO-C165a criteria. - Availability of means to display the revision number of the software installed. - To achieve the total system accuracy requirements of ETSO-C165a, an airworthiness-approved sensor using the GPS in combination with a medium-accuracy database compliant with EUROCAE ED-99C/RTCA DO-272C is considered one acceptable means.	- AMMD EFB applications should either have an ETSO C165a approval or at least meet the criteria of this ETSO. - Check the adequacy of the position source. - In case of COTS GPS, refer to the hardware part for the accuracy testing.		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
AMC6 SPA.EFB.100(b)(3)	**Data provided by the AMMD software application developer** (1) installation instructions or the equivalent as per ETSO-C165a Section 2.2 addressing: (i) the identification of each specific EFB system computing	- Check availability of the relevant data.		☐ N/A ☐ C	

Reference	Requirement	Specific requirements/expectations	Eval. operator	Eval. CA	Description
	platform with which this AMMD software application and database was demonstrated to be compatible; (ii) the installation procedures and limitations for each applicable platform (e.g. required memory resources, configuration of Global Navigation Satellite System (GNSS) antenna position); (iii) the interface description data including the requirements for external sensors providing data inputs; and (iv) means to verify that the AMMD has been installed correctly and is functioning properly. (2) AMMD limitations, and known installation, operational, functional, or performance issues.			☐ NC ☐ R ☐ N/R	
AMC6 SPA.EFB.100(b)(3)	**AMMD software installation in the EFB** - Software installation performed in accordance with the software developer installation requirements. - Tests recommended by the software developer to be conducted before the use of the application.	- Check that the software developer installation instructions have been considered by the operator.		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
AMC6 SPA.EFB.100(b)(3)	**Operational procedures** - All Change to operational procedures of the aircraft (e.g. flight crew procedures) to be documented in the OM or user's guide as appropriate. - Procedures should highlight that AMMD is not to be used as the basis for ground manoeuvring.	- Verify how the operational use of the AMMD is reflected in the operator's procedures. - Verify consistency of the operational procedures with the operational concept.		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
AMC6 SPA.EFB.100(b)(3)	**Training requirements** Training to be provided to the flight crew. Training to include limitations and all mitigation means relying on flight crew procedures.	- Check that the operator has established an adequate training programme for the use of AMMD.		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
Charts applications					
AMC8 SPA.EFB.100(b)(3)	- Navigation charts to contain the information necessary, in an appropriate form.	- Check the legibility of the charts and the possibility to visualise all required information.		☐ N/A ☐ C	

Reference	Requirement	Specific requirements/expectations	Eval. operator	Eval. CA	Description
	- To be considered: Size, resolution and position of the display to ensure legibility whilst retaining the ability to review all the information required to maintain adequate situational awareness.			☐ NC ☐ R ☐ N/R	
In-flight weather applications					
AMC9 SPA.EFB.100(b)(3)	**General:** - IFW applicable not to be used to support tactical (short term) decisions. - IFW application to provide only supplementary information. - Information required to be carried on board or from aircraft primary systems should always prevail over the information from an IFW application.	- Check the operating concept of the operator.		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
AMC9 SPA.EFB.100(b)(3)	**Display:** Meteorological information to be presented in an appropriate format. - observed and forecasted weather data to be differentiated; - currency or age and validity time of the weather data to be provided; - interpretation of the weather data (e.g. the legend) to be provided; - positive and clear indications of any missing information/data or areas of uncertainty to be provided; - Information available on the status of the data link that enables the necessary IFW data exchanges.			☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
AMC9 SPA.EFB.100(b)(3)	**Training and procedures:** - Procedures for the use of an IFW application to be established by the operator. - Adequate training provided to the flight crew members before using an IFW application.	- Check that the training programme includes at least: o limitations of the use of an IFW application (strategic use; information to be on-board, latency): o information on the display of weather data (type of info displayed, symbology, interpretation): o identification of failures and malfunctions (e.g. incomplete uplinks, data-link failures, missing info); o human factors issues (fixation, workload).		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	

Reference	Requirement	Specific requirements/expectations	Eval. operator	Eval. CA	Description
Applications displaying own-ship position in flight					
AMC10 SPA.EFB.100(b)(3)	**Limitations:** - The display of own-ship position in flight as an overlay to other EFB applications should not be used as a primary source of information to fly or navigate the aircraft. - Except on VFR flights over routes navigated by reference to visual landmark, the display of the own-ship symbol is allowed only in aircraft having a certified navigation display (moving map). - The display of own-ship on IFW applications is restricted to aircraft equipped with a weather radar.			☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
AMC10 SPA.EFB.100(b)(3)	**Position source and accuracy:** The own-ship symbol to be be removed and the flight crew notified if: (1) the position source indicates a degraded accuracy; (2) the position data is reported as invalid by the GNSS receiver; or (3) the position data is not received for 5 seconds.			☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
AMC10 SPA.EFB.100(b)(3)	**Charting data considerations:** If the map involves raster images that have been stitched together into a larger single map, it should be demonstrated that the stitching process does not introduce distortion or map errors that would not correlate properly with a GNSS-based own-ship symbol.			☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
AMC10 SPA.EFB.100(b)(3)	**HMI - Interface** Unambiguous differentiation between the EFB function and avionics functions available in the cockpit, and in particular with the navigation display. '**AIRCRAFT POSITION NOT TO BE USED FOR NAVIGATION**' or equivalent to be continuously displayed by the application if the own-ship position depiction is visible in the current display area over a terminal chart (i.e. SID, STAR, or instrument approach) or a depiction of a terminal procedure.			☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	

Reference	Requirement	Specific requirements/expectations	Eval. operator	Eval. CA	Description
AMC10 SPA.EFB.100(b)(3)	**HMI - Display of own-ship symbol** - Own-ship symbol to be different from the ones used by certified aircraft systems intended for primary navigation. - If directional data is not available, the own-ship symbol should not imply directionality. - Colour coding to be consistent with the manufacturer philosophy.			☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
AMC10 SPA.EFB.100(b)(3)	**HMI - Data displayed** - Current map orientation to be clearly, continuously and unambiguously indicated (e.g., Track-up vs North-up). - If more than one directional orientation for the own-ship symbol is supported (e.g., Track-up vs North-up), the current own-ship symbol orientation should be indicated. - The chart display in track-up mode should not create usability or readability issues e.g. rotation of data). - The application zoom levels to be appropriate for the function and content being displayed. - Operational status of the own-ship function (e.g. active, deactivated, degraded) available to the FC. - During IFR, day-VFR without visual references or night VFR flight, the following parameters' values should not be displayed: (i) Track/heading; (ii) Estimated time of arrival (ETA); (iii) Altitude; (iv) Geographical coordinates of the current location of the aircraft; and (v) Aircraft speed.			☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
AMC10 SPA.EFB.100(b)(3)	**HMI - Controls** - If a panning and/or range selection function is available, the EFB application should provide a clear and simple method to return to an own-ship-oriented display. - A means to disable the display of the own-ship position should be provided to the flight crew.			☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	

Reference	Requirement	Specific requirements/expectations	Eval. operator	Eval. CA	Description
AMC10 SPA.EFB.100(b)(3)	**Training and procedures** Procedures and training to emphasise the fact that it should not be used as a primary source of information to fly or navigate the aircraft. (1) Procedures to address: (i) Intended use of the display of own-ship position in flight on charts or IFW EFB applications; (ii) Inclusion of the EFB into the regular scan of flight deck systems indications. In particular, systematic cross-check with avionics before being used, whatever the position source; and (iii) Actions to be taken in case of identification of a discrepancy between the EFB and avionics. (2) Training: Training to be provided to the FC, including on the regular cross-check with avionics and the action in case of discrepancy.			☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
EFB hardware					
General					
AMC1 CAT.GEN.MPA.141(a)	- Portable EFB to be capable of being operated autonomously inside and outside the aircraft. - Mounted or stowed portable EFB to be easily removable from its mounting device/viewable stowage device or attached to it, without the use of tools by the FC. - Locking devices to be unlocked during flight. - Portable EFBs not secured to a certified mount or not securely attached to a viewable stowage device to be stowed during critical phases of the flight. - EFB components not accessible to the FC or not removable by the FC to be installed as 'certified equipment' covered by a type certificate (TC), a change to a TC or a supplemental (S)TC.	- Check that the EFB is easily removable from the cockpit and may be used autonomously. - Check the policy of the operator regarding the securing of the EFB if not mounting device or viewable stowage device is available.		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
Placement of the display					
AMC1 CAT.GEN.MPA.141(a)	- The EFB display and any other elements of the EFB system should not unduly impair:			☐ N/A	

Reference	Requirement	Specific requirements/expectations	Eval. operator	Eval. CA	Description
AMC1 SPA.EFB.100(b)	(i) the FC's external view during any of the phases of the flight. (ii) the view of or access to any flight-crew-compartment control or instrument. - Display unit and other EFB system elements not to negatively impact on egress capability. - EFB display (when in use) to be within 90 degrees on either side of each flight crew member's line of sight. - Glare and reflection on the EFB display not to interfere with the normal duties of the flight crew. - EFB placement not to create unacceptable workload and undue head-down movements.			☐ C ☐ NC ☐ R ☐ N/R	
Characteristics of the display					
AMC1 SPA.EFB.100(b)	- EFB screen long term degradation to be considered. - Information displayed to be legible under full range of expected lighting conditions. - Screen brightness manual adjustment to be possible - Buttons and labels (HW) to illuminated for night use and identified.			☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
Power source					
AMC1 CAT.GEN.MPA.141(a)	<u>Use of power outlets:</u> Compatibility with the electrical characteristics of the power supplied by the outlets in terms of power consumption, voltage, frequency, etc to be checked if the EFB is powered or charged using these outlets.			☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
AMC1 CAT.GEN.MPA.141(a)	<u>Batteries (if applicable)</u> Batteries should meet UN ST/SG/AC.10/11 standard and one of the following standards : - UL 1642			☐ N/A ☐ C	

Reference	Requirement	Specific requirements/expectations	Eval. operator	Eval. CA	Description
	- UL2054 - UL 60950-1 - IEC 62133 - RTCA DO-311 - ETSO C142a.			☐ NC ☐ R ☐ N/R	
AMC1 SPA.EFB.100(b)	Power source: - EFB power source adequate for the intended use. - Mitigation in case only internal battery is used a power source (e.g. procedure, connection to an aircraft power bus to recharge,….).			☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
Environmental testing					
AMC1 SPA.EFB.100(b)	- Rapid decompression testing to be performed when an EFB is to be used after a rapid decompression in a pressurised aircraft. - For non-pressurised aircraft, it should be demonstrated that the EFB can operate reliably up the maximum operating altitude.	- Check that a rapid decompression test has been performed if the EFB is to be used after a depressurisation (e.g. EFB with charts application and no paper back-up). - The rapid decompression test should be performed in accordance with EUROCAE ED-14D/RTCA DO-160D guidelines. - Failures identified by the test should be adequately mitigated (procedure, paper back-up,…).		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
EFB data connectivity					
AMC1 CAT.GEN.MPA.141(a)	- In case of EFB connectivity with aircraft systems, connections (hardware and software for data connection provisions) and adequate interface protection devices to be incorporated into the aircraft type design. - Data transmission from EFBs to avionics to be limited to systems certified for this intended purpose (refer to AMC 20-25 for more details).			☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
External connecting cables (to avionics and/or power sources)					
AMC1 CAT.GEN.MPA.141(a)	- Cables not to hang loosely; cables to be secured out of the way by FC. - Cables to be of sufficient length so that they do not obstruct the use of any movable device.			☐ N/A ☐ C ☐ NC	

Reference	Requirement	Specific requirements/expectations	Eval. operator	Eval. CA	Description
				☐ R ☐ N/R	
Electromagnetic interference (EMI)					
AMC1 CAT.GEN.MPA.141(a)	The operator should demonstrate that the EFB does not interfere with on-board electronic systems and equipment. See paragraph (d) of AMC1 CAT.GEN.MPA.140 for the different possible scenarios (aircraft T-PED tolerant, EMI demonstration performed or other cases).	- Check the applicable scenario for permitting the use of a PED (in this case an EFB) in the FC compartment.		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
Viewable stowage					
Annex I - Definitions AMC1 CAT.GEN.MPA.141(a)	(ae) 'Viewable stowage' means a non-certified device that is attached to the flight crew member (e.g. with a kneeboard) or to an existing aircraft part (e.g. using suction cups), and is intended to hold charts or to hold low-mass portable electronic devices that are viewable by the flight crew members at their assigned duty stations. - Location of the viewable stowage to be documented. - Viewable stowage not to be positioned in such a way that it creates significant obstruction to the FC's view or hinders physical access to aircraft controls and/or displays and/or aircraft safety equipment, flight crew ingress or egress. - Viewable stowage's design to allow the user easy access to any item of the EFB system. - Viewable stowage device should: o not impede the FC in the performance of any task; o be able to be easily locked in position o sustain all foreseeable conditions relative to the flight environment (e.g. severe turbulence, hard landings) o be able to be secured or locked in a position out of the way of FC operations when not in use. o not introduce mechanical interference issues of the viewable stowage, either on the side panel or on the control yoke.			☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	

Reference	Requirement	Specific requirements/expectations	Eval. operator	Eval. CA	Description
	○ be provided with a means to shut down the portable EFB when its controls are not accessible by the FC when strapped in the normal seated position. ○ be easily removable from the aircraft without the use of tools. - Performance degradation of the viewable stowage to be considered by the operator (e.g. suction cups). - Suction cups performance to be demonstrated at operating cabin altitude or in case of rapid decompression. - Risks to be adequately mitigated by design and location: ○ Viewable stowage and /or the EFB falling down. ○ Fire to the viewable stowage and/or EFB.				
Use of COTS position source					
AMC7 SPA.EFB.100(b)(3)	(a) Characterisation of the receiver: - Position to originate from an airworthiness approved GNSS receiver, or from a COTS GNSS receiver fully characterised in terms of technical specifications and featuring an adequate number of channels (12 or more). - The EFB application should, in addition to position and velocity data, receive a sufficient number of parameters related to the fix quality and integrity to allow compliance with the accuracy requirements (e.g. the number of satellites and constellation geometry parameters such as dilution of position (DOP), 2D/3D fix).			☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
AMC7 SPA.EFB.100(b)(3)	(b) Installation aspects: - If the COTS position sources are stand-alone PEDs, they should be treated as C-PEDs and their installation and use should follow the requirements of CAT.GEN.MPA.140. - Cyber security aspects to be considered If an external COTS position source transmits wirelessly.			☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
AMC7 SPA.EFB.100(b)(3)	(c) Practical evaluation of a COTS used as a position source for AMMD: - Test installation to record the data provided by the COTS position	- Check that the practical evaluation took place as required.		☐ N/A ☐ C	

Reference	Requirement	Specific requirements/expectations	Eval. operator	Eval. CA	Description
	source to the AMMD application. - Recorded parameters to be used to demonstrate that the AMMD requirements are satisfactorily complied with (total system accuracy within 50 metres (95 %). The availability should be sufficient to prevent distraction or increased workload due to frequent loss of position. - Evaluation of the following behaviours of the AMMD system in practice: (i) indication of degraded position accuracy within 1 second (Section 2.2.4 (22)); and (ii) indication of a loss of positioning data within 5 seconds (Section 2.2.4 (23)); conditions to consider are both a loss of the GNSS satellite view (e.g. antenna failure) and a loss of communication between the receiver and the EFB.			☐ NC ☐ R ☐ N/R	
AMC7 SPA.EFB.100(b)(3)	c) Practical evaluation of a COTS position source used for applications displaying own-ship position in flight: Flight trials to demonstrate that the COTS GNSS availability is sufficient to prevent distraction or increased workload due to frequent loss of position.	- Check the report of the practical evaluation.		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
EFB risk assessment					
SPA.EFB.100(b)(1) AMC1 SPA.EFB.100(b)(1)	- Risk assessment related to the use of the related EFB application and the associated EFB hardware, to be conducted by the operator.	- Check that the risk assessment has considered all scenarios (partial failure, complete failure, corruption of data, erroneous output, EFB fire, ….). - If the operator is using paper back-up, only the risks not mitigated by the paper back-up need to be addressed. - Check that selected mitigations are adequate to address the identified risks considering the intended use of the EFB (type of application hardware,…).		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	

Reference	Requirement	Specific requirements/expectations	Eval. operator	Eval. CA	Description
EFB administration					
EFB administrator					
SPA.EFB.100(b)(3) AMC1 SPA.EFB.100(b)(3)	- EFB administrator to be appointed by the operator - Responsibilities of the EFB administrator to be defined and to include: o Support to users; o EFB security; o Hardware and software configuration management; o Validity of software used and associated data packages; o Integrity of data packages used by the installed applications.			☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
EFB policy and procedure manual					
SPA.EFB.100(b)(3) AMC2 SPA.EFB.100(b)(3)	- EFB procedures to be defined in an EFB policy and procedure manual.	- The EFB policy and procedure may be fully or partially integrated in the OM. - The procedures should be under the responsibility of the EFB administrator. - All the EFB administration procedures should be integrated in the EFB policy and procedure manual, including : o Operation procedures o Security procedures o Maintenance procedure o Software control procedures o Management of changes procedures o Notification to crews of updates o Data management o Procedures to avoid data corruption o Procedure to ensure consistency between EFBs		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
EFB procedures					
SPA.EFB.100(b)(3) AMC3 SPA.EFB.100(b)(3)	<u>General</u> If an EFB system generates information similar to that generated by existing certified systems, procedures to clearly identify which information source will be the primary, which source will be used for backup information, and under which conditions the backup source should be used.			☐ N/A ☐ C ☐ NC ☐ R	

Reference	Requirement	Specific requirements/expectations	Eval. operator	Eval. CA	Description
	- Procedures to define the actions to be taken by the FC when information provided by an EFB system is not consistent with aircraft systems or with another EFB. - Procedures to address the handling of NOTAM when NOTAM information might affect the information provided by the EFB application (e.g. Airport moving map display (AMMD), performance calculation, etc.).			☐ N/R	
SPA.EFB.100(b)(3) AMC3 SPA.EFB.100(b)(3)	<u>Flight crew awareness of EFB software/database revisions</u> - Procedures to address the verification of the EFB configuration, including software application versions and, where applicable, database versions. - A means should be provided to the FC to verify the validity of the database of the EFB application affecting flight operations. - Procedures to address the case of outdated databases or software identified by the FC.			☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
SPA.EFB.100(b)(3) AMC3 SPA.EFB.100(b)(3)	<u>Procedures to mitigate and/or control workload</u> - Procedures to be designed to mitigate and/or control additional workload created by using an EFB system.	Check that the following general principles are applied: - FC not to be preoccupied by EFB at the same time - Workload shared between FC - Specified times when EFB should not be used (if applicable)		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
SPA.EFB.100(b)(3) AMC3 SPA.EFB.100(b)(3)	<u>Dispatch</u> - Dispatch criteria for EFB systems and associated procedures in case of failure of the EFB to be established. - Pre-flight checks of EFB availability to be part of the procedures. - Actions to be taken in the event of any EFB system deficiency defined.	- Check that the operator has established dispatch criteria in the operator's OM (criteria may be part of the MEL). - Procedure in case of EFB failure should address the alternative means to obtain operational data (e.g. performance data).		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
SPA.EFB.100(b)(3) AMC3 SPA.EFB.100(b)(3)	<u>Maintenance</u> - Procedures should address: ○ Routine maintenance ○ Unserviceability/failure reporting and correction			☐ N/A ☐ C	

Reference	Requirement	Specific requirements/expectations	Eval. operator	Eval. CA	Description
	○ Secure handing of updated information ○ EFB system batteries checking (if applicable) ○ Information of users about failures.			☐ NC ☐ R ☐ N/R	
SPA.EFB.100(b)(3) AMC3 SPA.EFB.100(b)(3)	<u>Security</u> - Adequate security procedures to be in place to protect the system at the software level and to manage the hardware throughout the operational lifetime of the EFB system. - Procedures should address: ○ Completeness and accuracy of EFB operational data ○ Protection against data load corrupted contents ○ Secure distribution of data to the aircraft ○ Physical security of COTS hardware ○ EFB platform allocation tracking ○ Risk associated with input ports ○ Risks associated with the use of physical media to update the EFB (if applicable)	- Level of the procedures to be adapted to the criticality of the applications used and one the capabilities of the EFB.		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
SPA.EFB.100(b)(3) AMC3 SPA.EFB.100(b)(3)	<u>Electronic signatures</u> - Procedures for electronic signatures established (if applicable). - Procedures should guarantee: ○ Uniqueness ○ Significance ○ Scope ○ Non-repudiation ○ Traceability			☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
Flight crew training					
SPA.EFB.100(b)(3) AMC4 SPA.EFB.100(b)(3)	- Training on the use of the EFB system to be provided to FC. - Training should address at least: ○ System architecture ○ Preflight checks; ○ Limitations; ○ Use of specific applications; ○ Restriction of use; ○ Normal operations;	- Check that EFB training is included in the FC training programme contained in OM-D. - Past EFB experience may be credited and the initial EFB training content adapted.		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	

Reference	Requirement	Specific requirements/expectations	Eval. operator	Eval. CA	Description
	○ Abnormal operations; ○ Emergency situation; ○ HF considerations, including CRM. - EFB training to be included: ○ EFB initial training ○ Annual ground and refresher training ○ Simulator training/checking if the SOPs are dependent on the use of EFB; ○ Skills tests, OPC and line checks if the SOPs are dependent on the use of EFB.				
Changes					
SPA.EFB.100(b)(3) AMC2 SPA.EFB.100(b)	- The management of changes to the EFB system to be described in the operator's procedures.	- Check that the procedure includes the following criteria and meet the conditions of AMC2 SPA.EFB.100(b): ○ Hardware change requiring an updated HMI evaluation; ○ Change to the calculation algorithms of type B EFB applications; ○ Change to the HMI of a type B application requiring a change to the FC training/procedures; ○ Addition of a new type A application; ○ Addition of a new functionality to a type B application; ○ Update to a type B application database.		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
EFB operational evaluation test					
Content/programme					
SPA.EFB.100(b) AMC3 SPA.EFB.100(b)	- The operator to notify its competent authority about its intention to perform an operational evaluation test. - Programme of the operational evaluation test to be defined and notified as well.	- Check that the programme contains at least: ○ starting date; ○ duration; ○ aircraft involved; ○ EFB hardware and type(s) of software including version details; ○ EFB policy and procedure manual;		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	

Reference	Requirement	Specific requirements/expectations	Eval. operator	Eval. CA	Description
		○ EFB risk assessment; and ○ for type B EFB applications that replace the paper documentation without initial retention of a paper backup, and type B EFB applications that do not replace the paper documentation: (i) a simulator line-oriented flight training (LOFT) session programme ; and (ii) a proposed schedule to allow the competent authority to observe the EFB application use in actual flight operations.			
Duration					
SPA.EFB.100(b) AMC3 SPA.EFB.100(b)	- Operational test to last at least 6 months.	- A reduced duration may be acceptable with adequate justifications.		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	
Final operational report					
SPA.EFB.100(b) AMC3 SPA.EFB.100(b)	- Final operational report to be established by the operator and submitted to its competent authority.	- Check that the report addresses: ○ FC training ○ EFB administration procedures ○ EFB updating process ○ EFB impact on aircraft operating procedures ○ EFB failure ○ Reliability of the EFB ○ Validation of the assumptions of the risk assessment.		☐ N/A ☐ C ☐ NC ☐ R ☐ N/R	