

FS-OPS-FRM-005		FOIM (Flight Operations Inspector Manual)	 سازمان هواپیمایی کشوری دفتر عملیات پرواز [] معاونت استاندارد پرواز
EFB			
Revision 00	July 2018		

Application for Approval of an EFB System

Please complete all relevant sections of this form.

1. Aircraft Details	
Registration Mark:	<input type="text"/>
Serial Number:	<input type="text"/>
Manufacturer & Type Designation:	<input type="text"/>

2. Applicant Details	
Aircraft Operator:	<input type="text"/>
EFB Administrator:	<input type="text"/>
EFB Administrator Telephone No:	<input type="text"/>
EFB Administrator Email:	<input type="text"/>

3a. Class 1	
Make & Model:	<input type="text"/>
Number of devices:	<input type="text"/>
Software application(s) and database supplier(s):	<input type="text"/>
EFB to be used in	all <input type="checkbox"/> OR non-critical <input type="checkbox"/> phases of flight
EFB charging method:	<input type="text"/>
Mounting Method:	Hand Held <input type="checkbox"/> Knee Pad <input type="checkbox"/> Suction Mount <input type="checkbox"/> Fitted Mount <input type="checkbox"/> <small>(only used in non-critical stages of flight)</small>

3b. Class 2	
Make & Model:	<input type="text"/>
Number of devices:	<input type="text"/>
Software application(s) and database supplier(s):	<input type="text"/>

3c. Class 3	
Make & Model:	<input type="text"/>
Number of devices file servers:	<input type="text"/>

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4. Details Of Proposed Use

	Class 1	Class 2	Class 3
Terminal / Approach Charts	<input type="text"/>	<input type="text"/>	<input type="text"/>
En-route Charts	<input type="text"/>	<input type="text"/>	<input type="text"/>
Aircraft Manuals & Documentation etc.	<input type="text"/>	<input type="text"/>	<input type="text"/>
Aircraft Performance Calculations	<input type="text"/>	<input type="text"/>	<input type="text"/>
Mass & Balance Calculations	<input type="text"/>	<input type="text"/>	<input type="text"/>
Flight Crew Briefing Documents	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other (please specify) <input style="width: 150px;" type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other (please specify) <input style="width: 150px;" type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

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Class 1 EFB ORA Minimum Requirements

5a. Class 1 Operational Risk Assessment (ORA)			
Category	Risk	Operator Mitigations <small>(or provide specific reference to own EFB Operations Manual. Copies of any documentation referenced should be submitted with this application)</small>	Example Mitigations
Power and batteries	Lithium battery leakage and/or overheat, or fire		Ensure replacement batteries and chargers are approved by manufacturer of EFB Procedures for storage of spares that prevents the potential for short circuit Procedures and limitations for recharging of batteries so as to prevent battery overheating or overcharging. Procedures define placement to allow for appropriate airflow around the unit Appropriate lithium battery firefighting procedures and equipment.
	Battery discharge – loss of power		Backup procedures for battery loss of power
Aircraft Interface	EFB places undue power load on aircraft system		Limitations for use of certified power sources

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Class 1 EFB ORA Minimum Requirements

Category	Risk	Operator Mitigations (or provide specific reference to own EFB Operations Manual. Copies of any documentation referenced should be submitted with this application)	Example Mitigations
Hardware	EFB causes physical and/or visual obstruction to other instruments/controls and, or external vision		<p>Assessment of placement for operational use and emergency evacuation</p> <p>EFB stowage area with securing mechanism that avoids interference with flight controls and instruments and is readily accessible in flight</p> <p>Procedures for unsecured EFB stowage to prevent the device jamming flight controls, damaging flight deck, or injuring crew in the event of turbulence etc.</p> <p>Cabling secured and of appropriate length so as to not cause a safety hazard but to enable safe use.</p>
	Effect of rapid depressurization on EFB within pressurized aircraft		<p>Reference to testing completed by the supplier for aviation use.</p> <p>Rapid decompression testing (type B software only) in accordance with accepted procedures.</p> <p>For an EFB that has failed rapid decompression testing while turned on but successfully completed it when off, procedures in place to ensure that at least one EFB on board the aircraft remains off during the applicable flight phases, or alternative paper back up available.</p>
	Complete or partial failure of a single EFB		<p>Back up procedures and data (paper, alternative EFB from a different power source etc.)</p>

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Class 1 EFB ORA Minimum Requirements

Category	Risk	Operator Mitigations <small>(or provide specific reference to own EFB Operations Manual. Copies of any documentation referenced should be submitted with this application)</small>	Example Mitigations
Operations	Software updates		Test software on clean device before live operation Backup procedures and data Virus protection procedures and tools
	Database updates		Procedures for monitoring database expiry
	Erroneous input / output NOTE: For performance and weight and balance calculations in particular, errors can easily lead to catastrophic outcomes. Therefore, the CAO.IR requires applicants to pay particular attention to these risks.		Cross check procedures Procedures that define any roles that the flight crew and others involved in performance calculations may have in creating, reviewing, cross checking, communicating and using performance calculations supported by EFB systems. Procedures that define any roles that the flight crew and others involved in the calculation of the mass and balance in creating, reviewing, cross checking, communicating and using mass and balance calculations supported by EFB systems. Procedures to ensure that the flight crew know which aircraft system (e.g. Engine Indicating and Crew Alerting System, Flight Management System or EFB system) to use for a given purpose, especially when both the aircraft and EFB systems provide similar information. Procedures to define the actions to be taken when information provided by an EFB system does not agree with that from other flight deck sources, or when one EFB system disagrees with another. If an EFB system generates information similar to that generated by existing flight deck automation, procedures should clearly identify which information source will be primary, which source will be used for back up information, and under what conditions to use the back-up source.

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Class 1 EFB ORA Minimum Requirements

Category	Risk	Operator Mitigations <small>(or provide specific reference to own EFB Operations Manual. Copies of any documentation referenced should be submitted with this application)</small>	Example Mitigations
Operations (cont.)	Flight crew workload		<p>The EFB software design should minimize flight crew workload and head down time.</p> <p>Procedures to mitigate and/or control any additional workload created by using an EFB system and to avoid both flight crew members becoming preoccupied with the EFB system at the same time.</p> <p>Procedures for workload sharing between flight crew members to ensure ease of use and continued monitoring of other flight crew functions and aircraft equipment.</p> <p>Procedures to specify when the EFB may not be used. Avoid complex multi-step data entry tasks during take-off, landing, and other critical phases of flight.</p>
	EFB non availability (pre flight)		<p>Impact of the EFB system on the Minimum Equipment List (MEL) determined.</p> <p>Availability of the EFB to be confirmed by pre-flight checks.</p> <p>Instructions to flight crew should clearly define actions to be taken in the event of any EFB system deficiency and whether dispatch is allowed.</p>
	Abrasion and ageing		<p>Protective screen covers</p> <p>Routine inspections</p> <p>Damage reporting procedures</p>
Security	Unauthorized intervention		<p>Security procedures to protect the system at software level and to manage hardware.</p>

***** End of Class 1 ORA Minimum Requirements *****

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Class 2 EFB ORA Minimum Requirements

5b. Class 2 Operational Risk Assessment (ORA)			
Category	Risk	Operator Mitigations <small>(or provide specific reference to own EFB Operations Manual. Copies of any documentation referenced should be submitted with this application)</small>	Example Mitigations
Power and batteries	Lithium battery leakage and/or overheat, or fire		Appropriate lithium battery firefighting procedures and equipment.
	Battery discharge – loss of power		Backup procedures for battery loss of power
Hardware	Complete or partial failure of a single EFB		Back up procedures and data (paper, alternative EFB from a different power source etc.)

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Class 2 EFB ORA Minimum Requirements

Category	Risk	Operator Mitigations <small>(or provide specific reference to own EFB Operations Manual. Copies of any documentation referenced should be submitted with this application)</small>	Example Mitigations
Operations	Erroneous input / output NOTE: For performance and weight and balance calculations in particular, errors can easily lead to catastrophic outcomes. Therefore, the CAO.IR requires applicants to pay particular attention to these risks.		<p>Cross check procedures Procedures that define any roles that the flight crew and others involved in performance calculations may have in creating, reviewing, cross checking, communicating and using performance calculations supported by EFB systems. Procedures that define any roles that the flight crew and others involved in the calculation of the mass and balance in creating, reviewing, cross checking, communicating and using mass and balance calculations supported by EFB systems.</p> <hr/> <p>Procedures to ensure that the flight crew know which aircraft system (e.g. Engine Indicating and Crew Alerting System, Flight Management System or EFB system) to use for a given purpose, especially when both the aircraft and EFB systems provide similar information. Procedures to define the actions to be taken when information provided by an EFB system does not agree with that from other flight deck sources, or when one EFB system disagrees with another. If an EFB system generates information similar to that generated by existing flight deck automation, procedures should clearly identify which information source will be primary, which source will be used for back up information, and under what conditions to use the back-up source.</p>

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Class 2 EFB ORA Minimum Requirements

Category	Risk	Operator Mitigations <small>(or provide specific reference to own EFB Operations Manual. Copies of any documentation referenced should be submitted with this application)</small>	Example Mitigations
Operations (cont.)	Flight crew workload		<p>The EFB software design should minimize flight crew workload and head-down time.</p> <p>Procedures to mitigate and/or control any additional workload created by using an EFB system and to avoid both flight crew members becoming preoccupied with the EFB system at the same time.</p> <p>Procedures for workload sharing between flight crew members to ensure ease of use and continued monitoring of other flight crew functions and aircraft equipment.</p> <p>Procedures to specify when the EFB may not be used. Avoid complex, multi-step data entry tasks during takeoff, landing, and other critical phases of flight.</p>
	EFB non availability (pre flight)		<p>Impact of the EFB system on the Minimum Equipment List (MEL) determined. Availability of the EFB to be confirmed by pre-flight checks.</p> <p>Instructions to flight crew should clearly define actions to be taken in the event of any EFB system deficiency and whether dispatch is allowed.</p>
Security			<p>If commercial off the shelf software is used and/or if hardware is removable, security procedures to protect the system at software level and to manage hardware.</p>

***** End of Class 2 ORA Minimum Requirements *****

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Class 3 EFB ORA Minimum Requirements

5c. Class 3 Operational Risk Assessment (ORA)			
Category	Risk	Operator Mitigations <small>(or provide specific reference to own EFB Operations Manual. Copies of any documentation referenced should be submitted with this application)</small>	Example Mitigations
Hardware	Complete or partial failure of a single EFB		Back up procedures and data (paper, alternative EFB from a different power source etc.)
Operations	Erroneous input / output NOTE: For performance and weight and balance calculations in particular, errors can easily lead to catastrophic outcomes. Therefore, the CAO.IR requires applicants to pay particular attention to these risks.		Cross check procedures Procedures that define any roles that the flight crew and others involved in performance calculations may have in creating, reviewing, cross checking, communicating and using performance calculations supported by EFB systems. Procedures that define any roles that the flight crew and others involved in the calculation of the mass and balance in creating, reviewing, cross checking, communicating and using mass and balance calculations supported by EFB systems. Procedures to ensure that the flight crew know which aircraft system (e.g. Engine Indicating and Crew Alerting System, Flight Management System or EFB system) to use for a given purpose, especially when both the aircraft and EFB systems provide similar information. Procedures to define the actions to be taken when information provided by an EFB system does not agree with that from other flight deck sources, or when one EFB system disagrees with another. If an EFB system generates information similar to that generated by existing flight deck automation, procedures should clearly identify which information source will be primary, which source will be used for back up information, and under what conditions to use the back-up source.

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Class 3 EFB ORA Minimum Requirements

Category	Risk	Operator Mitigations <small>(or provide specific reference to own EFB Operations Manual. Copies of any documentation referenced should be submitted with this application)</small>	Example Mitigations
Operations	Flight crew workload		<p>The EFB software design should minimize flight crew workload and head-down time.</p> <p>Procedures to mitigate and/or control any additional workload created by using an EFB system and to avoid both flight crew members becoming preoccupied with the EFB system at the same time.</p> <p>Procedures for workload sharing between flight crew members to ensure ease of use and continued monitoring of other flight crew functions and aircraft equipment.</p> <p>Procedures to specify when the EFB may not be used. Avoid complex, multi-step data entry tasks during take-off, landing, and other critical phases of flight.</p>
	EFB non availability (pre flight)		<p>Impact of the EFB system on the Minimum Equipment List (MEL) determined.</p> <p>Availability of the EFB to be confirmed by pre-flight checks.</p> <p>Instructions to flight crew should clearly define actions to be taken in the event of any EFB system deficiency and whether dispatch is allowed.</p>

*** End of Class 3 ORA Minimum Requirements ***

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6. Declaration Of Compliance

	Insert Yes or No
A Human Machine Interface Assessment has been conducted (Class 1 and 2 only).	<input type="text"/>
The EFB Administrator is sufficiently trained to perform their duties.	<input type="text"/>
Flight Crew have received initial training on the use of the EFB.	<input type="text"/>
Flight Crew recurrent training has been adapted to include EFB procedures.	<input type="text"/>
Documented procedures for the management of the EFB functions have been produced.	<input type="text"/>
SOPs have been adapted and the Aircraft Checklists adapted as appropriate.	<input type="text"/>
Procedures are in place to ensure validity, accuracy and integrity of electronic publications and other data displayed by the EFB and used in flight operations.	<input type="text"/>
The MEL has been amended if applicable.	<input type="text"/>

7. Documentary Evidence To Be Supplied With This Application

AFM/STC/Modification (Class 2 and/or 3):	<input type="text"/>
EFB Operations Manual Extracts:	<input type="text"/>
Operators own ORA:	<input type="text"/>

8. Declaration by Operator

The information supplied on this application indicate that the EFB installation(s), continuing airworthiness of systems, minimum equipment for dispatch, operating procedures and flight crew training are in accordance with the manufacturers/operators procedures.

that the details recorded on this application are an accurate description of the operator's EFB system(s) for which approval is sought.

That the use of the EFB(s) do not interfere with equipment or systems required for flight.

Signature:	<input type="text"/>	Accountable Manager Name:	<input type="text"/>
Operator:	<input type="text"/>	Date:	<input type="text"/>

REVIEWED	APPROVED
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