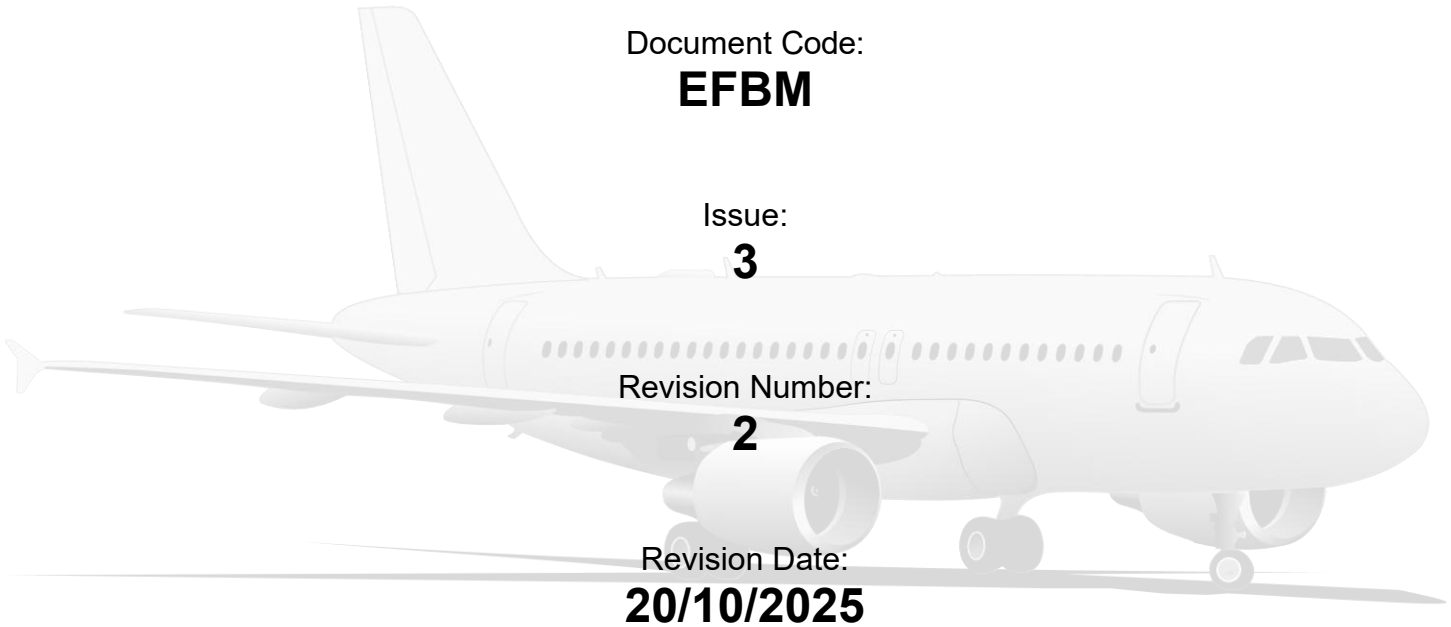
EFB MANUAL

ELECTRONIC FLIGHT BAG POLICY AND PROCEDURES MANUAL



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PRELIMINARY PAGES

APPROVAL PAGE

This page constitutes the approval page of the Electronic Flight Bag Manual of Fly2Sky OOD. Unless explicitly mentioned, it shall be signed by the Manual Responsible (MR) and stamped and countersigned by the Competent Authority upon approval. The Original signatures are present at the Flight Operations Department.

EFB MANUAL ISSUE 3

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PRELIMINARY PAGES

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(1) Evolution code: N=New, R=Revised, E=Effectivity, M=Moved

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INTRODUCTION

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0-1 GENERAL

0-2 LIMITATIONS OF THE EFB

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0-5 MANAGEMENT AND TRAINING

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0-1-1 MANUAL STATEMENT

Applicable to: ALL

This Electronic Flight Bag Manual is designed to give an overview of the administration and the use of the Fly2Sky system. The manual further provides procedures for data administration as well as the required quality data checks.

It complies with Air Operations Regulation EU 965/2012 and Part SPA.EFB. The EFB Administrator is responsible for the procedures and systems documented in this Electronic Flight Bag Manual (EFBM) that maintains the EFB's security and integrity. This includes system security, content security, access security, and protection against malicious software.

0-1-2 ABBREVIATIONS

Applicable to: ALL

The full definitions list can be found in OM-A. *Refer to: OM-A 0-1-5 ABBREVIATIONS*

A

AAC	Aircraft Administrative Communications
ACARS	Aircraft Communications Addressing and Reporting System
AIP	Aeronautical Information Publication

C

CAT	Commercial Air Transport
COTS	Commercial Off-The-Shelf

E

EASA	European Union Aviation Safety Agency
EFB	Electronic Flight Bag
EMI	Electromagnetic Interference

H

HMI	Human-Machine Interface

L

LTRM	Long-Term Removable Mount

M

MDM	Mobile Device Management

P

PED	Portable Electronic Device
PET	Performance Engineers Tool

S

SPA	Operations Requiring Specific Approvals
STC	Supplemental Type Certificate

T

T-PED	Transmitting Portable Electronic Device

0-1-3 DEFINITIONS

Applicable to: ALL

The full abbreviations list can be found in OM-A. *Refer to: OM-A 0-1-6 DEFINITIONS*

EFB APPLICATION

Software application installed on an EFB host platform that provides one or more specific operational functions that support Flight Operations. EFB host platform Hardware equipment in which the computing capabilities and basic software reside, including the operating system and the input/output software.

EFB SYSTEM

Hardware equipment (including any battery, connectivity provisions, input/output components) and software (including databases and the operating system) needed to support the intended EFB application(s).

ELECTRONIC FLIGHT BAG (EFB)

Electronic information system, comprised of equipment and applications for flight crew, which allows for the storing, updating, displaying, and processing of EFB functions to support flight operations or duties.

PORTABLE EFB

Portable EFB host platform, used on the flight deck, which is not part of the configuration of the certified aircraft.

TYPE A EFB APPLICATION

EFB application whose malfunction or misuse has no safety effect.

TYPE B EFB APPLICATION

EFB application:

- Whose malfunction or misuse is classified as minor failure condition or below; and
- Which neither replaces nor duplicates any system or functionality required by airworthiness regulations, airspace requirements, or operational rules.

CONTROLLED PORTABLE ELECTRONIC DEVICE (C-PED)

A PED is subject to administrative control by Fly2Sky that uses it. This includes, inter alia, tracking the allocation of the devices to specific aircraft or persons and ensuring that no unauthorised changes are made to the hardware, software, or databases. C-PEDs can be assigned to the category of nonintentional transmitters or T-PEDs.

EFB INSTALLED RESOURCES

Certified EFB hardware components external to the EFB host platform itself, such as input/output components (installed remote displays, keyboards, pointing devices, switches, etc.) or a docking station.

EFB MOUNTING DEVICE

Aircraft-certified part that secures portable or installed EFB or EFB system components.

EFB SYSTEM SUPPLIER

The company responsible for developing, or having developed, the EFB system or part of it

INSTALLED EFB

EFB host platform installed in an aircraft, capable of hosting type A and/or type B EFB applications. It may also host certified applications. It is an aircraft part and is therefore covered by the aircraft airworthiness approval.

MISCELLANEOUS (NON-EFB) SOFTWARE APPLICATIONS

Non-EFB applications that support function(s) not directly related to the tasks performed by the flight crew in the aircraft.

VIEWABLE STOWAGE

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.

0-1-4 GENERAL EFB PHILOSOPHY, ENVIRONMENT AND DATAFLOW

Applicable to: ALL

Refer to: (AMC3 SPA.EFB.100(b)), (AMC1 CAT.GEN.MPA.141(a)), (AMC1 CAT.GEN.MPA.141(b)), (SPA.EFB.1004)

The Fly2Sky EFB system is based on Apple's iPad platform using applications from Centrik, Jeppesen, and Navblue. The iPads used as an EFB are placed on board any Fly2Sky aircraft there and all flight crew members have the responsibility to keep the onboard EFB devices serviceable and up to date. Onboard the aircraft, a power source is available, which guarantees the power supply of the devices. There are usually four iPads on board. Three are used by the flight crew and one by the cabin crew. They are labelled as follows:

- [Aircraft Registration] Captain;
- [Aircraft Registration] First Officer;
- [Aircraft Registration] Standby;
- [Aircraft Registration] Cabin Crew;

The naming of the iPads does not necessitate the use of the iPad by that exact member of the crew, labelled it its name. The naming is used for tracking purposes only. All iPads, except those meant to be used by the cabin crew, are interchangeable.

Before an EFB is used on board an aircraft, Fly2Sky ensures that it does not adversely affect the performance of the aircraft systems or equipment, or the ability of the flight crew member to operate the aircraft.

A Human Factor Risk Assessment has been carried out for both the hardware and the software of Fly2Sky's EFB to ensure it fully complies with the relevant regulations. The assessment of the EFB system was based on a trial period of more than 6 months of operation with tablets and paper where no or no major differences were found with the performance applications and the navigational charts. A reduced duration of the operational evaluation test to less than 6 months is possible, but the Bulgarian CAA shall be provided with the appropriate justification of the operational evaluation plan.

Respectively, the competent authority may ask for an operational evaluation test lasting more than 6 months if the number of flights operated in this period is not considered sufficient to evaluate the EFB system. Normally, for every flight, two EFB tablets shall be operational, one for CM1 and another one for CM2. The two EFB tablets are independently operating and are not connected to the aircraft systems. If any doubt or misunderstanding is found, the crew shall compare and verify the correct data from all available units in order to maintain the highest level of safety and accuracy.

All pilots have to passe EFB training in order to guarantee the safe operation of the EFB. There is a record in the training module of Centrik to verify this training, which is distributed to the planning software to ensure that each pilot operating has completed the EFB training. The Training Manager is responsible that each pilot has completed this training before commencing the LIFUS phase of the Operator Conversion Course.

For all type B EFB applications, the proving period should show that:

- The flight crew members are able to operate the EFB applications;
- Fly2Sky's administration procedures are in place and function correctly;
- Fly2Sky is capable of providing timely updates to the applications on the EFB, where a database is involved;
- The introduction of the EFB does not adversely affect the operator's operating procedures, and that alternative procedures provide an acceptable equivalent if the EFB system is no available;
- For a system including uncertified elements (hardware or software), that the system operates correctly and reliably; and
- The assumptions used for the risk assessment are not disproved for the type of operations intended (with or without a paper backup)

The operator may remove the paper backup once it has shown that the EFB system is sufficiently robust.

0-1-5 EFB SYSTEM ARCHITECTURE

Applicable to: ALL

The software architecture of the EFB system is built in such a way that the devices are remotely provided with the content via a main EFB management server. This way the content can be protected and checked before it reaches the user's device.

The content of the FlySmart applications (Performance Data) and EFBOne (Electronic Briefing Pack) are downloaded and processed by the EFB Administrator whilst the content of Jeppesen FD Pro X (Aeronautical data and charts), as well as Centrik (Company Manuals and Reports) are uploaded directly into Company Server which is the server used for content assignment, management and delivery.

The content of the FlySmart and EFBOne is assigned into 2 separate groups. One is for line pilots (Group A) and the other one (Group B) is used for testing by the Flight Operations Department.

0-2-1 BASIC LIMITATIONS

Applicable to: ALL

A general description of Fly2Sky's EFB system is given in this section. Flight Crew specific procedures and limitations are published in OM-B and the respective guidance material on Centrik. The basic limitations are:

- The EFB devices and portable chargers must be placed in their mount during the critical phases of flight, below 10 000 ft and in turbulence;
- The EFB device shall be operated with its transmitting functions OFF during taxi, take-off, and landing;
- The device position (GPS position pointer on an en route, instrument approach, or taxi chart) shall be used as reference only and shall not be sued for navigation purposes;
- When providing power to the iPad from an aircraft source, only company provided, or original certified cables/chargers shall be used;
- Data currency check is part of the pre-flight procedures;
- iPadOS Software updates are not to be made without a notice from the EFB Administrator;
- Application updates are not to be made without a notice from the EFB Administrator.

0-2-2 T-PED LIMITATIONS

Applicable to: ALL

The T-PED operation of the devices is strictly forbidden:

- From pushback clearance or start-up clearance, whichever is earlier; until
- The completion of the parking checklist.

0-2-3 ELECTRICAL POWER SOURCE (EPS) LIMITATIONS

Applicable to: ALL

Electronic power usage in each Fly2Sky aircraft is strictly limited to a Tablet device. Consequently, any other device connection to the EPS Outlet is forbidden.

0-2-4 ELECTRICAL POWER SOURCE (EPS) LIMITATIONS

Applicable to: ALL

The following limitations apply:

Number of Tablets	Minimum Charge	Level of Charge	Charging Range	Discharging Range	Storage Range
2	50%	A minimum operation time of 1.5 hours will be available on each unit.	+10 to +45°C	-10 to +50°C	-10 to +50°C
1	75%	A minimum operation time of 2.5 hours will be available on each unit.	+10 to +45°C	-10 to +50°C	-10 to +50°C

Note: The manufacturer does not specify an exact operating time because it is highly dependent on the electric load (way of operation and the executed tasks on the device). As per experience during internal tests, the average battery operating time of a new battery is 5 hours without additional charging.

The 75% limit has been determined by Fly2Sky and is based on usage experience to provide a minimum battery operation time of 2 hours when dispatching.

Charging the battery at temperatures outside of this range may cause the battery to become hot or to break. Charging the battery outside of this temperature range may also harm the performance of the battery or reduce the battery's expectancy (4) Use of the battery outside of this temperature range may damage the performance of the battery or may reduce its life expectancy.

0-2-5 MOUNTING DEVICE GENERAL LIMITATION

Applicable to: ALL

The mounting device is part of Fly2Sky's EFB Program. The Pivot mounting device is not an aircraft-certified part and does not need an Authority approval. If the Mounting Device is not installed or is inoperative, revert to tablet handheld operation.

0-3-1 DOCUMENTATION

Applicable to: ALL

All EFB documentation is available to the operational personnel on Centrik in the Electronic Flight Bag Manual (EFBM). This manual is available in both online and offline mode.

0-3-2 EFB SECURITY

Applicable to: ALL

Refer to: (GM3 SPA.EFB.100(b)(3)), (AMC3 SPA.EFB.100(b)(3))

All EFB iPad devices are controlled by the company's MDM. All EFB users are trained in the proper use of the company EFB system. Individual credentials are assigned to each device to track the state of the software of the company applications.

Individual credentials are assigned to all pilots for the EFBOne software to enable the commanders to electronically sign the pre-flight and post-flight reports. Fly2Sky uses the following defence systems:

- Individual system firewalls;
- The clustering of systems with similar safety standards into domains;
- Data encryption and authentication;
- Virus scans;
- Keeping the OS up to date;
- Virtual private networks (VPNs);
- Granting of access rights on a need-to-have basis;
- Troubleshooting procedures that consider security threats as potential root causes of EFB misbehaviour, and provide for responses to be developed to prevent future successful attacks when relevant;
- Virtualisation; and
- Forensic tools and procedures.

The iPad architecture is designed in a way that the applications are "sandboxed". This means that they are segregated in a way that protects each app from being corrupted by another. The iPad also has a certain number of pre-installed applications by the manufacturer that cannot be removed and are available for use by the crews.

The installation of personal apps is not allowed by the MDM.

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0-4-1 EFB ADMINISTRATOR

Applicable to: ALL

Refer to: (AMC1 SPA.EFB.100(b)(3))

FUNCTION

The EFB Administrator has the overall responsibility for a safe efficient and economic EFB system. In the absence of the EFB Administrator, a deputy may be delegated certain tasks, but this does not include the responsibility or authority of the EFB administrator. Before an extended absence, the EFB Administrator shall provide specific instructions to be followed during the time of absence. The EFB administrator is the primary link between the operator and the EFB system and software suppliers.

RESPONSIBILITIES

The specific duties and responsibilities of the EFB Administrator include:

- Being responsible for all the EFB applications installed, and for providing support to the EFB users regarding these applications;
- EFB Administrator is responsible for Notifications to crews of updates of EFB Data;
- Checking potential security issues associated with the applications installed;
- Hardware and software configuration management of the EFBs, and, in particular, for miscellaneous software management and ensuring that no unauthorised software is installed;
- Ensuring that only valid versions of the application software and current data packages are installed on the EFB system;
- Ensuring the integrity of the data packages used by the applications installed;
- Ensuring that all safety, operational, and technical requirements are met in accordance with the Air Operator's Certificate (AOC) and applicable regulatory requirements;
- Designing and maintaining the data administration and distribution tools for Fly2Sky;
- Obtaining and maintaining operational approval for paperless operations such as:

  - Operations Manuals;
  - Terminal Charts;
  - En-route charts;
  - Take-off and Landing performance calculations;
  - Operational Flight Plans;

- Route and Airport briefings;
- Paperless reporting; and
- Paperless training records.

- Consulting with the DFO on operational issues such as:

  - Maintaining relationships with EFB application vendors to ensure that Fly2Sky is using the best tools available for supporting the operation; and
  - Attending Safety Action Group Meetings (when required and the invitation provided).

- EFB administration shall be subject to independent routine audits and inspections as part of the operator's compliance monitoring program;
- Each person involved in EFB administration shell receive appropriate training in their role and of the appropriate regulatory requirements related to the use of EFB. The content of this training shell be determined with the aid of the EFB system supplier or application supplier. The administrator training material shell be made available on request to the competent authority;
- The EFB Administrator shell be responsible for the procedures and systems, documented in this EFB Policy and Procedures Manual that maintain EFB security and integrity. This includes system security, content security, access security and protection against harmful software; and
- Shall have a good working knowledge of the proposed system hardware, operating system, and relevant software applications, as well as an excellent command of English.

DEPUTIES

The EFB Administrator is deputised by the Chief Pilot Flight Standards and Documents.

CURRENT EFB ADMINISTRATOR

The name of the current EFB Administrator as well as his/her contact details can be found on Centrik.

0-4-2 CREW MEMBERS RESPONSIBILITIES

Applicable to: ALL

The crew members are responsible for ensuring:

- Two serviceable iPads are carried;
- The spare iPad onboard is current and available;
- The iPad holders and charging facility remain within acceptable limits and serviceable in accordance with the Minimum Equipment List (if applicable);
  The iPadOS and applications are NOT updated unless instructed by the EFB Administrator;
- The following applications are up to date:

  − Centrik;
  − Jeppesen FD Pro X;
  − FlySmart Applications; and
  − EFBOne.

0-4-3 COMPANY RESPONSIBILITIES

Applicable to: ALL

Fly2Sky must ensure that:

- EFB devices do not provide inaccurate or misleading information to the flight crew;
- If the integrity of the system is in any doubt, then paper copies or alternative methods are in place;
- EFB devices are maintained in a way that their functionality is not impaired, or their defects could pose a threat to pilots or aircraft. This may include monitoring and replacement of the EFB device when the display/battery degradation due to age/aberration does not fulfill the requirements for its use onboard;
- If the spare iPad needs updating away from the home base, OCC informs the operating crew at an appropriate time allowing them to use the built-in SIM card to update using the mobile data or a Wi-Fi hotspot;
- Where an EFB is used on board an aircraft, Fly2Sky ensures that it does not adversely affect the performance of the aircraft systems or equipment, or the ability of the flight crew member to operate the aircraft; and
- Fly2Sky shall not use a type B EFB application unless it is approved in accordance with EU 965/2012, Subpart M of Annex V (Part-SPA)

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0-5-1 GENERAL EFB AND DATA MANAGEMENT

Applicable to: ALL

EFB iPad devices are located on board of aircraft, and available to each Flight Crew member. Each iPad id equipped with a data SIM or eSIM card to allow for worldwide updating. A spare iPad is available in the aircraft to cover for failures. The language of all devices is English and cannot be modified.

All standard parameters including language are initially set when enrolling the devices into the company's MDM. The EFB Administrator makes sure that these settings are retained, and that the device is updated at each transit in the office.

OCC will inform the crew if an iPad needs updating. Crews are responsible for ensuring the data validity on all iPads, including the standby one.

Crews shall ensure that the third iPad is switched off before storing it in the bag to ensure that the battery is kept charged and to avoid any undesirable interferences.

The EFB is used for the following functions:

- Access to Manuals trough Centrik, OLB, and eQRH;
- File Reports trough Centrik;
- Access Enroute Data and Charts trough Jeppesen FD Pro X;
- Access Aircraft Performance trough FlySmart; and
- Access Briefing Packages trough EFBOne.

All EFB data is managed by the EFB Administrator and is transmitted to the EFB by controlled processes described below fin this document.

0-5-2 TRAINING AND PROCEDURES

Applicable to: ALL

All EFB training is outlined in OM-D. *Refer to: OM-D 5-6-3 VAW-EFB-001 ELECTRONIC FLIGHT BAG TRAINING COURSE A32F.*

All specific procedures for a flight are outlined in this manual. Specific steps and application instructions not considered appropriate for the OM are in the application-specific user guides available in Centrik.

0-5-3 EFB CONFIGURATION CONTROL

Applicable to: ALL

EFB Administrator trough MDM will deploy EFB Applications automatically and may restrict some user rights if required. All EFB users shall be responsible for maintaining their iPad configuration compliant with the approved software versions for EFB, which will be checked during training events and by random checks from the EFB Administrator. These checks may be delegated to specific crew members when the EFB Administrator does not have access to the devices.

To ensure the integrity of EFB data, database updates shall be completed for data currency whenever needed and the iPadOS and applications version updates are only authorised when the approved software versions for the EFB are announced.

Each new iPadOS or application version may be published or delayed until the next version after carefully reviewing the following:

- The software provider test results and any known issues;
- Release notes from the providers; and
- Fly2Sky's check of the version's compatibility.

0-5-4 MANAGEMENT OF CHANGES

Applicable to: ALL

Refer to: (AMC1 SPA.EFB.100(b)), (AMC1 SPA.EFB.100(b)(2)), (AMC2 SPA.EFB.100(b))

One of the main purposes of the established procedures, documented in this manual is to ensure that no unauthorised changes take place in the EFB of Fly2Sky. Some changes may have to be introduced by the EFB system supplier, the EFB application developer, or by Fly2Sky.

The following changes may be performed by Fly2ky without the need for approval by the Bulgarian CAA:

- Changes that do not result in hardware change that would require a re-evaluation of the HMI and human factors aspects in accordance with the regulation;
- Changes that do not bring any change to the calculation algorithms of a type B EFB application;

- Changes that do not bring any change to the HMI of a type B EFB application that requires a change to the flight crew training program or operational procedures;
- Changes that introduce a new type A EFB application or modify an existing one (providing its software classification remains type A);
- Changes that do not introduce any additional functionality to an existing type EFB application or update an existing database necessary to use an existing type B EFB application;
- Operating system updates, chart or airport updates, fixes and type A applications.

These changes will, nevertheless, be controlled and evaluated before use during flights. For all other types of modification, Fly2Sky shall apply the change management procedure in the OMM and be approved by the Bulgarian CAA, encompassing key requirements set out in the Fly2Sky's Safety Management Man Safety Rule for Management of Change, including permanent or temporary changes to organisation, equipment, standards or procedures and changes associated with laws and regulations shall only proceed if:

- A risk assessment;
- A plan clearly specifies the timescale for change and any control measures to be implemented from design to operate regarding:

  - Equipment
  - Facilities and process
  - Procedure
  - Personnel competency
  - Accountabilities and responsibilities
  - Documentation
  - Communication
  - There is an authorisation of a plan by a person responsible for conception to completion;
  - The situation is re-assessed if Circumstances change.

This includes the extension of the use of an EFB system, for which Fly2Sky already holds an approval, to another aircraft type of the fleet. In the specific case of a complete change of the hardware hosting the EFB application, Fly2Sky shall demonstrate to the Bulgarian CAA that the new hardware is suitable for the intended use of the EFB application as per regulation.

The EFB Administrator is responsible for Notifications to crews of any updates.

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HARDWARE DESCRIPTION

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1-1 GENERAL

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Localization Title	Toc Index	ID	Reason
1-1 1-1-3 EFB PORTABLE ELECTRONIC DEVICE	A C	1	Safety and testing battery criteria

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1-1-1 INTRODUCTION

Applicable to: ALL

Refer to: (AMC1 CAT.GEN.MPA.141(a)), (AMC1 CAT.GEN.MPA.141 (a))

The Fly2Sky EFB system consists of:

- iPad EFB device;
- Viewable stowage mount; and
- Electrical power supply.

The use during critical phases of flight is authorised if secured to a certified mount or if the EFB is securely attached to a viewable stowage device in a manner that allows its normal use. The EFB unit used by Fly2Sky is an iPad which is inserted into a PIVOT Case that is carried onboard and secured to a portable viewable stowage provided by PIVOT Mount and with the clipboard clamp in the left and the right window ledge.

Fly2Sky uses the following iPad models, which are approved for rapid decompression:

- iPad Air 3 Wi-Fi + Cellular (all storage sizes and colours);
- iPad Air 4 Wi-Fi + Cellular (all storage sizes and colours);
- iPad Air 5 Wi-Fi + Cellular (all storage sizes and colours); and
- iPad Air 6 Wi-Fi + Cellular (all storage sizes and colours).

These models satisfy all requirements with respect to glare, screen position, display characteristics, and electromagnetic interference. One EFB viewable stowage is available at each flight crew station on all Fly2Sky aircraft (on the flight deck side window ledge).

The EFB can be used at all times during flight operations, provided it is secured in the viewable stowage during critical phases of flights. Fly2Sky EFB is running on iPadOS Operating System as a standalone computer without data connectivity with any of the aeroplane systems. The EFB host platform technically operates as a T-PED.

The installed software applications are Type B applications, as their malfunction or misuse could have a minor safety effect. These software applications are provided by third-party developers and are configured/customised to Fly2Sky requirements. A third iPad may be carried onboard to cover failures of the other two devices. These are cycled when transiting through the home base and are serviced, cleaned, and updated when in the office.

EFB Administrator is responsible to ensure that:

- All software applications to be used are evaluated;
- Upgrade of the iPad models is controlled;
- Enough devices for the operations of the company's aircraft are provided;
- The orders and their follow-up for device(s) are scheduled based on:

  − The needs of the operation;
  − The lifetime of the hardware; and
  − The operational change requirements.

A Humans Factor's risk assessment has been conducted for both the EFB device and the portable viewable stowage to ensure it fully complies with the relevant regulation.

1-1-2 PORTABLE VIEWABLE STOWAGE

Applicable to: ALL

The iPads must be securely stowed in their designated, approved by the Authorities, viewable stowage devices that allow secure mounting during all critical phases of flight. The viewable stowage devices are exclusively designed to host Fly2Sky's EFB platform. They are located in the cockpit, next to each pilot station.

They are designed to provide secure installation and viewable stowage of the PED, in a manner that allows its normal use during all phases of the flight. The viewable stowage devices do not provide any power source. Therefore, the aircraft's cockpit power outlets are used for charging the devices.

Furthermore, to maintain optimum situational awareness, use of the iPads below 10 000 ft shall be kept to a minimum. In addition, both crew members shall not become pre-occupied with the iPads at the same time. Workload shall be apportioned between flight crew members to ensure ease of use and continued monitoring of other flight crew functions and aircraft equipment.

The position of the viewable stowage does not create significant obstruction to the flight crew members' view or hinders physical access to aircraft controls and displays, as well as the aircraft safety equipment, flight crew ingress or egress. The viewable stowage allows the flight crew to retain a sufficiently extensive, clear, and undistorted view, to enable them to safely perform any manoeuvres within the operating limitations of the aircraft, including taxiing, take-off, approach, and landing.

The mechanism of this viewable stowage is not to impede the flight crew members in the performance of any task (whether normal, abnormal, or emergency) associated with operating any aircraft system.

Turbulence or hard landings will not impair its fitting as the tray is secured to the window ledge in all phases of flights and remains within its position at all times. The selection of positions is adjustable to accommodate a range of flight crew member preferences and physical abilities (i.e. anthropometrics constraints). Locking mechanisms are of a low-wear type that will minimize slippage after extended periods of normal use. The portable iPad EFB is easily removable from its mounting device/viewable stowage device, without the use of tools by the flight crew.

The risks associated with an EFB fire, interfering with controls, the opening of windows, and access to oxygen masks are minimised by the design and location of the viewable stowage. It is an iPad holder that easily attaches (and locks) and detaches from the Captain's and First Officer's side without the use of any tools. This holder is attached to the viewable stowage allowing easy positioning and rotating. However, this does not preclude a flight crew from using a portable EFB during restricted portions of the critical phases of flight to complete a task related to the safety of the flight on the condition that the device is continuously handheld and used only for a brief period of time. When the task is completed, the device should be stowed again.

It is classified as a portable device, commercial off-the-shelf (COTS), and does not require an STC. All iPad controls also remain available for use. Any EFB component that is either not accessible in the flight crew compartment by the flight crew members or not removable by the flight crew members should be installed as certified equipment covered by a type certificate (TC), a change to a TC, or a supplemental STC.

The placement of the EFB unit does not impair the crew's external view during any of the phases of the flight, impair the view of or access to any flight-crew-compartment control or instrument, or does not impede emergency egress, and is within 90 degrees on either side of each flight crew member's line of sight.

Glare and reflection on the EFB display do not interfere with the normal duties of the flight crew. With the secure attachment, it is guaranteed free access to controls and guarantees that they remain unlocked. If the EFB is not secured to an iPad holder or handheld by the Flight Crew, the EFB needs to be stowed during critical phases of the flight.

A320 AND A321 VIEWABLE STOWAGE

Fly2Sky uses PIVOT Long Term Removable Mount (LTRM) for A320 Family (All Variants) Captain Side and First Officer, and iPad EFB is securely attached to this viewable stowage device in a manner that allows its normal use in all phases of the flight. PIVOT A320 LTRM can be installed in seconds without any tools or special training.

1-1-3 EFB PORTABLE ELECTRONIC DEVICE

Applicable to: ALL

The Apple iPad is an off-the-shelf system that is fully portable. It is considered a controlled PED and is used under normal circumstances with data connectivity disabled (Flight Safe Mode). The device does not use or form part of the aircraft system and does not require manufacturer approval. The Apple iPad is designed with simplicity in mind allowing the user to instinctively scroll and zoom using finger strokes and pinches, allowing the user to easily navigate the displayed data and applications.

The iPads are not aircraft type-specific and are fully interchangeable. The portable EFB of Fly2Sky is capable of operation autonomously inside and outside the aircraft. The mass, dimensions, shape, and position of the portable iPad EFB do not compromise flight safety. The power supply of an EFB is provided by aircraft sources through an adequate power source.

Fly2Sky's iPads are used as either hand-held equipment or mounted in a movable mount attached to the aircraft structure or temporarily secured.

PHYSICAL CHARACTERISTICS

The size and practicality of the EFB should be evaluated as some devices may prove to be cumbersome for normal use on a flight deck.

READABILITY

The EFB data shall be legible under the full range of lighting conditions expected on the flight deck, including direct sunlight.

ENVIRONMENTAL

The EFB has to be operable within the foreseeable cockpit operating conditions including foreseeable high/low temperatures and after rapid depressurisation.

BASIC NON-INTERFERENCE TESTING

As previously noted, Fly2Sky's iPads are considered to be PEDs. As such, any reference to PEDs in this section is also applicable to portable EFBs. In order to operate a portable EFB during flight, Fly2Sky is responsible for ensuring that the EFB will not interfere in any way with the operation of aircraft equipment. The following methods are means to test portable EFBs that are to remain powered (including being in standby mode) throughout the flight, in order to ensure that they will not electromagnetically interfere with the operation of aircraft equipment.

BUILT-IN BATTERIES

Fly2Sky ensures that the batteries are compliant with the applicable Standards for use in an aircraft. The Company is considering introducing procedures to manage thermal runaways or similar battery malfunctions potentially caused by EFB batteries (e.g. lithium-based batteries). At least the following issues should be addressed:

- Risk of leakage;
- Safe storage of spares including the potential for short circuits; and
- Hazards due to on-board continuous charging of the device, including battery overheating.

All iPad batteries are certified as meeting the safety and testing criteria outlined in the FAA Advisory Circular AC 120-76B regarding the airworthiness and United Nations (UN) Transport Regulations UN38.3 Lithium Metal and Lithium-Ion Batteries (covering battery safety during air transport.

iPad is a portable device designed to be used all day on a single charge from a built-in battery.* iPad uses lithium-ion battery technology to support this capability.
Unless otherwise stated, all existing and future iPad models using lithium-ion batteries are designed to meet international safety certification standards. All iPad batteries are tested, certified, and in compliance with the standards listed below. These standards meet the safety and testing criteria set forth in the FAA Advisory Circular AC 120-76E regarding the airworthiness and use of portable electronic flight bags.

- United Nations (UN) Transport Regulations UN38.3: Covers battery safety during air transport.
- Underwriters Laboratory (UL) 2054: Covers safety of lithium-ion batteries in general use; UL 62368-1 covers the use of batteries in information technology equipment.
- IEC 62368-1 and International Standard IEC/EN 62368-1: Cover the use of batteries in information-technology equipment.
- Institute of Electrical and Electronics Engineers (IEEE) 1725: Covers safety of lithium-ion battery packs in cellular devices.
- International Standard IEC 62133-2: Covers secondary cells and batteries containing alkaline or other nonacid electrolytes.

About iPad safety certifications
iPad complies with the safety standards for Safety of Information Technology Equipment, IEC 62368-1 and IEC 60950-1. Many countries and regions have adopted these safety standards:

- UL 62368-1 in the United States
- CSA 62368-1 in Canada
- EN62368-1 in Europe
- AS/NZS 62368:1 in Australia and New Zealand
- Battery life varies by use and configuration.

The built-in battery of the iPad is located behind the screen. Caution must be taken if the iPad is damaged, and the company must be informed as soon as possible so a repair can be arranged, and no damaged iPads shall used onboard to minimise any risks associated with the battery safety.

WARNING	In case of an EFB Device catching on fire: • Unplug all chargers and remove the battery if able to; • Do not use water or other fluids;

	• Use halon or similar fire extinguishers; and • Once the fire is extinguished, if possible, submerge the device under water.

Note: Charging the battery at temperatures outside of this range may cause the battery to become hot or to break. Charging the battery outside of this temperature range may also harm the performance of the battery or reduce the battery's expectancy.

In the case of Decompression, all EFB devices are certified to operate up to 51 000 ft. The Rapid Decompression Test Results can be found in this manual. *Refer to: EFBM 1-1-5 RAPID DECOMPRESSION TEST*

CABLING

Fly2Sky ensures that any cabling attached to the EFB, whether in the dedicated mounting or when handheld, does not present an operational or safety hazard. Temperature rise operating the proposed EFB device may generate heat. The placement of the EFB should allow sufficient airflow around the unit if required.

Fly2Sky operates fully evaluated and accepted for Aircraft Operators' EFB hardware and software applications.

1-1-4 POWER SOURCE

Applicable to: ALL

An approved electrical power supply allows charging the portable EFB while secured in the viewable stowage, by using the original charger, which is provided with each EFB device. The power supply can be used to charge the EFB during all phases of flight, including critical phases of flight. As a backup, each EFB can be operated on its battery power. The EFB can be secured in the viewable stowage with or without the power source connected. The power source can be disconnected from the EFB at both ends of the electrical lead.

CHARGERS

The power supply of an EFB is provided by aircraft sources through an adequate and approved power source. Depending on the model, the iPad comes with a 10W power adapter. All Apple USB power adapters are designed for use with power sources rated to provide 100V AC to 240V AC at 50Hz to 60Hz.

The type A (flat parallel-blade design) Apple 10W USB power adapters (with type A AC plug attached) also comply with the IEC/UL 60950-1 standard for use with power sources rated to provide 115V AC at 400Hz. Power can be obtained from the iPad Charger during all phases of flight.

Alternative power sources can be obtained from Portable Chargers. If connecting the iPad to the Portable Chargers, provisions must be made to ensure cables and adaptors do not cause obstruction.

BATTERY STATUS MANAGEMENT

Monthly the EFB Administrator is responsible for checking all Fly2Sky EFB devices' battery status, based on the transmitted report log by application on portable devises.

FULL CHARGED CAPACITY

Actual battery capacity corresponding to a 100% charge level

DESIGNED CAPACITY

The capacity of a new battery corresponds to a 100% charge level, as specified by the manufacturer.

BATTERY STATUS

The actual charge level of the battery in percentage. When the reported Full Charged Capacity of a given iPad unit falls below 75% of the Designed Capacity, the EFB Administrator will ensure:

- Removal and replacement of the affected iPad by contracted company; and
- Replacement of the unserviceable battery before return into service.

The 75% limit has been determined by Fly2Sky and is based on usage experience to provide a minimum battery operation time of 2 hours when dispatching. The manufacturer does not specify an exact operating time because it is highly dependent on the electric load (way of operation and the executed tasks on the device).

As per experience during internal tests, the average battery operating time of a new battery is 8 hours approximately without additional charging.

BEST PRACTICES AND CAUTIONARY NOTES

The best practices include:

- Use only in approved 12-36V DC power receptacles;
- Ensure charger USB ports are clear of dust/dirt/contamination before connecting the USB cable;
- Plug the charger into a 12-36VDC power receptacle before connecting the cable;
- Make sure all connectors are free of dust/dirt/contamination;
- Keep USB power cable free of seat track to avoid damage; and
- Store the charger in a moisture-free and dust-free environment.

CAUTIONARY NOTES

Such include the following:

- Never use a charger if previously submerged in any liquid.
- Never force a charger into a 12-36V DC power receptacle if electrodes (prongs) are bent or damaged.
- Never use when the ambient temperature is below -40°C or above +55°C.

PORTABLE CHARGERS

Refer to: (AMC1CAT.GEN.MPA.140(f)(1))

If the airplane is not equipped with a power outlet, or if any malfunction with the power plugs, the EFB can be powered via an external battery of adequate capacity charged before the flight. Any external battery used by the crewmember to charge the portable EFB inflight is a PED and is subject to requirements set out in the OM-A. Refer to: *OM-A 9 DANGEROUS GOODS AND WEAPONS*

The ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Doc 9284) set out safety requirements applicable to lithium battery-powered devices carried aboard an aircraft by the operator for use on the aircraft during the flight or series of flights.

These requirements state:

- Spare lithium batteries must be individually protected to prevent short circuits when not in use; and
- Conditions for the carriage and use of these electronic devices and the carriage of spare batteries must be provided in the operations manual and/or other appropriate manuals.

The relevant regulation requires that the cells/batteries contained in a C-PED (and any spares) must be of a type that meets the requirements of each test in the United Nations UN Manual of Tests and Criteria, Part III, subsection 38.3 - this is referred to as the UN38.3 tests.

Lithium cells/batteries of portable electronic devices carried by the operator for sale on the aircraft must also have passed UN38.3 tests, so operators should ensure that the inflight sales procurement process seeks and retains suitable evidence of this.

CAUTION	Portable chargers must be used in the cruise phase only and stowed away for take-off, landing, and during turbulence, to protect it from damage and to avoid it becoming a loose item in the cockpit.

1-1-5 RAPID DECOMPRESSION TEST

Applicable to: ALL

All variants of the iPad used by Fly2Sky have been satisfactorily environmentally tested by Jeppesen to 51 000 ft with no adverse effect on the EFBs functionality. A copy of the
1 decompression testing result can be found below. The detailed Decompression Rest Report by Jeppesen can be found on Centrik.

JEPPESEN
A BOEING COMPANY

Rapid Decompression Test Results for iPad

Consolidated multi-model report

Line	Model	Released	Test Date	Test Altitude	Result
iPad mini	iPad Mini 7.9" (4th gen)	2015 Sep 9	2016 Jan 21	50,000'	Pass
iPad mini	iPad Mini 7.9" (5th gen)	2019 Mar 18	2019 Apr 15	51,000'	Pass
iPad mini	iPad mini 8.3" (6th gen)	2021 Sep 24	2021 Oct 28	51,000'	Pass
iPad	iPad (5th gen) (9.7")	2017 Mar 24	2017 Apr 06	41,000'	Pass
	Retest 5th gen at higher alt.		2017 Dec 18	51,000'	Pass
iPad	iPad (6th gen) (9.7")	2018 Mar 27	2018 Jun 01	51,000'	Pass
iPad	iPad (7th gen) (10.2")	2019 Sep 10	2019 Nov 13	51,000'	Pass
iPad	iPad 10.2" (8th gen)	2020 Sep 18	2020 Dec 07	51,000'	Pass
iPad	iPad 10.2" (9th gen)	2021 Sep 24	2021 Oct 28	51,000'	Pass
iPad	iPad 10.9" (10th gen)	2022 Oct 26	2023 Mar 13	51,000'	Pass
iPad Air	iPad Air 2 (9.7")	2014 Oct 22	2014 Oct 22	53,000'	Pass
iPad Air	iPad Air (3rd gen) (10.5")	2019 Mar 18	2019 Apr 15	51,000'	Pass
iPad Air	iPad Air 10.9" (4th gen)	2020 Oct 23	2020 Dec 07	51,000'	Pass
iPad Air	iPad Air 10.9" (5th gen)	2022 Mar 18	2022 May 12	51,000'	Pass
iPad Air	iPad Air 11" (6th gen)	2024 May 15	2024 Jul 10	51,000'	Pass
iPad Pro	iPad Pro 12.9"	2015 Nov 11	2016 Jan 21	50,000'	Pass
iPad Pro	iPad Pro 9.7"	2016 Mar 31	2016 Apr 06	41,000'	Pass
	Retest Pro 9.7", higher altitude		2017 Dec 18	51,000'	Pass
iPad Pro	iPad Pro 10.5"	2017 Jun 5	2017 Jul 12	41,000'	Pass
	Retest Pro 10.5", higher altitude		2017 Dec 18	51,000'	Pass
iPad Pro	iPad Pro 12.9" (2nd gen)	2017 Jun 5	2017 Jul 12	41,000'	Pass
	Retest 12.9" 2nd gen, higher alt.		2017 Dec 18	51,000'	Pass
iPad Pro	iPad Pro 11" (1st gen)	2018 Nov 7	2018 Dec 21	51,000'	Pass
iPad Pro	iPad Pro 11" (2nd gen)	2020 Mar 25	2020 Jun 05	51,000'	Pass
iPad Pro	iPad Pro 11" (3rd gen)	2021 May 21	2021 Aug 19	51,000'	Pass
iPad Pro	iPad Pro 11" (4th gen)	2022 Oct 26	2023 Mar 13	51,000'	Pass
iPad Pro	iPad Pro 11" (5th gen)	2024 May 15	2024 Jul 10	51,000'	Pass

Indicates models available from Apple at the time of report date.

This report includes Rapid Decompression test results for all iPad models currently supported by the most current iPadOS. This document version does not include the positive test results for early iPad models that are significantly outdated and no longer supported by Apple iPadOS (iPad mini 1/2/3, iPad 1/2/3/4, iPad Air 1).

Not tested (insufficient EFB demand/business justification):

- iPad Pro 12.9" (3rd gen, A1876, A2014, A1895, A1983) (11/2018)
- iPad Pro 12.9" (4th gen, A2229, A2069, A2232, A2233) (03/2020)
- iPad Pro 12.9" (5th gen, A2378, A2461, A2379, A2462) (05/2021)
- iPad Pro 12.9" (6th gen, A2426, A2764, A2437, A2766) (10/2022)
- iPad Air 13" (1st gen, A2898, A2899, A2900) (05/2024)
- iPad Pro 13" (7th gen, A2925, A2926, A3007) (05/2024)

Version 22, Jul 25, 2024

Provided by Jeppesen. Section 2 covers distribution restrictions.

1-1-6 EMI ELECTROMAGNETIC INTERFERENCE

Applicable to: ALL

The approved iPad models have been assessed by the manufacturer for interference. They have been found to not exhibit any unacceptable levels of electromagnetic radiation. EMI Tests, Decompression Tests, Humidity tests, drop tests, etc. are compatible with all Fly2Sky EFB.

1-1-7 DATA CONNECTIVITY BETWEEN EFBS

Applicable to: ALL

If two or more EFBs on the flight deck are connected to each other, this does not negatively affect otherwise independent EFB platforms.

1-1-8 EXTERNAL CONNECTIVITY

Applicable to: ALL

Refer to: (AMC1 CAT.GEN.MPA.141(d))

Some EFBs may have the provision for external ports other than power or data connectivity with aircraft systems (e.g. antenna or a data connection to the operator ground network). External connectivity leading to a change to the aircraft type design shall require airworthiness approval.

The extent of this information is dependent on the complexity of the interface to the aircraft systems. Fly2Sky (if necessary) is connected to a mobile printer if some calculations or data have to be presented on paper. Therefore, these are allowed only on the ground.

Fly2Sky does not use EFBs with external ports other than power or data connectivity with aircraft systems.

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SOFTWARE DESCRIPTION

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2-1 GENERAL

2-2 HUMAN FACTORS AND HUMAN-MACHINE INTERFACE

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SOFTWARE DESCRIPTION

PRELIMINARY PAGES

SUMMARY OF HIGHLIGHTS

Localization Title	Toc Index	ID	Reason

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2-1-1 INTRODUCTION

Applicable to: ALL

Refer to: (AMC1 CAT.GEN.MPA.141(b)), (AMC2 CAT.GEN.MPA.141(b))

The functionality associated with the EFB system depends, in part, upon the applications loaded on the host platform. An EFB software application is an application that is not part of the configuration of the certified aircraft and is installed on an EFB system to support flight operations. The classification of the applications, based on respective safety effects, is intended to provide clear divisions among such applications and, therefore, the assessment process applied to each. The application shall be classified as an EFB application if listed in the relevant regulation or presents a high degree of novelty or is covered by an EASA approval (e.g. ETSO authorisation).

See the application-specific user guides in the Flight Operations section under EFB of Fly2Sky. There are user guides and release notes in place for:

- FlySmart applications (Performance Data);
- EFBOne (Electronic Briefing Pack);
- Jeppesen FD Pro X (Aeronautical data and charts); and
- Centrik (Company Manuals).

See the application-specific user guides available in Centrik. The applications have not been customised in any way from their delivered state. FlySmart is administered to include the applicable regulations and company policies in all performance calculations.

2-1-2 TYPE A APPLICATIONS

Applicable to: ALL

The portable EFB of Fly2Sky is a portable electronic device (PED) and it hosts type A and type B EFB applications and miscellaneous software applications. Portable EFBs are controlled PEDs (C-PEDs), subject to administrative control by the operator.

Examples of miscellaneous software applications are web browsers (not used for operational purposes), email clients, picture management applications, or even applications used by ground crews (e.g. for maintenance purposes). EFB Administrator shall ensure that non-EFB software applications do not adversely impact the operation of the EFB and include them in the EFB configuration management. Type A applications are EFB applications whose malfunction or misuse has no safety effect.

DOCUMENTS

The promulgation of all documents needed for the operation of the Company is facilitated by Centrik. Every person entitled to work with a given document is required to confirm the reception of that document after the reception of the email message notifying the issuance of this particular document.

All company documents and forms are the minimum required for paperless operations of Fly2Sky. Any additional documents may be added with due regard to the accessibility of the required manuals inflight. It shall not become cumbersome to access manuals in the aircraft flight deck.

According to the OM-A, the DFO shall ensure all manual holders acknowledge receipt of revisions This is monitored by Centrik, and the information is available to the relevant managers. The EFB Administrator will provide the Compliance Monitoring Manager on request a report on the current status of uploaded documentation in the EFB.

SAFETY

The Safety Module in Centrik is under the control of the Safety Manager. The processes of this module are set by the application vendor in cooperation with the internal application administrator. The SMM outlines the processes behind Fly2Sky's safety reporting system. The EFB Administrator does not have direct responsibility for this section of the application other than to ensure that the hardware is adequate to support the needs of Fly2Sky.

TRAINING RECORDS

The Training Records are under the control of the Training Manager The processes and layout for this module are controlled by the Training Manager in cooperation with the application vendor. The EFB Administrator does not have direct responsibility for this section of the application other than to ensure that the hardware is adequate to support the needs of Fly2Sky.

PICTURE REPORTS

The EFBOne application will be used to scan the required flight documents. More detailed information about the scanning of documents, and incorporating of pictures in Picture Reports of EFBOne can be found in the OM-A. *Refer to: OM-A 8-1-10 OPERATIONAL FLIGHT PLAN*

2-1-3 TYPE B APPLICATIONS

Applicable to: ALL

Refer to: (AMC3 CAT.GEN.MPA.141(b))

Type B EFB applications are EFB applications:

- Whose malfunction or misuse is classified as minor failure condition or below; and
- Which neither replaces nor duplicates any system or functionality required by airworthiness regulations, airspace requirements, or operational rules.

The following EFB applications for iPad are used by the EFB of Fly2Sky. These applications are classified as type B EFB applications, all under the relevant regulation and they will be not used by Fly2Sky unless approved by the competent authority. These applications are:

- FlySmart (Performance calculation and eQRH);
- Jeppesen FD Pro X (Aeronautical data and charts); and
- EFBOne (Electronic briefing package and OFP).

The EFB Administrator oversees the control over the software for EFBs. He/she has no rights or access to the software to make changes to the software of programs. Fly2Sky uses external provider sources only if they meet all company requirements (letter of acceptance required). EFB Administrator performs monitoring and checking of all data received from external providers.

Navigational and Chart Data is provided by Jeppesen, which is a certified entity that produces controlled and valid data. Further authoring is not required by the Operator. Flight operational aircraft documentation is supplied by the manufacturer and requires no further authoring of the data. Only the EFB Administrator, OCC Manager, flight crew members, and authorised repair stations have the authorisation to install an updated Database onto the system. The above-mentioned personnel shall have satisfactorily completed EFB training before uploading new software onto the system.

In order to obtain operational approval from the competent authority for the use of a type B EFB application, Fly2Sky shall provide evidence that:

- A risk assessment related to the use of the EFB device that hosts the application and to the EFB application and its associated function(s) has been conducted, identifying the associated risks and ensuring that they are appropriately managed and mitigated;
- The human-machine interfaces of the EFB device and the EFB application have been assessed against human factors principles;
- It has established an EFB administration system, procedures, and training requirements for the administration and use of the EFB device and the EFB application have been established and implemented; these shall include procedures for:

  − Operating the EFB;
  − The management of changes to the EFB;
  − The management of EFB data;
  − EFB maintenance;
  − EFB security; and
  − The EFB host platform is suitable for the intended use of the EFB application.

FLYSMART

FlySmart for iPad's FS+ Manager is an application developed by Navblue enabling the synchronisation and installation of Fly2Sky's data into the other available FlySmart applications. The operation of FlySmart on iPad devices implies the use of iPadOS applications on the iPad device as well as the FlySmart Gateway software on the ground segment.

EASA, Electronic Flight Bag (EFB) Evaluation Report dated 12/12/2013 specifies the EASA requirements and recommendations applicable to operators seeking Operational Approval to use the FlySmart with Airbus applications under Commission Regulation (EU) No 965/2012 of 05/10/2012 (referred to in the Report as "Part-OPS"), and it additionally guides National Aviation Authorities (NAAs) responsible for granting such approvals.

This report applies to the applications of the FlySmart with Airbus for iPad software suite, as well as subsequent versions added via addendum or not requiring a further evaluation by EASA.

FS+ MANAGER

The Manager application is used for updating the operational data on the iPad, which is used by the FlySmart applications (performance data and operational manuals).

The FlySmart+ for iPad Suite is composed of 7 applications:

- eQRH;
- FS+ Loadsheet – For mass and balance calculation;
- FS+ TakeOff – For take-off performance;
- FS+ InFlight – For inflight performance;
- FS+ Landing – For landing performance;
- FS+ OLB – For library browsing; and
- FS+ Manager.

The FS+ Manger App is the center of the Apps Suite. It enables the connection with the Gateway and the dispatch of the data between all the installed applications.

Its main functionalities are:

- Connect to the Gateway;
- Check the credentials and the profile of the user;
- Check the availability of new EFB data;
- Update the data;
- Report the EFB version to the Gateway; and
- Send the computation reports of the Performance Apps to the Gateway.

FS+ MANAGER ACCOUNT SETTINGS

This section of the FS+ Manager is dedicated to the connection to the Gateway. When a User needs to update the data of the FlySmart applications, he/she needs to enter:

- Server;
- Username; and
- Password.

Note: *The Server, Username, and Password information are provided by the EFB Administrator.*

The Password retention period is 8 hours after the last data synchronization. After that period, it is necessary to input again the password.

APPS STATUS

This section of the FS+ Manager provides the User with information regarding the availability and installation status of the data for each installed application. The system uses the following signs to indicate the status of the data loaded in the applications:

- A green tick means that the application is up to date regarding the EFB Version and the User profile;
- A red exclamation mark means that the application is not up to date regarding the current EFB Version;
- A grey exclamation mark means that there is no data available in the current Release for the User.

EFB VERSION

This section of the FS+ Manager provides the User with the status of the EFB. It is linked to the status of the Apps described above.

EFB Version: UNKNOWN	When the EFB Version displays UNKNOWN, it means that the update of at least one application was not successful.
EFB Version: EFB-F2S-MAY2024-01A1	When the EFB Version is displayed in AMBER, it means that data are not up to date, and a new Release is available for download or installation.
EFB Version: EFB-F2S-MAY2024-01A1	When the EFB Version is displayed in GREEN, it means that all the data available in the Release for the User has been successfully installed in all the Apps.

READ THE USER GUIDE / READ RELEASE NOTE

By default, in the FS+ Manager, a Read the User Guide button at the bottom of the App is available to display the FS+ Manager User Guide. If, in the Release, a Release Note in PDF format is available, the button changes to display “Read Release Note”.

Once the Release Note is displayed, the User can browse the document. When links inside the document are available, they are activated and can be selected. A Close button is available on the top left-hand side of the App to go back to the FS+ Manager.

SWITCHING BAR

Located at the bottom of the FS+ Manager App, this switching bar provides access to each installed application. If an application is not installed on the iPad, it is not displayed in the switching bar. For more detailed information please *Refer to: FS+ Manager application*.

GENERAL PERFORMANCE POLICIES

This chapter presents general information that applies to all performance modules of the FlySmart application.

COLOR CODE

FlySmart uses specific colours:

- Blue for User inputs;
- White for Default values (defined by the administrator);
- Yellow for System data (modifiable);
- Green for Data within the limits (computed data);
- Amber for Data close to the limits (computed data); and
- Red for Data out of the limits (computed data).

INTERFACE NAVIGATION

The performance modules are usable with the touch screen. The User can navigate within and between the panels by direct operation on the touchscreen (tap, flick, etc.). When the User is in entry mode on a text box, he/she can tap on the “Done” button (or “Next” button if available) to validate the entry as follows:

- The done button validates the entry, closes the current panel, and gets the module display back to the main panel; or
- The next button validates the current entry and switches to the next entry to set.

List boxes are displayed to set some computation parameters. To select an item in the list, the user taps on it. Value is validated and the application will display the next parameter to set.

When the User is in entry mode on a text or a list box, he/she can tap on the Close button (or Back button if available) to cancel the action as follows:

- The back button closes the current panel and comes back to the previous one; or
- The close button closes all opened panels and comes back to the main interface.

In both cases, modified values are cancelled, and the previous values are restored.

INITIALISATION

When an application is launched, the My Flight page is displayed to select aircraft, flight, and airport information. This page enables the definition of the flight conditions for all the FlySmart applications (Takeoff, Landing, Loadsheet, and Ops Library Browser). The interface is composed of the aircraft panel and flight panel.

There are two options to help the user find the right aircraft:

- By aircraft type; and
- By aircraft registration.

The User can select the Aircraft Weight Variant in a list. If only one weight variant is defined for the selected tail number, the Weight variant is automatically selected.

The User shall enter the flight number as indicated on the OFP. It is important to make sure and insert the flight number and not the callsign consisting of the operator's three-letter ICAO code followed by alphanumerical data. If the Administrator has associated the flight number with departure and destination airports, the airport fields are automatically retrieved.

The User can enter the departure and the destination airports. The user shall either use the scroll bar to reach the code of the airport, or directly type the code on his/her keyboard. When a user uses the keyboard, the list is updated with airport codes that contain the sequence. The user can select an airport by either:

- Entering the ICAO code (if made available by the Administrator);
- Entering the IATA code (if made available by the Administrator); or
- An automatic search on airport name.

Note: *In case of multiple airport data importation in the PA Admin, only the airports applicable to the selected aircraft are listed.*

GENERAL PRESENTATION

Depending on the software environment, the menu bar may have different designs. The menu bar located at the bottom of the screen allows the user to select the applications (Loadsheet, TakeOff, Landing). To display the Takeoff application, the User clicks on the Takeoff icon. This icon is available only if aircraft and airport data are defined. The menu bar located on top of the screen has the following design featuring the following:

- Return to the application initialisation;
- Aircraft registration;
- Aircraft type;
- Lock/unlock screen rotation; and
- SET BRIGHTNESS.

NEW RELEASE FOR DOWNLOAD

When a new release is published on Gateway, a notification is received on the iPad. In order to be able to receive the new release notifications, it is mandatory that:

- The notification feature is enabled in the Gateway Preferences;
- The Operational User has synchronized at least once with the Gateway to install a published release; and
- The FS+ Manager notification option is properly enabled in the iPad Setting.

When opening the FS+ Manager, the fields Server address, Username, and Password are already filled. EFB Version is written in amber, and an amber exclamation mark is displayed on the Update all button. The Update all button is enabled, and the User shall tap on it to start the update process. Then, the Apps are updated as described later in this document.

TAKE-OFF PERFORMANCE

Before take-off, the flight crew can use the “Dispatch” computation mode to check the landing performance calculated with the dispatch regulatory criteria. When the application is started, all fields are empty except the ones defined as standard (STD) according to Fly2Sky’s policy (trough the EFB Administrator), the TOW which is automatically

defaulted to Maximum Take-off Weith (MTOW) or the Estimated Take-off weight from the Loadsheet module if it was used to prepare the loadsheet. The input parameters are divided into two groups:

- The modifiable entries by the users:
  - Airport – Airport and Runway (including modification);
  - Weather – Wind, Temperature, QNH, Runway condition, Anti-ice; and
  - Aircraft – TOW, T.O. CG, T.O. Thrust, CLB Thrust, Configuration, Air Conditioning.
- The non-modifiable entries by the users are generally set by the operator performance administrator or provided by the Manufacturer/Operator external sources.

For more detailed information please *Refer to: FS+ Manager application*.

IN-FLIGHT PERFORMANCE

Before or during the flight, the crew can calculate the in-flight performance for planning, climbing, descending, cruising, and holding for both running or one engine inoperative. Additionally, the are tabs for calculating the descent with one engine inoperative or all engines inoperative, as well as an atmosphere information tab.

For more detailed information please *Refer to: FS+ Manager application*.

LANDING PERFORMANCE

Before take-off, the flight crew can use the “Dispatch” computation mode to check the landing performance calculated with the dispatch regulatory criteria. During the flight, the flight crew can use the “In-flight” computation mode to check the landing performance calculated with the in-flight landing criteria. Only a few parameters among the user-modifiable entries differ from those of the “Dispatch”.

When the application is started, all fields are empty except the ones defined as standard (STD) according to Fly2Sky’s policy (trough the EFB Administrator), the LW which is automatically defaulted to Maximum Structure Landing Weight (MSLW) or the Estimated Landing weight from the Loadsheet module. The input parameters are divided into divided into two groups:

- The modifiable entries by the users:

  - Airport – Airport and Runway (including modification);
  - Weather – Wind, Temperature, QNH, Runway condition, Anti-ice; and
  - Aircraft – LW, LDG CG, LDG Configuration, Air Conditioning, Approach type, Additional speed, LDG Technique, Braking Mode and Reverse.

- The non-modifiable entries by the users are generally set by the operator performance administrator or provided by the Manufacturer/Operator external sources.

For more detailed information please *Refer to: FS+ Manager application*.

LOADSHEET APPLICATION

If the My Flight page has already been initialised on another application, the Loadsheet application retrieves the parameters already entered in the other My Flight Page. Otherwise, the My Flight page appears, and all the fields are empty. To calculate the aircraft weight and corresponding center of gravity (CG), a certain number of inputs are required, each input is defined by its weight and center of gravity position. These are related to the aircraft configuration (e.g.: commercial arrangement of the aircraft), the passenger boarding, the cargo, and fuel on board.

Some parameters are fixed by the EFB Administrator and cannot be changed by the flight crew at each computation while others must be set by the flight crew when using the module. EFB Administrator defines these fixed parameters, which is to say he defines the feasible options and configurations. The other inputs must be set by the pilot when using the module.

Some input weights (and corresponding CG) are measured values (weighed). These are for example the aircraft's empty weight and center of gravity, cargo, and baggage in holds. The other weight values are set as pre-determined values in accordance with the Airworthiness Authorities. These are the passenger and hand luggage weights, crew weights, and possibly baggage weights.

CAUTION	EFB loadsheet application does not use any airport data for calculations, therefore trim calculations can be done without setting a particular departure airport. If the required airport is unavailable, a random airport

	can be chosen but only for loadsheet application. And afterwards, calculations can be done as in everyday operations.

The flight crew entries are separated in two different modes:

- Detailed mode: The flight crew enters all data necessary to compute the loadsheet data. This data includes the crew configuration, Pantry Code, Miscellaneous, Passengers and Cargo data, FOB and Trip Fuel, Taxi fuel, and the density. The program then calculates the loadsheet data for the crew; and
- Reduced mode: The flight crew enters aircraft configuration, ZFW and ZFW CG, FOB, and Trip Fuel data as well as the LMC data, then the program calculates the loadsheet.

The Loadsheet can be shared electronically or printed depending on the type of operations and the contract details regarding the ground handling.

JEPPESEN FD PRO X

The Jeppesen FD Pro X gives aeronavigational data such as enroute, aerodrome reference information, STAR, Approach, Taxi, and SID Cherts, as well as Route Manual data. The application gives furthermore live weather data and ship position, which have to be regarded as a reference only.

The application prompts updates automatically which the crews have to check before each flight of the day. The update intervals go as follows:

- En-route data is updated every 28 days;
- The Terminal Charts are updated every 7 days; and
- The manuals are updated every 14 days.

For more information, refer to the Help and What's New section in the application.

EFBONE

The EFBOne application gives route briefing data to the crews. Every crewmember has personal credentials that he/she uses to enter the data. The crewmembers shall download the data and update it before each flight to make sure that the most recent data is loaded in the application. For more information, refer to OM-A. *Refer to: OM-A 8-1-10 OPERATIONAL FLIGHT PLAN*

2-1-4 MISCELLANEOUS (NON-EFB) SOFTWARE APPLICATIONS

Applicable to: ALL

Miscellaneous software applications are non-EFB applications, supporting function(s) not directly related to operations conducted by the flight crew on the aircraft. Examples of miscellaneous software applications are web browsers (not used for operational purposes), email clients, picture management applications, or even applications used by ground crews (e.g. for maintenance purposes).

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2-2-1 HUMAN FACTORS

Applicable to: ALL

Refer to: (AMC 20-25)

Fly2Sky conducts an assessment of the human-machine interface and aspects governing crew coordination when using the EFB. Whenever possible, the EFB user interface philosophy should be consistent (but not necessarily identical) with the flight deck design philosophy. The review of the complete system should include, but is not limited to:

- General considerations including workload, usability, integration of the EFB into the flight deck, display and lighting issues, system shutdown, and system failures;
- Physical placement issues, including stowage area, use of unsecured EFBs, design, and placement of mounting devices;
- Considerations for interference with anthropometric constraints, cockpit ventilation, and speaker sound;
- Training and procedures considerations, including training on using EFB applications, the EFB policy and procedures manual, the fidelity of the EFB training devices, and mechanisms for gathering user feedback on EFB use;
- Hardware considerations; and
- Software considerations.

The following elements are based on a limited EASA evaluation and supporting material provided by Airbus during the evaluation of iPad applications. These elements have led to the content of the chapters below, including recommendations for flight crew training. In addition, several HMI points raised during the evaluation were discussed with Airbus, 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 conduct a complementary HMI assessment of the integration of the EFB in the flight deck environment.

2-2-2 HUMAN MACHINE INTERFACE

Applicable to: ALL

An EASA evaluation of the applications was performed on a standard iPad loaded with V1, and then V2, FlySmart applications. In general, the HMI was found consistent and intuitive. Several modifications were agreed by Airbus and are planned for implementation in future versions.

2-2-3 LEGIBILITY OF TEXT

Applicable to: ALL

It is expected that the text displayed on the EFB will be legible to the typical user at all likely and reasonable viewing distances. Good responsiveness of the device and applications allows one to easily zoom in on / pan to smaller portions of text and labels if needed.

2-2-4 INPUT DEVICES

Applicable to: ALL

However, the behaviour of the touch screen during limited ground trials was satisfactory.

2-2-5 USER INTERFACE CONSISTENCIES

Applicable to: ALL

Consistency between EFB applications that Airbus has developed the various FlySmart applications following a consistent set of requirements. The consistency is deemed satisfactory. Consistency with flight deck applications:

- The applications were developed to be consistent as far as applicable with the flight deck systems; and
- The performance applications allow in particular to display calculation results in a format similar to that of the MCDU. The consistency with flight deck applications is deemed satisfactory;
- Buttons and labels have been tested and are adequately illuminated for night use All controls should be properly labelled for their intended functions, except if no confusion is possible.

2-2-6 MESSAGES AND USE OF COLOURS

Applicable to: ALL

Refer to: (AMC 20-25)

Regarding messages, although applications comply independently, there is no way to ensure at the application level that interactions (visual and auditory) coming from other (non-EFB) applications, or from the OS, are disabled. Pop-ups, notifications, and alarm sounds may be triggered unexpectedly depending on the configuration.

Thorough testing is therefore recommended to check the possible interactions of the suite of applications considered for use as part of the operator's EFB solution. Updates to the operating system (iPadOS) may also require a re-assessment of potentially unwanted messages or pop-ups over EFB applications.

Possible work-around solutions in case of interference include turning notifications and sound off in the crew procedures. Certain pop-ups will however not be de-configurable, e.g. low battery warnings. The use of Wi-Fi on the ground may also be a source of spurious notifications or pop-ups.

2-2-7 SYSTEM ERROR MESSAGES

Applicable to: ALL

The FlySmart on iPad is deemed compliant. Errors in the FlySmart+ applications trigger notifications (e.g. calculation errors). Non-EFB applications should be assessed in order to avoid the triggering of undue error messages. The stability of the applications has been good during the evaluation (both from Airbus and EASA).

In case crashes of the system of the EFB applications occur, it is recommended that there is a process for the crew to report this to the EFB Administrator via Centrik.

2-2-8 DATA ENTRY SCREENING AND ERROR MESSAGES

Applicable to: ALL

User entry fields implement checks against erroneous formats. When a user makes an entry with the wrong format, he is advised through a message in the application.

2-2-9 ERROR AND FAILURE MODES

Applicable to: ALL

FLIGHT CREW ERROR

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

IDENTIFYING FAILURE MODES

Failure identification is ensured by the use of error messages.

2-2-10 RESPONSIVENESS OF APPLICATIONS

Applicable to: ALL

During the limited hands-on trial by EASA, the responsiveness of the device and the applications was satisfactory. A system busy indicator (standard iPadOS widget) is implemented in all applications. A performance computation may require several tens of seconds. The performance calculation time increases with the complexity of the calculation point. A busy indicator and a message window inform that the calculation is on-going.

2-2-11 OFF-SCREEN TEXT AND CONTENT

Applicable to: ALL

In the OLB, any Documentary Unit (DU) that is displayed ends with an End of DU tag (// END). This enables the user to ensure that all information contained in the DU has been displayed.

2-2-12 ACTIVE REGIONS

Applicable to: ALL

The applications use consistent HMI widgets and standard iPadOS interaction means that there is no ambiguity concerning the active regions.

2-2-13 MANAGING MULTIPLE OPEN APPLICATIONS AND DOCUMENTS

Applicable to: ALL

Toggling between the different FlySmart applications is conveniently ensured through a bar at the bottom of the screen. The indication of the active application is unambiguous. The toggling

with other EFB or non-EFB applications can be ensured through the iPadOS taskbar. It is recommended this is highlighted to crews during the EFB training.

2-2-14 FLIGHT CREW WORKLOAD

Applicable to: ALL

The crew workload evaluation can be considered out of the scope of this document since it depends on operator specificities, like other EFB applications used, 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, and in an operationally representative situation), to insure there is no unacceptable flight crew workload or adverse safety implications. This evaluation should be performed taking into account the specific operator's SOPs.

2-2-14 HMI - PERFORMANCE AND MASS & BALANCE APPLICATIONS

Applicable to: ALL

HMI requirements for performance and mass & balance applications have been considered during the evaluation and FlySmart+ on iPad is deemed to be compliant.

As required by AMC 20-25, data outputs and certain inputs are deleted after a certain period on standby. This is to prevent the use of outdated information. The loadsheet is however not cleared. The behaviour of the automatic deletion has to be emphasized during the training of personnel.

2-2-15 CONSIDERATIONS FOR PERFORMANCE AND MASS & BALANCE APPS

Applicable to: ALL

In operations, computations are achieved through the use of the layers mentioned below.

The evaluation has focused on the process used to develop and validate the two inner layers. The validation of the outer customization layer is under the responsibility of Fly2Sky and its EFB Administrator.

The performance database provided by Airbus for the FlySmart applications is based both on the certified AFM data and on additional operational data (e.g. MEL, CDL penalties) that are not covered under the certification processes. These operational data are used in an optimized manner and results are tailored to the conditions entered by the user. Therefore, some differences may exist compared to the paper documentation.

The EFB Administrator is responsible for ensuring compliance with the applicable OPS rules through the settings available in the administration tool. An individual performance computation uses a chain of different algorithms designed to secure the results.

The validation processes presented by Airbus of the application's interface and the computation engines are deemed satisfactory and compliant with AMC 20-25. As required by AMC 20-25, all references regarding the performance and weight and balance applications are available. They are accessible in the applications settings, through the generic iPadOS settings icon.

OPERATING PROCEDURES

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3-1 NORMAL PROCEDURES

3-2 ABNORMAL PROCEDURES

3-3 EMERGENCY PROCEDURES

3-4 MAINTENANCE PROCEDURES

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Localization Title	Toc Index	ID	Reason
3-1-4 EFB EVALUATION PROCEDURES	D	1	Extreme aft and forward CG limits test Periodically check

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3-1-1 EFB PRE-FLIGHT CHECK

Applicable to: ALL

The crew shall check the validity and serviceability of the EFB through the following steps:

- The crew shall check the validity of Centrik by launching the application and updating it as needed. All sections shall be up-to-date and therefore appear in green.
- The validity of navigational data is automatically checked by Jeppesen FD Pro X by starting the application. If the navigational database is not up to date, a flag will appear in the settings section, located in the upper right corner. The crew shall update it as needed.
- The crew shall check the validity of the FlySmart applications. Usually, if there is an update available, there will be a notification, however, in any case, the crew shall check for an update before commencing the first flight of the day, by entering the common password shared with them during the company conversion or at any stage thereafter.

Furthermore, the crew shall check the general condition of the device as follows:

- The battery level check shall be checked and charged if needed; and
- Any viewable stowage device unserviceability shall be reported to OCC.

3-1-2 IN-FLIGHT EFB OPERATIONAL PROCEDURES

Applicable to: ALL

The EFBOne application and its operation are described in the OM-A. *Refer to: OM-A 8-1-10 OPERATIONAL FLIGHT PLAN*. Furthermore, an in-depth manual of all functionalities of the system is provided in the Guidance Material section of the Flight Operations documentary section.

The use of FlySmart eQRH, performance, mass and balance, and OLB functionalities and their operation are described throughout the OM-D. However, the crew shall consider the following:

- The calculations are performed independently by each flight crew member before data outputs are accepted for use;
- A formal cross-check is made before data outputs are accepted for use; such cross-checks should utilise the independent calculations described above, together with the output of the same data from other sources on the aircraft;

- A gross-error check is performed before data outputs are accepted for use; such gross-error checks may use either a 'rule of thumb' or the output of the same data from other sources on the aircraft; and
- In the event of a loss of functionality of an EFB through either the loss of a single application or the failure of the device hosting the application, an equivalent level of safety is maintained via established procedures.

In normal operation, the EFB may be removed from its viewable stowage for consultation or calculation to ease data insertion/cross-checking by both pilots. During critical phases of flight, it is mandatory to operate the EFB secured in the viewable stowage.

It is the responsibility of each flight crew member to ensure that:

- No attempt is made to alter, modify, or change the EFB contents and settings;
- Care is taken to avoid damage to the EFB, or damage to other cockpit equipment when manipulating the EFB; and
- The EFB is not moved to a location in or out of the cockpit, where it cannot be reached by the pilots from their operating seat during flight operations.

3-1-3 EFB POST-FLIGHT

Applicable to: ALL

Any technical issues affecting the EFB, or the viewable stowage device should be reported after the flight to the EFB Administrator.

3-1-4 EFB EVALUATION PROCEDURES

Applicable to: ALL

The following process shall be used for evaluating the EFB Procedures:

- Upon receiving the Program update of the FlySmart application by the provider, the EFB Administrator should not release it for use unless the program evaluation procedure is successfully performed;
- EFB Administrator should create Performance Take-off charts using PEP (Performance Engineering program by Airbus) for two airfields per A/C type, and every aircraft in the company fleet. If there is an identical aircraft fleet the above can be reduced to only one aircraft from the fleet. The EFB Administrator should use FlySmart for cross-checking the results from the EFB program with the paper charts generated from PEP. If they are

identical or the difference is below 5% the results will be considered as accepted. The EFB Administrator will take screenshots of the result generated by the electronic application and will save the take-off paper charts results for evidence. The results will be stored by the EFB Administrator in the company's SharePoint and will be kept for 12 months.

- The EFB Administrator should check the Landing Performance results of FlySmart against the paper charts for two airfields for each aircraft of the company fleet. If there is an identical aircraft fleet the above can be reduced to only one aircraft from the fleet. The EFB Administrator should cross-check and accept if they are identical or within a 5% difference. After acceptance, the EFB Administrator saves screenshots of FlySmart performance results and paper charts Landing performance calculations for evidence. The result will be published in the company's SharePoint and will be kept for 12 months.
- The EFB Administrator should prepare 2 manual load and trim sheets per aircraft variant from the AHM-565 for each aircraft of the company fleet. If there is an identical aircraft fleet the above can be reduced to only one aircraft from the fleet. Afterward, the EFB Administrator shall compare the manual loadsheet and trim sheet with the results generated from the FlySmart Weight and Balance application. If there are identical results or within a 5% difference, the results will be accepted and saved for evidence. The result will be published in the company's SharePoint and will be kept for 12 months.
- At the end of the procedures, the EFB Administrator will fill out the acceptance form for EFB evaluation which will be published and kept in the company's SharePoint and will be kept for 12 months.
- The EFB Administrator shall test Flysmart Loadsheet application for extreme aft and forward CG limits. If application reveals any exceedance of the CG envelope it shall warn the flight crew that the calculations are out of limits in a red colour.
- For the period of 6 months these checks shall be done on a selective basis from the EFB administrator. For any new aircraft joining Fly2sky fleet , EFB administrator shall perform the above mentioned tests.

3-1-5 ELECTRONIC SIGNATURES

Applicable to: ALL

Refer to: (AMC1 CAT.POL.MAB.105(c))

The EFB Applications may require a signature when issuing or accepting a document e.g. loadsheet, notification to captain (NOTOC). To be accepted as being equivalent to a handwritten signature, electronic signatures used in EFB applications need, as a minimum, to fulfil the same objectives and to assure the same degree of security as the handwritten or any

other form of signature that they are intended to replace. The relevant regulation provides the means to comply with the required handwritten signature or its equivalent for mass and balance documentation.

On a general basis, in the case of required signatures, Fly2Sky shall apply the next procedure for the use of electronic signatures:

- Their uniqueness: a signature should identify a specific individual and should be difficult to duplicate;
- Their significance: an individual using an electronic signature should take deliberate and recognisable action to affix their signature;
- Their scope: the scope of the information being affirmed with an electronic signature should be clear to the signatory and to the subsequent readers of the record, record entry, or document;
- Their security: the security of an individual's handwritten signature is maintained by ensuring that it is difficult for another individual to duplicate or alter it;
- Their non-repudiation: an electronic signature should prevent a signatory from denying that they affixed a signature to a specific record, record entry, or document; the more difficult it is to duplicate a signature, the likelier it is that the signature was created by the signatory; and
- Their traceability: an electronic signature should provide positive traceability to the individual who signed a record, record entry, or any other document.

An electronic signature should retain those qualities of a handwritten signature that guarantee its uniqueness. Systems using either a PIN or a password with limited validity (timewise) are appropriate in providing positive traceability to the individual who affixed it.

3-1-6 WORKLOAD MANAGEMENT AND HUMAN-MACHINE INTERFACE

Applicable to: ALL

The replacement of traditional paper information by electronic information is affecting the way users (crews) are accessing this information. All Fly2Sky-provided electronic documents are designed to offer easy-to-use keywording/search engines.

Data entry by the crew is made via a virtual keyboard. Robust Crew cross-checking is implemented to ensure the reliability and accuracy of the data used during operations. The use of applications is subject to specific Crew Training (both initial and recurrent training).

Brightness control is available for all applications via the quick-access iPadOS toolbar and certain in-app controls. Specific SOPs have been implemented for the use of the EFB applications. As a rule, apart from simple screen selection, both pilots shall not simultaneously use their EFBs during critical phases of flight.

Setup of navigation charts for the PF shall be done during low workload phases or the aircraft controls shall be transferred as per SOP if a new EFB setup/entry is required.

3-1-7 SUMMARY FOR EACH PHASE

Applicable to: ALL

It is the flight crew's responsibility to ensure sufficient backup battery charge level for all operational Tablets to support contingencies and any abnormal situations. Tablet devices can be operated in two modes as described in this manual, namely:

- Handheld tablet operation; and
- Mounted tablet operation.

EFB PREPARATION

During the preparation of the flight.

CM1		CM2	
iPad	ON or Wake	iPad	ON or Wake
Centrik	Verify DB or Update	Centrik	Verify DB or Update
FlySmart Manager	Verify DB or Update	FlySmart Manager	Verify DB or Update
Jeppesen FD Pro X	Verify DB or Update	Jeppesen FD Pro X	Verify DB or Update
EFBOne	Verify DB or Update	EFBOne	Verify DB or Update

LOADSHEET PREPARATION

This is performed if the crew is not presented with a loadsheet by the ground handling.

CM1		CM2	
Aircraft type	Set accordingly	Aircraft type	Set accordingly
Aircraft registration	Set accordingly	Aircraft registration	Set accordingly
Weight Variant	Check against the OFP	Weight Variant	Check against the OFP
Flight Number	Set the IATA flight number	Flight Number	Set the IATA flight number
To and From aerodromes	Set accordingly	To and From aerodromes	Set accordingly
Configuration	Set accordingly	Configuration	Set accordingly
Entry Mode	Set Reduced if LMC is performed	Entry Mode	Set Reduced if LMC is performed
Misc	Set accordingly	Misc	Set accordingly
Limiting Weights	Check against the OFP	Limiting Weights	Check against the OFP
Pax	Set according to the loading report	Pax	Set according to the loading report
Cargo	Set according to the loading report	Cargo	Set according to the loading report
FOB	Set accordingly	FOB	Set accordingly
Trip Fuel	Set accordingly	Trip Fuel	Set accordingly
Taxi Fuel	Set accordingly	Taxi Fuel	Set accordingly
Density	Set accordingly	Density	Set accordingly

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When results appear ..... Compare	When results appear ..... Compare
Loadsheet ..... Sign	Loadsheet ..... Sign
Results .... Extract as needed incl. to EFB One (PM)	Results .... Extract as needed incl. to EFB One (PM)

TAKE-OFF PERFORMANCE

When the take-off performance calculation is performed.

CM1	CM2
Aircraft type ..... Set accordingly	Aircraft type ..... Set accordingly
Aircraft registration ..... Set accordingly	Aircraft registration ..... Set accordingly
Weight Variant ..... Check against the OFP	Weight Variant ..... Check against the OFP
Flight Number ..... Set the IATA flight number	Flight Number ..... Set the IATA flight number
To and From aerodromes ..... Set accordingly	To and From aerodromes ..... Set accordingly
MEL/CDL items (if any) ..... Mark in OLB	MEL/CDL items (if any) ..... Mark in OLB
Runway and Intersection ..... Set and/or modify	Runway and Intersection ..... Set and/or modify
Wind ..... Set accordingly	Wind ..... Set accordingly
OAT ..... Set accordingly	OAT ..... Set accordingly
QNH ..... Set accordingly	QNH ..... Set accordingly
Runway Condition ..... Set accordingly	Runway Condition ..... Set accordingly
Anti-ice ..... Set accordingly	Anti-ice ..... Set accordingly
TOW ..... Set accordingly	TOW ..... Set accordingly
T.O. CG ..... Set accordingly	T.O. CG ..... Set accordingly
T.O. Thrust ..... Set accordingly	T.O. Thrust ..... Set accordingly
CLB Thrust ..... Verify CL	CLB Thrust ..... Verify CL
Configuration ..... Set accordingly	Configuration ..... Set accordingly
Air Conditioning ..... Set accordingly	Air Conditioning ..... Set accordingly
When results appear ..... Compare	When results appear ..... Compare
Results .... Extract as needed incl. to EFB One (PM)	Results .... Extract as needed incl. to EFB One (PM)

LANDING PERFORMANCE

When the landing performance calculation is performed.

CM1	CM2
Aircraft type ..... Set accordingly	Aircraft type ..... Set accordingly
Aircraft registration ..... Set accordingly	Aircraft registration ..... Set accordingly
Weight Variant ..... Check against the OFP	Weight Variant ..... Check against the OFP
Flight Number ..... Set the IATA flight number	Flight Number ..... Set the IATA flight number
To and From aerodromes ..... Set accordingly	To and From aerodromes ..... Set accordingly
MEL/CDL items (if any) ..... Mark in OLB	MEL/CDL items (if any) ..... Mark in OLB

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Runway and Intersection.....Set and/or modify	Runway and Intersection.....Set and/or modify
Wind..... Set accordingly	Wind..... Set accordingly
OAT ..... Set accordingly	OAT..... Set accordingly
QNH..... Set accordingly	QNH ..... Set accordingly
Runway Condition..... Set accordingly	Runway Condition ..... Set accordingly
Anti-ice..... Set accordingly	Anti-ice ..... Set accordingly
LW ..... Set accordingly	LW..... Set accordingly
LDG CG..... Set accordingly	LDG CG ..... Set accordingly
LDG Configuration ..... Set accordingly	LDG Configuration..... Set accordingly
Approach type..... Set accordingly	Approach type ..... Set accordingly
GA Gradient..... Set accordingly	GA Gradient ..... Set accordingly
VPilot .....Set if needed	VPilot..... Set if needed
LDG Technique..... Set accordingly	LDG Technique ..... Set accordingly
Brake Mode ..... Set accordingly	Brake Mode..... Set accordingly
Reverse ..... Set accordingly	Reverse..... Set accordingly
When results appear..... Compare	When results appear .....Compare
Results.... Extract as needed incl. to EFB One (PM)	Results .... Extract as needed incl. to EFB One (PM)

IN-FLIGHT PERFORMANCE

If in-flight performance calculation is performed.

CM1	CM2
Aircraft type..... Set accordingly	Aircraft type ..... Set accordingly
Aircraft registration..... Set accordingly	Aircraft registration ..... Set accordingly
Weight Variant .....Check against the OFP	Weight Variant.....Check against the OFP
Flight Number .....Set the IATA flight number	Flight Number.....Set the IATA flight number
To and From aerodromes ..... Set accordingly	To and From aerodromes..... Set accordingly
MEL/CDL items (if any)..... Mark in OLB	MEL/CDL items (if any) .....Mark in OLB
Flight Phase.....Choose as needed	Flight Phase .....Choose as needed
Calculations ..... Use as intended	Calculations.....Use as intended

JEPPESEN FD PRO X

Use the following guidance for using the system.

CM1	CM2
Application ..... Initialise	Application..... Initialise
Updates .....Verify and Update if needed	Updates..... Verify and Update if needed
Previous flight ..... Clear	Previous flight..... Clear
Flight Plan..... Import from EFBOne or insert	Flight Plan .....Import from EFBOne or insert
If using the highlight function.....Clear after the flight	If using the highlight function .... Clear after the flight

EFBONE

The complete guidance for using EFBOne is outlined in the OM-A. *Refer to: OM-A 8-1-10 OPERATIONAL FLIGHT PLAN*

CM1	CM2
Application ..... Initialise	Application..... Initialise
If the previous user is still logged in ..... Log out	If the previous user is still logged in.....Log out
Personal log-in credentials..... Insert	Personal log-in credentials .....Insert
All Flight Plans ..... Download	All Flight Plans.....Download
Current Flight Plan ..... Compare	Current Flight Plan .....Compare
When all flights closed and sent.....Log-out	When all flights closed and sent ..... Log-out

PARKING AND SECURING

Complete this if an immediate crew change follows.

CM1	CM2
iPad.....Keep on	iPad ..... Keep on
All previous data ..... Clear	All previous data..... Clear
Chart highlights..... Clear	Chart highlights ..... Clear
iPad Screen .....Clean	iPad Screen..... Clean
Charger.....Leave connected	Charger ..... Leave connected
When all flights closed and sent.....Log-out	When all flights closed and sent ..... Log-out

Complete this if leaving the aircraft to the technicians or sealing it.

CM1	CM2
All previous data ..... Clear	All previous data..... Clear
Chart highlights..... Clear	Chart highlights ..... Clear
iPad Screen .....Clean	iPad Screen..... Clean
When all flights closed and sent.....Log-out	When all flights closed and sent ..... Log-out
iPad..... Switch off and leave at the station	iPad ..... Switch off and leave at the station
Charger.....Leave connected	Charger ..... Leave connected
• **Only if taking the iPads away from the aircraft:**	• **Only if taking the iPads away from the aircraft:**
iPads.....Store in bag	iPads ..... Store in bag
Chargers.....Store in bag	Chargers ..... Store in bag

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3-2-1 INTRODUCTION

Applicable to: ALL

Occurrence Report in Centrik shall be filed at the first opportunity if a hardware or software failure is affecting the EFB functionality for normal operations. These can be but are not limited to iPad software/hardware or onboard EFB mounting.

If operations are not affected but the device is not working as intended, the EFB Administrator should be notified by Occurrence Report in Centrik. For EFB Non-Normal procedures refer to this manual. Procedures are also duplicated below for reference.

The EFB used by Fly2Sky is an iPad-based unit that is carried onboard by the crew and used as outlined in this manual. The unit is used in place of paper manuals, charts, and performance tables. A spare (charged and updated by crew) iPad is loaded onboard and stowed in the Flight Bag with a charging unit to cover failures of the pilots' iPad.

If there is a failure of a pilot's iPad or there is any doubt about its usability, the spare iPad should be used. Failures of the EFB, personal or aircraft spare, shall be reported via Occurrence Report in Centrik.

3-2-2 GENERAL EFB FAULTS

Applicable to: ALL

If any kind of fault occurs on the EFB iPad or its charging unit, try a power-down and power-up cycle. If the EFB unit cannot be recovered, use the onboard spare unit(s) but do not remove them from the aircraft. Report the failure via Occurrence Report in Centrik.

If the iPad freezes or does not respond:

- Restart the iPad by pressing and holding the power button for at least 10 seconds or until you see the Apple logo;
- Ensure that all apps, other than the ones that you are using, are closed;
- If there is a general iPad failure, then use the spare iPad and report the failure in Centrik;
- If only one iPad is operative.

ENROUTE

The operative iPad should be shared to ensure that the correct information is available to both crew members. Outside the home base: the aircraft may be dispatched provided that paper terminal charts of the departure, destination, and alternate airports are sent to the crew, and the operative iPad should be shared when necessary.

IN THE HOME BASE

The inoperative iPads will be replaced.

CAUTION	If an iPad is shared, the use of the autopilot is mandatory.

3-2-3 CONTINGENCY PROCEDURES

Applicable to: ALL

Minor EFB failure conditions (hardware and/or software), including failures of the mounting device, may affect EFB operations. Contingency procedures have been developed. Refer also to the EFB Contingency procedure for different cases.

3-2-4 EFB DEVICE FAILURES

Applicable to: ALL

IN-FLIGHT FAILURES AFFECTING THE MOUNT

If the viewable stowage is no longer usable, the EFB shall be stowed for critical phases of flight. However, this does not preclude a flight crew from using a portable EFB during restricted portions of the critical phases of flight to complete a task related to the safety of the flight on the condition that the device is continuously handheld and used only for a brief period of time. When the task is completed, the device should be stowed again.

IN-FLIGHT FAILURES AFFECTING THE ELECTRICAL POWER SUPPLY

The EFB can be used on battery power. The Flight Crew should manage EFB battery endurance so that the EFB is available for the descent, approach, and taxi-in phases. Components connected to the power supply have individual circuit protection which, in the event of a component failure protects the bus from overload and thus protects the remaining components. A bus failure is more typically the result of a failure of the power source supplying the bus and not the failure of the bus itself.

In the event of battery power failure, the Commander shall initiate the use of a second power supply by PF. The second iPad shall be stowed and used as a handheld operation limitation. Circuit breakers exist to protect the system from overload in the event of a component failure and to prevent a potential fire from developing in the component itself by interrupting the electrical supply. In the event a circuit breaker "pops" in flight, the crew should comply with manufacturer and company policy when deciding whether or not the CB should be reset.

In the event of smoke, fumes, or fire from a suspected electrical source, eQRH procedures should be applied immediately while concurrently initiating an immediate diversion. If the faulty component cannot be readily identified, the electrical isolation procedure should be followed. Smoke and fume elimination procedures may become a necessity, then land ASAP.

3-2-5 EFB APPLICATION FAILURES

Applicable to: ALL

INFLIGHT FAILURES AFFECTING AVAILABILITY TO CONSULT OPS MANUALS

On-board documents and checklists, as well as the availability of the third iPad, are sufficient to continue the flight.

INFLIGHT FAILURES AFFECTING AVAILABILITY TO COMPUTE PERFORMANCE

The third iPad is sufficient to continue the flight.

INFLIGHT FAILURES AFFECTING AVAILABILITY TO CONSULT NAVIGATION CHARTS

The FMGS Navigation database is usually sufficient to continue the flight as planned. In case of unavailability of the navigation charts for approach and landing, the following shall be considered:

- The phase of flight where the failure occurred.
- Prevailing weather conditions.
- Complexity of the arrival/approach intended.
- Familiarity of the Crew with the destination airport.
- Availability of other means to access navigation chart information (Crew PED, ATC provided information such as minima or runway length, etc).
- Flight Crews shall take the best course of action which may result in a diversion to a more suitable aerodrome.

3-2-6 CONTINGENCY PROCEDURES

Applicable to: ALL

TABLET SYNCHRONISATION FAILURE

Switch OFF the iPad device completely (do NOT just restart), wait 2 minutes then start again and perform the synchronisation.

CENTRIK SYNCHRONISATION FAILURE

When Centrik is not current, use data from current (updated) sources such as:

- A different (updated) source on the same device such as FS+ OLB;
- Another iPad on which the synchronisation was successful;
- OCC (hard copy of documents or emailed documents)
- ATC, ATIS, or NOTAMs.

JEPPESEN FD PRO X UPDATE FAILURE

In case of Jeppesen FD Pro X update failure, the database may still be correct. The following should be checked before operational use:

- Jeppesen Data Status: The active database should be valid until the end of the flight;
- Use another tablet with the updated database;
- Contact OCC to compare the database;
- Crosscheck the chart data with the actual FMGC database;
- Re-brief, if needed.

FLYSMART UPDATE FAILURE

FlySmart must be crosschecked with data from a current source before application. In case of discrepancy in the results of independent calculations, a third (current) data source must be used. The acceptable current data sources are:

- Use another tablet with an updated database;
- Contact OCC to send the performance.

3-2-7 POWER SOURCE ABNORMALITIES

Applicable to: ALL

BATTERY LOW LEVEL

Battery level is considered to be low before dispatch, when:

- The indicated level of battery charge is below the minimum charge level required for dispatch *Refer to: EFBM 0-2-4 ELECTRICAL POWER SOURCE (EPS) LIMITATIONS*
- Charge the battery to reach the minimum dispatch limit when the battery reaches the minimum dispatch limit at least on one iPad and the other iPad device is being charged, continue normal operations.

Battery level is considered to be low after dispatch (on the ground or in the air), when:

- The indicated level of battery charge is below the minimum charge level required for dispatch *Refer to: EFBM 0-2-4 ELECTRICAL POWER SOURCE (EPS) LIMITATIONS*;
- If charging is possible, connect any available iPad charger and cable if a charger is already connected, check if the battery is being charged, and if not, refer to this manual for alternate battery charging from one EPS outlet;
- If charging is NOT possible for any of the iPad batteries:
  - When the indicated level of battery charge goes below 30%, *Refer to: EFBM 3-2-7 POWER SOURCE ABNORMALITIES*
  - When the indicated level of battery charge goes below 20%, *Refer to: EFBM 3-2-7 POWER SOURCE ABNORMALITIES*

BATTERY ABNORMAL TEMPERATURE

Apply the following in this order:

- Switch OFF the affected iPad device;
- Unplug the iPad charger and cable from the EPS Outlet;
- Refer to this subsection of the manual;
- Reconnect the iPad charger and cable and use a continuous power supply for the iPad device for the remainder of the flight;
- Periodically check the Power source contact; and
- Report to the OCC.

BATTERY FAILURE OR UNSATISFACTORY PERFORMANCE

When the battery is inoperative:

- Report to the OCC
- Check Power source

FLIGHT PREPARATION/LIMITATIONS

As Aircraft charging is available, one EFB can be charged to at least 40% before the flight. The two EFBs must be charged to at least 80% before the flight if no charging on the aircraft is available.

Two chargers inoperative for the flight are in acceptable condition if the batteries are charged for the planned duration and no previous pilot report is present that the batteries on the onboard EFBs deplete very quickly (unless the battery of the computer in question is replaced).

LITHIUM BATTERY RELATED PROCEDURE

Immediate actions as per eQRH. Refer to: eQRH ABN-SMOKE-Smoke/Fire from Lithium Battery

LITHIUM BATTERY SAFE STORAGE

Immediately discontinue the use of the battery if, while using, charging, or storing the battery, the battery emits an unusual smell, feels hot, changes colour, changes shape, or appears abnormal in any other way.

LITHIUM BATTERY LEAK

If the battery leaks and the fluid gets into one's eye, do not rub the eye. Rinse well with water and immediately seek medical care. If left untreated the battery fluid could cause damage to the eye.

TABLET DEVICE ON BATTERY ONLY

When a device is powered by battery only, save battery life by:

- Minimising iPad device usage;

- Using only one device at a time, if possible;
- Switching the iPad OFF or to STBY mode (as appropriate), when not being used;
- Dimming display as much as practical, when using the device.

As soon as the indicated level of battery charge goes below the minimum charge level required for dispatch:

- If the iPad charger and cable are available, connect it;
- If the iPad charger and cable are not available, consult this section.

If charging is NOT possible for any of the iPad batteries:

- When the indicated level of battery charge goes below 30%

  − Switch OFF all devices to save the remaining battery life;
  − Store the iPad devices in a warmer place;
  − Use one iPad only at a time with a dimmed display, when information is needed.

BATTERY LEVEL BELOW 20% - NO CHARGING

If charging is NOT possible for any of the iPad batteries when the indicated level of battery charge goes below 20% on at least one device:

- Copy all information to the OFP, which is relevant for the rest of the flight;
- Switch off completely the device having the larger battery capacity until the descent/approach preparation to keep the charged level;
- Minimise the brightness and the application usage on the device having lower battery capacity;
- Contingency information sources.

BATTERY LEVEL BELOW 2% - NO CHARGING

Consider the device inoperative. Refer to this section of the manual.

ALTERNATE BATTERY CHARGING FROM ONE POWER OUTLET

If the charger is already connected to the EPS Outlet, but the battery fails to charge:

- Use the off-side EPS Outlet to charge the device by swapping the devices. Monitor continuously the devices' battery level;
- If required, swap the devices for the critical phases of the flight;
- When the level reaches the minimum charge level required for dispatch, resume normal operation.

3-3-1 PORTABLE ELECTRONIC DEVICE (PED) FIRE EQUIPMENT

Applicable to: ALL

Lithium batteries are used to power Portable Electronic Devices (PEDs) used by Fly2Sky crewmembers, such as laptop computers, cameras, EFBs, mobile phones, etc. These types of batteries are capable of overheating and thermal runaway. The result can be multiple releases of flammable electrolytes, smoke, and flames.

CAUTION	If a PED is dropped, do not move a seat to locate it. If the seat hits the PED, it could damage the battery and cause a fire.

As with any smoke, fire, or fumes situation, the use of Protective Breathing Equipment (PBE) or flight deck oxygen masks, may be appropriate. Fighting a fire that contains lithium battery cells requires crews to do the following:

- Remove or switch off the power supply from the device if able. Extinguish the fire with any fire available extinguisher (halon or water.);
- Cool the device with a water extinguisher or any available non-flammable liquid to prevent reignition; and
- After the device has cooled, it should be isolated and continue to be cooled with water in the provided lavatory container per the instructions in the CCOM.

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3-4-1 MAINTENANCE PROCEDURES

Applicable to: ALL

The EFB Administrator is responsible for the maintenance and control of the EFBs. This includes the responsibility of the EFB Administrator to respond to any occurrence report related to EFB devices, applications, or reliability of data provided by iPad as well as the routine maintenance of the EFB system.

Detailed information on how to cope with unserviceability and failures is described in this manual. The EFB Administrator is responsible for the integrity of the EFB system and its backup. The secure handling of updated information and the validation and promulgation promptly in a complete format to all users is under the oversight of the EFB Administrator and monitoring of the Compliance Monitoring Manager, as part of audits and inspections.

Fly2Sky shall ensure that the EFB system batteries are periodically checked and replaced as required, subject to ongoing checks by Flight Crew, occurrence reports regarding the status of battery checks, and in-time replacement under the control of the EFB Administrator.

Should faults or failures of the system arise, it is essential that such failures are brought to the immediate attention of the Flight Crew and that the system is isolated or backed up until rectification action is taken. In addition, to backup procedures in dealing with system failures, a reporting system established by Fly2Sky is in place so that the necessary corrective action, either to the EFB system, is taken to prevent the use of erroneous information by Flight Crew members.

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EFB SECURITY POLICY

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4-1 GENERAL

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Localization Title	Toc Index	ID	Reason

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4-1-1 SECURITY POLICY

Applicable to: ALL

Each Fly2Sky EFB is allocated to an aircraft. They are numbered and controlled. EFB use is completely secured by the EFB Administrator and prevents access to the Operating System settings.

Users are not allowed to modify any content (document/settings/databases). The EFB updating process is completely secured and automated. It does not allow the person in charge of the update to modify any content and settings. Only the EFB Administrator can modify the iPadOS settings and update the information contained in the EFB via a dedicated password-protected Admin profile. The process ensures the reliability of EFB data and guarantees the data is not corrupted.

4-1-2 CYBERSECURITY RISK MANAGEMENT

Applicable to: ALL

The critical information for Fly2Sky systems and data used in operations and maintenance functions shall be considered, as follows:

- Flight planning/dispatch systems and data used to support it;
- Load control systems and data;
- Aircraft performance calculation systems and data;
- Reservation/DCS systems;
- Baggage reconciliation systems;
- EFB (Electronic Flight Bag);
- Aircraft maintenance systems/MCS;
- Training and scheduling/rostering systems;
- Communication systems/ACARS; and
- Navigation systems.

Fly2Sky identifies the critical information and communications technology systems and data used in operations and maintenance following risk management principles, and appropriate measures developed and implemented to protect them from unlawful interference.

This risk management process includes the following steps:

- Define how to identify the risks that could cause the loss of confidentiality, integrity, and/or
- availability of your critical information and/or data;
- Define how to identify the risk owners for each risk;
- Define criteria for assessing consequences and assessing the likelihood of the occurrence;
- Define how the risk will be calculated;
- Define criteria for accepting risks;
- Risk owners accept the residual risks and approve the risk treatment plan.

The identification and categorization of critical information and communications technology systems and data would be based on an impact analysis. Once this step is completed, each identified asset would go through the evaluation of threats against it, the development of security requirements, and the selection of security controls that will protect it.

The selection of security controls, which support technical, operational, and management security performance requirements and are within the confidentiality, integrity, and availability (CIA) context, would ideally follow relevant guidance where available.

After implementation of the selected security controls, the operator would continue to assess cyber threats relative to the identified assets, determine any residual risks to aircraft operations, and determine the need for additional mitigating actions to supplement or replace existing security controls.