

FLT



RIYADH AIR
طيران الرياض

OMF - ELECTRONIC FLIGHT BAG

Department

FLIGHT OPERATIONS

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Note: The vertical bar (change bar) in the margin indicates a change, addition, or deletion in the adjacent text for the current revision of that page only.

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0.9	MANAGEMENT APPROVAL

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0.9 MANAGEMENT APPROVAL

Manual Number:	RXI/OPS-FLT-M05
Title:	OMF - ELECTRONIC FLIGHT BAG
Issue:	00
Revision:	00

Recommended by:		Date:	
Title:			
Signature:			

Quality Review by:		Date:	
Title:			
Signature:			

Approved by:		Date:	
Title:			
Signature:			

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0.10 GACA APPROVAL / ACCEPTANCE

This manual is a controlled document, prepared to meet the requirements of the General Authority of Civil Aviation Regulations (GACAR) and is herewith accepted/approved by the General Authority of Civil Aviation (GACA) exclusively for the use of Riyadh Air.

If any conflict exists between the contents of this manual and GACA requirements, GACA requirements shall take precedence, and the manual will be revised without delay in accordance with GACA [eBook Vol.4 Ch.12, section 4](#).

All contents of this manual are current, as listed in the List of Effective Pages (LEP) Revision 0. 18 Feb 2024.

This manual becomes 'uncontrolled' when printed.

Name:		Date:	
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0.11 INTRODUCTION

0.11.1 Policy

The Electronic Flight Manual (EFB) contains specific policy, guidance, procedures, and information needed for the operation of EFB by Riyadh Air personnel. It is issued in accordance with the requirements of GACAR and FAA Advisory Circulars. GACA authorization for an EFB program is granted through the issuance of OpSpec A61.

This Operations Manual Part F (Electronic Flight Bag) is accepted by the General Authority of Civil Aviation (GACA) and it is compliant with all relevant GACA regulations, FAA Advisory Circular and applicable international standards. It is the method by which Riyadh Air undertakes all operations.

This Operations Manual Part F (Electronic Flight Bag) contains procedures, instructions, and guidance for operational personnel to execute their duties. It serves as a crucial guide for all employees to ensure that the planning and execution of every flight is conducted in accordance with the highest levels of safety, efficiency, and effectiveness.

0.11.2 Applicability

The Operations Manual Part A (OM Part A), along with its subparts (OM Part B – G), serves as an essential guide for all operational personnel in our organization, and it is incumbent upon every employee, regardless of their role, to adhere to the policies, procedures, regulations, guidance, and instructions detailed within Riyadh Air's operational manuals.

0.11.3 Common Language

IOSA FLT 3.1.1

English shall be the language used for all operational communications at Riyadh Air. This is to help eliminate misunderstandings and ensure clear and standardized interactions between all employees. Riyadh Air's decision to implement English as a language protocol is a strategic one aimed at promoting safety and consistency within its operational framework.

English shall be exclusively used during all:

1. Intra-flight crew communications on the flight deck.
2. Flight crew and cabin crew communications during line operations.
3. Briefings and communications with operational personnel.
4. Flight and cabin crew training and evaluation sessions .
5. Operational manuals, guidelines and communications between Riyadh Air and its employees.

For general Common Language please refer to Corporate Policy Manual, Section 0.11.1.

0.11.4 Usage of Terms

Operations Manual Part A applies to both male and female crew members, operations personnel, passengers and other persons, for simplification a gender-neutral text is used in this manual. Throughout this manual, specific terms (e.g., shall, should, may etc.) are used to provide precise instructions and expectations within the context of Riyadh Air's operations. These terms serve distinct purposes and outline the level of obligation or permission associated with each action. It is crucial that all operational personnel understand the nuances of these terms.

For general Use of Terms please refer to Corporate Policy Manual Section 0.11.2.

0.11.5 Human Factor Principles

GACAR § 121.139 / GACAR § 121.533 / IOSA FLT 1.7.4

For Human Factor Principles applicable to FLT OPS refer to OM-A, Section 0.11.4.

For general Human Factor Principles refer to Corporate Policy Manual, Section 0.11.5.

0.11.6 APPLICABLE REGULATIONS AND STANDARDS

Refer to OM-A, Section 0.11.5.

0.12 ABBREVIATIONS, ACRONYMS AND DEFINITIONS

0.12.1 ABBREVIATIONS AND ACRONYMS

This manual contains a list of abbreviations and acronyms for easy reference. The Table below explains frequently used abbreviations and acronyms, while less common ones are defined in the relevant sections where they are used.

AAC	Aircraft Administrative Communications
ADS-B	Automatic Dependent Surveillance-Broadcast
AMC	Airworthiness Management Certificate
AMMD	Airport Moving Map Display
AOC	Air Operator Certificate
APP	Application
ARINC	Aeronautical Radio, Incorporated
ATIS	Automatic Terminal Information Service
CA	Captain
C-PED	Controlled Portable Electronic Device
D-ATIS	Digital Automatic Terminal Information Service
DMS	Document Management System
EASA	European Union Aviation Safety Agency
EFB	Electronic Flight Bag
EMS	Event Measurement System
FAA	Federal Aviation Administration
FMC	Flight Management Computer
FO	First Officer
GACA	General Authority of Civil Aviation
GPS	Global Positioning System
GSM	Global System for Mobile Communications
HMI	Human-Machine Interface

HTML	Hypertext Markup Language
I/O	Input/Output
IATA	International Air transport Association
iOS	Apple's mobile operating system
IOSA	IATA Operational Safety Audit
MDM	Mobile Device Management
NOTAM	Notice to Airmen
OEM	Original Equipment Manufacturer
OS	Operating System
PDF	Portable Document Format
PED	Portable Electronic Device
SCL	Secure Content Locker
SOP	Standard Operating Procedure
SSID	Service Set Identifier
T-PED	Intentionally Transmitting Portable Electronic Device

0.12.2 DEFINITIONS

GACAR PART 1 – Definitions, Abbreviations and Editorial Conventions, contains a full list of aviation definition. For ease of reference the following GACAR and Company definitions commonly used throughout this manual are noted below:

Aircraft	AAC data link receive/transmit information that includes, but is not limited to, the support of applications identified in Appendices A and B of this AMC.
Administrative Communications	Administrative Communications (AAC) are defined by ICAO as communications used by aeronautical operating agencies related to the business aspects of operating their flights and transport services. The airlines use the term Airline Operational Communication (AOC) for this type of communication.
Airport Moving Map Display	A software application displaying airport maps and using a navigation source to depict the aircraft's current position on this map while on ground.
Consumer Device	Electronic equipment primarily intended for non-aeronautical use.

Controlled Portable Electronic Device (C-PED)	A controlled PED is a PED subject to administrative control by Riyadh Air. This will include, inter alia, tracking the allocation of the devices to specific aircraft or persons and ensuring that no unauthorized changes are made to the hardware, software, or databases.
Data connectivity for EFB systems	Data connectivity for EFB system supports either uni or bi-directional data communication between the EFB and other aircraft systems (e.g., avionics). Direct interconnectivity between EFBs or direct connectivity between EFBs and ground systems as with T-PED (e.g., GSM, Bluetooth) are not covered by this definition.
Electronic Flight Bag (EFB)	An information system for flight deck crew members which allows storing, updating, delivering, displaying, and/or computing digital data to support flight operations or duties.
EFB administrator	An EFB administrator is a person appointed by Riyadh Air, who is held responsible for the administration of the EFB system within the company. The EFB administrator is the primary link between Riyadh Air and the EFB system and software suppliers.
EFB host platform	When considering an EFB system, the EFB host platform is the equipment (i.e., hardware) in which the computing capabilities and basic software (e.g., operating system, input/output software) reside.
EFB risk assessment and mitigation	A process that considers an EFB system, its software applications, and its integration inside a specific aircraft, to identify the potential malfunctions and failure scenarios, analyze their operational repercussions, and, if necessary, propose mitigation means.
EFB software application	Software installed on an EFB system that allows specific operational functionality.
EFB system	An EFB system comprises the hardware (including any battery, connectivity provision, I/O devices) and software (including databases) needed to support the intended EFB function(s).
EFB system supplier	The company responsible for developing, or for having developed, the EFB system or part of it. The EFB system supplier is not necessarily a host platform or aircraft manufacturer.
Minor failure conditions	Failure conditions which would not significantly reduce airplane safety, and which involve crew actions that are well within their capabilities. Minor failure conditions may include, for example, a slight reduction in safety margins or

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functional capabilities, a slight increase in crew workload, such as routine flight plan changes, or some physical discomfort to passengers or cabin crew. Further guidance can be found in AMC 25.1309.

Mounting device A mounting device is an aircraft certified part which secures portable or installed EFB, or EFB system components.

No safety effect Failure conditions that would have no effect on safety: for example, failure conditions that would not affect the operational capability of the airplane or increase crew workload.

Portable Electronic Device (PED) PEDs are typically consumer electronic devices, which have functional capability for communications, entertainment, data processing, and/or utility. There are two basic categories of PEDs – those with and those without intentional transmitting capability;

Software application developer The company responsible for developing, or for having developed a particular software application.

Transmitting PED PEDs that have intended radio frequency (RF) transmission capabilities.

Type A Application EFB applications whose malfunction or misuse have no safety effect.

Type B Application Are applications:
(a) Whose malfunction or misuse are limited to a minor failure condition; and
(b) Which do neither substitute nor duplicate any system or functionality required by airworthiness regulations, airspace requirements, or operational rules³.

Viewable stowage A device that is secured on the flight crew (e.g., kneeboard) or in/to an existing aircraft part (e.g., suction cups) with the intended function to hold charts or to hold acceptable light mass portable devices (for example an EFB of no more than 1 Kg) viewable to the pilot at her/his required duty station. The device is not necessarily part of the certified aircraft configuration.

0.13 SYSTEM OF AMENDMENT AND REVISION

0.13.1 Manual Ownership

The Vice President Flight Operations (VPFO) is responsible for overseeing OM Part F and serves as the Manual Owner. All revisions to the manual undergo a structured approval process. Technical publications personnel are responsible for generating amendments, which are then reviewed by the Technical Pilot before being forwarded to the Director of Flight Operations for their approval.

The VPFO has the final authority to approve amendments to OM Part F. This emphasizes the manual owner's significance in ensuring document accuracy and compliance. Any amendments that require GACA approval or acceptance are submitted for review before they are published.

To ensure efficient dissemination of information, all approved amendments are shared electronically with manual holders. This aligns with Riyadh Air's commitment to transparent and accessible communication of operational updates.

This systematic approach reflects Riyadh Air's dedication to upholding rigorous standards in operational documentation.

0.13.2 Manual Owner Responsibility

No personnel within our operational framework may perform their duties without access to a current copy of the relevant and applicable operational manuals. This policy highlights the importance of real-time information in creating a safe and efficient operational environment. Regular manual updates not only help conform to regulations but also enhance the overall effectiveness of our personnel in carrying out their responsibilities with precision and in accordance with industry best practices.

Note: Uncontrolled copies of the Operations Manual shall not be used for the conduct of flight operations.

0.13.3 Distribution List and Availability

GACAR § 121.151 / § 121.155

Refer to OM-A, Section 0.13.3.

0.13.4 Publication Hierarchy

IOSA ORG 2.5.3

Riyadh Air has a well-defined publications and documentation hierarchy that includes Policy Manuals and Operating Procedures specific to its operations. In the context of Riyadh Air's flight operational documentation, a clear hierarchy is established to streamline access and ensure consistency across various manuals and notices. This hierarchy is designed to provide a structured approach to information dissemination and reference. The following outlines Riyadh Air's hierarchy of documentation:

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Hierarchy Level	Document Type	Description
1	Operations Manual Notice (OMN)	Principal source for immediate updates to Operations Manuals or critical information overriding current policy. Dictates operational changes and urgent directives. Valid until expiry or updates are incorporated into the operations manual.
2	Operations Manual A (OM A)	Primary policy document for flight operations. Provides detailed policy, procedures, guidelines, and standards for day-to-day operations.
3	Operations Manuals B to G (OMs B - G)	Manuals offering specific policy information on various operational aspects, supplementing OM A. Each focus on different areas of operations.
4	Training Process and Procedures Documents	Comprehensive resource for Riyadh Air's training programs, covering theoretical knowledge, practical skills, and training standards.
5	Crew Notice (CN)	Targeted communications for flight and cabin crew, including Operational, Administrative, Technical, and Training Notices.
6	Email	Used for routine communication and updates, ensuring timely delivery of information to personnel.
7	Newsletter	Periodically issued to provide an overview of organizational news, updates, and general information. Keeps operational teams informed about broader company developments.

Table 1 Publication Hierarchy and Structure

- Operations Manual Notice (OMN):** This document is the principal source for immediate updates to Operational Manuals (OM A-G) or for conveying critical information that overrides current policy, procedure(s) and protocols. As the most authoritative guide, it dictates operational changes and urgent directives. The validity of an Operations Manual Notice (OMN) extends until its expiry date, or the corresponding section of the operations manual is revised to include these updates. This process ensures that all operational practices are up to date, adhering to the most recent guidelines and requirements, thereby maintaining consistency and compliance across all operational activities.
- Operations Manual A (OM A):** OM A is a primary policy document for flight operations, encompassing Riyadh Air's flight operations protocols. It serves as a comprehensive reference, offering detailed policy, procedures, guidelines and standards that govern day-to-day operations.
- Operations Manuals B to G (OMs B - G):** These manuals offer specific policy information on various operational aspects, supplementing the policies set out in OM A. Each manual (B through G) focuses on a different area of Riyadh Air's operations, providing depth and detail in each specialized area.

4. **Training Process and Procedures Document:** These manuals act as a comprehensive resource for Riyadh Air's training programs. They cover theoretical knowledge, practical skills, and provide a reference for training standards and expectations.
5. **Crew Notice (CN):** Crew Notices are targeted communications for flight and cabin crew. Crew Notices provide flight and cabin crews with temporary information across various domains. These notices are systematically categorized to enhance understanding and accessibility as follows: They include:
 - a. Operational Notices
 - b. Administrative Notices
 - c. Technical Notices
 - d. Training Notices

Refer to Chapter 2.2 Distribution of Supplementary Operational Information for further information on the content of these notices
6. **Email:** For routine communication and updates, email is employed as an efficient and direct channel for disseminating information promptly to all relevant personnel. This method ensures timely delivery of important updates and maintains continuous communication within the organization.
7. **Newsletter:** The newsletter, issued periodically, provides a comprehensive overview of organizational news, updates, and general information that is relevant and potentially of interest to the staff. This publication serves as a valuable tool for keeping the respective operational teams informed about broader company developments and insights.

The above hierarchy ensures that all operational documentation, from the most urgent notices to general updates, are organized in a logical and accessible manner. This structure aims to simplify information retrieval and promote consistency across all documentation. All flights must be planned and conducted in strict adherence to this established hierarchy.

0.13.5 Manual Structure

Refer to OM-A, Section 0.13.5

0.13.6 Source of Amendments

Refer to Corporate Policy Manual, Section 0.13.6.

0.13.7 Referenced and Linked Documents

Refer to OM-A, Section 0.13.7

0.13.8 Format and Documentation Control Requirements

IOSA ORG 2.5.1 / ORG 2.5.3

Riyadh Air receives controlled documentation from external sources, such as regulatory documentation from GACA and operational manuals such as AFM, FCOM, FCTM, QRH from Boeing and many other relevant documents containing material that pertains to the safety of operations which may affect the content of this manual.

For general Format and Documentation Control Requirements refer to Corporate Policy Manual, Section 0.13.8.

0.13.9 Error Reporting and Corrections and Suggestions For Improvement

All personnel are responsible for maintaining the accuracy and integrity of Riyadh Air's operations. If an employee comes across an error, notices any incorrect information in this manual or has a suggestion, they should report it to the Director Flight Crew. They will acknowledge receipt of the information and provide feedback to the concerned employee on their suggestion, the action taken to fix the error or update the information.

1 EFB MANAGEMENT PHILOSOPHY

1.1 INTRODUCTION

The Electronic Flight Bag (EFB) serves as an advanced electronic information management tool designed to streamline and enhance flight management processes for flight crews, aiming to minimize reliance on traditional paper-based materials. This sophisticated, multi-functional computing platform is strategically engineered to efficiently replace conventional flight navigation materials, flight-crew operating manuals, and navigational charts, inclusive of dynamic, real-time maps for both air and ground operations.

The EFB platform integrates purpose-built software applications tailored to automate and optimize manual tasks, notably including performance calculations. This manual serves as a comprehensive guide detailing the utilization of EFB hardware and software in compliance with relevant regulations, laws, and the exacting standards set forth by Riyadh Air (RXI) for aircraft equipped with EFB units.

It's important to note that the EFB Manual doesn't delve into specific technical operational instructions. Rather, it stands as a concise document aimed at formalizing the management of EFB operations, aligning with applicable regulations and Riyadh Air standards.

The Electronic Flight Bag system described in this manual is designed for the fleet operated by Riyadh Air. The EFB system will be utilized only as a paper replacement device. Company Manuals and other relevant document as described in Section 1.4 of this Manual will be hosted on the EFB device which will be administered and supervised by an EFB Administrator

1.2 ORGANIZATION AND RESPONSIBILITIES

1.2.1 ORGANIZATION CHART

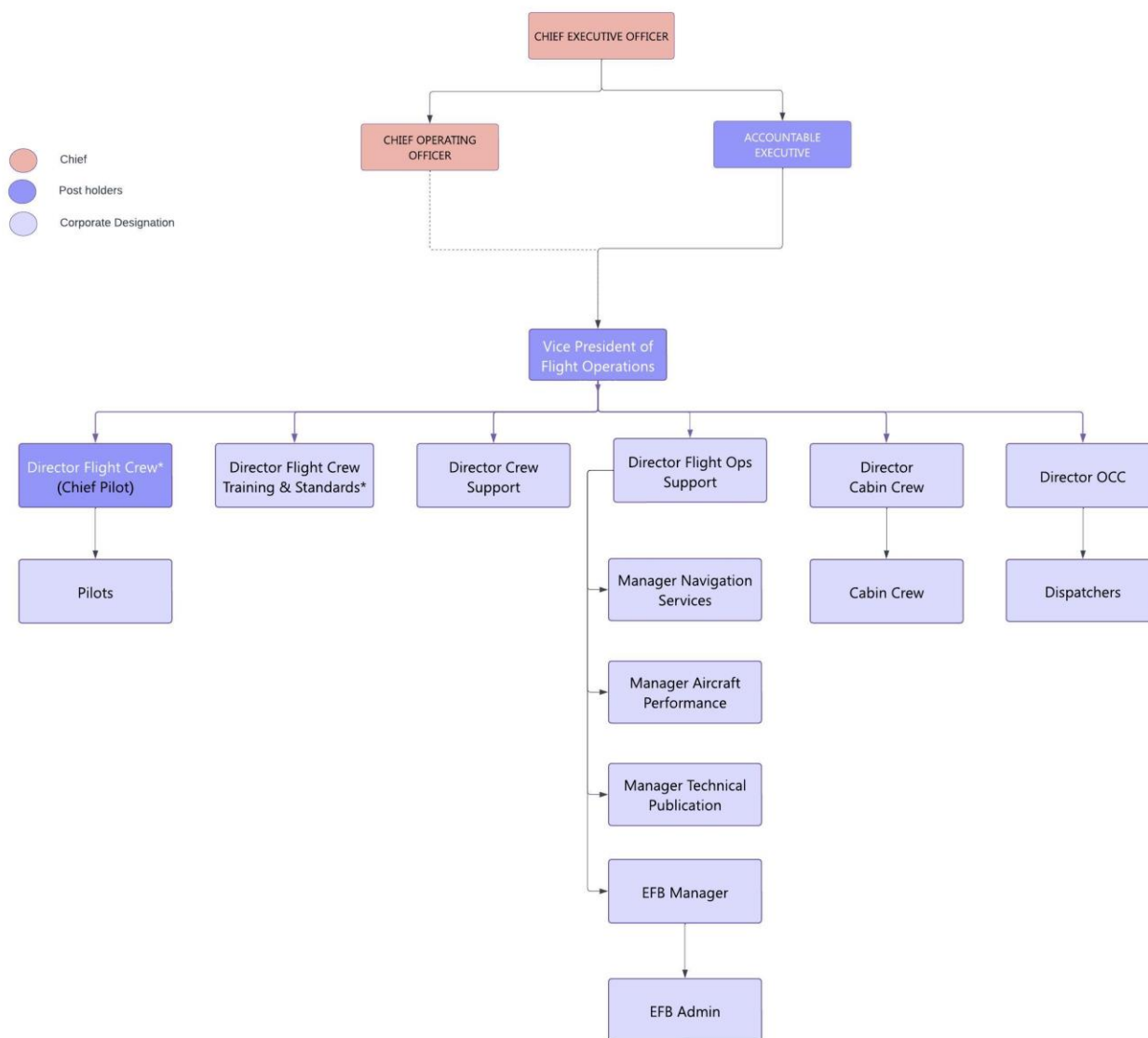


Figure 1 Flight Operations Org Chart

1.2.2 VICE PRESIDENT FLIGHT OPERATIONS

Refer to OM A 1.3.2

1	EFB MANAGEMENT PHILOSOPHY
1.2	ORGANIZATION AND RESPONSIBILITIES

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1.2.3 Director Flight Operations Support

Strategic:

1. Providing strategic directions on the definition of Flight Operational Support policies, objectives and requirements to achieve safe and efficient operation in compliance with applicable regulations and Riyadh Air requirements.
2. Provisioning and strategic development of the framework for, aircraft performance engineering, operational planning and optimization and aircraft information systems.

Safety:

1. Providing Flight Safety technical follow-up on performance and flight ops engineering issues, and the provision of 24-hour flight operations support.
2. Conducting of risk assessments of new and ongoing operations as appropriate including new destinations, systems, and equipment to support Executive decision.
3. Managing audit findings related to FOS activities and implement mitigating strategies to prevent the reoccurrence.

Financial:

1. Managing the FOS's budget, aligning financial resources with operational requirements and Riyadh Air's financial objectives.
2. Evaluating the financial implications of operational decisions, optimizing cost-efficiency in FOS activities.

Operational:

1. Leading a specialized team and ensuring that they are adequately trained and qualified to perform their assigned duties.
2. Ensuring that every flight is conducted in accordance with the provisions of the operations manual, the Ops. Specs and internal standards.
3. Amending and developing (content) of the Operations Manual Part B and C and EFB manual.
4. Developing and implementing Riyadh Air's Fuel Efficiency Strategies and the ensuring of the effectiveness of the implemented fuel efficiency initiatives.
5. Designing future EFB strategies that drive efficiency and cost improvements while enhancing safety and compliance.
6. Coordinating with OEM / Service provider; and secure representation at relevant Regulatory and International forums to ensure that Riyadh Air's operational requirements are considered.
7. Overseeing, tracking and reporting on flight ops operational projects relating to new destinations, systems and equipment.

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- 1.2 ORGANIZATION AND RESPONSIBILITIES

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- 8. Ensuring objectives and safety performance indicators (SPIs) set for the department are met with continual improvement in flight safety.

1.2.4 EFB Manager

1. Manage the EFB functions in both Aircraft and Ground based systems.
2. Manage lifecycle of EFB applications from development to release including testing protocols, version upgrades, deployment strategy and communications plans.
3. Manage all applications installed, provide support to the EFB users on these applications.
4. Monitor and manage potential security and integrity issues associated with EFB and applications installed.
5. Management of hardware and software configurations and ensure that no unauthorized software is installed.
6. Ensure the integrity of the data packages used by the applications installed.
7. Manage technical and performance issues for both hardware and software aspects.
8. Assess and review the overall EFB program regularly and provide feedback to senior management for possible risks and formulate / review associated risk mitigation strategies.
9. Coordination with vendors for feature development, issue management and support for Flight Critical applications.
10. Provide new software and hardware version launch strategy.
11. Support in developing and administering appropriate quality processes pertaining to EFB.
12. Prepare EFB related training material and conduct related briefing or training to the end-users.

1.2.5 EFB Admin

1. Keep internal track of all delivered parts and maintain the overall EFB configuration checklist/database.
2. In case of problem during the upload process, they will be the Flight Operations focal point to coordinate with the respective domains (Performance) PERF, Navigation (NAV), Documentation (DOC) and implement a correction.
3. Managing the application and data configuration of the Portable EFB devices used in flight operations.
4. Monitor the version of the applications installed in the Pilot devices by reviewing the reports extracted from the backend system. Compile a report on such out of compliance devices that require more attention from the relevant stakeholders.

1	EFB MANAGEMENT PHILOSOPHY
1.2	ORGANIZATION AND RESPONSIBILITIES

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5. Periodically review the EFB back-end administration portals to identify the devices that have invalid data and notify the users for their non-compliance.
6. Prevent installation of unapproved applications in the Portable EFB devices.

1.2.6 Manager Navigation Services

1. Design customized configuration settings for Terminal Charts, Airport Moving Map Data base and En-route Map database when needed.
2. Perform testing on each Navigation Portable EFB Loadable Software that is delivered to MDM.
3. Approve or Reject Navigation Portable EFB Loadable Software Part that is delivered to MDM
4. Validate Navigation EFB Loadable Software and BP updates from OEM.
5. Develop Navigation Airport Terminal Charts Loadable Software's, manage Loadable Software naming conventions, keep internal track of all delivered parts, and maintain the overall EFB configuration checklist/database.
6. Load validated Navigation Airport Terminal Charts Loadable Software's to the Navigation Application Server for release.

1.2.7 Manager Aircraft Performance

1. Design customized configuration settings for the Performance Calculation EFB Tools, Databases and Software Updates for Portable EFB when needed.
2. Define settings for Performance Loadable Software to load into the EFB systems.
3. Test the created parts by using Ground Viewers and approve or reject pending on results.
4. Develop Performance Loadable Software, manage Loadable Software naming conventions, keep internal track of all delivered parts, and maintain the overall EFB configuration checklist/database.
5. Load validated Performance Loadable Software to the Performance Application Server for release.

1.2.8 Manager Technical Publication

1. Create Loadable Software containing all the required documents that need to be available in pilot device to include but not limited to, FCOM, AFM, OM-A, MEL, QRH, etc.
2. Test and Approve or Reject these Loadable Software.
3. Test and approve new version of DMS App

1	EFB MANAGEMENT PHILOSOPHY
1.3	LIMITATIONS OF THE EFB SYSTEM

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1.3 LIMITATIONS OF THE EFB SYSTEM

The devices will synchronize and be controllable only once connected to the server via a pre-configured Wi-Fi connection (SSID: EFB). Cellular data on the devices will be enabled only for APP use.

The C-PEDs can be continuously used for up to 9 hours and it will last approximately 10 days if kept on standby mode.

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- 1.4 COMPANY MANUALS AND OTHER RELEVANT DOCUMENT ON THE EFB DEVICE

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1.4 COMPANY MANUALS AND OTHER RELEVANT DOCUMENT ON THE EFB DEVICE

Company Manuals and other relevant document on the EFB device which will be administered and supervised by an EFB Administrator and/or the Technical Publication Manager.

S.No	Documents	Dept. Responsibilities	Mandatory/ Informatory	Format
1	Operations Manual (Part A, B, C, D, E, F, G)	Flight Operations	Mandatory	PDF/HTML
2	Minimum Equipment List	Flight Operations	Mandatory	PDF/HTML
3	Flight Manual	Flight Operations	Mandatory	PDF/HTML
4	Flight Crew Operating Manual (FCOM)	Flight Operations	Mandatory	PDF/HTML
5	Quick reference Handbook (QRH)	Flight Operations	Mandatory	PDF/HTML
6	DG Emergency Response Guide, ICAO DOC 9481	Flight Operations	Mandatory	PDF
7	Company Notices	Flight Operations	Informatory	PDF
8	User Guides	Flight Operations	Informatory	PDF
9	Ops Specs	Flight Operations	Informatory	PDF

Table 2 Company Manuals and Other Relevant Documents on EFB Device



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- 1 EFB MANAGEMENT PHILOSOPHY
- 1.4 COMPANY MANUALS AND OTHER RELEVANT DOCUMENT ON THE EFB DEVICE

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2 HARDWARE DESCRIPTION

2.1 INSTALLED EFB

The 787 Boeing Installed EFB is composed of two (2) identical installations: a captain's left EFB and a first officer's right EFB. Each EFB has two main components:

Display Unit (DU):

1. Located on the Flight Deck.
2. Active-Matrix Liquid-Crystal Display (AMLCD) ruggedized for use in the Flight Deck.
3. User Interface for Pilots and Maintenance Crews.
4. Interactive operation with displayed image via Cursor Control Device (CCD), Touch Panel, and/or Bezel Keys.
5. Video Display Transfer (XFR) key allows pilot to view video signal of offside DU.



Figure 2 Display Unit

Electronics Unit (EU):

1. Located in the Electronics Bay.
2. A single-board computer running the Windows OS.
3. Provides Power to the DU.
4. Provides ARINC 429 Interface for Input and Output Channels.
5. Provides Interface with External Discrete and Ethernet Channels.



Figure 3 Electronic Unit

The EFB Data Network (EDN):

1. Interfaces with the Onboard Data Load Function (ODLF) for EFB data loading.

The Isolated Data Network (IDN):

1. Interfaces with the Communications Management Function (CMF) for receiving and transmitting EFB messages and data.
2. ACARS messaging; FMC uplinks; Central Maintenance Computing Function (CMCF) protocols.

The EFB Interfaces with the Avionics System over Common Data Network (CDN), Isolated Data Network (IDN) and Open Data Network (ODN)

User Interface:



- **Bezel buttons**
 - Line select keys (16)
 - Function keys (12)
- **Touch-screen**
 - Virtual keyboard
- **Integrated with cursor control device (CCD)**
- **Optional**
 - 'QWERTY' keyboard

Figure 4 User Interface

2.2 PORTABLE EFB

RXI issues an iPad as portable EFB to all flight crew in addition to one iPad placed on board as backup device. The portable EFB system consists of the following hardware:

Item	Specification
C-PED	Apple iPad Air 5th Gen (Wi-Fi + Cellular)
Configurator	Apple MacBook
Charging station	Griffin Multidock 2
Protective Case	Pivot Atlas Case

Table 3 Hardware Specification

2.2.1 C-PEDs

The C-PED opted for usage by Riyadh Air for Portable EFBs is the Apple iPad Air 5th Gen. These iPads will be configured as supervised devices set up for use as a single application device.

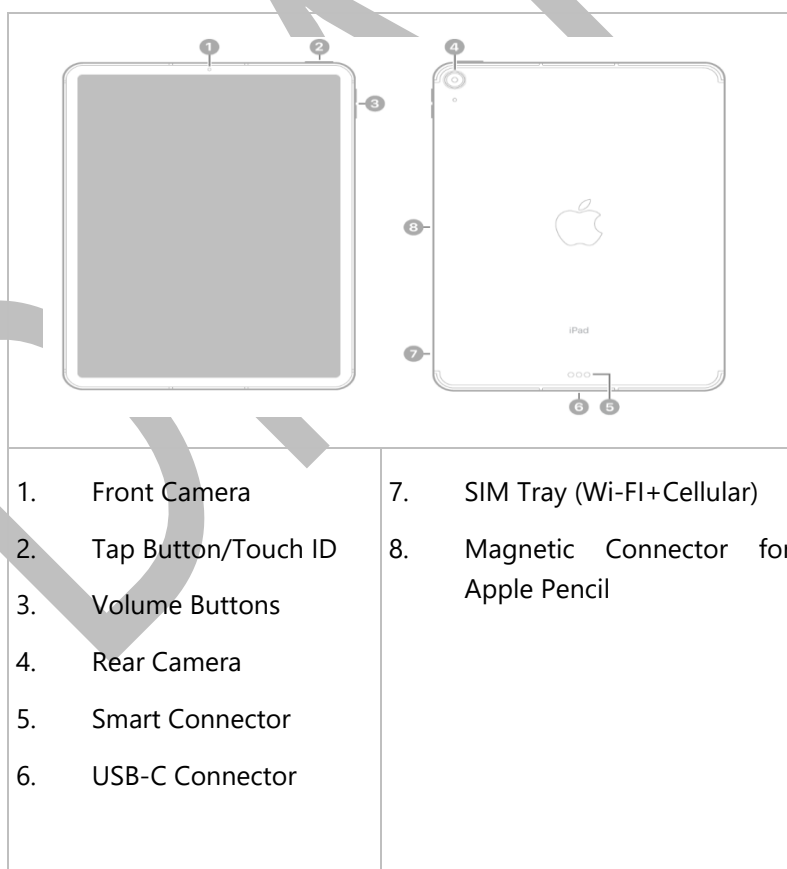


Figure 5 Apple iPad Overview

This device undergoes meticulous management through our Mobile Device Management (MDM) system, ensuring stringent control over updates, app management, and user access, guaranteeing peak performance and security.

Specifically chosen and certified for its practicality on the flight deck, the Apple iPad Air stands as the device of choice. Its certification process rigorously assesses various criteria:

1. Clear readability of EFB data in all expected lighting conditions, even direct sunlight.
2. Operational excellence in diverse cockpit conditions, from extreme temperatures to rapid depressurization scenarios.
3. Strict adherence to GACA regulatory requirements - Controlled PED guidelines.
4. Assurance of zero interference with aircraft equipment due to Electromagnetic Interference (EMI).
5. Battery compliance meeting stringent aviation standards.
6. Safety considerations, meticulously addressing EFB cabling, ensuring no operational hazards, and facilitating adequate airflow around the device.

A holistic assessment of its interface for HMI, ensuring seamless crew coordination, minimal workload, optimal integration into the flight deck, and robustness against system shutdowns or failures. This encompasses not only physical placement and anthropometric considerations but also exhaustive training procedures and mechanisms for user feedback.

Pilots are advised, per the operations manual:

1. Maintain a minimum 70% charge on the EFB when reporting for duty; recharge when it falls below 30%.
2. Safeguard the EFB during recharging by avoiding leaving it unattended.
3. Ensure unfettered access to unplug the EFB from the outlets while seated, ensuring readiness whenever needed.

The C-PED is used in all phases of flight (including critical phases of flight and contain information required after a depressurization.

To ensure EFB being secured during critical phases of flight, Long Term Removable Mount are utilized.



2.2.2 System Architecture

The C-PEDs is locked on to a selected list of applications as described in [Section 3.3](#) of this manual. The C-PEDs, once connected to a cloud server provided by a software application developer (MDM Provider), will be controlled, and configured via a central console. All devices will be monitored for compliance and security via the central console.

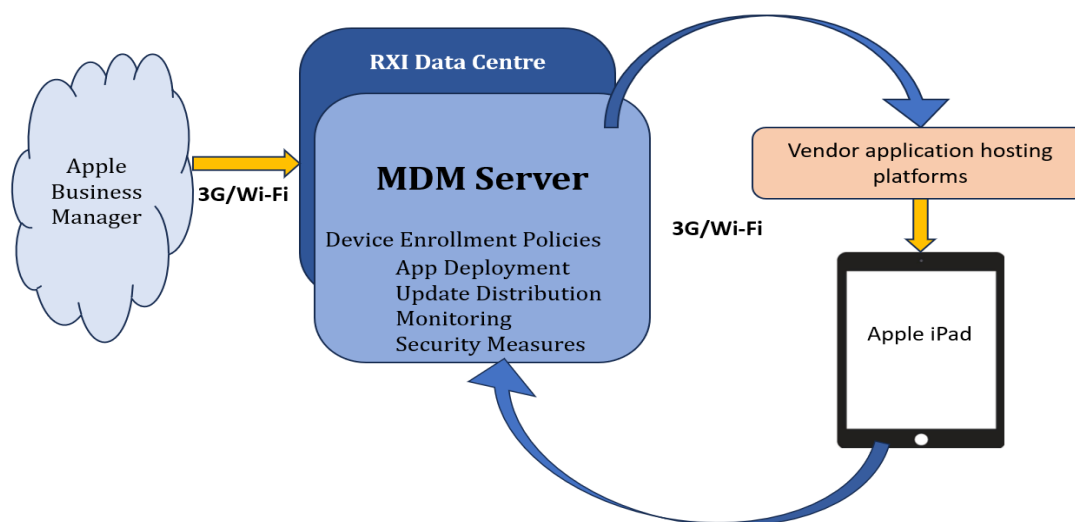


Figure 6 System Architecture

2.2.3 Pivot Atlas

All C-PEDs will be enclosed in a protective case to prevent damage due to shock, dirt, and water ingress. The cases will also provide for a much firmer grip on the device by the crew and avoid accidental dropping.



Figure 7 iPad Air 5th Gen with Pivot Atlas Case

2.2.4 LTRM (Long Term Removable Mount)

The B787 has a CA and FO version (mirrored) and have unique part numbers. This LTRM is perfectly crafted to fit the contours of the B787.



Figure 8 LTRM (Long Term Removable Mount)

2.2.5 Configurator

The Configurator machine will be used to configure all the C-PEDs as controlled/supervised devices and to utilize the software (MDM Console) that will have oversight and control over the C-PEDs. The machine opted for use as a configurator is the Apple MacBook (Refer **Error! Reference source not found.**).

Only the EFB Administrator and personnel designated by the Administrator will have access to the Configurator Machine.

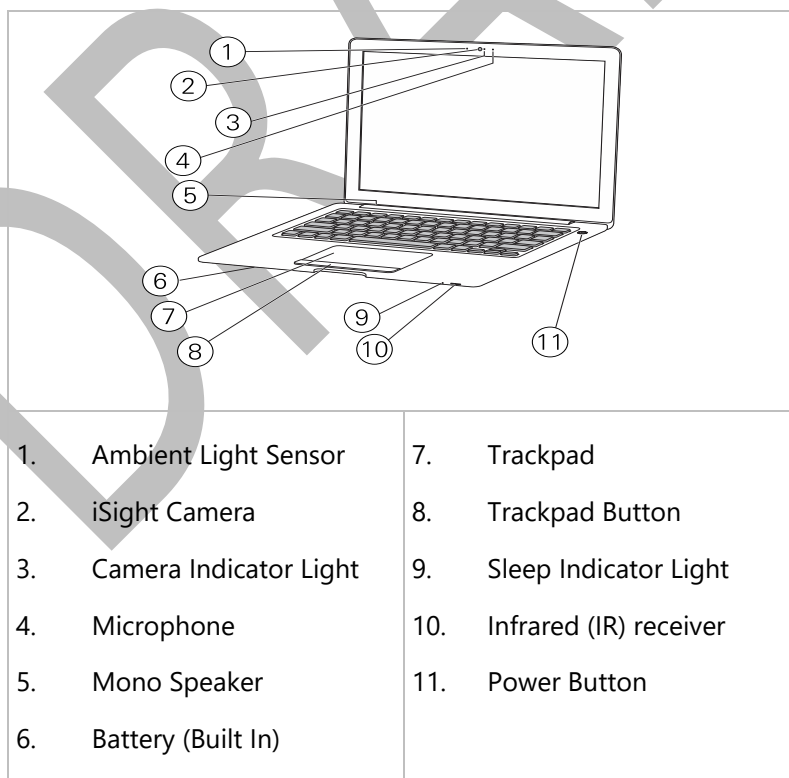


Figure 9 MacBook Overview



2.2.6 Charging Station

All C-PEDs at base will be stored in a charging station which will also offer the replenishment of the electrical charge. The charging station opted for storage and replenishment of the C-PEDs is Multidock 2. It is capable of storing 10 C-PEDs. The EFB system will utilize 3 Multidocks Stacked on top of the other (Multidock Cart) and 2 standalone multidocks enabling charging provisions for a total of 50 devices.

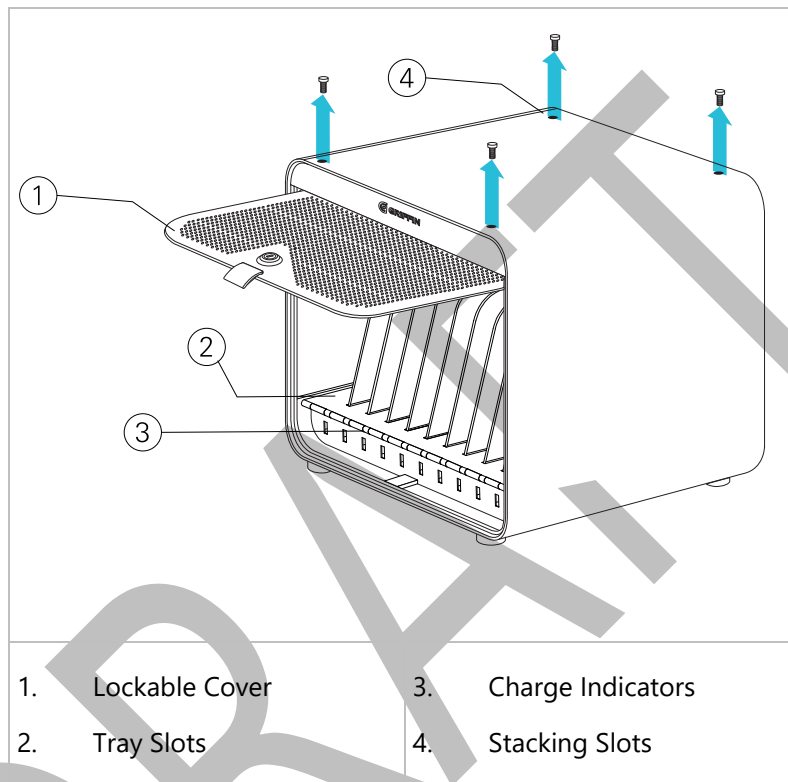


Figure 10 Charging station Overview

2.2.7 Hardware Configuration and Part Number control

The Model Number and Serial number of each C-PED will be recorded via the MDM Console. In addition, each device will be assigned a Device Number in the following Format.

"EFB-000" where 000 is numerically serialized.

The Device Number will be the name assigned to the device during the initial configuration process as described in [Section 3.4.1](#). The Device Number will be affixed to the back of each C-PED prior to enclosing in the protective casing and will be visible via the transparent back cover of the case.

2.2.8 Operating System Configuration and Control

The Operating System of the Devices will be configured using Apple Configurator (Apple Inc).
Accessibility Control

Once the configuration process is finished and the device shows up as a supervised device in the Apple Configurator, the devices will be monitored, and access will be available as configured during the initial set up.

2.2.9 Hardware Maintenance

The Maintenance Program for all equipment used for the EFB system is as described in [section 6.1](#) of this Manual.

2.2.10 Updating of the Operating System

Any update to the C-PED's operating system will be made only with the prior consent of the EFB software application provider. EFB Administrator conducts thorough assessments of Operating System (OS) updates released by the OEM to ascertain their operation.

3	SOFTWARE AND CONFIGURATION DESCRIPTION
3.1	PURPOSE AND SCOPE

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3 SOFTWARE AND CONFIGURATION DESCRIPTION

3.1 PURPOSE AND SCOPE

The aim of this section is to ensure standardized software and interface configuration across all EFB devices. This section is applicable to installed and C-PED which will be utilized as EFBs onboard the aircraft.

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3.2 INSTALLED EFB

3.2.1 Airport Moving Map (AMM)

The AMM application is designed to indicate aircraft position and heading on a dynamic map. The map graphically portrays runways, taxiways, and other airport features to support taxi and taxi-related operations. Additionally, warning functions are provided which notify flight crews about potentially dangerous conditions, i.e., inadvertently entering a runway.

The Airport Moving Map application consists of a set of highly accurate airport maps that graphically portray:

1. Runways
2. Taxiways
3. Gates
4. Aprons
5. Buildings
6. Other Airport Features

This application helps the Flight Crew to:

1. Orient airplane's position in relation to runways, taxiways, and airport structures.
2. Identify airplane position in relation to runways and taxi holding points, taxiway turns, or location of parking spot or gate.
3. Correlate taxi clearance.
4. Monitor taxi progress and direction.



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- 3.2 INSTALLED EFB

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Figure 11 Airport Moving Map (AMM)

3.2.2 Flight Deck Entry Video Surveillance System (FDEVSS)

1. Integrates digital camera input.
2. Goodrich Sensor Systems –IR cameras.
3. More functionality than the Multifunction Display (MFD) system.
4. Select feeds from multiple cameras.
5. Allows pilots to view flight deck door area from normal seated position.
6. Split screen images for multiple camera viewing.
7. Identify person behind flight deck door within 2 ft.
8. Three Cameras Standard. Future options include data linking off airplane, and extension to 16 cameras.
 - a. Cabin.
 - b. Cargo area.
 - c. Exterior views.

The FDEVSS Benefits are:

1. Allows operators to meet immediate and future regulatory or operational surveillance requirements.
2. Places image in the forward field of view.

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- 3.2 INSTALLED EFB

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- 3. Improves flight deck security.



Figure 12 Flight Deck Entry Video Surveillance System



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- 3 SOFTWARE AND CONFIGURATION DESCRIPTION
- 3.3 C-PED APPLICATIONS

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3.3 C-PED APPLICATIONS

The C-PEDs of EFB system will be running on Apple iOS Operating System with the following applications installed:

Application	Function	Provider
OPT	Performances calculation	Boeing
FliteDeck Pro	Charting/Navigation	Jeppesen
Aviator	Electronic Flight Folder (EFF)	Jeppesen
Orlando Suite	Ops Library	Orlando
FlightPulse	Fuel Efficiency	GE
AMOSeTL	Aircraft Technical Logbook	AMOS

Table 4 C-PED Applications

Each of the above App will have its Pilot User Guide uploaded in RX Ops Library (Orlando Suite).

3.3.1 Onboard Performance Tool (OPT)

The Onboard Performance Tool (OPT) permits flight crews and ground personnel to perform real-time calculations based on current weather and runway conditions, while adhering to company and regulatory policies and procedures. The Onboard Performance Tool provides self-planning capability through fast and precise calculations. It allows flight crews to calculate the takeoff analysis, landing analysis, and weight and balance information. Instant and accurate calculations save time by correcting for pressure variation, runway conditions, engine bleeds and Minimum Equipment List (MEL) items.



Figure 13 Onboard Performance Tool (OPT)

3.3.2 FliteDeck Pro

FliteDeck Pro provides pilots electronic charting a dynamic enroute map display, D-ATIS, NOTAMs, and increased weather coverage overlaid on the highest quality aeronautical data available in the market.

FliteDeck Pro X include:

1. Tailored enroute data.
2. AID integration.
3. Integration of Customer-Inserted Charts.
4. Airport Moving Map.
5. ADS-B traffic and weather.

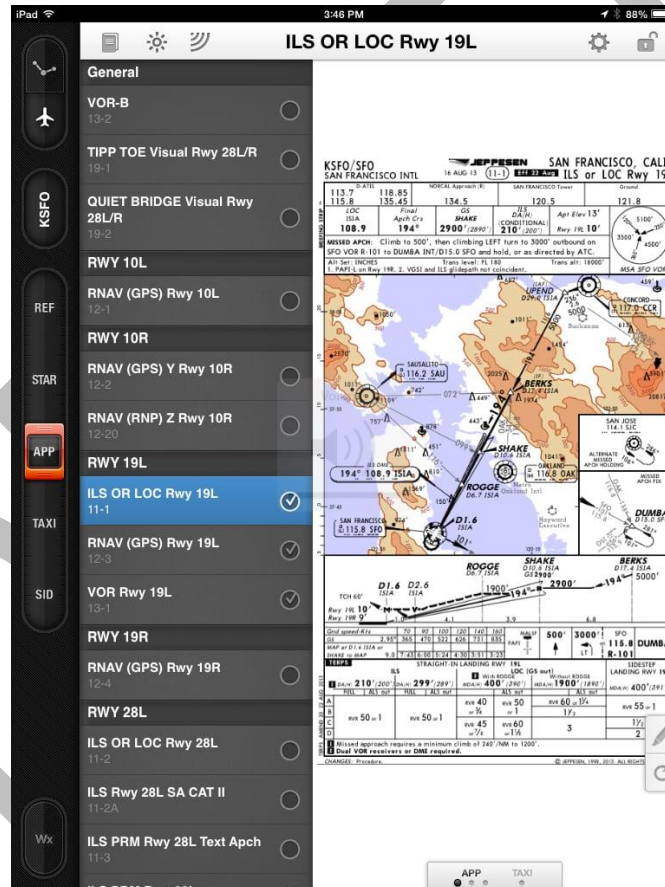


Figure 14 FliteDeck Pro



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- 3 SOFTWARE AND CONFIGURATION DESCRIPTION
- 3.3 C-PED APPLICATIONS

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3.3.3 Aviator

Aviator is a suite of EFB solutions that increase airline efficiencies by streamlining pilot workflows and lowering ground operation costs. It transforms capabilities previously found in numerous mobile applications into a single, seamless, intuitive, and easy-to-use EFB suite.

Pilots have easy access to their flight briefings, weather data and a utility calculator within a single EFB application. They benefit from full document management capabilities, backup flight content and integrated access to other flight-relevant resources such as navigation charts, performance calculations, flight optimization tools or even your airline's own solutions.

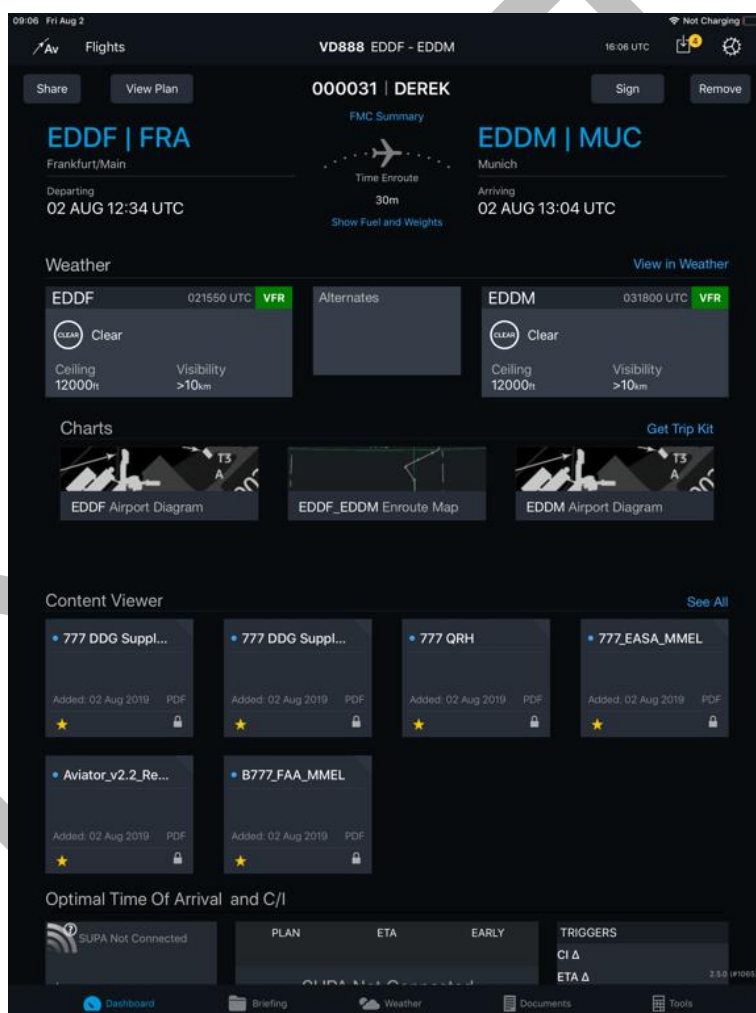


Figure 15 Aviator Suite



3.3.4 Orlando Suite

A streamlined cloud-based solution for managing all RXI manuals from a single repository. A single library for all your manuals

The App has an unlimited data storage, Store all kind of manuals: from different OEM + Company manuals + PDF documents, Accessible at anytime from anywhere, Cloud-based, lifetime retention.

3.3.5 FlightPulse

FlightPulse Post-flight Module provides:

1. Integrated airline historical schedules and flight data, accomplished by the EMS Flight Analytics engine.
2. Access to dashboards and past flight pages which support customer –controlled configuration of airline specific metrics in the dashboard and flights page.
3. Displays of aggregate personal and fleet analytics for the specified configuration.
4. Access to web-based Config Console for configuration of FlightPulse content.

FlightPulse Animation Module provides:

1. An animation playback viewer for the post-flight module that displays a photorealistic, 3D representation of a cockpit.
2. The ability for a pilot to manipulate playback controls to navigate and replay regions of a single flight presented in the Past Flights page.
3. Access to animation-related configuration settings in the web-based Config Console.

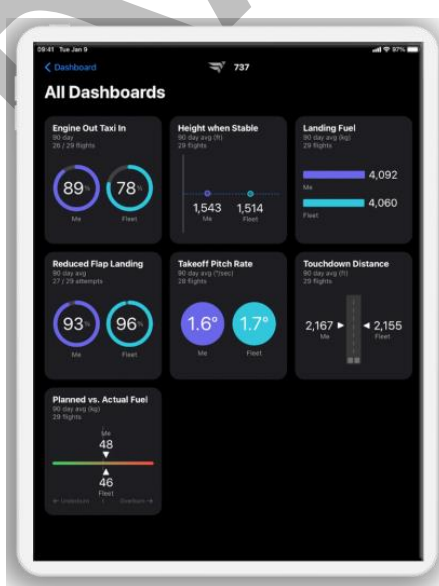


Figure 16 Flight Pulse



3.3.6 AMOSeTL

A paperless aircraft technical logbook application tightly integrated with AMOS. Enabling a seamless Pilot-to-Maintenance Collaboration.

The AMOSeTL provides flying crew, maintenance staff, administrators, and authorities with the right level of information and functions required in the respective context.

Pilots can manage all aspects of the flight. From pre-flight through to post-flight phases. Including accessing all relevant information and updating of flight relevant data. Reporting of defects in an intuitive way, selecting them from a pre-existing list.

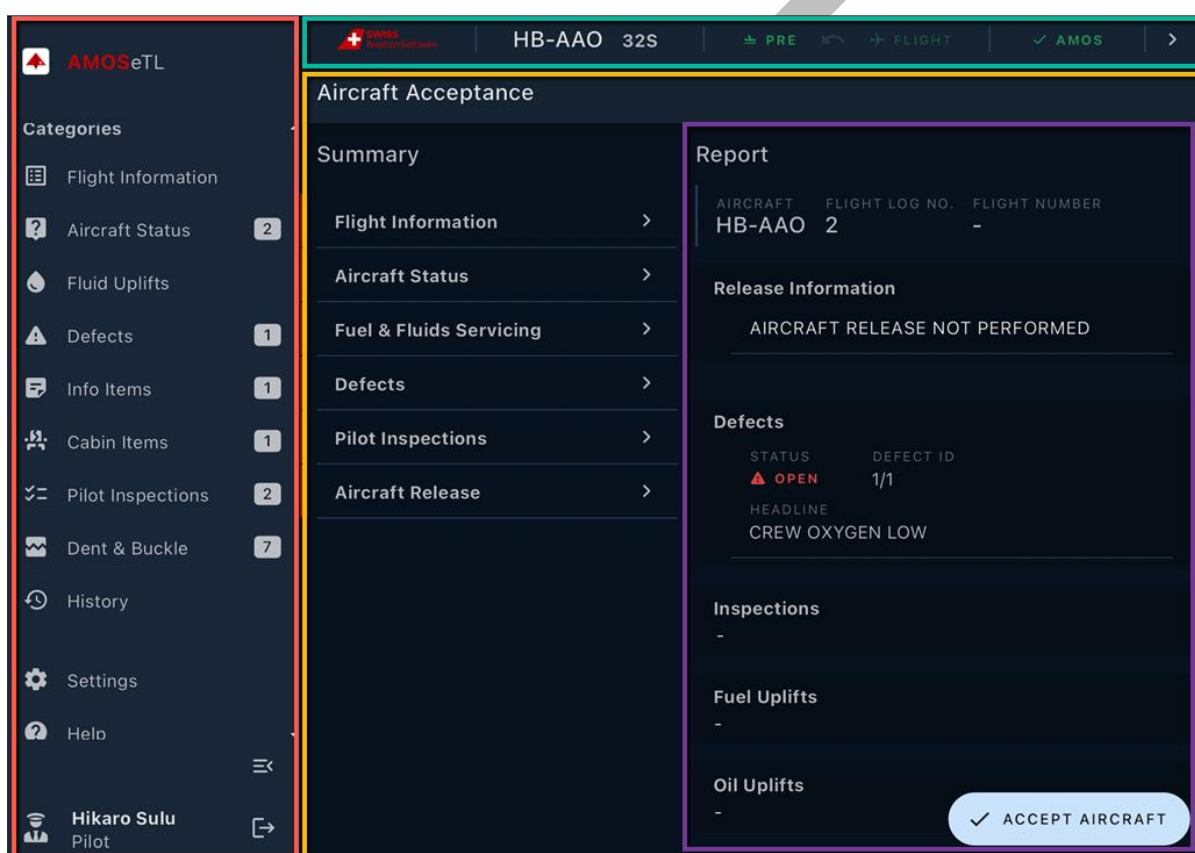


Figure 17 AMOSeTL

3.4 SOFTWARE CONTROL PROCESSES

3.4.1 Part Number Control

The status and settings of all the devices which have been assigned a Part/Device Number can be viewed via the MDM Console Module. It will facilitate the EFB administrator in viewing the time the device was last seen, security features, user information, device information, profiles installed, application installed, content installed, location, etc.

3.4.2 Software Configuration Management

The execution of software configuration management will adhere to the procedures outlined in [section 6.1.4](#) of this manual.

3.4.3 Application Updating Process

Any change made in the content repositories on the MCM Module of the MDM console will be automatically reflected on the device when the device connects to the server either via Wi-Fi or Cellular connectivity.

The master console will indicate the status of the synchronization with the devices to the content on the content repositories.



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- 3.5 RESPONSIBILITIES AND ACCOUNTABILITIES

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3.5 RESPONSIBILITIES AND ACCOUNTABILITIES

It is the responsibility of the EFB Administrator to configure the Software and content on all EFB devices.

The EFB Administrator will be responsible for communicating any significant updates to all operational personnel via the Flight Operations Interdepartmental Memorandums or other prescribed methods of communication.

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3	SOFTWARE AND CONFIGURATION DESCRIPTION
3.6	RECORDS AND FILING

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3.6 RECORDS AND FILING

Record of all the changes made to the content repository in MDM Console will be logged in real-time.

The logs can be viewed or accessed by navigating to Hub > Reports & Analytics > Events > Console Events.

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3.7 DATA MANAGEMENT

3.7.1 Data Administration

The EFB System and the data contained within will be managed by the EFB Administrator.

The EFB Administrator will be appointed by the Flight Operations Manager to be the overall in charge of the EFB hardware and software.

EFB Administrator maintains an internal record of all delivered parts and oversees the comprehensive EFB configuration checklist/database.

EFB Administrator serves as the central contact for Flight Operations in case of upload issues, coordinating resolutions with respective domains (Performance - PERF, Navigation - NAV, Documentation - DOC).

EFB Administrator oversees the application and data configuration of Portable EFB devices used in flight operations.

EFB Administrator monitors Pilot device application versions through backend system reports, compiles a report highlighting non-compliant devices needing attention from stakeholders.

EFB Administrator regularly checks EFB backend administration portals to flag devices with invalid data, notifying users of non-compliance.

EFB Administrator enforces prevention measures against unauthorized application installations on Portable EFB devices.

The EFB Administrator may designate personnel for the functioning of specific mechanisms within the EFB System.

3.7.2 Organization & Workflows

All new issues and revisions to documents contained in the EFB will be forwarded to the EFB Administrator by the responsible domain department as soon as approved but not later than three days from the date of approval.

The EFB Administrator will upload the revised content to the document repository hosted on the server. All superseded data will be removed prior to uploading new data.

C-PEDs when connected to the server over a Wireless Internet Access Point will be synchronized and updated.

3.7.3 Data Loading

All new or revised content will be uploaded to the MCM repository on the relevant content management Console. The EFB Administrator will ensure that the loaded data is available and synchronized on the C-PEDs.

3.7.4 Data Revision Mechanisms

All amendments to the Operations Manual will be obtained via the procedures described in Part A – 0.2 of the operations manual.

3.7.5 Airline Specific Documents

All EFB devices must contain the current and approved copy versions of the documents/form either PDF or HTML format.

3.7.6 Airport Data Management

All data pertaining to the various aerodromes that the flights operate to and from will be described and illustrated on the relevant Route Manuals for that type of operation.

3.7.7 Aircraft Fleet Definition

The entire fleet will utilize the standard iPad C-PEDs as the EFB.

4 FLIGHT CREW

4.1 CREW RESPONSIBILITIES

Flight crews are responsible for ensuring that all EFB devices (portable and installed) are operational and that all relevant flight information publications are available and up to date before commencing the flight duty.

More specifically, flight crew are required to apply the published procedures to accomplish their responsibilities:

1. Ensuring proper operation of installed and C-PED before and during the flight
2. Reporting any defect of the equipment promptly, and
3. Ensuring that following every flight, both portable and installed EFB's are correctly stowed and shut down.

4.2 OPERATIONAL LIMITATIONS

Flight crews are encouraged to provide feedback and any suggestions that may improve EFB operational safety and efficiency.

In case of a conflict in the data between two EFB devices, pilots shall use the data on the EFB with the latest effectivity date.

1. C-PEDs are considered controlled PEDs (C-PEDs).
2. On reporting for duty C-PEDs shall be charged to a minimum of 70%.
3. Onboard, use only aircraft power outlets authorized for EFB recharging.
4. An EFB being recharged must not be left unattended.
5. The EFB is strictly for flight operational use. Installing applications that are not authorized by the company is forbidden.
6. The EFB system and its elements should not impair:
 - a. The flight crew's external view during any of the flight phases.
 - b. The view of or access to any flight-crew-compartment control
 - c. The view of or access to any instrument.
7. C-PED, viewable stowage and associated mechanisms should not impede the flight crew members in the performance of any task (whether normal, abnormal, or emergency) associated with operating any aircraft system or equipment.
8. C-PEDs shall not affect the performance of aircraft systems, equipment, or the ability to operate the aircraft.
9. The C-PED's GPS function must be switched OFF to avoid display of the "own aircraft /own ship" position while inflight.
10. When external cables are used to connect a C-PED to the aircraft systems and/or to a power source, the following should apply:
 - a. Cables should not hang loosely in a way that compromises task performance and safety;
 - b. Cables should be of sufficient length so that they do not obstruct the use of any movable device (e.g., flight controls, switches, seats, windows) in the flight crew compartment.
11. Usage of In-flight internet to update approved operational applications is limited to non-critical phases of flight.

4.3 TRAINING

All flight crew should have completed EFB training in the initial training. The EFB training will be in the form of Self-Explanatory Presentation or a familiarization presentation covering the following syllabus:

1. iPad description, features, and usage.
2. Usage of MDM secure store.
3. EFB Operating and usage for normal procedures.
4. EFB Operating and usage or Abnormal and Emergency Procedures.
5. Discrepancy Reporting.
6. Application installed on C-PED.

EFB Training Record must be kept on file throughout the term of employment for each operational crew member.

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4.4 OPERATING PROCEDURES

The following standard operating procedures supplement the OM-B Standard Operating Procedures.

4.4.1 Normal

For any flight duty, all crew shall carry an updated and serviceable C-PED, the flight crew shall verify that the correct data and app versions are installed.

When using a C-PED the flight crew shall ensure that it does not adversely affect the performance of the aircraft systems or equipment, or the ability of the flight crew to operate the aircraft.

C-PEDs may be used in all phases of the flight if secured to a certified viewable stowage mount.

Crew should turn ON the EFB device and check the battery status of the EFB device. The device can be turned on by pressing the sleep/wake button or the home button.

NOTE:

All devices are configured as Single Sign On devices, i.e., the user need not enter user credential to authenticate access to the content. However, if on any rare occasion crew are prompted to enter the username and password.

4.4.2 Abnormal

Operation of the EFB is permitted for abnormal operating conditions.

4.4.3 Emergency

Operation of the EFB is permitted for emergency operating conditions.

4.4.4 EFB Device Failure

EFBs may be deemed unserviceable or unusable as a result of one or more of the following issues:

1. Hardware failure.
2. Software failure.
3. Expired data/Incorrect Results.

Crews shall follow the below steps in consecutive order for actions to take when there is discrepancy in the output from the C-PED, or when information displayed in the EFB contradicts other flight deck sources:

1. Ensure the EFB application is initialized with the correct aircraft tail number and city pair as applicable.
2. Ensure all input data used for calculations are correct and the same on both devices, if not, crosscheck with originating sources (e.g., ATIS) for accuracy and alignment.

3. Ensure both EFB's have been updated to the latest application and data versions, if disagreement still exists, reject data from the EFB not updated to the latest version.
4. In the event of a single available EFB, the first pilot will individually input data, perform calculations, document results, and reset all inputs before passing the EFB to the second pilot. Subsequently, the second pilot will also independently input data, complete calculations, and review both the inputs and results of the prior computation.

4.4.5 Hardware failure

For installed EFB or C-PED refer to applicable MEL.

At base

1. 2 EFBs must always be serviceable for departure.
2. If less than 2 EFBs are available flight Crew shall contact EFB Administration team through NOC informing unserviceability of EFB Device.
3. EFB Administration team must provide an operational portable spare device.

At outstation

If there's an unlikely situation where no company-issued C-PED device is functional (2 Pilot iPad+1 backup) before departure, the flight crew must promptly reach out to the EFB Administration team, MCC, or flight dispatch for necessary assistance.

EFB Administration team

1. For outstation, Jeppesen trip kit can be generated and shared by EFB Administration team via email to GHA, which will be printed and handed over to flight crew. Performance calculations provided by NCC, and Operational Manuals provided either in soft copy or printed by the station as required.
2. Whenever there is carriage of Dangerous goods EFB Administration team shall make the relevant parts of the DG response guide available to the flight crew by sending it via e mail to the GHA. The GHA will in turn provide the printed copy to the flight crew.
3. MCC
 - a. Whenever there is an MEL requirement, MCC shall send a copy of the MEL extract to the flight crew via ACARS or the GHA.
4. Flight dispatch
 - a. Whenever performance calculations are required flight dispatch shall work out and provide the performance figures to the crew via ACARS or the GHA.

Note: When connectivity is available the flight crew can create their own Trip Kit in PDF format.

In case of one or both Pilot C-PED are unserviceable, crew can use the third backup iPad available on board. Crew must check that the backup iPad is UpToDate.

4.4.6 Software failure

In the event of software EFB application failure:

1. Jeppesen charts to be retrieved from trip kit or Orlando suite.
2. Operational documents to be retrieved from Aviator document section.
3. Two separate performance calculations to be carried out by the pilots on the functional device in addition, on request, NOC can perform performance calculation.

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- 4 FLIGHT CREW
- 4.5 DISCREPANCY REPORTING

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4.5 DISCREPANCY REPORTING

Should any of the following situations arise, an EFB Discrepancy Form ([Refer Appendix A](#)) shall be filled out and forwarded to the EFB Administrator as soon as practical.

1. An unintended, contingent, or abnormal use of the EFB.
2. Any equipment or software problems and failures.
3. Any electronic interference with aircraft or other systems.
4. Any other type of unusable or unexplained event.

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- 4.5 DISCREPANCY REPORTING

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5 MAINTENANCE CONSIDERATIONS

Due to the complexity of various systems both installed and portable devices, specific maintenance operating procedures have been created for:

1. Installed and Portable Devices
2. End Users
3. Administrators
4. Maintenance Enablers

Each set of procedures caters to the unique needs of these systems and user roles, ensuring smooth operations and maintenance within their respective domains.

5.1 LTRM

This process is specifically designed to establish an organized system within Riyadh Air for effectively managing Pivot EFB Mounts. It encompasses:

1. Management and Distribution: Overseeing the allocation and distribution of Pivot EFB Mounts, as well as the replacement or repair of any defective mounts,
2. Responsibility Allocation: The Manager EFB is tasked with the issuance, distribution, and maintenance of this document. Additionally, either Manager EFB or a designated individual is accountable for the daily management and implementation of this process.
3. Functionality: The Pivot mounts serve a crucial purpose as visible stowage, enabling the portable EFBs' to use throughout all flight phases while being securely stowed onboard.



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5 MAINTENANCE CONSIDERATIONS
5.1 LTRM

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Figure 18 Managing EFB Mounts Process

5.2 PORTABLE EFB

5.2.1 Description:

This document outlines precise procedures for the distribution and retrieval of company-issued iPads among Flight Deck Crew (Pilots) and Flight Operations personnel at Riyadh Air. It establishes strict standards and operational protocols governing the business-specific use of iPads within the airline, defining user obligations for company-provided devices.

The primary aim is to strike a strategic balance between Riyadh Air operational needs for iPads and the associated fiscal considerations. These guidelines are applicable across the board to all Flight Operations employees issued with iPads. Oversight and maintenance of this document fall under the purview of the Manager EFB, while EFB Administration is responsible for providing iPads and requisite training to Pilot users. Additionally, it's emphasized that all provided iPads are the property of Riyadh Air, with assessments covering both hardware and software damage incurred during their usage.

5.2.1.1 Generic Policy Statements:

The Company-managed iPads will be overseen through a Mobile Device Management (MDM) console, following standardized and consistent Standard Operating Procedures (SOPs) ensuring the capability to:

1. Remote Formatting: Enable remote formatting in cases of loss or theft, reinforcing security measures and device settings.
2. Remote Management: Manage devices remotely in instances of misuse or unauthorized app installations.
3. Location Monitoring: Remotely track the location of devices.
4. Data Usage Monitoring: Remotely monitor data consumption on devices.

Riyadh Air reserves the right to modify, update, or amend this policy at its discretion and without prior notice.

5.2.2 Policy Statement on Acceptable Use and Guidelines for iPad Usage

iPad Usage Policy at Riyadh Air:

1. Eligibility:
 - a. All Pilots receive iPads as part of their entitlement.
 - b. Ground staff or managers' eligibility is case-specific, aligned with business requirements.
2. Ownership and Responsibility:

- a. iPad, accessories, and applications are Riyadh Air property.
- b. The EFB team configures software for Pilots' flight operations, while the IT department handles hardware support, repairs, and account management.
3. Maintenance and Updates:
 - a. Employees must communicate any iPad service requirements to EFB Support or IT.
 - b. Passwords for iPad applications must meet Riyadh Air's encryption standards.

Acceptable Use Guidelines:

1. Work-Related Usage:
 - a. iPad are solely for company/work-related functions.
 - b. Users safeguard their device, refraining from sharing login credentials and ensuring full device protection.
 - c. Unauthorized access must be prevented to protect company and guest information.
 - d. Devices should be fully charged before each duty.
2. Unacceptable Use:
 - a. Compliance with corporate ethics and social media guidelines as established is mandatory.
 - b. Misuse of iPads can result in disciplinary action, including termination, per company policy.
3. Monitoring and Auditing:
 - a. Riyadh Air reserves the right to monitor iPad usage and data transmission for valid reasons (e.g., device recovery, investigations).
 - b. Generated reports may include high data usage, device location tracking for lost or stolen devices, wrongful app installations, and attempts at intentional software damage.

5.2.2.1 Issuance/Return/Damage or Theft of Portable Devices

5.2.2.1.1 Issuance of C-PEDs

1. Overall iPad Management:

IT oversees procurement, stock management, and the supply chain for new and replacement iPads.
2. Distribution to Pilots:
 - a. Flight Operations Support, managed by the EFB team, handles planning, provisioning, distribution, and training for Pilot iPads, ensuring compliance with the End User device policy.

- b. EFB team conducts device and operational application training for Pilots.

5.2.2.1.2 Returning Damaged iPads:

Users return damaged iPads to the EFB Administrator/IT as specified, following the process.

1. Process for Repair:

If repair is required, users receive a replacement device and sign a new 'Terms & Conditions/Acceptance of Use' agreement. IT acknowledges the previous device's condition. IT acknowledges the previous device's condition and documents details in 'iPad Assessment Form. ([Appendix B](#)).

2. Thermal Runaway Incidents:

In cases of thermal runaway in hub, users return the device to EFB Administration, documented with the 'iPad Assessment Form.' The Manager Fleet investigates and provides recommendations.

3. Offloading Damaged Devices:

If thermal runaway occurs in-flight or on ground at an outstation, damaged devices are offloaded/left behind as per Dangerous Goods Regulations. The Manager Fleet investigates and advises the EFB/IT department.

4. Assessment and Actions for Damage:

a. EFB/IT assess and document damage, categorizing it as:

- i. Legitimate component failure (covered by warranty) results in no salary deduction. Repaired devices re-enter stock for redistribution.
- ii. Misuse incurs a salary deduction, documented via the 'iPad Assessment Form.' Repairable devices re-enter stock.
- iii. Unrepairable iPads incur charges based on residual value from the issue date or remaining monthly payments.

5.2.2.1.3 Types of damages

1. **Hardware:**

Including (but not limited to) cracked screen, exterior or interior damage to device, malfunction of hardware component, misuse of hardware and tampering.

2. **Software:**

Including (but not limited to) malware, spyware, attempt to jailbreak / hack device, misuse, and tampering.

3. **Acts of Nature:**

The user will not be liable for the cost of device due to acts of nature or catastrophic situations onboard the aircraft.

5.2.2.1.4 Theft or Loss of Device

1. User notifies EFB/IT immediately and reports the incident.
2. EFB/IT requires a police report copy upon the user's return and confirms user identity.
3. The EFB/IT Helpdesk promptly records event details, initiates immediate remote formatting of Pilot applications upon incident logging, and attempts to track the device.
4. Follow-up with relevant authorities occurs, as necessary.
5. Completion of an 'iPad Assessment Form' and submission through defined channels is mandatory.
6. Liability for lost or stolen iPads follows 'Terms & Conditions/Acceptance of Use' agreement. Device cost determination is based on ownership and issue date/residual value.
7. EFB/IT completes the 'iPad Assessment Form' and submits it through defined channels.
8. EFB/IT submits an ad-hoc report to Manager Fleet detailing the event.
9. User status confirmation regarding the lost/stolen device is obtained by the EFB/IT.
10. Users proceed to the EFB/IT office for a replacement device where appropriate. Distribution of the replacement device is recorded using the 'Terms & Conditions/Acceptance of Use' document.
11. iPad Distribution Tracker is updated by the EFB/IT Administrator.

5.3 INSTALLED EFB

The installed EFB is an integral component of the aircraft's avionics system. The EFB Administration team, in coordination with the engineering team, ensures that the EFB systems installed on Riyadh Air Aircrafts adhere to the most recent versions.

The EFB Manager maintains communication with the EFB deployment manager at Boeing to stay updated on available upgrades concerning software or hardware. In case of any version upgrades, the EFB Administration team submits the necessary maintenance requests to the Engineering team, initiating the activity through the established MRO application.

5.3.1 SOFTWARE

Software Assessment: The EFB Manager, in tandem with the Engineering Team, conducts a comprehensive assessment of available installed EFB software solutions. They collectively evaluate functionalities, regulatory compliance, and technical specifications, ensuring alignment with operational needs and existing infrastructure.

Technical Evaluation and Integration: The Engineering Team, working closely with the EFB Manager, conducts detailed technical evaluations and tests. Their focus lies in assessing compatibility, security, and integration intricacies with current systems, ensuring seamless assimilation of the new software.

Regulatory Compliance and Security Measures: Collaboratively, the EFB Manager and the Engineering Team ensure stringent adherence to aviation regulations and security standards. Their joint efforts certify that the chosen software not only meets operational requirements but also complies with essential aviation guidelines and data security protocols.

Implementation Oversight and Support: During implementation, the EFB Manager orchestrates the process while the Engineering Team provides technical support. They work hand-in-hand to facilitate smooth deployment, configure the software, and address any technical challenges that may emerge.

Ongoing Monitoring and Optimization: Post-implementation, the joint efforts continue. The EFB Manager and the Engineering Team monitor performance, gather user feedback, and collaborate on enhancements or optimizations, ensuring the software operates optimally within the aviation environment.

5.3.2 Universal Maintenance Device (UMD):

- Hardware Specifications:** Using a Windows 10 laptop meeting or surpassing Boeing's hardware specifications is the standard requirement.
- Hardware and Software Maintenance:** Riyadh Air IT team maintains laptop configurations, including regular antivirus scans and specific software installations like AMMA/MATA for B787. Regular checks ensure compliance with Riyadh Air IT Policy and Airplane Network Security Operator Guidance (ANSOG), safeguarding the UMD's integrity.



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5 MAINTENANCE CONSIDERATIONS

5.3 INSTALLED EFB

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3. Toolbox Remote Updates: IT promptly updates Toolbox Remote in B787 UMD within specified time limit of receiving the TMR (Toolbox Remote) from Technical Department.
4. Software Loading Protocols: Field loadable software parts are installed following the Software Configuration List for B787 after UMD installation on an aircraft. This ensures adherence to established protocols for software installations on respective aircraft models.

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5 MAINTENANCE CONSIDERATIONS
5.3 INSTALLED EFB

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6 CHANGE MANAGEMENT

6.1 CONFIGURATION MANAGEMENT

The protocol for controlling and configuring hardware and operating systems encompasses Configuration Management (CM), encompassing its constituent functions, processes, and procedures. The EFB Administration team delineates and implements Configuration Management practices to ascertain and apply precise configurations to hardware and operating system elements.

6.1.1 Hardware Configuration Baseline

The Manager EFB assumes responsibility for defining and initiating the setup of the company's EFB System across various Hardware Baselines. These Baselines entail a precise description encompassing the minimum components and their specifications available within each defined configuration.

Once a Hardware Baseline is set, configuration management (CM) is initiated to oversee this hardware entity. Routine adjustments, such as minor upgrades involving components like the CPU, screen, or devices, are incorporated as part of the hardware's natural evolution. However, substantial modifications, such as complete redesigns or significant alterations affecting functionality or structure, prompt the necessity to establish a new hardware baseline.

Grouping hardware, devices, add-ons, or system segments into Hardware Baselines is aligned with the EFB System requisites and their application across specific fleets. Each Hardware Baseline operates as an autonomous entity within the Configuration Management system. It represents a distinct unit for separable hardware devices or systems, allowing for independent acquisition, installation, and testing.

6.1.2 Hardware Configuration Management

Once a Hardware Baseline is established, the Manager EFB oversees and assesses potential changes to this baseline, which may be prompted by three sources:

1. Internal requests for upgrades initiated by EFB System users (e.g., increased hard disk space).
2. External requests, such as commercial advancements in the selected hardware model or component, or requirements from providers of software or hardware components.
3. Manager EFB-driven strategic decisions for upgrades, influenced by industry standards, security considerations, or other pertinent factors.

Upon determining the acceptability of the requested change, the Manager EFB initiates an evaluation process to discern whether the proposed alteration qualifies as a minor or major change.

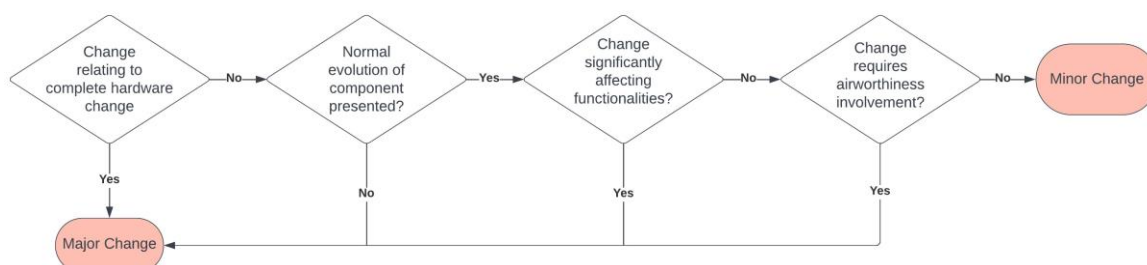


Figure 19 Hardware Configuration Management

Major Hardware Configuration Change

Upon determination by the Manager EFB that a configuration change qualifies as 'major' based on the aforementioned evaluation process, establishing a new Hardware Baseline becomes imperative, necessitating an application for approval of this revised Baseline. Depending on the nature of the change, operational or airworthiness approval, or both, may be mandatory.

Updating this EFB Manual and associated documents, as outlined in this Chapter, becomes mandatory in such instances. Additionally, a new evaluation test plan is to be submitted to the GACA (General Authority of Civil Aviation). Subject to the GACA's approval and considering the anticipated impact of the hardware change, this evaluation test plan might be abbreviated, potentially requiring less than a six-month duration.

Minor Hardware Configuration Change

When a hardware or component change is classified as 'minor,' the Manager EFB meticulously documents and delineates the change in a dedicated Hardware Minor Change Log. This log serves as a comprehensive record outlining the EFB System's progression throughout its life cycle. It ensures a clear traceability of configuration modifications, commencing from the Hardware Baseline.

This log methodically describes and chronicles every iteration of the hardware or its components, elucidating the sequence of changes leading to each version. It systematically tracks alterations and the contents of the EFB System, encompassing versions and releases.

Moreover, the Manager EFB maintains a log specifying the precise hardware version deployed across the entire flight operations department. The Minor Change Log encompasses identification of the initial hardware or system, associated documents, current status, evolving Baseline statuses, proposed and approved change statuses, and the implementation progress of approved alterations.

6.1.3 Operating System Updating

On Installed EFB systems, the OEM assumes the responsibility of publishing both mandatory and optional software updates, directed either to the Manager EFB or the Technical Maintenance Engineering team. These updates are executed in accordance with the defined e-enabling and EFB

Software Update Processes outlined within the established contents of Technical Procedures and the Process Manual.

For portable EFB Systems, Operating System (OS) updates released by the OEM undergo scrutiny for operational compatibility by the EFB Manager. Subsequent to this technical assessment, software, and database updates, if applicable, are then processed for release onto the user devices.

6.1.4 Software Configuration Management for EFB Updates

The process outlines the procedure for managing the Software Configuration to both Portable and Installed EFB systems data installed across Riyadh Air aircrafts.

The Manager EFB holds the responsibility for maintaining, consistently enhancing, and ensuring the effective integration of this procedure into the pertinent chapters of the manual. Their role encompasses overseeing the proper functioning and evolution of this Software Configuration procedure across the airline's EFB systems.

6.1.4.1 Portable EFB: Applications & Operating System Release Process

The primary objective of this process is to oversee the upgrades of Operational applications and Operating Systems (OS) within EFB Systems. This process specifically applies to EFB Administrators within the Flight Operations Support Department, ensuring the prompt deployment of upgrades into Portable EFB systems for operational use.

The Manager EFB bears the responsibility for authoring, disseminating, and upholding this document, ensuring its accuracy and relevance in managing the upgrades for EFB Systems.

6.1.4.1.1 Description of the Process

This sequence outlines the process for releasing application and operating system upgrades to pilots by the Flight Operations Support (EFB Admin team):

1. **Review by EFB Team:** Evaluate software version upgrades provided by the vendor/provider for the applications and operating systems in portable EFB devices.
2. **Initiate Release Process:** EFB team starts the testing process in collaboration with the IT team.
3. **Functional Assessment:** Domain Subject Matter Experts (SMEs) examine upgrade features. If deemed significant during assessment, it proceeds to the next release phase.
4. **Confirmation and Release:** Upon confirmation from domain teams for the version upgrade, the EFB team proceeds with the release process.
5. **Inform IT Team:** Notify the IT team to process the upgrade, providing necessary supporting documents.



6. **Release Approval:** IT team processes the release, securing the required approvals for the upgrade's deployment to Pilot devices.
7. **End User Communication:** EFB team issues end-user communications upon upgrade release, applicable to both application and operating system upgrades.
8. **Documentation Update:** Post-release, the EFB team updates the version configuration document to reflect the implemented information changes.
9. **Monitoring and Reporting:** The EFB team periodically monitors upgrade progress on Pilot devices. Any deviations are reported to fleet management for further action.

6.1.4.2 Installed EFB Software Configuration Management

This procedure is applicable to the Installed EFB Systems configured in the Riyadh Air aircraft in Boeing fleet.

Manager EFB is responsible for maintaining, continuously improving, and ensuring proper interface of this procedure to relevant chapters of this manual.

6.1.4.2.1 Description of the Process

All aircraft equipped with EFB Systems in Installed format are loaded with approved EFB Software (SW) parts (application & data) to support the operational requirements. The EFB Update (EFBU) Cycle is a recurring activity performed every fortnight to align with effectivity and validity of EFB data (Software parts) onboard.

Once EFBU task is accomplished in the aircraft, verification of EFB Configuration must be conducted and concluded prior to expiry of the data onboard.

The software parts that are to be installed in the aircraft are referred as 'Target Software' configuration that is authorized for installation and replenishing expiring data prior to effective date.

While the software parts currently installed in the aircraft are more commonly referred to 'As Flying' or Current configuration. All aircraft generate a report of the SW parts installed in the EFB Systems on board. EFB Administration team should review the EFB Config logs to ensure there is no difference in the EFB Configuration of the software parts installed in the aircraft and authorized ground configuration.

EFB Administration team will monitor, retrieve, and manage the configuration logs from the aircraft. During the review, if/when a discrepancy in the configuration is identified, necessary corrective measures will be initiated to update the correct software parts.

Depending on the availability and proximity of the aircraft, configuration logs will be retrieved; by visiting aircraft, and or by wireless download using dedicated Ground Systems. All such aircraft configuration will be maintained in the dedicated Master Configuration file for each fleet and its aircraft. The Master Configuration file stored in the dedicated folder will be archived and progressively updated



with changes for every EFBU cycle. It will be available to relevant stakeholders for access (whenever required).

6.1.4.2.2 Software Configuration (Ground)

All authorized software loads that are to be installed must be captured and documented prior to update in the aircraft.

1. Software configurations of installed EFB to be recorded in a master configuration file.
2. Master Configuration file to be updated following new data releases as target configuration.
3. After EFBU task confirmation, review aircraft Configuration logs. Update Master Configuration if no discrepancies exist.
4. Update Current Configuration section in the Master file, highlighting changes and adding verification details.
5. Clear Target Configuration columns.
6. If discrepancies are found, initiate corrective actions, and inform relevant RXI Technical teams.
7. Review EFB Configuration for all fleet aircraft before data expiration (07th day of EFBU Cycle).
8. Save and archive the Master Configuration file in the designated folder.

6.1.4.2.3 Verifying Configuration

The EFB Administration team shall retrieve and review the configuration of each aircraft prior to the expiry of EFB data onboard (day 06 from date of EFB release). This task is performed to identify differences in configurations (if any) and initiate corrective measures. After the conclusion of EFBU cycle (07 days), review the Master Configuration file for each fleet and ensure there are no missing or incorrect information.

The Master Configuration List shall contain the authorized configuration of the aircraft in fleet.

The EFB Administration team personnel are required to conduct on-site visits to aircraft for the physical retrieval of Configuration logs, either in printed or picture format. Alternatively, they may establish remote connections to nearby aircraft with active ground connections, accessing and downloading the logs through dedicated ground-based applications.



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6 CHANGE MANAGEMENT
6.1 CONFIGURATION MANAGEMENT

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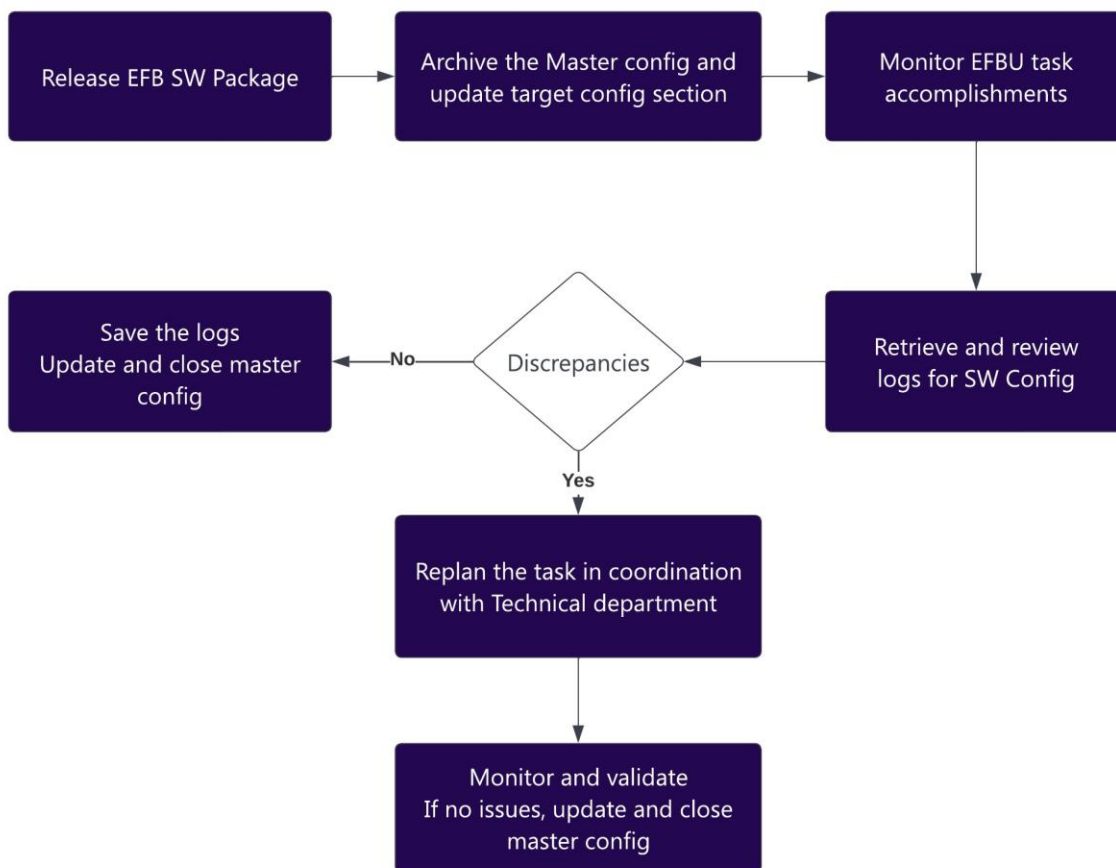


Figure 20 Verifying Configuration

6.2 IMPLEMENTING NEW EFB APPLICATIONS

The process defining the introduction of new EFB applications, and the subsequent evaluation is outlined below:

6.2.1 New Application Feasibility Evaluation

After a Vendor presents a new Technology/Application, an evaluation is conducted by Manager EFB to ascertain:

1. Alignment with the EFB Strategy.
2. Integration feasibility with Installed and Portable EFB Platforms within Riyadh Air Operations.
3. Assessment of Technical and Financial Feasibility.
4. Evaluation of Operational Impact and associated change with the introduction of new Technology.
5. Determination of Requirement for GACA Approval.

Once deemed viable, a presentation is prepared for the Flight Ops Management encompassing:

1. Description of the New Technology.
2. Overview of Advantages offered by the new Technology, both Qualitative and Quantitative.
3. Recommendations for Alternate Options, if any.
4. Rough estimation of costs (Rough Order of Magnitude - ROM).
5. Identification of Stakeholders and Stakeholder Map.
6. Estimated Implementation Timeline.

Note: The listed features are not within the scope of EFB functions and should not be integrated unless certified as avionics functions. These include:

1. Displaying tactical information for flight crew to manage aircraft position, trajectory, or navigate in intended routes or avoid adverse conditions in-flight or on ground.
2. Presenting real-time status of critical aircraft systems or acting as a substitute for existing installed avionics to manage these systems post-failure.
3. Direct communication with air traffic control.
4. Transmitting data to aircraft systems not certified for the intended purpose.

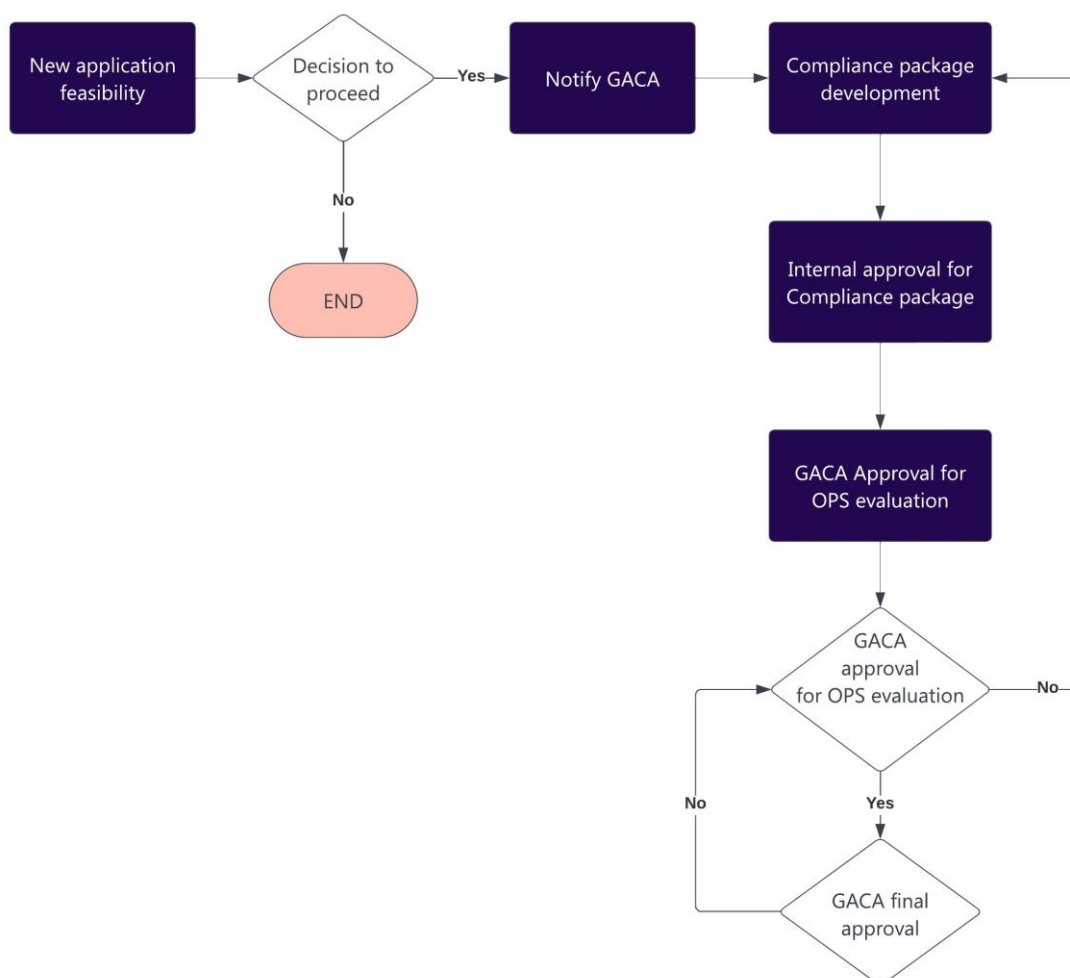


Figure 21 New Application Feasibility Evaluation

6.2.2 Implementation

Once a new technology is greenlighted, a proposal to Flight Ops management is presented for approval of either:

1. Structured testing program within Riyadh Air Operations, often referred to as Proof of Concept (POC), to validate the technology.
2. Development of a Business Case outlining the implementation plan for the new Technology.

The Business Case undergoes review by the Transformation Department. This process aligns with the established Business Case approvals within the Transformation Policies and Processes of Riyadh Air, including referencing the IT Project Management Office, Project Management Processes, and the Procurement and BFE (Buyer-Furnished Equipment) Policies and Processes.



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- 6 CHANGE MANAGEMENT
- 6.2 IMPLEMENTING NEW EFB APPLICATIONS

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If the application necessitates review and approval by regulatory authorities, the GACA Approval process is initiated in tandem.

6.2.3 Compliance Package

The compliance package comprises the following essential documentation:

1. Compliance Matrix
2. Management of Change and Risk Assessment
3. Certification and Design Documentation for the New Technology
4. User Guides and Technical Manuals
5. Riyadh Air's Operations Procedures and Guidelines
6. Training Material and Plan, if required

In the context of Airworthiness changes or topics, additional documentation includes:

1. Non-Technical Objection (NTO) and/or Certification
2. Manufacturer's Certification Documentation necessary for NTO or Certification
3. Acceptance Letter for Continuing Airworthiness from CAMO (Continuing Airworthiness Management Organization)



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- 6 CHANGE MANAGEMENT
- 6.3 Specific EFB Applications Requirements

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6.3 SPECIFIC EFB APPLICATIONS REQUIREMENTS

Due to the critical safety nature, the following EFB applications need additional evaluation and assurance of Compliance:

1. Take-Off and Landing Performance (TALP) and Mass and Balance (M&B) Applications.
2. Electronic Charting Application.
3. Airport Moving Map Display (AMMD).
4. Electronic Checklist Application.
5. In-Flight Weather (IFW) Application.

It must be assured, that the following factors are considered during the evaluation and that evidence for the following is provided:

1. Applications architecture.
2. Human-Machine Interface.
3. Applications Testing.
4. Operating Procedures for Flight Crew and Administrators.
5. Training Requirements for Flight Crew.
6. Display considerations (in case of IFW, AMM and Electronic Charting).



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7	EFB SECURITY POLICY
7.1	SECURITY SOLUTIONS & PROCEDURES

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7 EFB SECURITY POLICY

7.1 SECURITY SOLUTIONS & PROCEDURES

1. All iPads are enrolled and managed through the Mobile Device Management (MDM) system.
2. User profiles are set up and configured within the MDM platform.
3. During the device enrollment process, MDM policies are applied and enforced on the devices.
4. MDM functionalities encompass various capabilities:
 - a. Tracking the device's location in case of loss or theft.
 - b. Remote removal of Riyadh Air applications.
 - c. Remote wiping of the device.
 - d. Remote management of installed applications.
 - e. Enforcement of security protocols and device settings.
 - f. The iPads are configured in compliance with established IT guidelines and information security requirements.



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- 7 EFB SECURITY POLICY
- 7.1 SECURITY SOLUTIONS & PROCEDURES

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8 APPENDIX
8.1 APPENDIX A - EFB DISCREPANCY FORM

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8 APPENDIX

8.1 APPENDIX A - EFB DISCREPANCY FORM

	EFB Discrepancy Form			Rev 1
Device No	Date	Flight Number	Captain	First Officer
Hardware Issue	Yes/No			
Software Issue	Yes/No			
Issue Details:				
Corrective Actions:				
Staff Details				

Table 5 Life Proof Case iPad Removal



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8 APPENDIX
8.2 APPENDIX B – IPAD ASSESSMENT FORM

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8.2 APPENDIX B – IPAD ASSESSMENT FORM

ELECTRONIC FLIGHT BAG

IPAD ASSESSMENT FORM

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☐ LOST ☐ DAMAGED ☐ RETURN ☐ EXCHANGE

COMPLETED BY: EFB./IT

NAME

STAFF NUMBER

DATE

PRIMARY PHONE NUMBER

MOBILE PHONE NUMBER

EMAIL ADDRESS

STAFF & IPAD DETAILS

IPAD ASSET NUMBER

STAFF NAME

STAFF NUMBER

EMAIL ADDRESS

TYPE OF DAMAGE - IT ASSESSMENT

HARDWARE DAMAGE		SOFTWARE DAMAGE		LOST DEVICE	
TYPE OF DAMAGE	COST AED	TYPE OF DAMAGE	COST AED	TYPE OF DAMAGE	COST AED
<input type="checkbox"/> NORMAL WEAR & TEAR (OR MALFUNCTION)	NIL	<input type="checkbox"/> MALFUNCTION / JOB-RELATED FUNCTION	NIL	<input type="checkbox"/> LOST IPAD	2600
<input type="checkbox"/> CHARGER CABLE	90	<input type="checkbox"/> NON-JOB RELATED	300	MAC ID:	
<input type="checkbox"/> CHARGER	90			SERIAL NUMBER:	
<input type="checkbox"/> DAMAGED SCREEN	800				
<input type="checkbox"/> SMART CASE	200				
<input type="checkbox"/> REPLACEMENT IPAD	2600				

ITHELPDESK CALL REFERENCE

REF #:

REMARKS:

TOTAL DEDUCTIBLE SUM:

I UNDERSTAND THAT THE ABOVE MENTIONED COSTS WILL BE WITHHELD FROM MY SALARY FOR THE REPAIR AND / OR REPLACEMENT OF MY IPAD.

STAFF SIGNATURE:

DATE:

ASSESSED BY BUSINESS:

DATE:

TITLE:

STAFF ID:

COMMENTS:

HR/ FINANCE RECEIVED BY:

DATE:

TITLE:

STAFF ID:

ATTACH ADDITIONAL DOCUMENTATION; IF APPLICABLE (E.G. POLICE REPORT / PHOTOGRAPH ETC.) IN CASE OF LOST DEVICE, ITHELPDESK TO EMAIL AND LOG ISSUE WITH CORPORATE SECURITY.

FORM NO:

RXI/OPS-FLT-FT500

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Figure 22 IPAD Assessment Form

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