AIRPORT BRIEFING
USER AND COMPLIANCE MANUAL

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RECORD OF REVISIONS

Issue	Date	Page(s)	Reasons for revision
1.0	01 FEB 2021	All	Initial version of the document
1.1	15 FEB 2021	All	Wording improvements for readability and clarity

TABLE OF ILLUSTRATIONS

REFERENCES

Ref.	Document Title	Version
SYN-ABPUG	Airport Briefing Pilot User Guide	3.0
SYN-ABAG	Airport Briefing Admin Guide	3.0

1 INTRODUCTION

1.1 PURPOSE

This manual provides considerations for the operation and the administration of the Airport Briefing software application. These considerations were identified by Synapse Aviation and their implementation by the operators contributes to a safe and efficient operation with this EFB application.

This manual provides elements that may be used by the Operators for the compliance demonstration with the EFB regulatory materials of EASA, FAA, or any other National Aviation Authority (NAA). This manual considers the EASA EFB regulatory considerations for which compliance elements specific to the Airport Briefing application were identified. These compliance elements are summarized in the COMPLIANCE MATRIX. The compliance elements provided in this manual should be tailored and completed as needed in accordance with the Operator's own EFB configuration, operations, and policy. The Operator remains responsible for the demonstration of compliance with the EFB requirements and guidance of their National Aviation Authority.

The manual does not substitute for, or prevail over, any of the terms of the Synapse Aviation application End User License Agreement (EULA) or the operating hardware and software product agreements. The operator must read the EULA and take responsibility to accept the different agreements if any before using the Airport Briefing application.

This manual will be updated as necessary in case of changes to the Airport Briefing application, in-service feedback, EASA, FAA, or other Aviation Authority requests, or any other valid reasons (e.g. corrections).

1.2 APPLICABILITY

This manual is applicable to the Airport Briefing EFB Application used on iOS and Windows-based portable EFB (PEDs).

1.3 TERMINOLOGY

The terminology used in this manual is adapted to the level of compliance expected from the operators:

- 'Should' is used to specify considerations identified as necessary to show compliance with EFB regulatory guidance or to ensure safe Airport Briefing operations.
- 'Can', 'May' or 'recommended' is used to provide additional considerations for efficient operations. Implementation by the operators of these considerations is recommended.

1.4 GLOSSARY

AMC	Acceptable Means of Compliance
ARINC	ARINC Aeronautical Radio Incorporated
EFB	Electronic Flight Bag
EASA	European Aviation Safety Agency
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
GM	Guidance Material
HMI	Human Machine Interface
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
MEL	Minimum Equipment List
N/A	Not Applicable
NAA	National Aviation Authority
NOP	Normal Operating Procedures
OM	Operating Manual
OS	Operating System
PED	Portable Electronic Device
SA	Synapse Aviation
SOP	Standard Operating Procedures
V&V	Verification and Validation

2 DESCRIPTION OF THE SOFTWARE

This section describes the intended use and functionalities of the Airport Briefing software.

2.1 OVERVIEW

Airport Briefing is an interactive, high fidelity briefing software platform. It lays down a technological instrument to effectively comply with the applicable aerodrome competency qualification requirements, and as such, its INTENDED USE is implicitly inherited.

The Airport Briefing software platform has three main components:

- Admin Panel
- 3D Scene Editor; and
- EFB Application

The Airport Briefing Admin Panel is a cloud-based administrative back-end component. It enables operator functions for fast creation, management, and secure dissemination of high-quality aerodrome briefings.

The 3D Scene Editor is a sophisticated tool for development of visual briefing/training content in 3D.

The Airport Briefing EFB Application is an insightful briefing application with high fidelity. Through well-structured briefing data and extensive use of visuals, Airport Briefing significantly increases the efficiency and situational awareness of flight crews and empower them to handle abnormal and unexpected situations, with readiness.

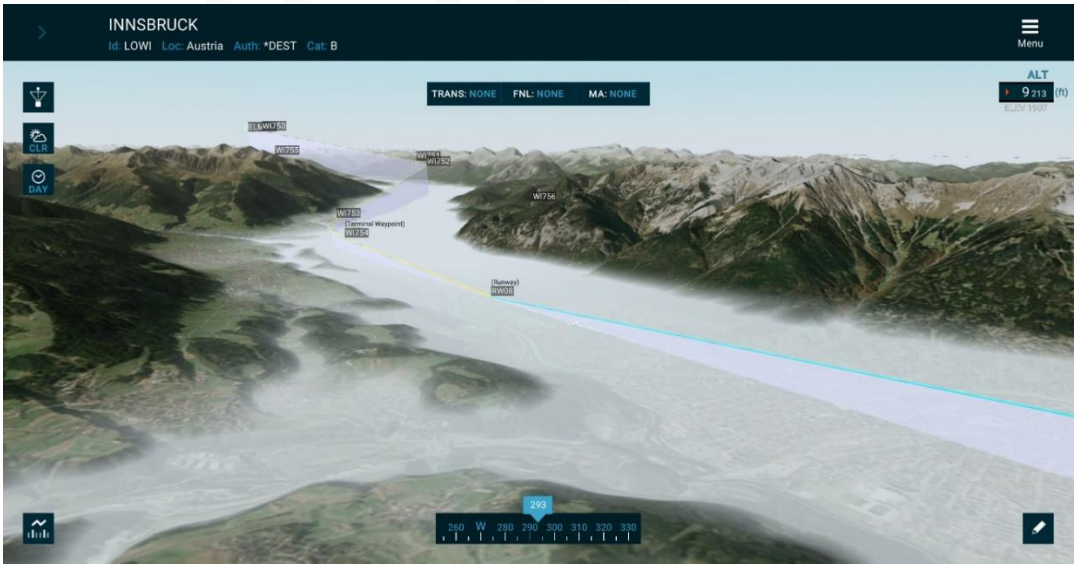

Figure 1 High fidelity interactive 3D graphics

1 *Comparably to the user experience in Microsoft PowerPoint, the end-users in Airport Briefing are presented with controlled, media-rich programmed instructions, however, utilizing the latest technologies in **3D computer graphics and animation** for use in training.*

See also EXPECTED BENEFITS AND DRAWBACKS for more information.

Important notes:

- The system does not present an own-ship symbol, nor provides any information that can be used to derive the aircraft position.
- Airport Briefing is not a navigation tool, nor any information it presents shall be considered for that purpose.
- Airport Briefing does not calculate or output any mass and balance or performance information.

2.2 INTENDED USE

The Airport Briefing software platform provides the technical means of compliance with ORO.FC.105(b)(2);(c)[2] 'Designation as pilot-in-command/commander' and is designed to be used as a primary source for briefing or self-briefing with regard to aerodrome familiarization and competency qualification.

The principal objective of Airport Briefing is to improve the level of safety and efficiency whereas the regulatory requirements are exceeded through the use of technology. This technology allows for more efficient administrative and content management processes and as such it was designed as an integral part of the Safety Management System of an operator.

At the same time, Airport Briefing helps the crews develop an accurate mental picture of the operating environment and conditions, and the associated threats of each airport on the network.

In accordance with the applicable Implementing Rules (IR) and the Acceptable Means of Compliance (AMC) requiring the pilot to be briefed or self-briefed before departing on a flight, the Airport Briefing application is inherently applicable and required to pre-flight use only, for which a formal EFB classification is not applicable.

Notwithstanding the paragraph above, the Airport Briefing application can also be used for onboard consultation, reference, and or training.

See also the SOFTWARE CLASSIFICATION chapter.

2 *ORO.FC.105(**b**)(**2**);(**c**)*
ROUTE/AREA AND AERODROME KNOWLEDGE FOR COMMERCIAL OPERATIONS
*(**b**) The operator shall only designate a flight crew member to act as pilot-in-command/ commander if he/she has:*
*(**2**) adequate knowledge of the route or area to be flown and of the aerodromes, including alternate aerodromes, facilities and procedures to be used;*
*(**c**) In the case of commercial operations of aeroplanes and helicopters, the pilot-in-command/commander or the pilot, to whom the conduct of the flight may be delegated, shall have had initial familiarisation training of the route or area to be flown and of the aerodromes, facilities and procedures to be used. This route/area and aerodrome knowledge shall be maintained by operating at least once on the route or area or to the aerodrome within a 12-month period.*
AMC 1
(c)Prior to operating to a:
(1) category B aerodrome, the pilot-in-command/commander should be briefed, or self-briefed by means of programmed instruction, on the category B aerodrome(s) concerned. The completion of the briefing should be recorded. This recording may be accomplished after completion or confirmed by the pilot-in-command/commander before departure on a flight involving category B aerodrome(s) as destination or alternate aerodromes.
(2) category C aerodrome, the pilot-in-command/commander should be briefed and visit the aerodrome as an observer and/or undertake instruction in a suitable FSTD. The completion of the briefing, visit and/or instruction should be recorded.

2.3 FUNCTIONS

2.3.1 Airport Briefing Admin Panel

For a detailed description of this function see the Airport Briefing Admin Guide (ref. SYN-ABAG-03/21)

2.3.2 Airport Briefing EFB Application

For a detailed description of this function see the Airport Briefing Pilot User Guide (ref. SYN-ABPUG-03/21)

3 EXPECTED BENEFITS AND DRAWBACKS

3.1 SAFETY

Effective implementation of Airport Briefing will significantly contribute to aviation safety by increasing the efficiency and situational awareness of flight crews and empowering them to handle abnormal and unexpected situations with readiness. Increased awareness results in informed decision making and will mitigate threats before they translate into costly and potentially fatal incidents or accidents.

3.2 COST-BENEFIT

The cost-benefit analysis (CBA) for a medium/large operator with 1000+ pilots has shown significant tangible and intangible cost advantages of incorporating Airport Briefing into their system. The tangible cost savings for a medium/large operator reveals up to 70% benefit over running a traditional document management system for its briefings (positive economic impact in terms of costs) and the intangible cost-benefit of a single uninformed or unconsidered flight diversion or an incident/accident event prevention, may amount to millions of US Dollars on long-term basis. These are without considering the advantages of technology integration and systemic efficiencies.

3.3 ROI

The profitability indicators reveal that a positive return of investment (ROI) is generated within the first year of Airport Briefing implementation. The intangible ROI on the other hand may effectively compensate for the term within the first month itself.

3.4 QUALITY

The quality of the briefings is expected to significantly improve as a result of the innovative features and briefing-development tools that are available with Airport Briefing. The Airport Briefing concept is designed to maximize learning through the use of 3D visuals and multi-media, and at the same time, minimize the briefing time required from the crews. The valuable time inflight required to assimilate a briefing using the traditional mechanisms instead can be used towards critical decision making during any exigency. In addition, the same briefing-development tools have wide range of use cases in training and checking as well.

3.5 SOCIAL IMPACT

There is evidence of positive social impact among the pilot community as a result of exposure to technological novelty and the ease of briefing. Also, there is possibly a slight negative social impact because the briefing activities may be closely monitored by the operator resulting in higher accountability.

3.6 ENHANCED COMPLIANCE

A traditional approach to providing evidence if a briefing was completed includes a paper trail (record form) or digital acknowledgment by crew members, then stored in compliance with regulatory requirements. The inapparent yet significant defect is that such methods are based on the premise of trust and professional integrity that the pilot has indeed completed the required briefing in part or in full.

Airport Briefing safeguards the operator from such systemic shortcomings by utilizing technologies for real-time collection and synchronization of all briefing activities with the cloud. Consequently, Airport Briefing provides a robust and automated system for record collection and archiving, and as such, it is designed as an integral part of the Safety Management System of an operator.

3.7 RELIABLE SKY DATA®

The establishment of operations manual and management of changes require manual work, and with an increasing number of airports, it becomes laborious and dependent on more manpower to monitor and maintain information fidelity. This increases the risk of errors through translation and transposing of critical data resulting in erroneous information being disseminated to pilots.

With integrated LIDO SkyData® by Lufthansa Systems in Airport Briefing, monitoring and management of airport data is fully automated and managed using ARINC 424 data streams every AIRAC cycle. Consequently, this allows the operators to focus entirely on the briefing specifics that matter.

3.8 TOP-LEVEL SECURITY

Airport Briefing is running on AWS Cloud infrastructure which is the most secure cloud computing environment available today. All customers benefit from AWS being the only commercial cloud that has had its service offerings and associated supply chain vetted and accepted as secure enough for top-secret workloads.

3.9 REDUNDANCY

As a risk management feature and to ease-in the transition to Airport Briefing, engage trials, regulatory approvals, etc., Airport Briefing runs a backup system in the background similar to the traditional means, where briefings are also being managed and stored in a PDF format. This process is automatic, and no user input is required.

3.10 DOCUMENTATION

Airport Briefing comes with a comprehensive set of high-quality user guides, training materials, videos, and compliance documentation to support even the strictest of operators/authorities.

3.11 TRUST

Synapse Aviation is driven by trust and commitment without compromise. To our team 'Synapse' stands for "neural link" that bonds us all and drives us forward unconditionally. Through more than six years of surgical focus, we have overcome challenges and solved problems on the path of continuously-improving our Airport Briefing, as we will continue to do so. At Synapse Aviation we believe in personal commitment, demonstrated competence, and we measure our progress by the satisfaction of the customers we serve.

4 SOFTWARE CLASSIFICATION

4.1 RATIONALE

Pursuant to the INTENDED USE chapter and based on the assessment of the safety effect of each failure condition of the application, no failure conditions have been identified that may have other than a negligible safety impact when used in flight. Consequently, in accordance with AMC1 CAT.GEN.MPA.141(b) the application may be classified as a Type A EFB application.

Notwithstanding this rationale, the following provisions should be taken into account by the operator:

- It is recommended that for the sole purpose of compliance with ORO.FC.105(**b**)(**2**);(**c**) the application is used before departure on a flight.
- Subject to a concurrence with the risk assessment in this manual and provided the briefing or self-briefing is completed before the flight, the operator may allow the use of the application onboard for consultation and enhancing situational awareness.
- For in-flight use, the Airport Briefing EFB application should be limited to non-critical phases only.
- The METAR and TAF information should be used at the operator's discretion.

See also EXPECTED BENEFITS AND DRAWBACKS for more information.

4.2 CONCLUSION

Despite the aforementioned, due to differences in the industry practice and to cater for all the needs, policies, and procedures of many operators, this manual contains a complete HAZARD IDENTIFICATION AND RISK MANAGEMENT, HUMAN FACTORS AND HMI CONSIDERATIONS, and COMPLIANCE MATRIX to allow for the more conservative Type B EBF software classification scenario, where needed.

Therefore, this manual assumes that the Airport Briefing EFB Application is classified as a Type B application as per AMC3 CAT.GEN.MPA.141(b)

5 HUMAN FACTORS AND HMI CONSIDERATIONS

5.1 INTRODUCTION

5.1.1 Purpose

This chapter details the Human Factors (HF) and the Human Machine Interface (HMI) considerations taken into account in the development of the Airport Briefing software platform and in particular, the EFB Application.

These requirements are established with the following concurrent objectives:

- Be compliant with design considerations provided in the EFB regulatory materials
- Minimize flight crew workload and errors
- Use the lessons learned from the earlier versions of Airport Briefing
- Ensure HF & HMI consistency with equivalent systems

5.1.2 Considerations

The elements provided in this chapter below are those that are independent of any EFB hardware.

5.1.3 Assessment of human-machine interface (HMI)

The Airport Briefing HMI has been assessed in standalone and in-flight test campaigns by Synapse Aviation pilots and partner airlines. The results of those assessments are concurrent with the statements throughout this manual.

The responsibility to adapt this assessment rests with the Operator.

5.2 HUMAN-MACHINE INTERFACE

The Airport Briefing EFB Application has an intuitive user interface and is consistent with other similar applications and or avionics to the best extent practical, including and not limited to data entry methods, color-coding philosophies, and symbology.

5.3 INPUT DEVICES

The Airport Briefing EFB Application HMI is designed to be usable on:

- iPads, Windows mobile (Surface Pro, Laptops), and Windows desktop devices
- Standard input devices (physical/virtual keyboard, mouse/touchpad, touchscreen)
- The application requires minimal user inputs which have been carefully designed considering the type of entry and FD compartment environmental factors.

5.4 CONSISTENCY

5.4.1 Consistency between EFB applications

Airport Briefing user interface has consistency with other existing EFB applications with consistent HMI.

5.4.2 Consistency with flight deck applications

Airport Briefing user interface has consistency with other flight deck applications with regard to design philosophy, look and feel, interaction logic, and workflows.

5.5 MESSAGES AND USE OF COLORS

The Airport Briefing EFB Application user interface is designed to draw the pilot's attention with appropriate messages and reminders as per their priority through:

- Icon/error messages where applicable
- Pop-up windows raised upon notification or error/failure.

5.5.1 Use of colors

The following color coding is used in Airport Briefing:

Data origin / User action	**Color Coding**	
	Day mode	**Night mode (black bg)**
Default data coming from the system	Black font	White font
Cautions	Amber font	Amber font
Warnings	Red font	Red font

Figure 2: Color coding in Airport Briefing

5.5.2 Aural messages

There are no audio warning or caution messages in Airport Briefing.
An optional voice-over-text readout may be available on some briefing slides and the automatic activation is disabled by default. To play the voice-over audio, it has to be manually activated by the end-user.
The operator is responsible to deactivate other sounds that may be emitted by the EFB devices (OS, other applications).

5.6 SYSTEM ERROR MESSAGES

The Airport Briefing EFB Application raises error messages when functions/data are fully or partially disabled/unavailable so that the end-user is aware of the status. Certain functions can be controlled by the operator via the Admin Panel in which case if disabled, the corresponding functions will not be visible to the end-users.

5.7 DATA ENTRY SCREENING AND ERROR MESSAGES

User-entered data is minimal in the application and needed for entry of free text without restrictions. In all other cases, the user is presented with multiple choices to choose from,

either via buttons, a dropdown list with options, or via slider interaction. In all cases, the user cannot enter or choose a wrong input.

5.8 ERROR AND FAILURE MODES

5.8.1 Flight crew errors

The Airport Briefing EFB Application is designed for viewing read-only briefing content.
Due to the simple interaction with the application by using basic navigation controls and screen gestures, the users are not exposed to making/inducing errors.

5.8.2 Identifying failure modes

The Airport Briefing EFB Application raises errors and notifications upon system failures, such as loss of connectivity, wrong or expired user credentials, data not current, etc.

5.9 RESPONSIVENESS OF APPLICATION

If the EFB application is busy with internal tasks that preclude immediate processing of user input (e.g. loading, self-test, or data refresh), the Airport Briefing EFB Application displays a “system busy” indicator (e.g. spinning wheel). This is to inform the user that the system is busy and cannot process inputs immediately. In other cases when a tangible process is being executed (e.g. downloading data), the application displays a progress bar to inform the user of the estimated remaining time to completion.

5.10 OFF-SCREEN TEXT AND CONTENT

If the document segment is not visible in its entirety in the available display area, such as during “zoom” or “pan” operations, the existence of off-screen content is clearly indicated consistently (for example with arrows or with a scroll bar).

5.11 ACTIVE REGIONS

Active regions are regions to which special user commands apply. The active region can be text, a graphic image, a window, a frame, or another document object. These regions are clearly indicated.

5.12 MANAGING MULTIPLE OPEN APPLICATIONS AND DOCUMENTS

The open Airport Briefing EFB Application is clearly distinguished through its icon.
Switching between applications can be made easily through the selection of the icon corresponding to the application the user wants to reach.
The Airport Briefing EFB Application has been designed so that when the user returns to the application that was running in the background, it appears in the same state as when the user left that application.

5.13 FLIGHT CREW WORKLOAD

Use of the Airport Briefing EFB Application does not result in undue flight crew workload.
There are no complex, multi-step-data-entry tasks.
The Airport Briefing EFB Application is not used during take-off, landing, and other critical phases of the flight.
The positioning of the EFB remains under the responsibility of the operator.

6 ENVIRONMENT OF USE

6.1 HARDWARE CONSIDERATIONS

There is no specific consideration on the environment of use of the Airport Briefing EFB Application, like recommendations related to the EFB hardware, other than the ones required by:

- The Airport Briefing EFB Application minimum system requirements detailed in the Airport Briefing Pilot User Guide Appendix 1 – Minimum system requirements, and
- The EFB regulations (where the hardware compliance remains under the operator's responsibility).

7 ADMINISTRATION CONSIDERATIONS

7.1 GENERAL

This chapter assumes that the operator has an established EFB administration and that procedures and training requirements for the administration and use of devices and EFB applications have been established and implemented.

7.2 EFB ADMINISTRATOR

The EFB Administrator is the main role in the management of the EFB system. Depending on the Operator fleet size, this role may require more than one individual to perform the EFB administration tasks. These tasks include the administration of the Airport Briefing software. However, at least one person should be designated as the EFB Administrator responsible for the entire Airport Briefing administration process in front of the local aviation authority of the Operator.

7.3 TYPICAL WORKFLOW

#	Activity	Actor	Means	Output	Description	Note
1	Inform customer	Synapse Aviation	E-mail	Notification e-mail	The operator EFB Administrator receives an e-mail from Synapse Aviation informing the availability of a new Airport Briefing application	New or Update
2	Get new application	EFB Administrator	Secure FTP	New application file(s)	The EFB Administrator downloads the application file(s) from the specified SFTP location. The EFB Administrator checks that the content of the delivery complies with the Synapse Aviation release note and archives the delivery	
3	Nominate operator administrators	EFB Administrator	Airport Briefing Admin Panel	List of administrators	The EFB Administrator creates additional administrators in the Airport Briefing system and configures their privileges and restrictions	Optional
4	Install EFB application	EFB Administrator and or other nominated admins	Operator application management tool or similar	Application installed on the representative test device(s)	After reading the documentation provided by Synapse Aviation (User Guides, Release notes, Limitations notes), the EFB Administrator distributes/installs the new application on the representative device(s)	New install or Update
5	Functional test of new software / data	EFB Administrator and or other nominated admins	Airport Briefing application	Validation of correct application behavior	Complete test of the new EFB software. All issues/findings should be rectified in coordination with Synapse Aviation	New install
6	Check compatibility new software / data	EFB Administrator and or other nominated admins	Airport Briefing application	Compatibility assessment with current data	Operators test of updated EFB software. Operators check for compatibility of the current data with the new EFB software	Update

#	Activity	Actor	Means	Output	Description	Note
7	Admin Panel Inter-operability validation	EFB Administrator and or other nominated admins	Airport Briefing EFB Application and Admin Panel	Consistent operation of the overall system (Admin Panel and EFB Application)	The EFB administrator requests the nominated Administrators to perform some global tests to verify that the application is working consistently. If the validation shows no issues, the EFB Administrator can dispatch the new software and data.	New install or Update
8	Publish Install new or Update EFB Application	EFB Administrator	Operator application management tool or similar	End-user device with latest Airport Briefing application	Users are notified using existing communication methods, and the Application is distributed/installed on end-user devices.	
9	Synchronize Application with Admin Panel	End users	Airport Briefing EFB Application and Admin Panel	End-user application with up-to-date data	End-user synchronizes his Airport Briefing application with the Admin Panel	
10	Follow up fleet configuration	EFB Administrator	Airport Briefing Admin Panel	Trace the update progress	For each User device, the EFB Administrator monitors the update status via the Admin Panel. The EFB Administrator keeps track of the user devices that are up-to-date and track of those that have still to be updated, both the Application and its Data.	

8 FLIGHT CREW PROCEDURES AND TRAINING RECOMMENDATIONS

This section provides recommended flight crew procedures and training for Airport Briefing.
The following Airport Briefing training recommendations should be included in the Operator's EFB training program to ensure safe and successful operations with the Airport Briefing HMI and use.

8.1 FLIGHT CREW TRAINING

8.1.1 Initial training

Before the use of the Airport Briefing application in operations, an initial training should be followed by the flight crew. This initial training should be in the form of:

- Provision of Airport Briefing Pilot User Guide for self-study and reference; and
- LMS (Learning Management System) course, video presentation, or a classroom presentation covering the following recommended aspects:
    - Intended Use of Airport Briefing including an operator's disclaimer
    - Installation and log-in
    - Update mechanism and notifications
    - Navigating throughout the application
    - Structure of an airport briefing (as defined by the operator)
    - BRIEFING Feature (if applicable)
    - 3D Feature (if applicable)
    - MEDIA Feature (if applicable)
    - REPORT Feature (if applicable)
    - Contingency procedures/PDF back-up

8.1.2 Recurrent training

Recurrent training on Airport Briefing is not required.

8.1.3 Checking

Checking on Airport Briefing is not required.

8.1.4 Currency

There is no currency requirement.

8.2 ADMINISTRATOR TRAINING

8.2.1 Initial Training

There are no specific recommendations for administrator training in case of basic management and or monitoring of the platform. However, to utilize the complete set of features and functionalities of the Admin Panel and the platform in general, administrators should undergo initial training. This initial training should be in the form of:

- Provision of Airport Briefing Admin Guide and task-specific video tutorials for self-study and reference, developed by Synapse Aviation; and
- Remote training class (webinar) or on-site classroom training with a duration of 1 day, delivered by Synapse Aviation qualified tutor.

8.2.2 Recurrent training

Recurrent training for administrators is not required.

8.2.3 Checking

Checking on Airport Briefing is not required.

8.2.4 Currency

There is no currency requirement.

9 SECURITY CONSIDERATIONS

Reserved

10 HAZARD IDENTIFICATION AND RISK MANAGEMENT

10.1 PURPOSE

This section provides a detailed generic risk assessment for the use of the Airport Briefing EFB application.

This assessment considers both the following:

- Mitigation of the risks before the use of the Airport Briefing EFB application by the flight crew (Upstream processes)
- Mitigation of the risks during the use of the Airport Briefing EFB application by the flight crew (Downstream processes).

This generic risk assessment by Synapse Aviation should be used as a basis by the operators to develop their own risk assessment for use of the Airport Briefing EFB application.

10.2 RISK ASSESSMENT

10.2.1 Applicability of this Risk Assessment

This risk assessment applies to the Airport Briefing EFB Application used on approved iOS and Windows-based portable EFBs (PEDs).

10.2.2 Responsibilities of Operators

It is the responsibility of the Operator to use this generic risk assessment to develop its own risk assessment based on its operational specifics and mitigation means. This risk assessment should be performed before entry into operation of the Airport Briefing EFB application, as part of its hazard identification and risk management process required by EASA ORO.GEN.200 or any other equivalent requirement.

The Operator is responsible for the implementation and validation of the mitigation means under the oversight of its National Aviation Authority.

See also INTENDED USE chapter above.

See also EXPECTED BENEFITS AND DRAWBACKS chapter above.

10.2.3 Risk Assessment Criteria

Risk Severity Scale		
A	**Catastrophic**	Multiple deaths and equipment destroyed (hull loss)
B	**Hazardous**	A large reduction of safety margins, maximum two fatalities, serious injury, major equipment damage
C	**Major**	A significant reduction of safety margins, serious incident, injury of persons
D	**Minor**	Nuisance, operating limitations, use of emergency procedures, minor incidents
E	**Negligible**	Little consequence

Risk Probability Scale		
1	**Extremely improbable**	Almost inconceivable that the event will occur
2	**Improbable**	Very unlikely to occur
3	**Remote**	Unlikely, but could occur (has occurred rarely)
4	**Occasional**	Likely to occur sometimes (has occurred infrequently)
5	**Frequent**	Likely to occur many times (has occurred frequently)

Risk Management	Assessment Risk Index	Suggested Criteria
HIGH	**HIGH** 5A, 5B, 5C, 4A, 4B, 3A	Unacceptable under the existing circumstances
MEDIUM	**MEDIUM** 5D, 5E, 4C, 4D, 4E, 3B, 3C, 3D, 2A, 2B, 2C	Acceptable based on risk mitigation.
LOW	**LOW** 3E, 2D, 2E, 1A, 1B, 1C, 1D, 1E	Acceptable

RISK ASSESSMENT MATRIX					
Risk Probability	**Risk severity**				
	Catastrophic A	**Hazardous B**	**Major C**	**Minor D**	**Negligible E**
Frequent 5	**5A**	**5B**	**5C**	**5D**	**5E**
Occasional 4	**4A**	**4B**	**4C**	**4D**	**4E**
Remote 3	**3A**	**3B**	**3C**	**3D**	**3E**
Improbable 2	**2A**	**2B**	**2C**	**2D**	**2E**
Extremely Improbable 1	**1A**	**1B**	**1C**	**1D**	**1E**

10.2.4 Risk Assessment Table

GENERAL HAZARD	**RESPONSIBLE PERSON**	**PERSONS INVOLVED**
Implementation of Airport Briefing software platform and adaptation of existing processes for continuous management of aerodrome briefings, dissemination, and safe usage.	Dipl. Eng. Filip Arsov General Manager Synapse Aviation LLC	Ph.D. Leonid Djinevski MSc. Aleksandar Mojsov Captain Dime Lazarev Captain Kocho Mojsov Captain Randeep Panag

RISK ASSESSMENT AND MITIGATION				
RISK IDENTIFICATION AND EVALUATION BEFORE MITIGATION			**RISK MITIGATION AND RISK AFTER MITIGATION**	
Administrative See also Chapter 7 ADMINISTRATION CONSIDERATIONS				
1	Initial setup and configuration of the Airport Briefing software platform.	**MEDIUM**	The initial setup and configuration of Airport Briefing are done under the supervision and guidance of Synapse Aviation.	**LOW**
2	Initial migration of operator existing data into the new software database.	**MEDIUM**	The task may be completed in-house or delegated to the Synapse Aviation team. For the latter, the operator and Synapse Aviation must put in place a clearly defined process. Detailed V&V by the operator performed after task completion.	**LOW**
3	Installing the Airport Briefing software application on existing EFB devices.	**MEDIUM**	The operator should have a clearly defined process to accomplish this task. It usually involves the IT department and the EFB administrator. Synapse Aviation IT support is available on request.	**LOW**
4	Managing software updates.	**MEDIUM**	See Chapter 7.3 TYPICAL WORKFLOW	**LOW**

Operational					
1	Improper pilot operation of the Airport Briefing EFB application.	**3D**	MEDIUM	See Chapter 8.1 FLIGHT CREW TRAINING	**LOW**
2	A pilot starts his flying duties without completing the required airport briefing(s). *Note. The validity period of airport competency qualification is 12 months.*	**3D**	MEDIUM	Operational procedure as defined in the Operations Manual e.g. SOP/NOP procedure, mandatory confirmation during check-in, etc. In the Airport Briefing system, the operator has complete and real-time oversight of pilot briefing activities via the Admin Panel.	**LOW**
3	Inability to access the briefing content in Airport Briefing due to failed EFB device, critical and irreparable application error, or similar, in-flight. *Note. The validity period of airport competency qualification is 12 months.*	**3D**	MEDIUM	A pilot should not use Airport Briefing for the purpose of airport competency qualification in flight as that would be in violation of the source implementing rule and point 3 of this risk assessment. If required for other operational reasons in flight: The pilot may use the other device to access the Airport Briefing application; The pilot with a failed application can access the back-up PDF briefing which is stored independently from the application, on the same EFB device; Other operational procedure as defined in the Operations Manual.	**LOW**
4	Inability to access the briefing content in Airport Briefing due to two failed EFB devices, critical and irreparable application error, or similar, in-flight. *Note. The validity period of airport competency qualification is 12 months.*	**2C**	MEDIUM	Except for hardware failure, the pilots can access the back-up PDF briefings which are stored independently from the application; The pilot can be emailed with the PDF briefing (internet required); Other operational procedure as defined in the Operations Manual.	**LOW**

5	Inability to access the briefing content in the Airport Briefing EFB Application before dispatch. *Note. The validity period of airport competency qualification is 12 months.*	**2D**	LOW	The pilots can complete the briefing using the web version of Airport Briefing. The pilots can be emailed with the PDF briefing; The pilots can be dispatched with a paper copy; Other operational procedure as defined in the Operations Manual.	**LOW**
6	Inability to access the Airport Briefing system (including the web version) due to interruption or maintenance before dispatch. *Note. The validity period of airport competency qualification is 12 months.*	**2C**	MEDIUM	The pilot can access the pre-loaded back-up PDF briefings which are stored independently from the application; The pilot can be emailed with the PDF briefing; The pilot can be dispatched with a paper copy; Other operational procedure as defined in the Operations Manual.	**LOW**
7	Airport Briefing is not up to date. *Note. The validity period of airport competency qualification is 12 months.*	**3D**	MEDIUM	Operational procedure for updating before the flight; Mandatory confirmation during check-in; User is notified by audio and visual means within the application whenever an update is available; Other operational procedure as defined in the Operations Manual.	**LOW**
8	Erroneous information is presented to the crew.	**3D**	MEDIUM	V&V via Review & Approval process of the Update Mechanism; Operator disclaimer; Other operational procedure as defined in the Operations Manual. See also See Chapter 8.1 FLIGHT CREW TRAINING	**LOW**
9	Inability to receive user activity (briefing) logs due to the device being offline or system maintenance. *Note. The validity period of airport competency qualification is 12 months.*	**3D**	MEDIUM	If the device is offline or the system is unable to receive data, the uses logs are queued (stored) on the device and then synced with the cloud (main database) upon reconnection. Other operational procedure as defined in the Operations Manual.	**LOW**
10	Reserved				

11 OPERATIONAL APPROVAL CONSIDERATIONS

11.1 CONTINUED VALIDITY OF OPERATIONAL SUITABILITY

EASA evaluation of the Airport Briefing application version 3 is planned for the second half of 2021.

All changes to the Airport Briefing software application and/or the process of the data dissemination are assessed by Synapse Aviation. In accordance with the provisions of its applicable EFB regulatory guidance (e.g. AMC2 SPA.EFB.100(b) of Regulation (EU) 965/2012 on air operations criteria), Synapse Aviation can provide a recommendation to the operators if the changes require that the Operator should apply a change management procedure approved by the competent authority in accordance with ARO.GEN.310(c).

In addition, Synapse Aviation will determine if the change will be evaluated by the EASA (and or FAA) in order to maintain their statement of Operational Suitability on the Airport Briefing application and the User and Compliance Manual. Changes that will be subject to a supplementary operational evaluation by the EASA (and or FAA) will result in an update of the operational suitability letters published by EASA (and or FAA) for the Airport Briefing application.

The Release note for each new version of the Airport Briefing software will perform all the following:

- Describe the changes and the limitations introduced in the new software version
- Specify if the changes were evaluated by the EASA (and or FAA) to obtain or maintain the statement of operational suitability on the Airport Briefing application and the User and Compliance Manual
- Provide the reference to the applicable operational suitability letters for the Airport Briefing application if published by the EASA (and or FAA)
- In accordance with the requirements defined in the Operator's applicable regulatory guidance for EFB operation, recommend if the Operator should apply a change management procedure as approved by the competent authority in accordance with ARO.GEN.310(c)
- Provide the reference to the applicable version of the Airport Briefing User and Compliance Manual

11.2 MANAGEMENT OF CHANGES

Based on the guidance from EASA and FAA, Synapse Aviation provides a recommendation to categorize the changes to the Airport Briefing application as either MINOR or MAJOR.
The correspondence of this Synapse Aviation criterion MINOR/MAJOR with EASA and FAA criteria for EFB changes is shown below:

Airport Briefing change	Regulation (EU) 965/2012 on air operations	FAA AC120-76D
MAJOR	The Operator **should apply** the change management procedure approved by the competent authority	Operator's responsibility **Minor or Significant** (to be determined in accordance with AC 120-76D 13.1)
MINOR	The Operator **does not need** to apply the change management procedure approved by the competent authority	**Minor**, without FAA review or assessment

The following paragraphs provide the Synapse Aviation criteria used to classify the change to Airport Briefing as either MINOR or MAJOR.

11.2.1 Minor changes

Any change, that:

- do not result in a hardware change that would require a re-evaluation of the HMI and human factors aspects in accordance with AMC1 SPA.EFB.100(b)(2);
- do not bring any change to the calculation algorithms of a type B EFB application;
- 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;
- introduce a new type A EFB application or modify an existing one (provided its software classification remains type A);
- do not introduce any additional functionality to an existing type B EFB application; or
- update an existing database necessary to use an existing type B EFB application, may be introduced by the operator without the need to be approved by its competent authority, is considered as Minor.

Examples of Minor changes:

- Update of the Airport Briefing data performed in accordance with the recommendations provided in sections 4 and 6 of this manual;
- Update of the Airport Briefing software application to introduce software fixes.

11.2.2 Major changes

Any change that does not comply with the criteria of a Minor Change is considered Major.
Examples of Major changes:

- Introduction of a change to the HMI for an existing functionality of type B EFB application that requires a change to the flight crew training program or operational procedures;
- Introduction of new functionality in an existing type B EFB application.

11.3 IN-SERVICE FEEDBACK

In accordance with their applicable occurrence reporting obligations (e.g. EASA ORO.GEN.160 or any other equivalent requirement), Airport Briefing operators are encouraged to report to their NAA in addition to Synapse Aviation, responsible for the design of the Airport Briefing software application, any incident and occurrence related to the use of Airport Briefing.

All occurrences related to the use of the Airport Briefing application will be collected, investigated, and analyzed by Synapse Aviation, and then corrected as appropriate (refer to MANAGEMENT OF CHANGES). Correction may be performed in a new version of the software or via an update of the Airport Briefing User and Compliance Manual.

12 COMPLIANCE MATRIX

12.1 COMPLIANCE MATRIX WITH REGULATION (EU) 965/2012 ON AIR OPERATIONS

Reference	Proposed means of compliance
CAT.GEN.MPA.141 - Use of electronic flight bags (EFBs)	Compliance means provided in corresponding AMCs below.
GM1 CAT.GEN.MPA.141 - Use of electronic flight bags (EFBs) DEFINITIONS	Information only.
GM2 CAT.GEN.MPA.141 - Use of electronic flight bags (EFBs) BACKGROUND INFORMATION	Information only.
AMC1 CAT.GEN.MPA.141(a) - Use of electronic flight bags (EFBs) HARDWARE	Out of scope of this User and Compliance Manual.
GM1 CAT.GEN.MPA.141(a) - Use of electronic flight bags (EFBs) VIEWABLE STOWAGE	Out of scope of this User and Compliance Manual
AMC1 CAT.GEN.MPA.141(b) - Use of electronic flight bags (EFBs) APPLICATION CLASSIFICATION	Airport Briefing application is classified as Type B applications as per AMC3 CAT.GEN.MPA.141(b). See also SOFTWARE CLASSIFICATION.
AMC2 CAT.GEN.MPA.141(b) - Use of electronic flight bags (EFBs) TYPICAL TYPE A EFB APPLICATIONS	Not applicable. See also SOFTWARE CLASSIFICATION.

AMC3 CAT.GEN.MPA.141(b) - Use of electronic flight bags (EFBs) TYPICAL TYPE B EFB APPLICATIONS	The Airport Briefing application.
GM1 CAT.GEN.MPA.141(b) - Use of electronic flight bags (EFBs) TACTICAL USE	information only.
GM2 CAT.GEN.MPA.141(b) - Use of electronic flight bags (EFBs) HUMAN-MACHINE INTERFACE (HMI) FOR TYPE A EFB APPLICATIONS	Not applicable to the Airport Briefing application.
SPA.EFB.100 (a) - Use of electronic flight bags (EFBs) – operational approval	Operator's responsibility.
SPA.EFB.100 (b) - Use of electronic flight bags (EFBs) – operational approval	Compliance is under operator's responsibility.
AMC1 SPA.EFB.100(b) - Use of electronic flight bags (EFBs) – operational approval SUITABILITY OF THE HARDWARE	Out of scope of this User and Compliance Manual.
AMC2 SPA.EFB.100(b) - Use of electronic flight bags (EFBs) – operational approval CHANGES	At each delivery of a new software version, Synapse Aviation provides Operators with a Release Note that specifies the content of the changes in addition to the associated classification (minor, major) in accordance with the criteria defined in section 10 of the present document for requiring or not a notification to the competent authority and application of the approved change management procedure.

AMC3 SPA.EFB.100(b) - Use of electronic flight bags (EFBs) – operational approval OPERATIONAL EVALUATION TEST	Operator's responsibility. The operational evaluation test is the responsibility of the Operator with its NAA. The present compliance matrix and the sections referenced in this document can be used to prepare the operational evaluation test.
AMC4 SPA.EFB.100(b) - Use of electronic flight bags (EFBs) – operational approval EFB APPLICATIONS WITH ETSO AUTHORISATIONS	Not applicable to the Airport Briefing application.
GM1 SPA.EFB.100(b) - Use of electronic flight bags (EFBs) – operational approval FINAL OPERATIONAL REPORT	Information only.
GM2 SPA.EFB.100(b) - Use of electronic flight bags (EFBs) – operational approval EVALUATION BY EASA	Operator's responsibility. Information only.
AMC1 SPA.EFB.100(b)(1) - Use of electronic flight bags (EFBs) – operational approval RISK ASSESSMENT (a) General (b) Assessing and mitigating the risks	Risk Assessment has been developed for the Airport Briefing application. Refer to HAZARD IDENTIFICATION AND RISK MANAGEMENT. Operator's responsibility: This risk assessment needs to be adapted by Operators to produce their Risk Assessment tailored to their operations.

AMC1 SPA.EFB.100(b)(2) - Use of electronic flight bags (EFBs) – operational approval HUMAN-MACHINE INTERFACE ASSESSMENT AND HUMAN FACTORS CONSIDERATIONS (a) Assessment of the human–machine interface (HMI), the installation, and aspects governing crew resource management (CRM) when using the EFB system (b) Compliance means provided in sub items. (1) Human–machine interface (2) Input devices (3) Consistency (4) Messages and the use of colours (5) System error messages (6) Data entry screening and error messages (7) Error and failure modes (8) Responsiveness of applications (9) Off-screen text and content (10) Active regions (11) Managing multiple open applications and documents (12) Flight crew workload	Compliance means provided in sub-items. Airport Briefing EFB application has been uniformly, systematically, and consistently validated in accordance with the HF & HMI considerations. Refer to chapter HUMAN FACTORS AND HMI CONSIDERATIONS (1) Refer to part 5.2 (2) Refer to part 5.3 (3) Refer to part 5.4 (4) Refer to part 5.5 (5) Refer to part 5.6 (6) Refer to part 5.7 (7) Refer to part 5.8 (8) Refer to part 5.9 (9) Refer to part 5.10 (10) Refer to part 5.11 (11) Refer to part 5.12 (12) Refer to part 5.13
AMC1 SPA.EFB.100(b)(3) - Use of electronic flight bags (EFBs) – operational approval EFB ADMINISTRATOR	Synapse Aviation provides generic definitions of Administrators' roles and administration workflows. Refer to section ADMINISTRATION CONSIDERATIONS.

	Regarding training recommendations for Administrators, refer to section 8.2 ADMINISTRATOR TRAINING**.** Operator's responsibility: It is the responsibility of the Operator to adapt this generic description to its organization and operations.
AMC2 SPA.EFB.100(b)(3) - Use of electronic flight bags (EFBs) – operational approval EFB POLICY AND PROCEDURES MANUAL	Operator's responsibility
AMC3 SPA.EFB.100(b)(3) - Use of electronic flight bags (EFBs) – operational approval PROCEDURES (a) General (b) Flight crew awareness of EFB software/database revisions (c) Procedures to mitigate and/or control workload (d) Dispatch (e) Maintenance (f) Security (g) Electronic signatures	(a) The scope of and implementation of EFB flight crew procedures is operator's responsibility. This includes: (b) Task to verify the EFB software applications and database versions which are clearly indicated on multiple locations throughout the Airport Briefing application. (c) Airport Briefing use should be limited to low workload and non-critical phases of the flight (d) Dispatch considerations. (e) Maintenance based on the implementation and management guidelines provided by Synapse Aviation with the EFB application. (f) EFB system security. (g) Not applicable to the Airport Briefing application.
AMC4 SPA.EFB.100(b)(3) - Use of electronic flight bags (EFBs) – operational approval FLIGHT CREW TRAINING	Operator's responsibility: It is the responsibility of the Operator to build its flight crew training programs associated to the use of the EFB applications. Synapse Aviation provides its recommendations for the flight crew training in section 7 of the present document.

AMC5 SPA.EFB.100(b)(3) - Use of electronic flight bags (EFBs) – operational approval PERFORMANCE AND MASS AND BALANCE APPLICATIONS	Not applicable to the Airport Briefing application
AMC6 SPA.EFB.100(b)(3) - Use of electronic flight bags (EFBs) – operational approval AIRPORT MOVING MAP DISPLAY (AMMD) APPLICATION WITH OWN-SHIP POSITION	Not applicable to the Airport Briefing application
AMC7 SPA.EFB.100(b)(3) - Use of electronic flight bags (EFBs) – operational approval USE OF COMMERCIAL OFF-THE-SHELF (COTS) POSITION SOURCE	Not applicable to the Airport Briefing application
AMC8 SPA.EFB.100(b)(3) - Use of electronic flight bags (EFBs) – operational approval CHART APPLICATIONS	Not applicable to the Airport Briefing application
AMC9 SPA.EFB.100(b)(3) - Use of electronic flight bags (EFBs) – operational approval IN-FLIGHT WEATHER APPLICATIONS	Not applicable to the Airport Briefing application
AMC10 SPA.EFB.100(b)(3) - Use of electronic flight bags (EFBs) – operational approval APPLICATIONS DISPLAYING OWN-SHIP POSITION IN FLIGHT	Not applicable to the Airport Briefing application

GM1 SPA.EFB.100(b)(3) - Use of electronic flight bags (EFBs) – operational approval EFB POLICY AND PROCEDURES MANUAL	Information only.
GM2 SPA.EFB.100(b)(3) - Use of electronic flight bags (EFBs) – operational approval FLIGHT CREW TRAINING	Information only.
GM3 SPA.EFB.100(b)(3) - Use of electronic flight bags (EFBs) – operational approval SECURITY	Information only.
GM4 SPA.EFB.100(b)(3) - Use of electronic flight bags (EFBs) – operational approval IN-FLIGHT WEATHER (IFW) APPLICATIONS	Not applicable to the Airport Briefing application
GM5 SPA.EFB.100(b)(3) - Use of electronic flight bags (EFBs) – operational approval USE OF COMMERCIAL OFF-THE-SHELF (COTS) POSITION SOURCE – PRACTICAL EVALUATION	Not applicable to the Airport Briefing application
GM6 SPA.EFB.100(b)(3) - Use of electronic flight bags (EFBs) – operational approval APPLICATIONS DISPLAYING OWN-SHIP POSITION IN FLIGHT	Not applicable to the Airport Briefing application

12.2 COMPLIANCE MATRIX WITH FAA AC120-76D (RESERVED)

RESERVED	RESERVED

END OF MANUAL