	WG-106	Electronic Flight Bag (EFB)

TERMS OF REFERENCE – REFERENCE N°TOR WG-106)

Approved by EUROCAE Council on (date: 20 October 2016)

BACKGROUND AND SCOPE

General:

The quick development of the Electronic Flight Bags (EFBs) use over the last years was such that they became a very common and important tool for flight operations and have replaced paper in most cockpits.

Increasingly present, EFBs also feature more and more advanced functions that depart from the simple replacement of paper while offering new possibilities to enhance operations and information available to the crew. They consequently become more complex to evaluate.

To facilitate the operational approval path in Europe and an EASA ETSO authorization, an industry standard becomes necessary.

Scope:

The standard should ideally unambiguously define the perimeter of EFB applications, without preventing future innovation in that domain.

The standard should not contradict existing guidance such as that contained in AMC 20-25 or in the ICAO EFB Manual Doc 10020 but may implement objectives to achieve completeness.

WORKING GROUP OBJECTIVES

Based on the existing material, the WG should:

- identify the minimum requirements that any EFB application must meet and;
- develop corresponding test criteria;
- monitor and consider the progress of the current EFB rulemaking activity at EASA.

An important distinguishing element between EFB applications and certified avionics applications is the demonstration that the EFB application failure should be limited to a minor failure effect. Guidance on how to perform that demonstration should be developed.

EFB application functions are by nature very open and shall not be limited by the standard. Criteria for the human machine interface and human factors evaluations should be developed, considering a typical aircraft environment.

To retain the value of EFB use for operations, the standard should allow to address applications developed in a less stringent environment than that required for certified avionics software. It should nevertheless describe methods to help streamlining the verification of the more complex or safety-critical EFB applications (e.g. calculation of performance data). This could be in part achieved by providing an interface with existing verification / qualification processes such as for example the ones described in ED-215, SOFTWARE TOOL QUALIFICATION CONSIDERATIONS.

The use of the standard should not be limited to evaluating the safety hazards and interface, but should also cover the specification and approval of elements related to the installation and operational use of the EFB, such as installation and verification instructions, administration guidelines, procedures and training elements.

Notes:

Interfaces to ground and aircraft systems shall be considered but the development of certification criteria for aircraft interfaces is out of the scope of this task. Within this logic the development of requirements for the EFB hardware installed on the aircraft is not within the scope of this activity but may be performed in a follow on one; this will be subject to a future update of the ToR.

The limitations from the ETSO system, which does not allow to adopt requirements to novel features and covers only the minimum requirements, needs to be considered while allowing all kind of applications to be covered by the MOPS when meeting the minimum requirements identified.

Initial Documentation:

Documents	Source	Intended Use
AMC 20-25 and NPA to RMT.0601/0602	EASA	Reference material for requirements on EFB applications
ETSO-C165a	EASA	Reference material for map applications
AMC 25-11	EASA	Reference for information
ED-215	EUROCAE	Possible interface and references applicable for verification processes
EFB Manual (Doc. 10020)	ICAO	Reference

Deliverables

List in following table deliverable(s) and due dates for the WG to comply with in the TORs.

Document type	Document title	Due date
MOPS XXXX	MOPS for Electronic Flight Bag (EFB) Software Applications	2018Q4 (t0+2 years)

ENVISAGED USE OF DELIVERABLE(S)

The MOPS would support an EASA ETSO and could be referenced in a future AMC to operational regulations.

PARTNERSHIP AND COLLABORATION

Joint new activity with RTCA if accepted.

INPUT FOR CONSIDERATION

The creation of the WG is supported by EASA.

SPECIFIC GUIDANCE AND MANDATORY REQUIREMENT(S);

- WG-xx meeting arrangements:

  Approximately 3 to 4 meetings per year are envisaged with a normal duration of 3 days.

- Secretariat General Coordination:

  WG-xx Chairman and/or Secretary are required:

  a. to provide the EUROCAE Secretary General and the Technical Program Manager, within two weeks following each WG's meeting, a short summary (10 to 15 lines, bullet point presentation accepted) on the WG's progress including schedule elements;

  b. to use the webspace provided by EUROCAE;

  c. to specifically invite the EUROCAE General Secretariat (eurocae@eurocae.net) to the "comment resolution meeting" following the Open Consultation of documents planned for publication; and

  d. to inform without delay the EUROCAE General Secretariat (eurocae@eurocae.net) of the WG's intentions when diverging from the TORs and provide reasons for such intention.

WG TERMINATION

The WG should terminate when the required documents have been completed, but should not immediately be disbanded. As the technologies mature in operation the Technical Specification should be reviewed for its continued applicability and usefulness.

APPENDICES

APPENDIX 1.

EUROCAE Documents (ED) categories and definitions

1. Minimum Aviation System Performance Specification (MASPS)

Describes and specifies the operational and/or functional requirements of a complete end-to-end system, which may include airborne, on-ground and space segments. It should provide a high level architecture describing the individual components, and should allocate between those components the performance, safety and interoperability requirements.

2. Operational Services and Environment Definition (OSED)

A standalone document equivalent to the part of a MASPS dedicated to the operational concept description: it provides the definition of the considered services and of the environment in which they have to be provided.

3. Safety and Performance Requirements (SPR) specification

A standalone document equivalent to the part of a MASPS dedicated to operational safety and performance issues: it provides an allocation of the requirements between the segments for the different approval types.

4. Interoperability (INTEROP) requirements specification

A standalone document equivalent to the part of a MASPS dedicated to interoperability issues between the different segments: for each of them, it identifies the technical interface and related functional requirements.

5. Process Specification (PS)

Specifies generic methods which are not specific to individual components, e.g. software or hardware development, environmental testing...

6. Minimum Operational Performance Specification (MOPS)

Specifies the performance of a component (piece of equipment, protocols, exchange formats,…) which is the minimum necessary performance to satisfy a regulatory requirement. In particular, it specifies the tests to be made to ensure that the specified performance is achieved. Intended to be referenced by an ETSO.

7. Technical Specification (TS)

Specifies performances of a component which reflects the best industrial practice.

8. Guidance Document (GD)

Amplifies the information contained in the types of documents described above. Usually illustrative information amplifying another EUROCAE document.

9. Report (R)

Describes results of Working Groups which are of general interest but not appropriate to publish in the form of a specification or similar document of the types described above.

APPENDIX 2: Coordination principles

Liaison with other EUROCAE WGs

This type of "internal" collaboration is organized and harmonized at the General Secretariat level.

NOTE: To be considered that, through the inter-WGs collaboration, communication may be extended to EUROCAE standardization bodies partners through existing coordination or joint partnership (in other words, work on specific domains may be conducted by a network including EUROCAE WGs and RTCA and/or SAE Committees) – see next section.

Co-operation with other Standardization bodies.

Co-operation means working together, exchanging ideas and information … but not having at the end a word to word equivalent document (some differences could be acceptable in final developed documents as far as they are clearly identified (i.e. in documents Foreword) and not contradictory.

Joint EUROCAE WG and RTCA SC or SAE committees.

The partnership is complete and must result in a full equivalent document (only editorial differences such as document reference, Forward, Group membership …

With RTCA in particular, the objective is to conduct all specific development phases jointly and to address key milestones at the same time (Kick Off, Final TOR approval, Final initial draft validation, Open consultation and FRAC, approval by respective EUROCAE Council and RTCA PMC).

NOTE: EUROCAE and its partners must first agree on Intellectual Property and Copyrights when co-developed documents have to be provided to other bodies (e.g. ICAO).