AEEC SAI Timely Recovery of Flight Data (TRFD) Teleconference #18

Date: 9 October 2019

Please send any corrections or additions to Greg Moran.

Agenda:

- Review action items.
- Review ADFR updated content.
- Discuss TFD architecture study.

Discussion:

Organization

TRFD deliverables and schedule are as discussed in APIM 17-005 section 5.1. Our goal to generate a draft report addressing phases 1 & 2 in time for discussion at the Hawaii meeting, ahead of the APIM schedule.

Activity	Start Date	Completion Date
Phase 1: document the end-to-end system requirements	June, 2018	December, 2018
i. Define TRFD requirement source documents (ICAO SARP, industry standard, regulation) COMPLETE 13 June 2018		
ii. Define TRFD functional block diagram COMPLETE 13 June 2018		
iii. Capture requirements and recommendations from source documents COMPLETE 15 January 2019		
iv. Identify any additional requirements and recommendations COMPLETE 18 December 2018		
v. Allocate requirements and recommendation to functional blocks COMPLETE 15 January 2019		
vi. Develop section 2 of the report IN WORK June 2019		
Phase 2: develop candidate architectures and select architecture(s)	January, 2019	December, 2019
i. Develop candidate architectures for ADFR and TFD COMPLETE 24 August 2018		
ii. Develop section 3 of the report IN WORK ECD December 2019		
Phase 3: develop detailed equipment interface, and aircraft installation requirements, as well as ground system requirements	January, 2020	September, 2020
Re-evaluate schedule early 2020.		

Complete of phase 1 December, 2018 and phase 2 December, 2019 supports AEEC general session approval for requirements & architecture report (phase 1 and 2) March, 2020. Phase 3 completion September, 2020 may need to be adjusted based on characteristic and/or specifications recommended in requirements and architectures report. TRFD team preference to extend due date as TRFD is a new type certification mandate rather than the ADT forward-fit mandate, and ADT phase 3 took longer than 9 months.

SharePoint

- Meeting and teleconference minutes at *681 Input\7.) Meetings and Teleconferences*
- References at *681 Input\2.) References*
- Requirements at *681 Input\3.) Requirements*
- 681 report drafts and revision process at *681 Input\8.) TRFD Requirements and Architectures Report*
- 680 reports for reference / comparison at *680 Input\04.) ADT Requirements and Architectures Report*

Technical

Completed review of ADFR architecture study save for "Compliance with Requirements and Recommendations." Question as to how this should be captured in the document, as an attachment or appendix. Review ARINC 680 report Tables 4, 5 and 6 as an example to see how compliance was shown.

Miro, Paul, Rubin, Hannes and Greg Moran to work on revising & developing content for TFD architecture study for review at the November face-to-face meeting.

The plan is to issue next ARINC 681 report draft after that meeting.

Up-coming schedule:

- Face-to-face meeting Washington, DC 13-15 November 2019 *scheduled*

A reminder that Greg Smith needs your name, job title, employer and nationality before October 15, 2019 for those attending the face-to-face meeting in November, 2019.

Teleconferences to be scheduled approximately every 3 weeks after the face-to-face leading up to the February, 2020 face-to-face meeting in Coral Gables.

- Teleconference 19 December 4 or 11, 2019
- Teleconference 20 January 8 or 15, 2020

Actions:

Open -

ID	Action	Assigned	ECD
190226-C	Editorial: move document references not included in requirements table to appendix	John Fisher	TBD
190605-A	Review EASA NPA 2019-06 for ETSO (FDR, CVR, DLR, AIR, ADFR, NRLB, RLB, ELT) impact to TRFD (John), and revise discussion as needed if ETSO requirements are above that of ED-112A (Blake).	John Fisher & Blake	~~03 July 2019~~ ~~31 July 2019~~ ~~28 Aug 2019~~ ~~9 Oct 2019~~ 13 Nov 2019
~~190617-C~~	~~Editorial: add introductory sub-section in section 2 for an organization when that organization has two or more applicable documents.~~	~~John Fisher~~	~~03 July 2019~~ ~~24 July 2019~~ ~~28 Aug 2019~~ **9 Oct 2019**
190617-D	Editorial: ARINC 681 key term is 'location of end of flight', to be used throughout this report. Our terms equates to EASA term 'location of the point of end of flight'.	John Fisher	~~03 July 2019~~ ~~24 July 2019~~ ~~28 Aug 2019~~ ~~9 Oct 2019~~ 13 Nov 2019
190617-I	Develop requirements/recommendations Pivot table as an aid to readers in filtering requirements/recommendations by technology and functional block.	Blake	~~10 July 2019~~ 13 Nov 2019
190617-J	Develop content for TFD architecture study, data transport functional block discussion (section 3.2.3.3)	Rubin Stepin / Paul Roux	~~21 Aug 2019~~ ~~9 Oct 2019~~ 13 Nov 2019
~~190617-L~~	~~Review ICAO or other guidance regarding guidance for SAR recovering the ADFR, which could be added to our requirements/recommendations tables.~~ **Only Doc10054 section 3.5 discusses recovering the ADFR.**	~~Blake~~	~~10 July 2019~~ ~~24 July 2019~~ ~~28 Aug 2019~~ **9 Oct 2019**
~~190807-A~~	~~Add discussion explaining "REQ" and "REC" identity codes to section 2.~~	~~Greg Moran~~	~~28 Aug 2019~~ **9 Oct 2019**
190807-B	Is there an applicable ARINC standard regarding data storage protection? **No ARINC standard identified to date.**	Peter	~~28 Aug 2019~~ ~~9 Oct 2019~~ 13 Nov 2019
~~190918-A~~	~~Update ADFR architecture figure and/or text to indicate that ADFR DT implementation is not meant to suggest the only means to satisfy the ADT requirement.~~	~~Blake~~	**9 Oct 2019**

Closed –

ID	Action	Assigned	Closed
180411-A	Compile requirements source documents	Hannes / Greg Moran	17 May 2018

180411-B	Compile requirements from source documents into spreadsheet.
	  "shall" = minimum requirements
	  "should" = recommendations
		Greg Moran	17 May 2018

180411-C	Draft TRFD functional block diagram	Greg Smith	18 May 2018
180522-A	Circulate EASA document (HKCAD and CAAS regulatory material)	Hannes / Greg Moran	31 May 2018
180522-B	Update TRFD functional block diagram	Greg Smith / Miro	13 June 2018
180522-C	Update requirements table for ADFR	Blake	6 June 2018
180522-D	Provided requirements table numbering scheme	Greg Moran	31 May 2018
180613-A	Add EASA location of an aircraft in distress to requirements map.	Greg Moran	13 June 2018
180710-B	Review Distress Events MASPS ED-237 and add applicable requirements & recommendations to TRFD table.	John	31 July 2018
180710-C	Identify location of EASA AIR OPS regulations.	Greg	10 July 2018
180710-E	Develop document for TFD candidate architecture	Miro	31 July 2018
180710-F	Review TFRD requirements/recommendations table to a) confirm functional block allocation and b) identify any missing requirements/recommendations	All	31 July 2018
180710-D	Develop document for ADFR candidate architecture	Blake	~~31 July 2018~~ 6 Aug 2018
180613-B	Add combination recorder and FDR & DLR duration requirements (only CVR duration was added) in TRFD Minimum Requirements.	Blake	31 July 2018
180710-A	Review ELT MOPS ED-62B and add applicable requirements & recommendations to TRFD table.	Tom/Blake	31 July 2018
180731-A	Provide descriptive text for functional block diagram for inclusion into requirements section 2.	Greg Smith	21 Aug 2018
181026-A	Follow up with expected changes to ICAO Annex 13 for data protection and access issues.	Greg Smith	4 Dec 2018
181026-B	Should lithium battery references as listed in ADT also be listed for TRFD?	Blake	4 Dec 2018
181026-C	Review requirements/recommendations table to determine any changes or any which are missing.	All	18 Dec 2018
180731-B	Review ICAO Annex 13 and possibly also Doc9756 for applicable requirements/recommendations & create verbiage for how this is interpreted in section 2	Hannes	15 Jan 2019
181218-B	Review ED-62B requirements and recommendation for functional block assignment	Blake	15 Jan 2019
180918-A	Update section 2 from ADT requirements & architecture study for TRFD.		19 Feb 2019
	• Update Figure 5 for TRFD.	John	
	• Update Figures 4 & 11 and text after Figure 7 for TRFD; add subsections regarding HKCAD, CAAS and NPA 2018-03 (section 2.3.7)	Greg Moran	
	• Update Figure 11 for TRFD	Miro	

	• Confirm deletion of EU regulation section copied from ADT report	Blake	
	• Add subsection regarding ED-112A (similar to ED-237, section 2.3.9)	Greg Smith	
	• Add subsections for ED-62B (section 2.3.10), EASA CPOs and NPA TBD (section 2.3.7).	Blake	
180918-B	Update section 3 for ADFR architecture	Blake, Claude, Bill	19 Feb 2019
190206-A	Finalize requirements / recommendations table – remove items marked for deletion, etc.	Robin	12 Feb 2019
190206-B	Provide section 2.4.2 input for TRFD key terms: applicable requirements document(s), requirement(s) quote(s) if necessary and identification of items needing further analysis/discussion in later sections. Refer to ADT ARINC 680 draft for example(s).		4 Apr 2019
	Distress	Greg Smith -> Greg Moran	
	Flight data, Timely	Greg Moran	
	Location of the point of end of flight	Blake	
	Recovery, Timely recovery of flight data	Hannes -> Greg Moran	
190226-A	Update Figure 2 & related discussion to be TRFD specific	John Fisher	2 Apr 2019
190226-B	Add TRFD description in Table 1	John Fisher	2 Apr 2019
190226-D	Add ADFR & TFD architecture study to section 3 of straw-man draft.	~~Greg Moran~~ -> John Fisher	2 Apr 2019
190404-A	Reformat key term discussion to table format rather than quoting directly from requirements source document.	Greg Moran	23 April 2019
190404-B	Add ICAO Annex 13 5.14 to requirements map MS Excel file and associated table.	Greg Moran	23 April 2019
190404-D	Provide ARINC report document template	Peter Grau	4 Apr 2019
190404-C	Update TFD architecture study based on feedback provided to date.	Miro and John	15 May 2019
180918-C	Update section 3 for TFD architecture (draft 4 available for review at GAT SharePoint 681 Input / 6.) Architecture for Continuous Data Transmission)	Miro	15 May 2019
180918-D	Provide feedback for ADFR & TFD architectures to Blake & Miro, respectively	All	18 June 2019
181218-A	Review ED-112A requirements and recommendations for technology and functional block assignment, or further discussion to be added to requirements section 2 (e.g. mandatory parameter list).	Greg Smith	18 June 2019
190617-A	Add general note in requirements and recommendations tables regarding the applicability of ED-112A to TRFD, where appropriate.	Greg Smith	10 July 2019
190617-B	Review ED-112A for specific elements that apply to TFD e.g. start/stop logic, data handling, CVR audio quality, derive bandwidth, data compression, documentation.	Greg Moran	10 July 2019

190617-E	Editorial: update figures to latest available from contributors.	John Fisher	10 July 2019
190617-F	Add EASA RMT.0400 to GAT SharePoint	Greg Moran	10 July 2019
190617-G	Remove requirements/recommendations from draft NPAs (without number assigned & not publically available). CPOs can remain but flagged as requiring an update when NPA is released (expected October, 2019).	Greg Moran	10 July 2019
190617-H	Add requirements/recommendations with functional block assignments specific to ADFR and TFD in respective architecture study sub-sections. Renumber identity code for requirements/recommendations tables to sequential rather than follow ADT numbering convention.	Greg Moran	10 July 2019
190617-K	Develop content for TFD architecture study, off aircraft storage functional block discussion (section 3.2.3.4).	Janine Roux	07 Aug 2019
190710-A	Define ARINC standard for terms 'must', 'will', 'shall', 'should', etc. so that we are consistent within the ARINC 681 report. *Terms defined in ARINC 647.*	Peter	07 Aug 2019
190617-C	Editorial: add introductory sub-section in section 2 for an organization when that organization has two or more applicable documents.	John Fisher	09 Oct 2019
190617-L	Review ICAO or other guidance regarding guidance for SAR recovering the ADFR, which could be added to our requirements/recommendations tables. **Only Doc10054 section 3.5 discusses recovering the ADFR.**	Blake	09 Oct 2019
~~190807-A~~	~~Add discussion explaining "REQ" and "REC" identity codes to section 2.~~	~~Greg Moran~~	09 Oct 2019
~~190918-A~~	~~Update ADFR architecture figure and/or text to indicate that ADFR DT implementation is not meant to suggest the only means to satisfy the ADT requirement.~~	~~Blake~~	09 Oct 2019

Attachment 1

ARINC 681 Report Revision Process

John Fisher, Technical Editor

- Trust but verify – I make changes and mistakes, I am not the best guy for the job but the best one we have, please help me by pointing out typos, mistakes etc. and please be patient.

- Configuration control – if you fail to provide comments to a version and we start a new version, you will need to incorporate your comments into the newer version.

- If you comment after the due date I'll try to incorporate it, but you may have to wait until the next version to provide comments.

"Bad" comments will be noted, for example:

Text	Comment	Response
"The FDR must data when turned on"	Need to improve language.	Noted, no change.

"Good" comments will be addressed, for example:

Text	Comment	Response
"The FDR must data when turned on."	The FDR must **record** data when turned on.	Agreed, text changed.
"The FDR must data when turned on."	Add 'record' after the word mus.t	Agreed, text changed.

- If you submit a comment, please verify it was incorporated into the document, (if it is not done in front of you on the spot at a meeting etc.). I try not to make errors of omission but may do anyway. Please perform quality control on my work!