

Timely Recovery of Flight Data (TRFD) Working Group SAI Subcommittee Status Update

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APIM 17-005 Timely Recovery of Flight Data

The difficulty in timely recovery of flight data from aircraft crash sites has prompted accident investigation agencies to request ICAO to update Annex 6, Part 1 (Operation of Aircraft – International Commercial Air Transport – Aeroplanes) standards. ICAO has updated §6.3 *Flight Recorders* standards to add a new sub-section “6.3.6 *Flight recorder data recovery*”.

6.3.6.1 All aeroplanes of a maximum certificated take-off mass of over 27 000 kg and authorized to carry more than nineteen passengers for which the application for type certification is submitted to a Contracting State on or after 1 January 2021, shall be equipped with a means approved by the State of the Operator, to recover flight recorder data and make it available in a timely manner.

6.3.6.2 In approving the means to make flight recorder data available in a timely manner, the State of the Operator shall take into account the following:

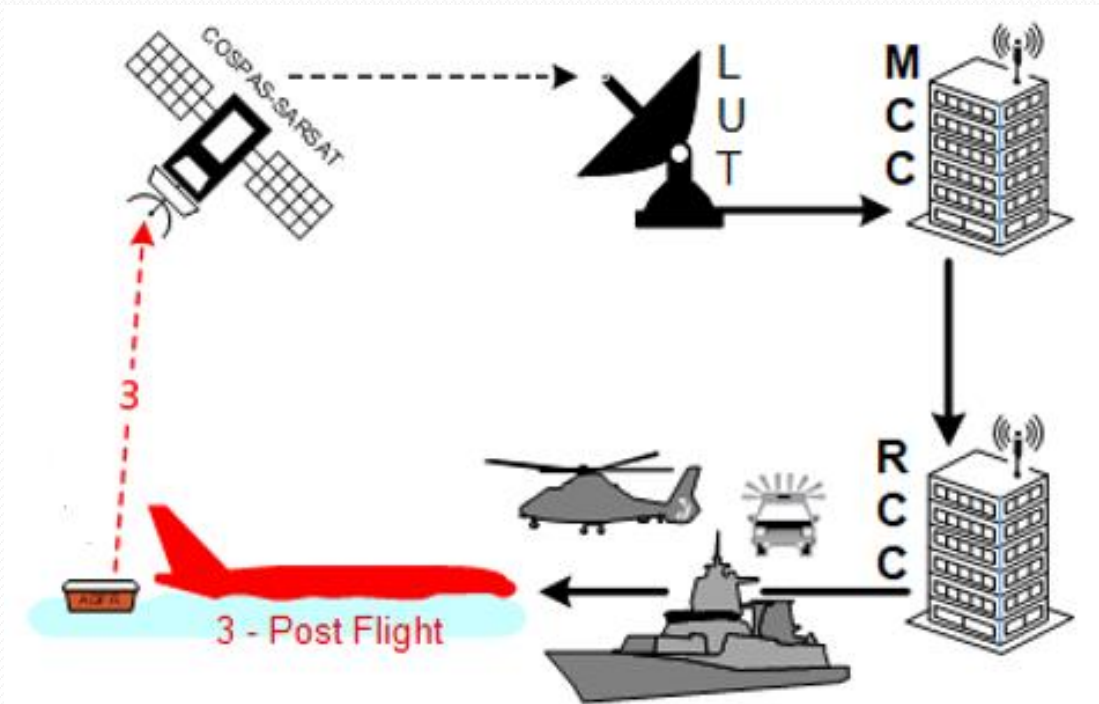
- a) the capabilities of the operator;*
- b) overall capability of the aeroplane and its systems as certified by State of Design;*
- c) the reliability of the means to recover the appropriate CVR channels and appropriate FDR data; and*
- d) specific mitigation measures.*

Note.— Guidance on approving the means to make flight recorder data available in a timely manner is contained in the Manual on Location of Aircraft in Distress and Flight Recorder Data Recovery (Doc 10054).

Automatic Deployable Flight Recorder (ADFR)

ICAO published Doc10054 *Manual on Location of Aircraft in Distress and Flight Recorder Data Recovery* first edition in 2019, which discusses two technologies as acceptable means of compliance:

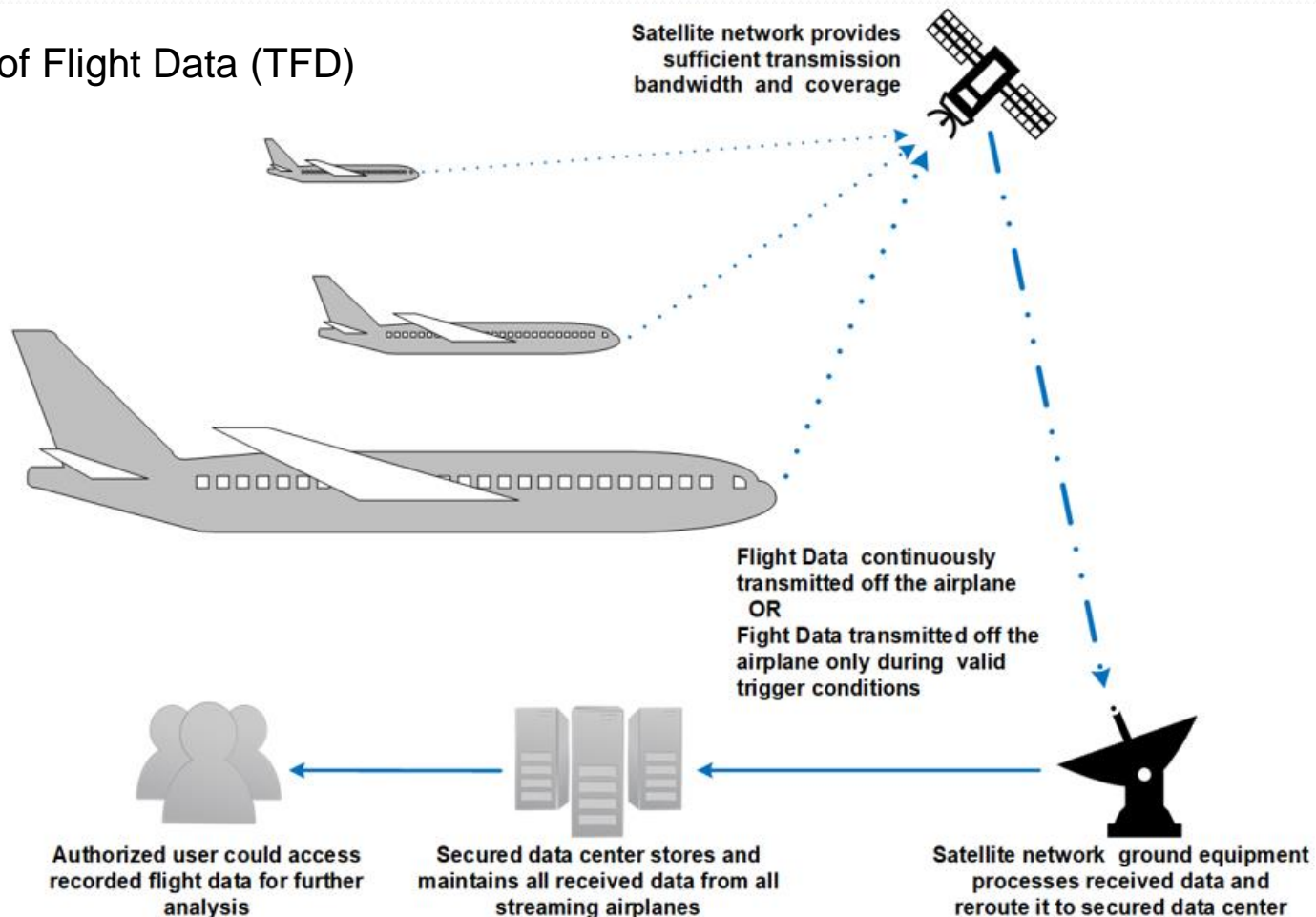
1. Automatic Deployable Flight Recorder (ADFR)



Transmission of Flight Data (TFD)

ICAO published Doc10054 *Manual on Location of Aircraft in Distress and Flight Recorder Data Recovery* first edition in 2019, which discusses two technologies as acceptable means of compliance:

2. Transmission of Flight Data (TFD)



2019-2020 Activity and Accomplishments

- Issued Drafts 1 and 2 of Project Paper 681; Draft 3 expected within 30 days
- Two face-to-face meetings and one virtual meeting since 2019 General Session:
 - December 2019 – Washington, DC (NTSB)
 - February 2020 – Miami (Gables Engineering)
 - June 2020 – Virtual in-lieu of planned Crawley, UK (L3)
- Regular WebEx meetings every three weeks

Timely Recovery of Flight Data Schedule

Activity	Mtgs	Mtg-Days (Total)	Expected Start Date	Expected Completion Date
<i>Phase 1: Document the end-to-end system requirements</i>	One 2-day meeting plus teleconferences	2	June 2018*	Dec. 2018
<i>Phase 2: Develop candidate architectures, and select architecture(s)</i>	Three 3-day meetings plus teleconferences	9	Jan. 2019***	Dec. 2019
<i>Phase 3: Develop detailed equipment, interface, and aircraft installation requirements, as well as ground system requirements</i>	Three 3 day meetings plus teleconferences	9	Jan. 2020	Sept 2020**

* The start date of Phase 1 is contingent on completion of ICAO Document(s).

** The completion date of Phase 3 is driven by a Jan. 1, 2021 application for type certification date for new aircraft type designs (ref. ICAO Annex 6, Part I, §6.3.5.1).

*** The start date of Phase 2 is to allow resources/budget to be allocated to the Autonomous Distress Tracking (ADT) development effort which has an earlier potential mandate date.

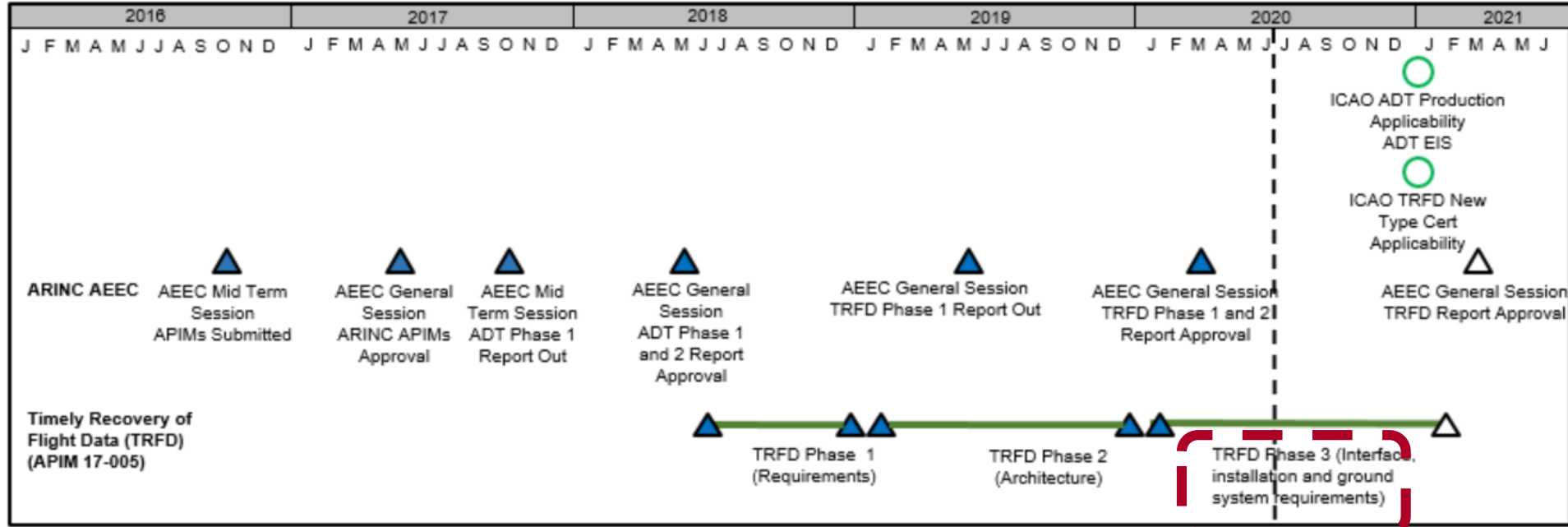
6-month extension requested makes likely approval date May 2021 General Session

Current Status

Timely Recovery of Flight Data (TRFD) activities progressing per APIM 17-005. Supports General Session 2021 completion. This *may* not be completed for the January 1, 2021 ICAO mandate for new Type Certificated aircraft applications. However, there is no impact to any planned aircraft programs.

- TRFD Phase 1: Document the end-to-end System Requirements – Complete
- TRFD Phase 2: Develop candidate Architectures – Complete
- TRFD Phase 3: Detailed Aircraft Interface Requirements – Incomplete, conclusions to be completed within 2-4 months.

TRFD Requirements Phase Schedule



- 10-12 February 2020: Coral Gables, FL face-to-face meeting
- 11 March 2020 Teleconference 22
- 1 April 2020 Teleconference 23
- 22 April 2020 Teleconference 24
- 20 May 2020 Teleconference 25
- 3 June 2020 Teleconference 26
- 22-24 June 2020 Virtual 3-Day meeting

Timely Recovery of Flight Data Risks and Issues

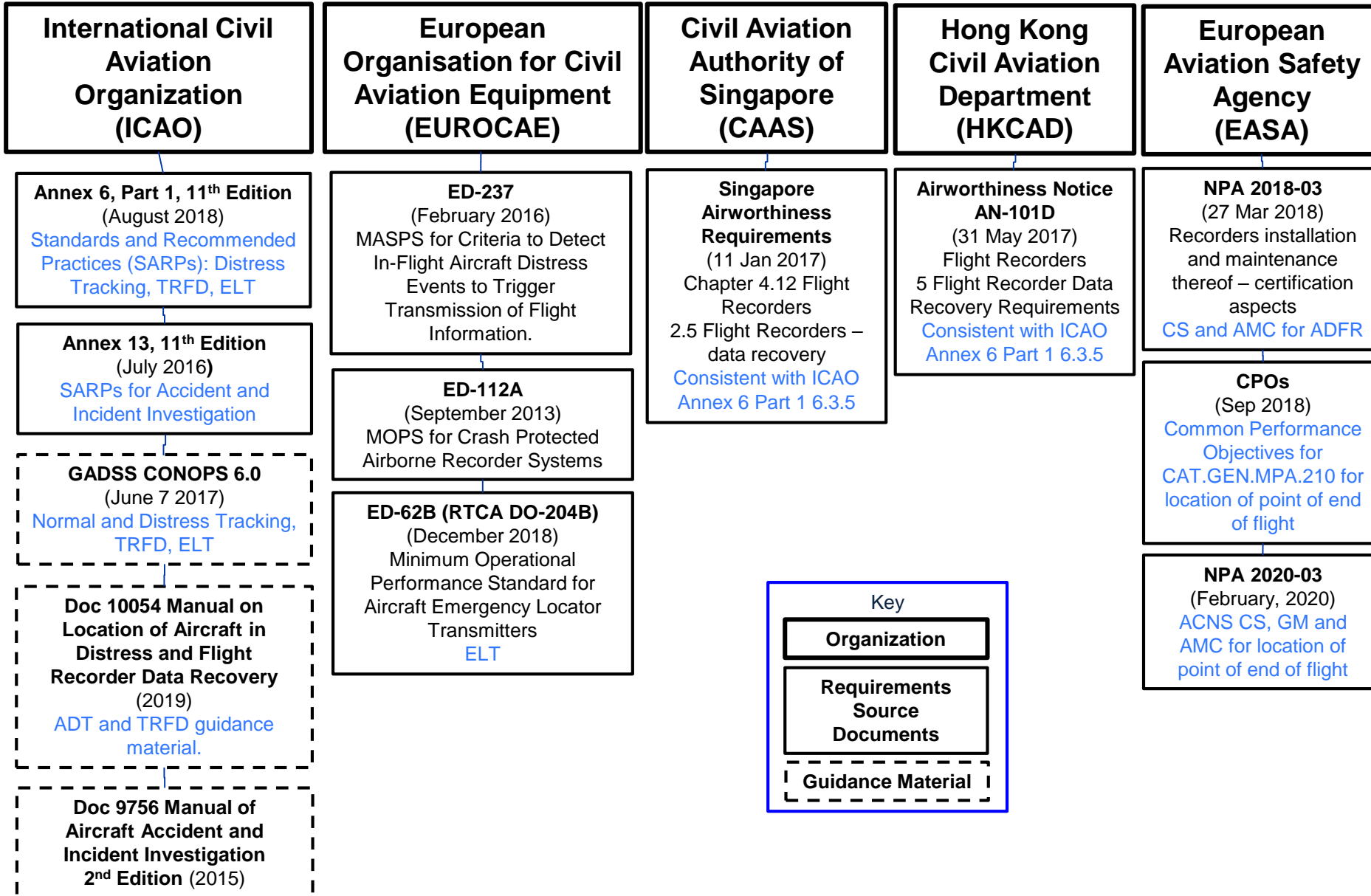
- Reasonable implementation schedule Report 681 may be completed on time
- FLYHT Patent Disclosure:
 - Presented to the Working Group June 22, 2020
 - Filed August 11, 2010
 - FLYHT's claims could impact the concept of Transmission of Flight Data
 - Working Group discussion June 24, 2020
 - Ultimate resolution unknown at this time
 - Follow up dedicated meeting planned for September 2, 2020
- Development of document continues and is expected to complete with two additional WebEx conference calls, prior to September IP teleconference call



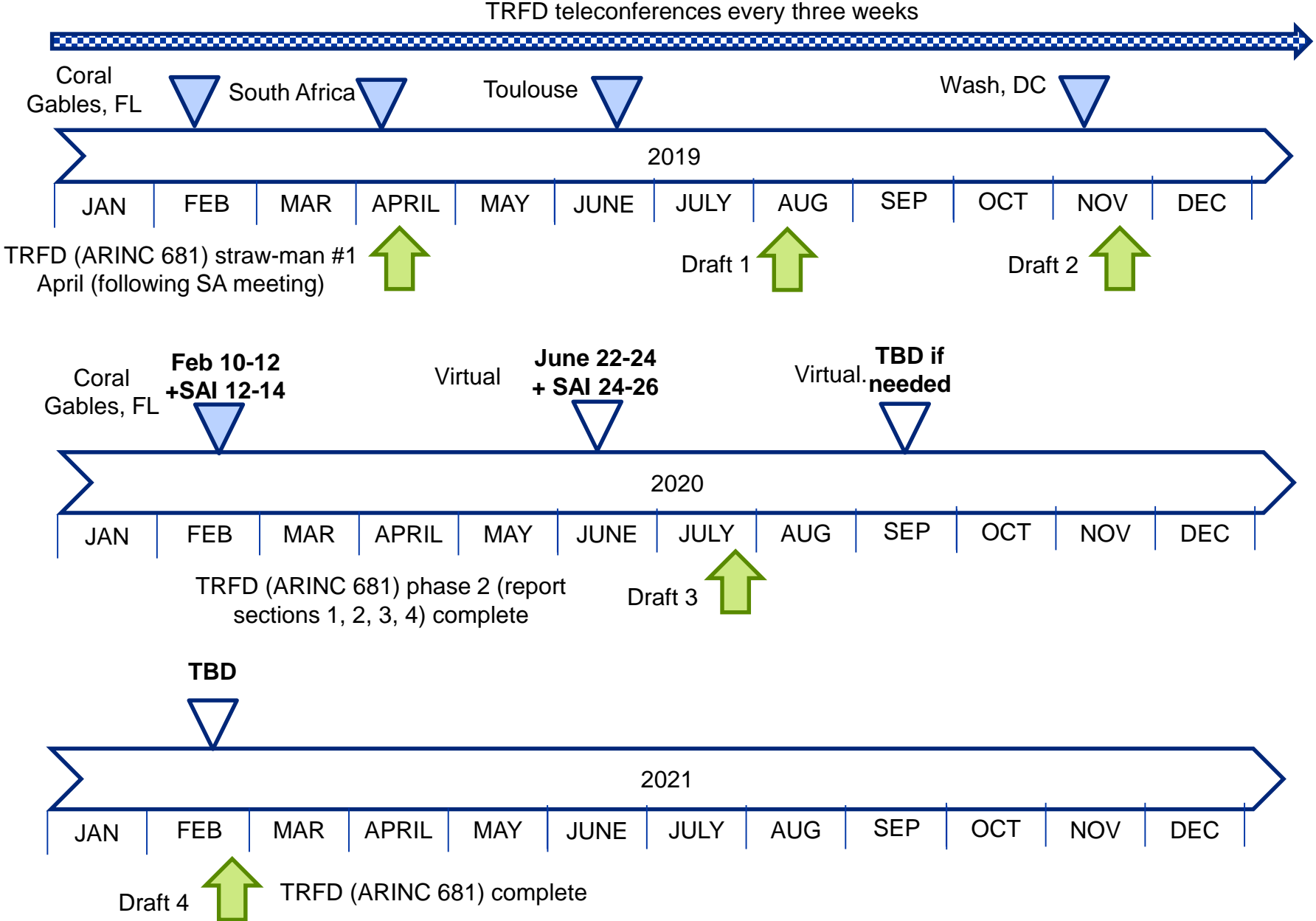
Thank You!

Questions / Comments?

Sources of TRFD Requirements



Teleconference and meeting schedule



TRFD ARINC 681 report is an integrated requirements, architecture and proposed standards report