CNS Distributed Radio Working Group

ARINC Project Paper 678
Per APIM 18-003

STATUS REPORT TO SAI SUBCOMMITTEE

February 10, 2021

Jessie Turner
BOEING
Industry Editor

Paul J. Prisaznuk
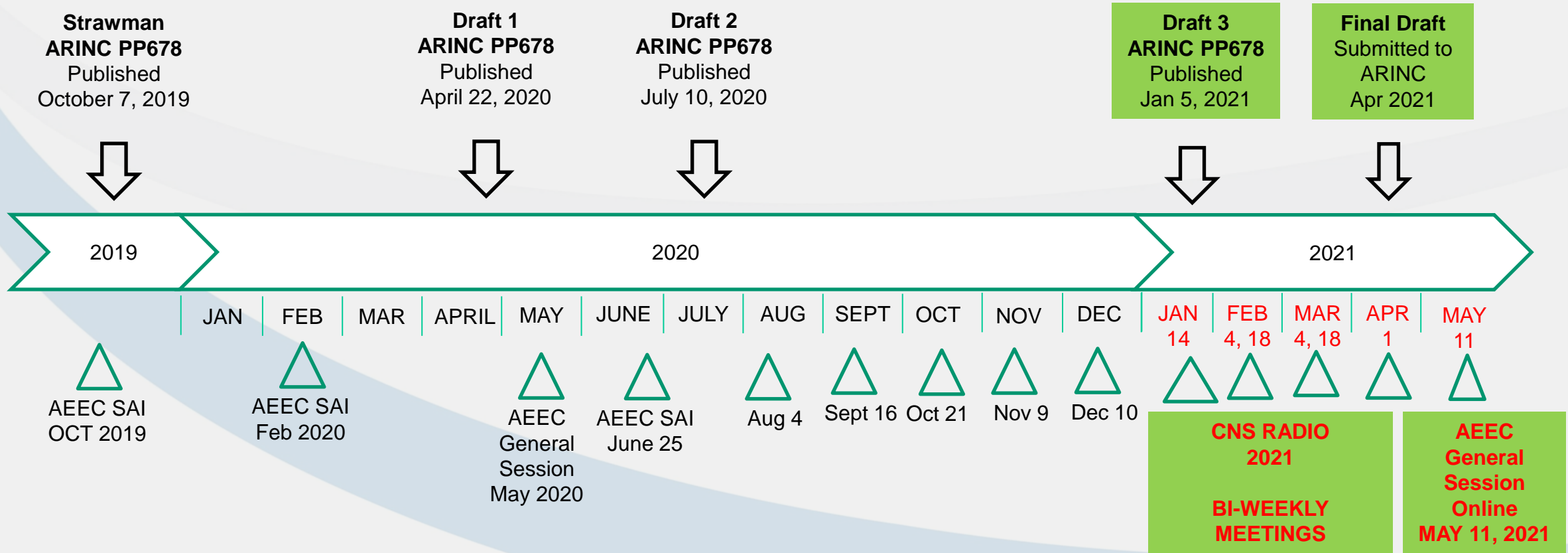AEEC Executive Secretary
and Program Director

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APIM 18-003 - Key Statements

1. Develop a comprehensive framework with commonly agreed preferred approaches for future aircraft radio systems architectures. Provide recommendations, direction, required characteristics, transition scenarios and roadmap for possible new standards on constituents of these architectures.

2. This framework intended as an "overarching standard," ahead of future individual CNS radio equipment standards to establish an industry consensus on the way forward to these future architectures.

3. Product: ARINC Project Paper 678: Guidance for Distributed Radio Architectures
   – Latest Draft 3: January 5, 2021
   – Goal: Mature Draft expected April 2021
   – Goal: AEEC Adoption May 2021

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ARINC Project Paper 678 - Outline

1.0   INTRODUCTION

2.0   APPLICABLE SYSTEMS

3.0   SYSTEM REQUIREMENTS

4.0   OBJECTIVES AND GOALS

5.0   REQUIREMENTS ON SUPPORTING TECHNOLOGIES

6.0   CNS DISTRIBUTED RADIO ARCHITECTURES

7.0   REMOTE RADIO UNITS (RRU)

8.0   ANTENNAS

9.0   SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

ATT 1   GLOSSARY

ATT 2   ACRONYMS AND ABBREVIATIONS

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2020 / 2021 Schedule and Milestones

Strawman
ARINC PP678
Published
October 7, 2019

Draft 1
ARINC PP678
Published
April 22, 2020

Draft 2
ARINC PP678
Published
July 10, 2020

Draft 3
ARINC PP678
Published
Jan 5, 2021

Final Draft
Submitted to
ARINC
Apr 2021

2019	2020	2021

JAN | FEB | MAR | APRIL | MAY | JUNE | JULY | AUG | SEPT | OCT | NOV | DEC | JAN 14 | FEB 4, 18 | MAR 4, 18 | APR 1 | MAY 11

AEEC SAI
OCT 2019

AEEC SAI
Feb 2020

AEEC
General
Session
May 2020

AEEC SAI
June 25

Aug 4

Sept 16

Oct 21

Nov 9

Dec 10

CNS RADIO 2021

BI-WEEKLY MEETINGS

AEEC General Session Online MAY 11, 2021

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Document Status (by Section)

1.0   INTRODUCTION – Complete

2.0   APPLICABLE SYSTEMS – Complete

3.0   SYSTEM REQUIREMENTS – Mostly Complete

- ▸ Validate/Update Table 3-3 – CNS Combined Failure Classifications

- ▸ Complete Table 3-6 – CNS Antenna Characteristics (SATCOM Antenna Polarizations)

- ▸ Complete Table 3-7 – CNS Receiver Characteristics (SATCOM, AeroMACS, LRRA)

- ▸ Complete Table 3-8 – CNS Transmitter Characteristics (SATCOM, AeroMACS, LRRA)

- ▸ Updates to §3.5 System Design Constraints – review Honeywell input with color coding, **bold**/*italics.*

  - – Note: Tableau Article states "Blue/Orange is a common colorblind-friendly palette".

- ▸ §3.6 Digital Interface (RF-to-Processing) Constraints – review Honeywell input

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Document Status (by Section)

4.0   OBJECTIVES AND GOALS – Complete

5.0   REQUIREMENTS ON SUPPORTING TECHNOLOGIES - Complete

- Note: Additional references can be included in §5.8 Related Documents if needed

6.0   CNS DISTRIBUTED RADIO ARCHITECTURES – Mostly Complete

- §6.4.5 GNSS Federated – update Figure 6-18 – Federated GNSS Example per note in document
- §6.4.7 DME – update Figure 6-20 – Federated DME Example per note in document

7.0   REMOTE RADIO UNITS (RRU) – Mostly Complete

- Recommend adding a sub-section with some conclusions/recommendations on the RRU packaging type

Document Status (by Section)

8.0   ANTENNAS – Requires further inputs

- §8.4 Form Factors/Packaging – needs committee inputs/discussion

- §8.5 Connectors – needs committee inputs/discussion

- §8.6 Interfaces – needs committee inputs/discussion

- §8.8 Interoperability – needs committee inputs/discussion

9.0   SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS – needs content to be added & discussed

ATT 1   GLOSSARY – needs content to be added

ATT 2   ACRONYMS AND ABBREVIATIONS – Complete (update as needed)

THANK YOU