MEETING MINUTES OF THE TWENTY-SEVENTH MEETING
JOINT RTCA SPECIAL COMMITTEE 217
EUROCAE WORKING GROUP 44

28th of November through 2nd of December 2016
Bedford, Massachusetts, USA - Hosted by MITRE

Executive Summary

RTCA SC-217 met jointly with EUROCAE WG-44 for the Twenty-Seventh Plenary at MITRE in Bedford, MA, USA from the 28th of November through the 2nd of December, 2016. The main objective was to continue the revision of DO-201A/ED-77.

A working group session was held on 28 November for those members who were able to attend. The working session discussion topics and conclusions were presented to the full group during the opening plenary, including process questions pertaining to handling State AIP data, DQRs for applications with different intended functions, whether to define a data catalog, extending DQRs principles to text and non-geographical data, and relationship with interchange formats.

During the opening plenary on 29 November, the group addressed organizational items, approved the minutes from the 26th meeting, approved the agenda for the 27th meeting, and reviewed the status of the action items. Carmen Bonillo-Martinez presented an overview of EASA Opinion 10/2016 on Performance Based Navigation (PBN) implementation.

During the working group session, submitted papers were reviewed on the following topics:

- System Wide Information Management (SWIM) and Navigation Data – the group agreed to include concept overview but not detailed application to Navigation Data services
- NOTAM integration in Navigation Data – the group agreed not to define specific requirements for NOTAM handling, but will prepare a proposal for general timeliness quality requirements
- Applications descriptions (for new appendix) – all papers were approved for integration into the master document by the Document Editor
- Accuracy (Circular / Linear Error Probability) – the group discussed the meaning of accuracy and confidence level. It was agreed to prepare a paper to provide additional background and guidance material similar to what is in DO-272 Appendix D, based on ICAO values and DO-201A or their own expert judgement.
- Procedure encoding – agreed to condense into an overview of what coding means and reference ICAO/ARINC material.

The majority of discussion centered on Data Quality Requirements (DQR) tables based on the ICAO PANS-AIM Data Catalogue. The group developed a process for reviewing and modifying the data catalog spreadsheets for incorporation into DO-201B, and went through the Aerodrome Runways file to establish an example baseline table.

The group also discussed whether Data Driven Charting (DDC) applications were in scope of Navigation Data as defined by DO-201B. Since there were different interpretations of what DDC entails, the group concluded a paper is needed to clearly define what is meant by DDC, including intended functions and applications, for further consideration.

Sub-team work statements and actions were reviewed for document structure, background and PBN principals, navigation data preparation, data quality, procedure encoding, and aeronautical information basics.

The meeting objectives were achieved, with all planned agenda items covered and good overall progress made. The next meeting will take place from Feb 27 through Mar 2, 2017, in Toulouse, France, hosted by Airbus.

1 Pre-Plenary Working session

1.1 *Attendance List*

Name	Company/Organization	Email address
David Baker	MITRE	dbaker@mitre.org
Cedric Cote	Esterline CMC Electronics	cedric.cote@cmcelectronics.ca
Stéphane Dubet	DGAC / DSNA / SIA	stephane.dubet@aviation-civile.gouv.fr
Brian Gilbert	Boeing	brian.d.gilbert@boeing.com
John Maurer	MITRE	jmaurer@mitre.org
Brad Miller	FAA	brad.miller@faa.gov
Stephen Moody	Jeppesen	stephen.moody@jeppesen.com
Sasho Neshevski	EUROCONTROL	sasho.neshevski@eurocontrol.int
Collin Ogden	Rockwell Collins	collin.ogden@rockwellcollins.com
Thomas Koebel	Airbus	thomas.koebel@airbus.com
Lee Powers	Honeywell	lee.powers@honeywell.com
Scott Roesch	Honeywell	scott.roesch@honeywell.com
Martin Zillig	LHSystems	martin.zillig@lhsystems.com
Joe McGrath	Jacobs	joseph.mcgrath@jacobs.com

1.2 *Administration & Agenda*

The plenary meeting was preceded by a working group session held on 28 November 2016 for those members who were able to attend.

Brian opened the session and recalled the proceedings from the previous meeting, notably on DQR.

ICAO Data Catalogue values, but not format, will be used as the reference. The values will be reviewed and may be challenged in some cases, if deemed too loose or too stringent. They will be formatted in a set of data quality requirements tables. The tables will be organized per theme - aerodrome, airspace, etc. or per data type, e.g. Latitude/Longitude, distances, etc., or a mix of the two, i.e. per theme with sub-classification then per data item. The exact classification still remains an open question at this stage.

DQR tables will include accuracy and integrity requirements. With regard to resolution, the same statement as the one in DO-272D will be used - resolution shall support the accuracy. For integrity, it was decided to keep the 'routine/essential/critical' classification and the text of DO-201A 2.1.6.5; 'assurance level' will be changed to 'DPAL' (Data Process Assurance Level).

DQR currently focus on numerical values, however, there are a lot of textual data items, for which there are no accuracy requirements but there should be integrity requirements (e.g. airport code, turn direction). These need to be covered in DO-201B/ED-77A DQR tables.

The issues with published data from State sources were discussed. The group considered the need to include guidance on dealing with such issues in DO-201B/ED-77A.

1.3 *Working session conclusions*

The group discussed the following questions and concluded as follows:

- Does the group need to cover data process concerns beyond what is already addressed by DO-200B?

  - It was decided that DO-201B cannot go beyond the process requirements defined in DO-200B. Data providers cannot realistically check all AIP data. Per DO-200B, authoritative source data is "golden". In some cases, there may be specific Validation and Verification (V&V) guidance for certain types of navigation data that can/should be included.

- How does the group address State data that is incorrect or ambiguous?
  - Would metadata that indicates whether source data was validated or not be helpful? The group did not think that this would accomplish anything, since flag would always be set to what it "needed" to be set to; that reflects the fact that most of the State data cannot be checked, i.e. there is nothing to check it against. This is especially true for Navigation data, which often does not have any physical property the data can be measured against (as opposed to other aeronautical data such as obstacles and aerodrome mapping data).
  - DO-201B/ED-77A specifies how to report occurrences, but not necessarily the techniques to apply. DO-201A/ED-77 already calls out issues to look out for. DO-201B/ED-77A can include an appendix that would acknowledge common types of issues encountered specific to Navigation data and provides some guidance on how to deal with them.
- Does the group need to define separate DQRs for different types of applications?
  - ICAO is very clear that they will have only one set of requirements, regardless of what the group decides.
  - What is the driving need, since we have been living with the same single set of requirements all along? Different intended functions for similar applications may drive different criticalities, so it could be difficult for the standard to distinguish when a different set of requirements would be applied.
- Does the group need to define a data catalog with capture rules similar to what DO-272 has?
  - ARINC 424 may fulfill this need, but DO-201B/ED-77A could contain requirements for data that ARINC 424 does not define. ARINC 424 does not really distinguish between capture and encoding.
  - DO-201B/ED-77A could just be a standardization of ICAO and a middle-man for DQRs between ICAO and ARINC 424. It would not be analogous to DO-272/DO-276, and would not be a stand-alone set of navigation database requirements.
  - Will ARINC 424 be the only Navigation DB format specification used indefinitely? If DO-201B is not developed as a stand-alone standard, we may need to retitle the document and reflect this in the introductory material; in such a case it would not really be User Requirements document.
  - At minimum, we should make references to where the data elements are defined, e.g. ICAO or ARINC 424.
- How does the group address DQRs for text data?
  - Some text can be changed without any consequences, but some others cannot. We might need to be cognizant of ARINC 424 limitations, e.g. string lengths for certain data fields.
  - The assessment on which text data merits a data quality value needs to be performed parameter-by-parameter. Also, it will be useful to assess if any text data should actually be numerical. It should be possible to quickly see if/how this notion is working.
- What are the relationships with interchange formats?
  - Ideally, ARINC 424 would reference DO-201B/ED-77A for content definitions and rules, but it is unclear if there would be appetite for this on ARINC side.

- Currently, DO-201A/ED-77 needs to lean heavily on ARINC 424 for that information. But DO-201B/ED-77A should theoretically be agnostic of the interchange format. There is a need to describe this relationship properly.
- We could live with a situation where some information is duplicated between DO-201/ED-77 and ARINC 424, since it would be difficult/time consuming to pull material out of ARINC 424.
- ARINC 424 is intended for use by avionics manufacturers and not by regulators.
- Navigation data is different from other types of aeronautical data because it is extensively defined at ICAO level, whereas for AMDB and Terrain/Obstacles the ICAO SARPs rely heavily on RTCA/EUROCAE standards.
- For the moment, the group will proceed with leveraging ICAO and ARINC materials and complete the update of DO-201A/ED-77 DQR tables and explanatory text, but will not pull in content definition and rules yet. After the other jobs are done the group can assess if it would be necessary to go further; this could be a future revision.
- There is a need for the ARINC side to decide how they would like to handle things going forward as well as to make sure both sides are coordinated and/or aligned.
- The group can prepare a list of pros and cons for how to handle RTCA/EUROCAE and ARINC relationship and raise it to RTCA PMC/EUROCAE TAC and AEEC Executive Committee/SAE-ITC levels in the meantime to come to aligned path forward in a few years' time after the current document revision has been completed.
- DQR tables: the ICAO Data Catalog spreadsheets will be edited as follows:
  - Remove data element rows dispositioned as "No" for Core data
  - Remove columns Orig. Type, Pub., Res., and Chart Res.
  - Replace Reference column with ICAO or other Definition reference
  - Indicate deviations from ICAO – inclusion of a new column
  - Determine if/how to fill in shaded and blank values
  - Delete "Type" column – the group will not go into this level of interchange.

The group continued the work on the draft of DQR tables based on ICAO Data Catalog.

Some of the conclusions reached in the Monday working session were altered by decisions made the rest of the week with the full group, therefore statements above may be superseded by the minutes below.

2 Opening Plenary

2.1 *Attendance List*

Name	Company/Organization	Email address
Reuss Anderson*	Garmin	reuss.anderson@garmin.com
David Baker	MITRE	dbaker@mitre.org
Carmen Bonillo-Martinez	EASA	carmen.bonillo-martinez@easa.europa.eu
Kevin Carey	US Air Force	kevin.carey.1@us.af.mil
Claudia Chaudhari	RTCA	cchaudhari@rtca.org
Cedric Cote	Esterline CMC Electronics	cedric.cote@cmcelectronics.ca
Torsten Domroes	Jeppesen	torsten.domroes@jeppesen.com

Stéphane Dubet	DGAC / DSNA / SIA	stephane.dubet@aviation-civile.gouv.fr
Jean-Paul Genottin	Airbus S.A.S	jean-paul.genottin@aribus.com
Brian Gilbert	Boeing	brian.d.gilbert@boeing.com
Andrew Goldsmith	FAA	andrew.E.Goldsmith@faa.gov
Eustis Gosselin	Jacobs Technology	eustis.Gosselin@jacobs.com
Kimberly Jordan	Universal Avionics Systems	kjordan@uasc.com
Thomas Koebel	Airbus	thomas.koebel@airbus.com
Daniel Lehman	US Navy	dan.lehman@navy.mil
John Maurer	MITRE	jmaurer@mitre.org
Joe McGrath	Jacobs Technology	joseph.mcgrath@jacobs.com
Jeff Meyers*	FAA	jeffrey.meyers@faa.gov
Brad Miller	FAA	brad.miller@faa.gov
Stephen Moody	Jeppesen	stephen.moody@jeppesen.com
Sasho Neshevski	EUROCONTROL	sasho.neshevski@eurocontrol.int
Collin Ogden	Rockwell Collins	collin.ogden@rockwellcollins.com
Jeff Plantinga	GE Aviation Systems	jeffrey.plantinga@ge.com
Lee Powers	Honeywell	lee.powers@honeywell.com
Scott Roesch	Honeywell	scott.roesch@honeywell.com
Ralf Sieprath*	Navtech	ralf.sieprath@Navtech.aero
Martin Zillig	LHSystems	martin.zillig@lhsystems.com

* Participation via Webex

2.2 *Administration & Agenda*

The meeting was opened by Brian Gilbert (RTCA SC-217 co-chairman) and Stéphane Dubet (RTCA SC-217 co-chairman and EUROCAE WG-44 chairman). Round-table introductions were given by each attendee.

During the opening plenary session the group addressed organizational items, reviewed and approved the proposed meeting agenda for the 27th meeting, and approved the minutes from the 26th meeting.

Sasho Neshevski presented the EUROCAE IPR Policy Call and the EUROCAE membership policy, with regard to participation in EUROCAE Working Groups. Brian showed the RTCA Proprietary References Policy and the RTCA membership policy for the group to read.

Brad Miller, as Designated Federal Official, read the Public Meeting Announcement in accordance with the Federal Advisory Committee Act.

The Group reviewed the status of the action items.

Carmen Bonillo Martinez gave a presentation on the EASA Opinion 10/2016 on implementation of PBN in the European ATM Network. The European Commission Regulation is expected to be issued in the course of 2017.

3 Working Group

3.1 *Sub-teams report-outs*

During the working group session, the sub-teams reported briefly on the progress on their respective actions. The following topics were covered:

- Document structure

- Background/PBN principles
- Data preparation rules
- Data quality
- Procedure encoding
- Aeronautical information basics.

It was noted that for some of the topics there were WP/DP that would be discussed later on during the meeting.

Brian presented the conclusions of the Pre-Plenary Working Session that took place on 28 November 2016.

Stéphane noted that it would be useful to produce a diagram, depicting the relationship between the different standardization documentation, pertinent to navigation data, from various organizations – ICAO, RTCA, EUROCAE and ARINC. He offered to develop a proposal.

The group continued the work on the drafting of DQR tables based on the data catalog.

A discussion on data quality requirements for text data took place. Integrity requirements for text data do not currently exist. If the group decides to assign integrity requirements to textual data, this could have significant impact, e.g. DPAL 2 vs DPAL 3 issue in DO-200B. In terms of application of integrity it was debated whether a systematic approach would be appropriate, e.g. all routine, or a case-by-case approach, e.g. only a limited number of cases to be looked at. It was concluded that if the group agreed on application, assessment would be based on potential impact of error. A practical way forward was agreed: to identify the 'text' items for which we have a clear safety impact.

The following methodology was agreed for the development of the Data Tables in DO-201B/ED-77A:

Step 1: Review existing values – is it OK? If not, change with rationale

- Common sense check
- Check with respect to DO-201A
- ARINC 424 consistency
- Issues linked to practicality
- Specific need for a given application beyond the value

Step 2: Fill in the blanks (not all numerical data have accuracy or integrity requirements in the ICAO data catalog)

- Is there a value in DO-201A? In other standards? If yes, then use it as a basis and apply Step 1, as required
- Tag the other ones

Step 3: Address text elements

- Accuracy, as currently defined, is not applicable
- Integrity is applicable - use "routine, essential, critical".

The group went on to apply this methodology on Runway data.

Accuracy is that provided by the originator, typically state source. Thereafter the downstream data chain participants can only maintain the integrity. Members of the data chain cannot influence the accuracy, unless they have a data originator role.

Circular/Linear Error Probability

Thomas Koebel presented a Discussion Paper on Questions regarding Circular/Linear Error Probability. The group discussed the meaning of Accuracy and how it can be determined. DO-272D Appendix D contains material on accuracy which may be used to draft text to be included in DO-201B. The conclusion on Accuracy was that ICAO values are to be used as a baseline.

Action item 27-02: Data Quality sub-team to develop a text proposal based on ICAO values and DO-201A or their own expert judgement.

Data Driven Charting (DDC)

After the Seattle meeting the subject has been discussed off-line. Torsten reported that the discussions have resulted in the conclusion that it is too early to include DDC related requirements.

Jeff M. stated that we have to address data/information needed for charting and that it is clear that charts would not be replaced. The title may not necessarily be DDC. He explained that presenting misleading information to the crew increases the workload and may have an impact on the applications, e.g. RNP-1 procedures; therefore, there is value in including DDC requirements.

Scott was of the opinion that, from application point of view, it is not possible to include requirements for an application that is not fielded.

Brad confirmed that we are not defining the application.

Stéphane pointed out that there are still a number of questions to be clarified, e.g. what is the intended function, the concept of operation. There needs to be a basis for assessing if DQR needs to be included.

Brad added that this is valid for many new operations and concepts in NextGen and SESAR.

Brian noted that industry trend is to include more in EFB rather than in certified equipment and systems. There was some confusion in the group whether DDC related to EFB applications or certified avionics application.

Conclusion: A paper needs to be submitted to clarify what DDC is, the intended functions, applications, etc., and how it is different from EFB.

Action item 27-03: Brad and Jeff M. to draft a DP on DDC for the next meeting, with support (to be confirmed) by Honeywell (Scott) and Rockwell Collins (Collin).

NOTAM integration in Navigation Data

Discussion Paper "NOTAM integration in Navigation Data" was presented by Thomas Koebel, which contained questions regarding when and how NOTAM data was incorporated into Navigation databases.

Martin stressed the fact that these issues are handled via business rules, license agreements (SLA), and contracts with customers. Information on these aspects, however, cannot be shared, as it constitutes proprietary info, therefore cannot be standardized.

Scott agreed with Martin and pointed out that there was no standardized way of handling these issues.

Torsten added that it depended on the criticality of the data.

Ralf noted the use of NOTAMs and how they are managed is a responsibility of ICAO.

David explained that there was such a large spectrum of NOTAM issues that it was impossible to standardize the way of handling them. He indicated that there could probably be a small subset of NOTAM-related issues that could have a standardized approach of dealing with them.

Scott pointed out that a typical issue would be "late source".

Thomas reminded that Timeliness is a data quality characteristic; it is not just accuracy and integrity. He suggested that timeliness need to be included as well in DQR. The proposal could be to standardize the rules of handling of NOTAM information in NAV DB, for example, timeliness of NOTAM data.

Brian clarified that general timeliness requirements, such as those in the other aeronautical data standards, can be included without trying to standardize business rules.

It was concluded that there will be no standardization of the rules to integrate NOTAM information in Navigation DB. NOTAM information is included in the pre-flight briefing and always takes priority over database content.

Action 27-01: A new paper will be developed, with propositions for DO-201B, e.g. a new section about timeliness requirements similar to DO-272D Sections 2.4.5 and 3.7.

Navigation Display Applications (WP 25-13)

The group reviewed the text and agreed to the proposed wording. Brian will finalize the editorials and produce a version 1.0, ready for integration in the master document by the Document Editor.

Landing Systems (WP 25-14)

The group reviewed the text and agreed to the proposed wording. Version 1.0 will be produced, ready for integration in the master document by the Document Editor.

Runway Safety Applications (WP 25-12)

The group reviewed the text and agreed to the proposed wording. Version 1.0 will be produced, ready for integration in the master document by the Document Editor.

Radio Navigation / Communication Systems (WP 25-17)

The group reviewed the text and agreed to the proposed wording. Version 1.0 will be produced, ready for integration in the master document by the Document Editor.

Introduction for Appendix Applications (WP 26-02)

The group reviewed the text and agreed to the proposed wording.

Jeff M. stressed that the intended use of the data needs to be clearly described. Understanding of how the data will be used and hence the need for the DQR needs to be presented. Justification of the DQR will not be solely based on this document. Other applications can be added such as Runway Overrun Awareness and Alerting System (ROAAS), Brake-to-vacate/exit, DDC, etc.

Stéphane confirmed that the Appendix is of illustration nature and, therefore, is intended to be descriptive.

Action 26-02: Version 1.0 to be produced, ready for integration in the master document by the Document Editor.

Mission Planning Applications

The group reviewed the text and agreed to the proposed wording. The text will be put in a WP format Version 1.0, thereafter it will be considered ready for integration in the master document by the Document Editor.

SWIM and NAV DB (DP 25-23)

The text was reviewed. It was concluded that the full text does not fit with the intent and the scope of the DO-201 revision work. The text can be reduced to one paragraph to acknowledge the global evolution towards SWIM environment, in particular for the upstream part of the data chain. A WP will be produced for the next meeting that reflects these decisions.

Standards for Names and Identifiers (DP 25-23)

Regarding Section 2.3, a question was raised as to what was the value in copying ICAO material. It was deemed appropriate to reduce the text to a short paragraph.

The group continued the discussion on the expected added value of DO-201B/ED-77A. It was agreed that this would be the DQRs, an updated list of Navigation data applications and identification of requirements from industry beyond ICAO and ARINC.

In terms of Navigation data content, the Standard will:

- have separate sections for data definition/references/rules and then DQR tables
- stay agnostic of any particular exchange format, but leverage content in ARINC 424 for references regarding definitions and capture rules
- stay agnostic as to whether requirements are mandatory or optional.

The following process was agreed:

DQR in PANS-AIM Data Catalog (without unwanted columns) will be the starting point. The group will work on the basis of an updated list of Navigation Data applications.

For each data element marked as "Yes" in Core:

- Determine if normative reference to another document needs to provided
- Provide background "info only" references when appropriate
- Determine if additional rules or notes need to be included
- If a different definition is deemed to be required, add desired definition and put ICAO data catalog one in parentheses afterwards.

The group worked on the Runway DQR table, applying the methodology defined on Day 1 of the plenary session, and reviewing the requirements in ICAO Annex 15 and ARINC 424.

A discussion took place on DQR applicable to data that was calculated from other data, provided by authoritative source, typically State source. It was concluded that accuracy requirements do not apply to calculated values.

Stéphane informed the group that the ICAO Data Catalog had passed the first step of approval, which is the Air Navigation Commission (ANC); the next step will be to send the material to the ICAO Member States with an ICAO State Letter.

Draft text on Procedure encoding (Action 25-22)

The text includes procedure encoding for:

- Path terminators (ARINC 424) basics (3.1.3)
- Considerations for encoding of procedures in DB (3.1.1, 3.1.2, 3.2 and 3.3) including for new RNP DB

The group reviewed the draft text. Consideration was given to who the intended user of the document was, in particular the chapter on procedure design.

Brad reminded that FAA would like the document to be stand alone; that readers should be able to access this information without having to go to the ARINC 424 Specification. FAA does not consider ARINC 424 a Standard.

Stéphane highlighted that ICAO PANS-OPS Doc. 8168 – in particular its part on Navigation Database coding - contains the material on procedure design.

Jeff M. suggested that RTCA DO-236 MASPS could be referenced, but that it is limited to leg types.

Brad indicated that if PANS-OPS was complete for the purpose, then FAA could reference it but not ARINC 424.

Torsten stressed that best practices were not covered in PANS-OPS, such as flight tests and PBN procedures provided by one State to another.

It was concluded that ARINC 424 is not a standard, but an interchange specification addressing exchange format between for example an LOA Type 1 holder and an LOA Type 2 holders. The specification addresses format and contents, and in some cases – origination, but it does not address quality.

At the 25th joint meeting it was decided to "condense and just provide an overview of what coding means/implies, i.e. "ARINC 424 for dummies".

Action item 25-22: The action team will develop a WP with a text proposal in line with this decision.

Draft text on Structure of the document (Action 25-18)

The paper from the Seattle meeting was discussed. Some minor changes were made.

4 Closing Plenary

The action items list was reviewed and updated (see Section 5).

Review of conclusions on the Working Papers

- **DDC**: requires further discussions based on a DP describing what is meant by DDC (other than EFB).
- **SWIM**: to include concepts but not detailed application of SWIM to Navigation Data.
- **NOTAMs**: Paper on timeliness to be prepared based on elements discussed.
- **Applications**: Good progress achieved; a WP is planned for the next meeting or integration into master file.
- **Accuracy**: a WP to be prepared to propose updates to DO-201A (reusing DO-272 Appendix D).
- **ARINC 424 Encoding**: to condense material to "ARINC 424 for dummies" type of section.

Review of the work status

- Structure of the document: some minor changes to complete plus other actions (see master list of actions)
- Background and PBN principles including new concepts: work to be finalized
- Rules for navigation data preparation: an update is planned for next meeting
- Data quality: focus on tables and contents
- Procedure encoding: condense and just provide an overview of what coding means/implies
- Aeronautical information basics: implement propositions made at the meetings in Seattle and Boston.
- Appendix on applications: consolidate all inputs in master draft document.

Review of Data Catalogue usage in DO-201B

The following conclusion was recorded:

- **Scope of navigation data**
    - Example introductory text for the document: *"The following section presents the scope of navigation data that can be collected and processed by the industry. It includes definitions of data elements, and, in some occurrences, it also includes capture rules."*

  - Description and references: refer to ICAO and ARINC 424 provisions.
  - Caveat: no requirement for "minimum contents" or on "how data is formatted"
  - Yet, when a data element is provided in the DB, it shall/should comply with the description and the capture rule (as applicable).
- **Data Quality Requirements**
  - Example introductory text for the document: *"Tables xxx present both the existing ICAO data quality requirements applicable to States and the data quality required by the industry to support applications such as the ones listed in Appendix A"*
  - DQRs: identify both ICAO requirements and industry wishes
  - Accuracy and Integrity: use of DO-201A values when existing; otherwise define them based on ICAO values.
  - Provide rationale for differences, i.e. integrity higher in ICAO because they consider the most stringent applications.

Dates of next meetings

The next meeting will take place from 27 February through 2 March 2017 in Toulouse, France, hosted by Airbus.

The dates and potential locations for the subsequent meetings were set as follows:

- 29th meeting: 19 – 23 June 2017 in Cedar Rapids, hosted by Rockwell Collins
- 30th meeting: 11 – 15 September 2017 in Paris, hosted by EUROCAE
- 31st meeting: 27 November – 01 December 2017 in Phoenix, hosted by Honeywell.

Remaining meetings are foreseen for:

- March 2018 in Brussels, Belgium or Cologne, Germany
- June 2018 at RTCA in Washington DC, USA.

In addition to the meetings, thematic WG arrangements were agreed as follows:

- The Data Quality Sub-team to hold WebEx meeting on Thursdays morning, every other week starting on January the 12th; WebEx meetings to be arranged by RTCA.
- All WGs invited to circulate draft papers in advance
- Members to expect "friendly reminders" for progress.

Stéphane and Brian wrapped up the meeting. They concluded that the meeting objectives were achieved, all foreseen agenda items were covered and good overall progress was made.

5 List of Open Actions

The following table contains a list of all open action items:

Ref#	Member/Team Assigned	Task Description
25-11	Scott Roesch, Erik Ringnes	Prepare draft text on applications - Flight Management Systems
25-12	Jean-Paul Genottin, Brian Gilbert	Prepare draft text on applications - Runway safety applications

Ref#	Member/Team Assigned	Task Description
25-14	Cedric Cote	Prepare draft text on applications - Landing Systems (e.g. GLS, ILS, LPV)
25-15	Kevin Cary	Prepare draft text on applications - Flight / Mission Planning Systems
25-16	Jens Schulte	Prepare draft text on applications - Simulation
25-18	**Steve**, Diana, Daniel, Burak, Brian	Draft text on Structure of the document - Prepare propositions for a new structure - Consider structure of e.g. ED-99/DO-272 - Adoption of requirements identification - Introduction and intended audience - Scope (navigation data)
25-19	**Sasho**, Jeff M. , Erik, LaDonna	Draft text on Background and PBN principles (1.1-1.2) including new concepts
25-20	Martin, **Scott**, Sasho	Draft text on Rules for navigation data preparation - Geodesy and conventions (2.1.2.-2.1.3) - Calculations (2.2)
25-21	Stéphane, **Brad, Jeff M.**, Jens, Kim, Steve, Jeff P., Ralf, Cedric, David, Martin, Thomas, Scott, Lee	Draft text on Data quality - DQR tables (2.1.4-2.1.6) - Quality management - ref. to DO-200B (2.1.7)
25-22	Steve, Erik, Cedric, **Kevin,** David, Kyle, John	Draft text on Procedure encoding - Path terminators (ARINC 424) basics (3.1.3) - Considerations for encoding of procedures in DB (3.1.1, 3.1.2, 3.2 and 3.3) including for new RNP DB
25-23	Stéphane, **Torsten**, Diana, Ralf, Sasho, Martin, Brian	Draft text on Aeronautical information basics (2.3. - 2.4) (Annex 15, ICAO) Includes texts on: 1. SWIM and Navigation data 2. Standards for names and identifiers
26-02	Scott Roesch	Draft an introductory text for the appendix on the applications
27-01	Torsten Domrös, Martin Zillig, David Baker, Ralf Sieprath	Prepare DP for new appendix describing common/major issues found with State data and any related guidance as well as addressing NOTAM-related issues.
27-02	Data Quality sub-team Thomas Koebel	Develop a WP with a text proposal on Circular/Linear Error Probability based on ICAO values and DO-201A or their own expert judgement.
27-03	**Brad and Jeff M.** supported by Scott and	Draft a DP on Data Driven Charting (DDC)

Ref#	Member/Team Assigned	Task Description
	Collin (to be confirmed), Reuss, Kim, Jeff P., Jack Befus	
27-04	David Baker	Prepare DP for new and amended data elements in the data quality tables and author text explaining that is states source critical data without digital error detection it is not likely that industry will be using it for applications requiring critical data.

Certified as a true and accurate summary of the meeting:

Sasho Neshevski
Secretary, RTCA SC-217, EUROCAE WG-44

Brian Gilbert
Chairman, RTCA SC-217

Stéphane Dubet
Chairman, EUROCAE WG-44