



**Summary of the 14th Meeting  
Special Committee 227  
Standards of Navigation Performance**

The 14th Plenary Meeting of RTCA Special Committee 227 (SC-227) was held on June 15-19, 2015. This meeting was held at RTCA. Attendees, at meeting and via webex, included:

- |  |  |
|--|--|
| Dave Nakamura (Chairman SC-227)            | Advanced PBN Solutions                 |
| Barry Miller (Designated Federal Official) | Federal Aviation Administration        |
| Mike Cramer (WG1 Chairman)                 | The MITRE Corporation                  |
| Michael Gordon-Smith (WG2 Chairman)        | Esterline CMC Electronics              |
| Christopher Shehi (WG2 Co-Chair)           | Honeywell International, Inc.          |
| Mike Jackson (Secretary)                   | Honeywell International, Inc           |
| John Barry                                 | Federal Aviation Administration        |
| Sophie Bousquet                            | RTCA                                   |
| Alexandre Capodicasa                       | Esterline CMC Electronics              |
| Brian Daly                                 | Transport Canada                       |
| Guy Deker                                  | Thales Avionics                        |
| Bob Gaul (on phone)                        | Garmin                                 |
| Tim Geels                                  | Rockwell Collins, Inc.                 |
| Justin Grzib                               | Air Force CNS/ATM office               |
| Kendal Hershberger                         | Garmin                                 |
| Dick Hess                                  | Universal Avionics Systems Corp.       |
| Hette Hoekema (on phone)                   | European Aviation Safety Agency        |
| Karen Hoffman                              | RTCA                                   |
| Waldemar Krolak                            | Transport Canada                       |
| Gozde Kucukerdonmez                        | STM A.S Turkey                         |
| Jeff Meyers                                | Federal Aviation Administration        |
| Brad Miller                                | Federal Aviation Administration        |
| Jim Savage (on phone)                      | Federal Aviation Administration        |
| Lou Selk                                   | Consultant - Esterline CMC Electronics |
| Jiri Svoboda                               | Honeywell International, Inc.          |
| Yauwu Tang                                 | The MITRE Corporation                  |
| Nick Tallman (on phone)                    | Federal Aviation Administration        |
| Michelle Yeh                               | FAA – Human Factors                    |
| Tom Yochum                                 | The Boeing Company                     |

\*\*\*\*\*



In accordance with the Federal Aviation Advisory Committee Act, Barry Miller, Federal Aviation Administration, was the Designated Federal Official for this meeting.

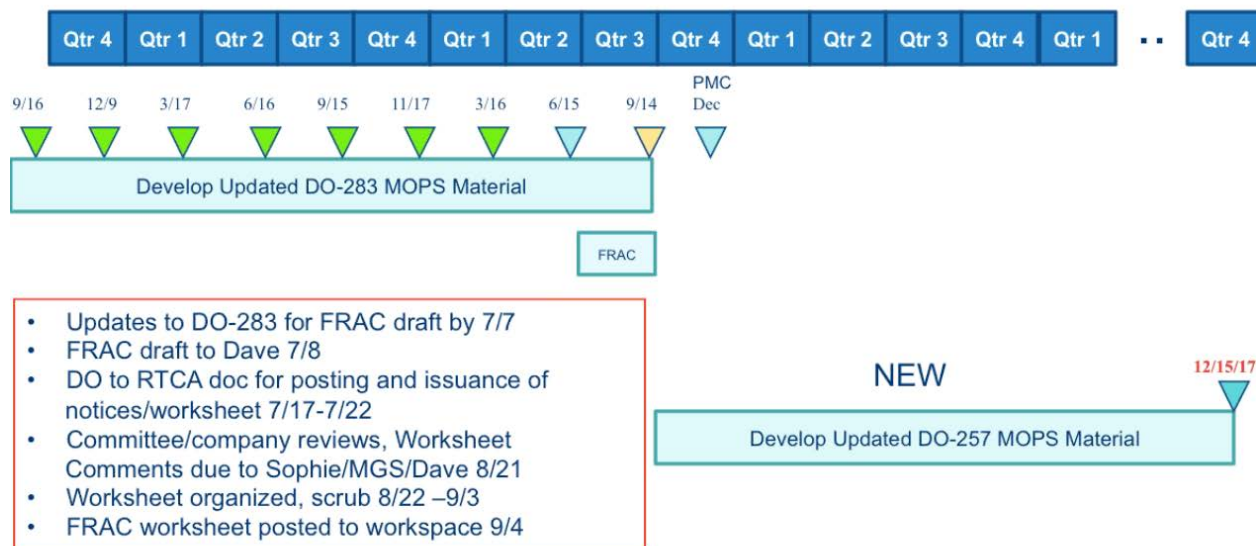
\*\*\*\*\*

**RTCA SC-227, Standards of Navigation, March 16-20, 2015**

- The 14th Plenary meeting of SC-227 was convened at 9:00 a.m. EST by Chair Dave Nakamura (Advanced PBN Solutions) and the meeting was opened officially by the FAA DFO Barry Miller.
- Each person in attendance was invited to introduce themselves.
- Dave reviewed the agenda (copied below). He noted that the bulk of the weeks work would be oriented on plenary review and discussion of the MOPS draft to advance the document in preparation of FRAC. The goal is to conclude with MOPS material the committee can live with for FRAC and ensuring there are no outstanding showstoppers. The meeting agenda was approved.
- Dave reviewed the ToRs for the updating of DO-257A as approved at the recent PMC, and provided some news from the FAA and EUROCAE. The following diagram shows the committee schedule for the next several years.
  - The updated MOPS will become the foundation for a new revision to TSO-C165A.
  - EUROCAE has indicated an interest in a joint effort, TBD. However, given there has been no formal activity on EUROCAEs part, SC227 will proceed as planned.



# SC-227 Top Level Plan - Proposed Plan & Schedule



## Summary Agenda:

1. Welcome/Introductions/Administrative Remarks
2. Agenda Overview
3. Overview of Planned Work Program for the Week
  - a. Action Items Review
  - b. MOPS Draft Review
  - c. Miscellaneous Items
4. Plenary Review/Discussion
  - a. Planned Work Schedule (Note, schedule subject to change)
  - b. Draft MOPS Issues
  - c. CNS-ATM appendix: IM Operations, addition or not at this time.
  - d. Status of new working group for map MOPS
  - e. Release of the MOPS (Rev to DO-283A) for FRAC
  - f. 9:00 AM to 5:30 PM each day
5. Technical Requirements Breakout Sessions (as needed)
6. Other Business



## Work Plan for M14

Dave stated that the work process for the week would be to review the MOPS and reach consensus on the material presented, as revised, or to be revised based upon specific objectives or agreements. For the latter, and because of the large amount of material to be covered, the meeting notes will document agreements for the final content. The document will be edited after the meeting and submitted for FRAC, with the understanding that FRAC comments can be made.

### MOPS review

The plenary reviewed the MOPS and collected comments and agreements in two forms: Michael Gordon-Smith annotated his copy with required edits, and Mike Jackson created a comment matrix to collect the verbal comments and dispositions.

Since the Appendix F section draft was not available in advance of the meeting it was reviewed and edited in real time. Individual comments were not captured. The full updated text will be inserted in the MOPS for the FRAC review.

A number of areas of the MOPS white papers were not sufficiently mature for plenary review. Each afternoon, the plenary was adjourned so working group sessions could complete the necessary work on a number of change proposals.

### MOPS Change Proposal Review

Michael Gordon-Smith led daily breakout discussions of the MOPS change proposals that were not yet incorporated into the MOPS draft.

The following table shows the timetable for the discussions as they occurred during the week.

The MOPS change proposals and draft DO-283 document will be edited as a result of the discussions. An updated draft containing the changes agreed to by the working group, along with other editorial tweaks will be posted as well as incorporated into the FRAC draft. Additionally, any notes/actions discussed will be posted to the committee work space.

All actions for finalized text are due back to Michael Gordon Smith by 6/24 for incorporation into the FRAC draft MOPS.

#### MOPS Proposals discussed:

[M1-02c] VNAV Performance  
[M7a-01] Requirements / Class / Test Cross-ref  
[M9a-04] SC186 CNS-IM (Appendix G)  
[M11-02] Section 4 Update

[M11-03] HFE Updates (App F&K)  
[M12-02] Section 3 Update  
[M13-07] Navaid Selection Checks  
[M14-01] Appendix B & C updates  
[M1-02c] VNAV Performance (revisited)

	Monday 15 <sup>th</sup>	Tuesday 16 <sup>th</sup>	Wednesday 17 <sup>th</sup>	Thursday 18 <sup>th</sup>	Friday 19 <sup>th</sup>
MORNING/AFTERNOON	<u>SC-227 Plenary:</u>  Preliminary discussions Draft MOPS review  <u>WG-2 Breakout:</u> Status Overview [M11-03a] HF Section 2 Update [M11-03b] HF App F Update	<u>SC-227 Plenary:</u>  Draft MOPS review  <u>WG-2 Breakout:</u> [M11-03b] HF App F Update (revisited) [M11-03c] Equipment Interfaces	<u>SC-227 Plenary:</u>  Draft MOPS review  <u>WG-2 Breakout:</u> [M9a-04] SC-186 CNS-IM (App G) [M7a-01] Requirements / Class / Test Cross-ref  <u>WG-2 Breakout:</u> [M11-03b] HF App F Update (revisited) [M12-02] Section 3 Update	<u>SC-227 Plenary:</u>  Draft MOPS review  <u>WG-2 Breakout:</u> [M11-03b] HF App F Update (revisited) [M12-02] Section 3 Update [M11-02] Section 4 Update  [M13-07] Navaid Selection Checks [M14-01] Appendix B & C updates [M1-02c] VNAV Performance (revisited)	<u>SC227 Plenary Wrap Up</u>  WG-2 Report to Plenary  Action Items Timeline, next steps  Schedule New Business & next Meetings
	Monday 16 <sup>th</sup>	Tuesday 17 <sup>th</sup>	Wednesday 18 <sup>th</sup>	Thursday 19 <sup>th</sup>	Friday 20 <sup>th</sup>

### Patent Awareness

Guy Decker pointed out that there is a patent in the area of vertical direct-to. It was pointed out that there is vertical direct-to material in prior RTCA publications from SC-181 that predates the patent in question, so we should be okay to continue using our prior material. Guy provided the patent in question to the chairman.

### Update of RTCA DO-257A, Electronic Map MOPS

A kickoff meeting is planned for December 2-4 (Wednesday - Friday), 2015. Sam Miller will be the working group chair, possibly a co-chair to be named. Topics for the kickoff will include review of the ToRs, discussion of considerations, and issue identification/prioritization, similar to how we started the MASPS update in 2012.



Dave asked for a show of hands of who was interested in participating and not many were raised. It is expected that it will mostly be a different group of people. RTCA will issue a broad notification to the RTCA member organizations to raise awareness and get more participation in this effort.

**Coordination with SC-186 and SC-214**

Dave informed the committee that even though efforts from December and on will be focused on the DO-257A update, SC-227 can expect continued discussions with SC-186 and SC-214 committees as issues arise with integration and implementation with the RNP systems. Any such discussions will likely be via WebEx, not face-to-face.

**FRAC Process**

Sophie Bousquet briefed the group on the FRAC process. The briefing materials will be made available on the committee website. Dave stressed to the group that comments are expected to include a sufficient entry in the “proposed solution” column. There will not be time in FRAC to write by committee. If a comment just contains a problem description with no solution proposed or implied then it may be rejected.

**Closing Plenary**

The committee agreed that based upon the discussions, edits and agreed-to changes, the DO-283 update could proceed to FRAC. The schedule of events for FRAC is as follows:

- Finalized text from meeting actions are due back to Michael Gordon-Smith by 6/24.
  - Barry Miller stated that any text sent to Michael should be limited to outstanding actions and should not include any new material.
- MGS will provide a draft to Dave Nakamura by 7/8.
- The FRAC document will be available to the committee for review 7/22.
- Company/member FRAC comments due to Sophie 8/21
- Combined FRAC worksheet posted to website 9/4

Michael Gordon-Smith reviewed the list of white papers discussed and highlighted the status of each.

**Next meeting**

Next meeting is September 14<sup>th</sup> – 18<sup>th</sup> at RTCA. This meeting will be a plenary session.

\*\*\*\*\*

CERTIFIED as a true and accurate summary of the meeting.

Mike Jackson, Secretary

Dave Nakamura, Chairman