

RTCA Special Committee 186 Working Group 6

ADS-B / ASA MASPS Maintenance

Meeting #17

Boeing, 1200 Wilson Blvd., Rosslyn/Arlington Virginia

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Proposal to Combine the Contents of DO-242B and DO-289

**ORIGINAL CONTENT CAREFULLY CRAFTED BY
Gary Furr, Engility Corporation and Tom Pagano, FAA**

**THEN SHAMELESSLY PLAGIARIZED BY:
Dean Miller, The Boeing Company**

SUMMARY

This Working Paper reviews the Table of Contents of both DO-242B and DO-289 for the purpose of proposing a Table of Contents for the combined document with respect to the Appendices containing the ADS-B In Application descriptions.

1. INTRODUCTION

This Working Paper serves to review the Tables of Contents of the two MASPS documents and to make a recommendation as to the Table of Contents for the new document for the Appendices containing the ADS-B In Application descriptions.

A. Surface Situational Awareness

The current work in SC-186 WG4 for the revision of the ASAS MOPS DO-317A will also harmonize and integrate the requirements for the RFG and DO-289 ASAS applications where they describe similar ADS-B In functions. However it is proposed to retain separate application description sections for ASSA, FAROA and ATSA SURF for the following reasons:

1. FAROA only requires a runway map database whereas ASSA and ATSA-SURF require a full airport map database (AMDB). Since AMDB's are only available in the near term for a small percentage of airports worldwide whereas runway map data is available for virtually 100% of all airports, it would be a severe limitation on the early implementation of the ADS-B In surface situational awareness applications to only retain the ATSA SURF requirements.
2. Per the recent WG1 simulation demos as documented in FAA AIR-130 Memo dated August 16, 2010; the minimum requirement to implement the SURF IA application is FAROA so it is recommended to retain FAROA as a separate standalone application for the foreseeable future.
3. ATSA-SURF requires a minimum $NAC_v = 2$ whereas the US and European ADS-B Out mandates will only require a minimum value = 1. While Annex E does provide mitigation techniques for this requirement based on position measurements it is not guaranteed that all traffic will qualify. ASSA and FAROA do not require $NAC_v = 2$ and should be retained as separate applications.
4. ATSA-SURF requires knowledge of airports with parallel runways runway to runway centerline dimensions for the purpose of determining airborne traffic validity (SPR 31 & 32). Thus the implementation schedule for SURF will be much more long term than the schedule for implementing ASSA which does not require these data items as a minimum requirement.

B. New Application Sections

It is proposed to add new application description appendices for the following ADS-B In applications which were not in DO-289:

1. In Trail Procedure (ITP)
2. SURF IA
3. Flight Deck Interval Management – Spacing (FIM-S)
4. Ground Based Interval Management

2. CURRENT TABLES OF CONTENTS

Sections numbers of DO-242B	Title of DO-242B Sections	Sections numbers of DO-289	Title of DO-289 Sections
1	Purpose and Scope	1	Purpose and Scope
1.1	Introduction	1.1	Introduction
1.2	System Overview	1.2	System Overview
1.3	Operational Applications	1.3	Key Definitions
1.4	Verification Procedures	1.4	Aircraft Surveillance Applications
		1.5	Key Concepts of Operation
		1.6	Application Analysis Methodology
2	Operational Requirements	2	ASA System Requirements
2.1	General Requirements	2.1	ASA Applications
2.2	System Performance – Standard Operational Conditions	2.2	Transmit Quality Level and Application Capability Level
		2.3	ASA System Architecture
		2.4	Requirements
3	ADS-B System Definition and Functional Requirements	3	Interface and Subsystem Requirements
3.1	System Scope and Definition of Terms	3.1	ASA Transmit Subsystems
3.2	ADS-B System Description	3.2	Surveillance Data Link System Requirements
3.3	System Requirements	3.3	ASA Receiving Participant Subsystems
3.4	ADS-B Messages and Reports	3.4	External Subsystems
3.5	ADS-B Subsystem Requirements		
3.6	ADS-B Functional Level Requirements		
4	Procedures for Requirement Verification		
Appendix A	Acronyms	Appendix AA	Acronyms and Definitions of Terms
		Appendix AB	Bibliography
		Appendix AC	Accuracy and Integrity Parameters
		Appendix AD	Requirements for GPS-Derived Position Data for Support of ATC “Radar-Like” Services
		Appendix AE	Compatibility of ASA MASPS with ADS-B Standards and Fielded Systems
Appendix B	Definitions of Terms	Appendix B	Description of the Application Appendices
Appendix C	Bibliography and References	Appendix C	Enhanced Visual Acquisition (EVACQ) / ATSA-AIRB
Appendix D	Near-Term ADS-B Applications	Appendix D	Conflict Detection (CD)
Appendix E	Other Applications	Appendix E	Airport Surface Situational Awareness (ASSA)
Appendix F	Efficient Spectrum Utilization	Appendix F	Final Approach and Runway Occupancy Awareness (FAROA)
Appendix G	Design Tradeoff Considerations	Appendix G	Enhanced Visual Approach (EVAPP) / ATSA-VSA
Appendix H	Receive Antenna Coverage Constraints	Appendix H	Airborne Conflict Management (ACM)
Appendix I	Integrity Considerations for ADS-B Applications	Appendix I	Approach Spacing for Instrument Approaches (ASIA)
Appendix J	Accuracy and Update Period Analysis	Appendix J	Independent Closely-Spaced Parallel Approaches (ICSPA)
Appendix K	Latency and Report Time Error Data	Appendix K	ATSA - SURF
Appendix L	Track Acquisition and Maintenance Requirements	Appendix L	In Trail Procedure (ITP)

Sections numbers of DO-242B	Title of DO-242B Sections	Sections numbers of DO-289	Title of DO-289 Sections
Appendix M	Examples of On-Condition Report Formats	Appendix M	SURF IA
Appendix N	Intent Guidance Material for Future ADS-B Intent Broadcast	Appendix N	Flight Deck Interval Management – Spacing (FIM-S)
Appendix O	Determination of Intent Information Exchange Requirements for Air-Air Encounter Alerting and De-confliction	Appendix O	Interval Management – Ground Based
Appendix P	4-bit Coding for Make and Model in ADS-B		
Appendix Q	Future Air-Referenced Velocity (ARV) Broadcast Conditions		
Appendix R	Determining the Navigation Accuracy Category for Velocity (NAC _v)		