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Interchange Standards for Terrain, Obstacle, and Aerodrome Mapping Data

RTCA DO-291A
April 14, 2009

Prepared by: SC-217
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RTCA FOREWORD

This report was prepared by RTCA Special Committee 217 (SC-217) and EUROCAE Working Group 44 (WG-44) and approved by the RTCA Program Management Committee (PMC) on April 14, 2009.

RTCA, Incorporated is a not-for-profit corporation formed to advance the art and science of aviation and aviation electronic systems for the benefit of the public. The organization functions as a Federal Advisory Committee and develops consensus based recommendations on contemporary aviation issues. RTCA's objectives include but are not limited to:

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- Analyzing and recommending solutions to the system technical issues that aviation faces as it continues to pursue increased safety, system capacity and efficiency;
- Developing consensus on the application of pertinent technology to fulfill user and provider requirements, including development of minimum operational performance standards for electronic systems and equipment that support aviation; and
- Assisting in developing the appropriate technical material upon which positions for the International Civil Aviation Organization and the International Telecommunication Union and other appropriate international organizations can be based.

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EXECUTIVE SUMMARY

A common database interchange standard for terrain, obstacle, and aerodrome databases is a key success factor for the implementation of digital functions in the aviation domain. It will enable a common interchange between data originators, data integrators, and system designers. It increases efficiency and safety.

The RTCA/EUROCAE documents DO-272B/ED-99B and DO-276A/ED-98A specify the user requirements for terrain, obstacle, and aerodrome database content and quality.

This document sets guidelines and requirements to develop a data interchange format for terrain, obstacle, and aerodrome data generated in compliance to RTCA DO-272B/EUROCAE ED-99B and RTCA DO-276A/EUROCAE ED-98A.

This interchange standard was generated on the basis of the ISO 19100 (geographic information) series of standards as applied to terrain, obstacle, and aerodrome mapping databases used in aviation. The list of relevant ISO documents is given in Section 1.2. It is recommended that users of this document review these ISO standards. They are available from ISO at:

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Telephone: +41 22 749 01 11

URL: www.iso.org

E-mail: central@iso.org

This standard contains ISO compliant data product specifications for terrain, obstacle, and aerodrome databases that are to be interchanged. These specifications consist of scope, identification, metadata, content information, reference system, data quality information, data capture information, and maintenance information requirements. These requirements will establish a basis that can be used by data originators, data integrators, and system designers to implement a physical interchange format. Interoperability among different physical formats can be facilitated by complying with this standard.

REVISIONS TO RTCA DO-291/EUROCAE ED-119

The following list is a summary of the major changes made to RTCA DO-291 / EUROCAE ED-119 for the DO-291A and ED-119A versions.

The document was updated to reflect the changes made to RTCA DO-272B / EUROCAE ED-99B.

Data Product Specification (DPS) elements were not altered. Terrain and obstacle specifications were not changed. Changes were made to AMDB feature, attribute, metadata and default values coding specifications.

A number of editorial errors, mainly reported by the users of the previous version of the document, or found during the update of the document were corrected.

The reference list was updated and amended.

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TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	Scope	2
1.2	References	3
1.3	Terms, Definitions, and Assumptions	5
1.4	Abbreviations.....	5
1.5	General Structure and Content of a Data Product Specification	6
2	TERRAIN DATA PRODUCT SPECIFICATION REQUIREMENTS	9
2.1	Overview	9
2.2	Specification Scopes.....	10
2.3	Data Product Identification.....	11
2.4	Data Content and Structure.....	13
2.5	Reference Systems.....	16
2.6	Data Quality.....	17
2.7	Data Capture	19
2.8	Data Maintenance	20
2.9	Portrayal.....	21
2.10	Data Product Delivery	22
2.11	Additional Information	23
2.12	Metadata	23
3	OBSTACLE DATA PRODUCT SPECIFICATION REQUIREMENTS	33
3.1	Overview	33
3.2	Specification Scopes.....	33
3.3	Data Product Identification.....	35
3.4	Data Content and Structure.....	37
3.5	Reference Systems.....	57
3.6	Data Quality.....	58
3.7	Data Capture	60
3.8	Data Maintenance	61
3.9	Portrayal.....	61
3.10	Data Product Delivery	62
3.11	Additional Information	64

3.12	Metadata	64
4	AERODROME MAPPING DATA PRODUCT SPECIFICATION REQUIREMENTS	73
4.1	Overview	73
4.2	Specification Scopes.....	74
4.3	Data Product Identification.....	76
4.4	Data Content and Structure.....	78
4.5	Reference Systems.....	126
4.6	Data Quality.....	127
4.7	Data Capture	129
4.8	Data Maintenance	130
4.9	Portrayal.....	130
4.10	Data Product Delivery	131
4.11	Additional Information	133
4.12	Metadata	133
5	QUALITY CONSIDERATIONS	143
5.1	Applying Quality Evaluation Procedures to Dynamic Datasets.....	144
5.2	Reporting Data Quality.....	145
6	MAINTENANCE AND UPDATE CONSIDERATIONS	147
6.1	Source Analysis and Evaluation Procedures	148
6.2	Clarification of Source Anomalies Procedures	149
6.3	Data Input Procedures	150
6.4	Data Validation Procedures.....	150
6.5	Data Verification Procedures.....	151
6.6	Update Mechanism.....	151
7	TEMPORAL CONSIDERATIONS	153
7.1	Temporal Scales	153
7.2	Temporal Characteristics.....	153
7.3	Temporal Feature Relationships.....	154
7.4	Temporal Characteristics of Feature Relationships.....	156
7.5	Temporal Metadata Elements.....	156
7.6	Sample Conformance Criteria	156

A	EXAMPLE OF A DATA PRODUCT SPECIFICATION.....	A-1
B	METADATA ELEMENTS	B-1
C	METADATA CODE LISTS AND ENUMERATIONS.....	C-1
D	GLOSSARY	D-1
E	ABBREVIATIONS AND ACRONYMS	E-1
F	MEMBERSHIP LIST	F-1

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TABLE OF FIGURES

Figure 1-1. Data flow from originator to end user	1
Figure 1-2. Dataset transfer approach	2
Figure 1-3. Scope of interchange standard (shaded area)	3
Figure 1-4. Relationship between a DPS and metadata	6
Figure 2-1. Digital elevation model	9
Figure 2-2. Terrain definition.....	9
Figure 2-3. UML model for scope information for terrain data.....	11
Figure 2-4. UML model for identification information for terrain data.....	13
Figure 2-5. UML model for coverages for terrain data.....	14
Figure 2-6. Model integration diagram for terrain data	15
Figure 2-7. Application schema for terrain data	16
Figure 2-8. UML model for reference system information for terrain data.....	17
Figure 2-9. UML model for quality information for terrain data.....	19
Figure 2-10. UML model for data capture information for terrain data.....	20
Figure 2-11. UML model for maintenance information for terrain data.....	21
Figure 2-12. UML model for portrayal information for terrain data.....	22
Figure 2-13. UML model for delivery information for terrain data.....	23
Figure 2-14. Terrain metadata – overview	24
Figure 2-15. Terrain metadata – identification	25
Figure 2-16. Terrain metadata – quality.....	26
Figure 2-17. Terrain metadata – maintenance.....	27
Figure 2-18. Terrain metadata – spatial representation.....	28
Figure 2-19. Terrain metadata – reference system.....	29
Figure 2-20. Terrain metadata – distribution	30
Figure 2-21. Terrain metadata – extent.....	31
Figure 2-22. Terrain metadata – citation and responsible party.....	32
Figure 3-1. Obstacle features	33
Figure 3-2. UML model for scope information for obstacle data.....	35
Figure 3-3. UML model for identification information for obstacle data.....	37
Figure 3-4. Model integration diagram for obstacle data.....	38
Figure 3-5. Application schema for obstacle data.....	39
Figure 3-6. Feature types for obstacle data	40
Figure 3-7. Attribute enumeration types for obstacle data.....	41

Figure 3-8. UML model for reference system information for obstacle data	58
Figure 3-9. UML model for quality information for obstacle data	59
Figure 3-10. UML model for data capture information for obstacle data.....	60
Figure 3-11. UML model for maintenance information for obstacle data	61
Figure 3-12. UML model for portrayal information for obstacle data.....	62
Figure 3-13. UML model for delivery information for obstacle data	64
Figure 3-14. Obstacle metadata – overview.....	65
Figure 3-15. Obstacle metadata – identification	66
Figure 3-16. Obstacle metadata – quality	67
Figure 3-17. Obstacle metadata – maintenance	68
Figure 3-18. Obstacle metadata – reference system.....	69
Figure 3-19. Obstacle metadata – distribution	70
Figure 3-20. Obstacle metadata – extent.....	71
Figure 3-21. Obstacle metadata – citation and responsible party	72
Figure 4-1. Aerodrome features	73
Figure 4-2. Runway features.....	74
Figure 4-3. UML model for scope information for aerodrome mapping data	76
Figure 4-4. UML model for identification information for aerodrome mapping data.....	78
Figure 4-5. Model integration diagram for aerodrome mapping data.....	80
Figure 4-6. Application schema for aerodrome mapping data.....	81
Figure 4-7. Runway feature types for aerodrome mapping data.....	81
Figure 4-8. Taxiway feature types for aerodrome mapping data	82
Figure 4-9. Apron feature types for aerodrome mapping data.....	83
Figure 4-10. Construction area feature types for aerodrome mapping data.....	84
Figure 4-11. Helipad feature types for aerodrome mapping data	84
Figure 4-12. Vertical structure feature types for aerodrome mapping data	85
Figure 4-13. Surface lighting types for aerodrome mapping data	85
Figure 4-14. Survey control point types for aerodrome mapping data	86
Figure 4-14A. Water types for aerodrome mapping data	86
Figure 4-15. Code list attribute types for aerodrome mapping data.....	87
Figure 4-16. Enumeration attribute types for aerodrome mapping data	88
Figure 4-17. UML model for reference system information for aerodrome mapping data	127
Figure 4-18. UML model for quality information for aerodrome mapping data	128
Figure 4-19. UML model for data capture information for aerodrome mapping data.....	129
Figure 4-20. UML model for maintenance information for aerodrome mapping data	130

Figure 4-21. UML model for portrayal information for aerodrome mapping data.....	131
Figure 4-22. UML model for delivery information for aerodrome mapping data	133
Figure 4-23. Aerodrome mapping metadata – overview	134
Figure 4-24. Aerodrome mapping metadata – identification	135
Figure 4-25. Aerodrome mapping metadata – quality	136
Figure 4-26. Aerodrome mapping metadata – maintenance	137
Figure 4-27. Aerodrome mapping metadata – reference system	138
Figure 4-28. Aerodrome mapping metadata – distribution.....	139
Figure 4-29. Aerodrome mapping metadata – extent.....	140
Figure 4-30. Aerodrome mapping metadata – citation and responsible party	141
Figure 6-1. Data management flow.....	150

TABLE OF TABLES

Table 2-1. Identification of specification scopes for terrain data.....	10
Table 2-2. Identification information for terrain data	12
Table 2-3. Coverage identification for terrain data.....	14
Table 2-4. Reference system identification for terrain data.....	17
Table 2-5. Quality identification for terrain data	18
Table 2-6. Data capture identification for terrain data.....	19
Table 2-7. Maintenance identification for terrain data.....	20
Table 2-8. Portrayal information for terrain data	21
Table 2-9. Delivery format information for terrain data	22
Table 2-10. Delivery medium information for terrain data.....	23
Table 3-1. Identification of specification scopes for obstacle data	34
Table 3-2. Identification information for obstacle data	36
Table 3-3. Default values for obstacle feature attributes	55
Table 3-4. Required attributes for supplemental obstacle features	55
Table 3-5. Reference system identification for obstacle data	58
Table 3-6. Quality identification for obstacle data.....	59
Table 3-7. Data capture identification for obstacle data	60
Table 3-8. Maintenance identification for obstacle data.....	61
Table 3-9. Portrayal information for obstacle data	62
Table 3-10. Delivery format information for obstacle data	63
Table 3-11. Delivery medium information for obstacle data.....	63
Table 4-1. Identification of specification scopes for aerodrome mapping data	75
Table 4-2. Identification information for aerodrome mapping data.....	77
Table 4-3. Default values for aerodrome feature attributes	124
Table 4-3A. Default values for aerodrome feature attributes	124
Table 4-4. Required attributes for supplemental aerodrome features	125
Table 4-5. Reference system identification for aerodrome mapping data	127
Table 4-6. Quality identification for aerodrome mapping data.....	128
Table 4-7. Data capture identification for aerodrome mapping data	129
Table 4-8. Maintenance identification for aerodrome mapping data.....	130
Table 4-9. Portrayal information for aerodrome mapping data	131
Table 4-10. Delivery format information for aerodrome mapping data	131
Table 4-11. Delivery medium information for aerodrome mapping data	132

Table B-1. Metadata element descriptions – about the metadata.....	B-1
Table B-2. Metadata element descriptions – identification	B-1
Table B-3. Metadata element descriptions – quality.....	B-2
Table B-4. Metadata element descriptions – maintenance.....	B-3
Table B-5. Metadata element descriptions – spatial representation.....	B-4
Table B-6. Metadata element descriptions – reference system.....	B-4
Table B-7. Metadata element descriptions – distribution	B-5
Table B-8. Metadata element descriptions – extent.....	B-6
Table B-9. Metadata element descriptions – citation and responsible party.....	B-7

1 INTRODUCTION

Improved common situational awareness and applications such as Terrain Awareness and Warning Systems (TAWS), advanced navigation displays, taxi situational awareness displays, Runway Incursion Prevention Systems (RIPS), and Synthetic Vision Systems (SVS) will enhance the safety and efficiency of aircraft operations in-flight, during approach/takeoff, and on the aerodrome surface. These developments are information-dependent and must use accurate, reliable, and up-to-date terrain, obstacle, and aerodrome mapping data. This implies an interchange process between data originators, integrators, and users based on common agreed-upon information interchange standards. These standards will constitute a foundation upon which the tailored end-user applications may be built.

This interchange standard includes data product specifications (DPSs) for the exchange of database content generated/surveyed within the scope of RTCA DO-272B/EUROCAE ED-99B: "User Requirements for Aerodrome Mapping Information" and RTCA DO-276A/EUROCAE ED-98A: "User Requirements for Terrain and Obstacle Data". Compliance with this interchange standard will ensure that RTCA DO-272B/EUROCAE ED-99B and RTCA DO-276A/EUROCAE ED-98A requirements are met.

This interchange standard is compliant with the ISO 19100 (geographic information) series of standards.

This standard specifies requirements for scope, identification, metadata, content, reference system, quality, capture, and maintenance information. These requirements establish a basis that can be used by data originators, data integrators, and system designers to implement a physical interchange format that supports the required data flow (Figure 1-1). Interoperability among different physical formats can be facilitated by complying with this standard.

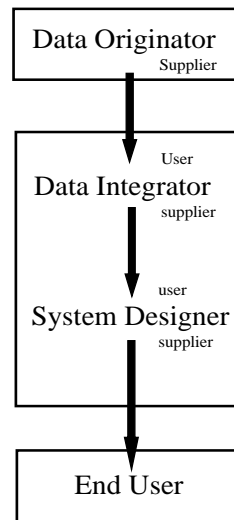


Figure 1-1. Data flow from originator to end user