EUROCONTROL

EUROCONTROL Specification for the Origination of Aeronautical Data Volume 1: Compliance Material for Commission Regulation (EU) 73/2010

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EUROPEAN ORGANISATION
FOR THE SAFETY OF AIR NAVIGATION

EUROCONTROL

EUROCONTROL Specification for the Origination of Aeronautical Data

Volume 1: Compliance Material for Commission Regulation (EU) 73/2010

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Abstract

Volume 1 of this EUROCONTROL Specification provides compliance material in the form of specific requirements which shall be met when originating aeronautical data in order to comply with the identified provisions of the Commission regulation (EU) 73/2010 laying down requirements on the quality of aeronautical data and aeronautical information for the single European sky.

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Origination	Specification	Interoperability	DO
SES	AIS	AIM	
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The following table identifies all management authorities who have successively approved the present issue of this document.

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EXECUTIVE SUMMARY

This document is the European Organisation for the Safety of Air Navigation's (EUROCONTROL) Specification for the Origination of Aeronautical Data.

This Specification has been designed to support Commission Regulation (EU) 73/2010, laying down requirements on the quality of aeronautical data and aeronautical information for the single European sky. This Specification concerns the origination of aeronautical data and, therefore, specifically supports Article 6(4) and (6) of Commission Regulation (EU) 73/2010.

EUROCONTROL Specifications are used, most notably, as a possible Means of Compliance (MoC) to specific Single European Sky (SES) regulatory material. They are developed under full consideration of the Conformity Assessment (CA) Guidelines to support the achievement of the relevant provisions.

EUROCONTROL Specifications may be developed as stand-alone documents in support of EUROCONTROL Member States and Stakeholders. They may also provide the basis of Community Specifications when subject to European Commission mandate.

This Specification is presented in two volumes:

- Volume 1 provides compliance material to be compliant with the identified Articles of Commission Regulation (EU) 73/2010;
- Volume 2 provides guidance material and comprehensive requirements complementing Volume 1.

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1 Introduction

The EUROCONTROL Specification for the Origination of Aeronautical Data, in particular Volume 1, provides material in the form of specific requirements which need to be met when originating aeronautical data in relation to Commission Regulation (EU) No 73/2010 of 26 January 2010 laying down requirements on the quality of aeronautical data and information for the single European sky. This Regulation was developed in response to the European Commission Aeronautical Data Integrity (ADI) mandate which was handed over to EUROCONTROL in 2005. The final mandate report was delivered to the European Commission in October 2007.

The need for a specification on the origination of aeronautical data was identified in the final mandate report. The development of this specification is based upon the request of all stakeholders. It was further supported by the Industry Consultation Body (ICB) and the European Commission.

1.1 Background

As part of the WGS-84 implementation programme, The European Organisation for the Safety of Air Navigation (EUROCONTROL) developed guidance for surveyors which addressed how a survey should be undertaken in the field of aviation. Specific information relating to typical aviation equipment was provided, such that the surveyor knew which part of the equipment needed to be measured.

This guidance was offered to the International Civil Aviation Organisation (ICAO) for consideration and formed the basis of ICAO Doc 9674 – The WGS-84 Manual [RD 6]. Whilst this manual was updated in 2002, it has remained largely unchanged since.

Survey techniques and capabilities have, and continue to, advance at a fast rate. In addition, current and future flight operations are more reliant on data that is of sufficient quality. As a result, the information contained within the manual, particularly that relating to how surveys should be performed, became outdated.

EUROCONTROL identified that some of the guidance developed may act as a possible means of compliance to the relevant parts of Commission Regulation (EU) No 73/2010, laying down requirements on the quality of aeronautical data and aeronautical information for the single European sky [RD 1][1].

Consequently, EUROCONTROL prepared this document, the EUROCONTROL Specification for the Origination of Aeronautical Data, addressing the origination of aeronautical data needed to support the issue of the National Integrated Aeronautical Information Package (IAIP).

This Specification has been developed[2] and is presented in two volumes:

- Volume 1 provides compliance material in the form of specific requirements (also included in Volume 2) which must be met, as a minimum, to be compliant with the identified Articles of Commission Regulation (EU) 73/2010;
- Volume 2 provides guidance material and comprehensive requirements, stemming from different recognised sources, which should be met to ensure that data origination activities meet the required data quality requirements.

[1] References given in square brackets in this document refer to the list of documents in Chapter 1.6.

[2] The EUROCONTROL Regulatory and Advisory Framework (ERAF)[2] has established the basis for the development of EUROCONTROL Specifications.

1.2 Commission Regulation (EU) 73/2010

Commission Regulation (EU) 73/2010 [RD 1] has been introduced by the European Union (EU) as part of the Single European Sky (SES) initiative. Its intention is to improve the quality of aeronautical data/information made available by States, such that both current and future navigation are supported.

This need has primarily been driven by a long-standing acknowledgement that it was unlikely that the data quality requirements laid down by the International Civil Aviation Organisation (ICAO) were being met. In particular, this related to integrity of aeronautical data/information where Stakeholders often reported that they were unsure how the integrity requirements should be applied and, therefore, how conformity with them may be proven.

Commission Regulation (EU) 73/2010 [RD 1] introduces high-level performance requirements, in the form of provisions, which place controls on the processes applied to aeronautical data/information, including the origination, handling and publication phases. Through this approach, the integrity of aeronautical data/information is assured by demonstrating that the processes applied give the required degree of assurance that the data will not be adversely affected.

Nonetheless, maintaining data with the required degree of integrity is only part of the solution. If data is not originated correctly, the resultant erroneous data will be processed with integrity. In essence, the system becomes one of “rubbish in, rubbish out”, with a high degree of assurance that the rubbish will not be altered.

To address this, Commission Regulation (EU) 73/2010 [RD 1] includes provisions which are specifically intended to be met by those involved in the request for and origination of aeronautical data.

Commission Regulation (EU) 73/2010 [RD 1] states that aeronautical data/information of appropriate quality is required to ensure safety and support new operational concepts throughout the European Air Traffic Management (ATM) Network (EATMN). ICAO currently defines data quality requirements in terms of:

1) Accuracy;
2) Resolution;
3) Integrity.

Furthermore, in addition to the data quality requirements listed above, additional characteristics, such as completeness, consistency, timeliness and the need to determine the origin of data, are also addressed by Commission Regulation (EU) 73/2010 [RD 1]. Consequently, these criteria must be met and maintained within the EATMN when originating and processing aeronautical data/information.

As data quality requirements are not defined for all of the data items and information within the Aeronautical Information Publication (AIP), the ICAO Standards and Recommended Practices (SARPs) are no longer considered to provide a sufficient baseline for data quality requirements concerning future concepts of operations. Consequently, Commission Regulation (EU) 73/2010 [RD 1] includes provisions requiring the establishment of data quality requirements for data items published within a State’s Integrated Aeronautical Information Package (IAIP), and for any electronic terrain and obstacle data and aerodrome mapping data that they may make available. This EUROCONTROL Specification assumes that these provisions have been met.

1.3 Purpose and Scope

Volume 1 of this EUROCONTROL Specification defines compliance material in the form of specific requirements and conformity assessment materials providing a possible means of compliance (MoC)[3] associated with Commission Regulation (EU) 73/2010 [RD 1] Article 6(4) and (6).

The scope of Commission Regulation (EU) 73/2010 [RD 1] covers the IAIP (with the exception of the Aeronautical Information Circular), and, where made available by the State, electronic obstacle data, electronic terrain data and aerodrome mapping data.

The requirements in this specification which must be met in order to be considered compliant with Article 6(4) and (6) of Commission Regulation (EU) 73/2010 [RD 1] are included in the normative Chapter 2.

The specification of data quality requirements for the data to be originated are not covered by this specification. The specification of the data quality requirements is addressed in by the EUROCONTROL Specification for Data Quality Requirements which has also been developed to support Commission Regulation (EU) 73/2010 [RD 1].

Where compliance with the requirements of other documents and standards is needed to ensure the achievement of data origination to the data quality requirements, reference to these documents in included within the requirements identified in this Specification. Consequently, in meeting the requirements of this Specification, the referenced requirements must also be met, ensuring that this Specification remains a possible means of compliance. The reference to other documents has, wherever, possible, been kept to a minimum.

1.3.1 Applicability to Military Organisations

Whilst the key regulated parties of the Single European Sky are civil, with no direct obligations placed upon military organisations, it is understood that significant elements of aeronautical information / data published within the civil AIP result from origination activities undertaken within the military domain. Nonetheless, where reference to external documentation is needed, this specification identifies the appropriate civilian documentation with no explicit mention made of military standards, etc. Where equivalent military or civil standards are applied by military organisations the data may be used without further limitations.

1.4 Conventions and Requirement Characterisation

A minimum subset of requirements necessary for the correct and harmonised origination of aeronautical data is specified. Conventions for denoting requirements are as follows:

- "**Shall**" - indicates a statement of specification, the compliance with which is mandatory to achieve the implementation of this EUROCONTROL Specification. It indicates a requirement which must be satisfied by all parties claiming conformity to this EUROCONTROL Specification[4]. Such requirements shall be testable and their implementation auditable.

It should be noted that some requirements necessitate the compliance, in full or in part, with specific ICAO Annexes to the Chicago Convention. Where such reference is made, this should be interpreted as a requirement to comply with the Standards contained within the referenced material only. There is no intention that Recommended Practices are mandated. Further, where a

[3] As a possible means of compliance, a EUROCONTROL Specification does not carry presumed conformity with the identified Articles of the regulation, however, it can support those who need to demonstrate conformity.

[4] A demonstration of conformity with this EUROCONTROL Specification will bring about a presumption of conformity to the regulatory provisions for which the Specification has been formally recognised as a MoC.

State has notified a difference to ICAO in regards to the specified ICAO Standards, due regard to should be given to these differences when assessing compliance.

In ANNEX B, the Implementation Conformance Statement (ICS) templates categorise the requirements, as follows:

- "M" (Mandatory) for "**shall**" items;
- "CM" (Conditional and mandatory) items only apply when an optional parent requirement has been implemented. Conditional and mandatory items provide more detailed requirements about how the parent requirement is to be implemented.

Within Volume 1, only Mandatory and Conditional Mandatory requirements are found as these offer the possible MoC. The latter category relates to requirements that must be met in order to comply with Commission Regulation (EU) 73/2010 when another, non-mandatory requirement is implemented. In the main, these relate to the recording of metadata.

Every requirement and recommendation in this EUROCONTROL Specification is followed by a structured identifier, which can be used to uniquely reference the requirement/recommendation from associated documents and traceability tools. Such identifiers have the form:

DO-[Fn]-[nnnn]

where:

[Fn]: is a sequence of characters to identify the functional area to which the requirement applies, e.g. "FPD" for requirements related to instrument flight procedure design;

[nnnn]: is a numeric identifier for a sequence of requirements within the same functional area[5].

The functional areas are:

- RDQ: Requirements for Data Quality;
- REF: Reference System Specification;
- UOM: Units of Measurement;
- DPS: Data Product Specification;
- CAT: Categories of Data;
- PRO: Data Processing
- EXC: Data Exchange;
- VAL: Validation and Verification;
- SVY: Survey;
- FPD: Instrument Flight Procedure Design;
- ASD: Airspace Design.

[5] Note that the requirement numbers are initially allocated incrementally in tens. This aids the subsequent management of this specification allowing new requirements to be inserted between existing requirements whilst maintaining a logical number sequence.

1.5 Document Structure

This EUROCONTROL Specification comprises a 'Main Body', providing introductory and explanatory material, a normative Chapter ("MoC element"), providing detailed requirements for the MoC specified in this EUROCONTROL Specification, and a number of annexes relating to the status of the specification, including the Conformity Material to be used for this possible MoC.

This EUROCONTROL Specification comprises the following Chapters and Annexes:

Chapter 1	includes introductory material relating to this EUROCONTROL Specification.
Chapter 2	provides the requirements for data origination.
Chapter 3	relates to testing and verification.
Chapter 4	describes the traceability to regulatory provisions.
ANNEX A	provides the configuration control record for the specification.
ANNEX B	provides conformity material.
ANNEX C	provides traceability to regulatory provisions.
ANNEX D	provides the specification update procedures.

1.6 Referenced Documents

This EUROCONTROL Specification incorporates, by reference, a number of specifications and standards maintained by other bodies.

Primary references are those referred to in the requirements of this EUROCONTROL Specification, and which parts thereof constitute an integral part of this EUROCONTROL Specification.

Associated references are those standards and other documents that are referenced from explanatory material and are not, therefore, essential for implementation.

Reference documents are indicated throughout the specification with RD followed by a number listed below.

1.6.1 Primary References

[RD 1] Commission Regulation (EU) No. 73/2010, of 26 January 2010, laying down requirements on the quality of aeronautical data and aeronautical information for the single European sky, OJL 23/6 (27.01.2010).

[RD 2] ICAO Convention on International Civil Aviation, Annex 10 — Aeronautical Telecommunications, Volume I (Radio Navigation Aids), 6th edition, July 2006, Amendment 87, July 2012.

[RD 3] ICAO Convention on International Civil Aviation, Annex 15 — Aeronautical Information Services, 13th Edition, July 2010.

[RD 4] ISO 19115:2003 — Geographic information – Metadata.

1.6.2 Associated References

[RD 5] ICAO Doc 8126 – Aeronautical Information Services Manual, 6th Edition, 2003, Amendment 2, September 2009.

[RD 6] ICAO Doc 9674 - World Geodetic System — 1984 (WGS-84) Manual, 2nd edition, 2002.

1.7 Relationship with other Documents

The relationship between European Regulations, Commission Regulation (EU) 73/2010 [RD 1], the EUROCONTROL Specifications and other documents is represented in Figure 1.

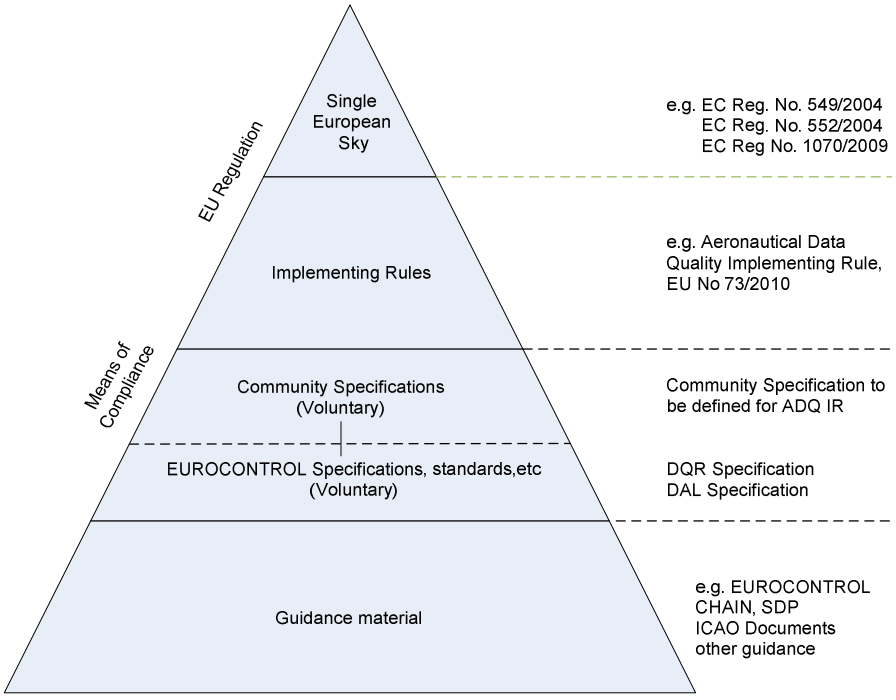

Figure 1: Relationship of the EUROCONTROL Specifications to other Documents

1.8 Abbreviations and Definitions

Term	Definition
ASD	Airspace Design
ATM	Air Traffic Management
CAT	Categories of Data
CDDIS	Crustal Dynamics Data Information Service
CNS	Communication Navigation and Surveillance
DME	Distance Measuring Equipment
DPS	Data Product Specification
EATMN	European Air Traffic Management Network
ENPRM	EUROCONTROL Notice of Proposed Rule Making
ERAF	EUROCONTROL Regulatory and Advisory Framework
EU	European Union
EUROCONTROL	European Organisation for the Safety of Air Navigation

EXC	Data Exchange
FAS	Final Approach Segment
FPD	Instrument Flight Procedure Design
GBAS	Ground-Based Augmentation System
GNSS	Global Navigation Satellite System
IAIP	Integrated Aeronautical Information Package
ICAO	International Civil Aviation Organisation
ICS	Implementation Conformance Statement
ISO	International Organisation for Standardisation
ITRF	International Terrestrial Reference Frame
ITRS	International Terrestrial Reference System
MoC	Means of Compliance
MSL	Mean Sea Level
PRO	Data Processing
RDQ	Requirements for Data Quality
REF	Reference System Specification
SARPs	Standards and Recommended Practices
SDG	Specification Drafting Group
SES	Single European Sky
SVY	Survey
UOM	Units of Measurement
UTC	Co-ordinated Universal Time
VAL	Validation and Verification
VOR	VHF Omnidirectional Radio Range
WGS-84	World Geodetic System-1984

The ADQ IR [RD 1] references Article 2 of Regulation (EC) No 549/2004 (as amended by Regulation No 1070/2009) as the main source of terminology. In addition, ADQ IR Article 3 defines a number of other terms which shall also apply. This Specification adopts both lists.

1.9 Interoperability Target

This section describes the Interoperability Target. This is explanatory material providing a high-level operational service environment definition that supports understanding of what is to be achieved.

To ensure seamless operation, interoperability requirements are defined at a number of distinct levels:

a) Geographical

For optimal efficiency, it is highly desirable that the EUROCONTROL Specification for the Origination of Aeronautical Data is implemented and used across a wide contiguous area. Commission Regulation (EU) 73/2010 [RD 1] is applicable throughout the EATMN, and it is highly desirable that Member States should adopt the same MoC.

a) Procedural

Data originators and those interacting with data and/or information must operate in a consistent way to ensure a seamless service. Procedures are also needed for error reporting, measurement and corrective actions.

b) End-to-end

The complete information chain, from the data originator through to the end-user of the data[6].

ICAO Annex 15 [RD 3] and its supporting guidance material, Doc 8126 [RD 5], detail the content and structure of the State AIP. These include data quality requirements for a limited set of the data in the scope of ICAO Annex 15 [RD 3].

Commission Regulation (EU) 73/2010 [RD 1] addresses electronic data processes and provision of data, and it supplements and strengthens the requirements of ICAO Annex 15 [RD 3] in order to:

a) ensure the implementation of provisions for assuring aeronautical data/information quality (accuracy, resolution, integrity), completeness, consistency and timeliness;

b) describe the performance requirements for how data should be originated, transferred from one party to another, and how data should be automatically handled and processed. In particular, the provisions have to ensure achievement of the necessary levels of integrity, security and validation.

To enable the Interoperability Target to be reached, this EUROCONTROL Specification specifies a MoC for the origination of aeronautical data.

References are made to external standards and documents maintained by other bodies. This is, in particular, related to the content of the IAIP, electronic terrain and obstacle data and aerodrome mapping data, based on ICAO Annex 15 [RD 3] and ICAO Doc 8126 [RD 5].

[6] Commission Regulation (EU) 73/2010 addresses the data chain from the point at which a data origination activity is requested to publication of an element of the Integrated Aeronautical Information Package (excluding Aeronautical Information Circulars) by the National AIS.

2 (Normative) Specification for Data Origination Requirements

2.1 General Requirements

2.1.1 Data Quality

2.1.1.1 General

[DO-RDQ-010] All data **shall** be originated in a manner which meets identified data quality requirements for that data item.

2.1.2 Reference System Specification

2.1.2.1 Horizontal Reference System

[DO-REF-010] The horizontal reference system for the publication of all co-ordinate data **shall** be the World Geodetic System-1984 (WGS-84).

[DO-REF-060] The version of the horizontal reference frame used **shall** be recorded as metadata at the level of the data item.

[DO-REF-070] The horizontal reference frame used in data origination **shall** be recorded, together with the co-ordinates, as (lineage) metadata.

2.1.2.2 Vertical Reference System

[DO-REF-090] All surveyed vertical aeronautical data points **shall** be expressed as a height relative to Mean Sea Level (MSL).

[DO-REF-100] A geoid model sufficient to meet the ICAO requirements **shall** be used to determine the MSL reference surface.

[DO-REF-150] The information about the geoid model used for the expression of elevations **shall** be recorded, together with the elevation value, as (lineage) metadata at the level of the data item.

2.1.2.3 Temporal Reference System

[DO-REF-180] The temporal reference system used for aeronautical data **shall** be the Gregorian calendar and Co-ordinated Universal Time (UTC), in accordance with ICAO Annex 15 [RD 3].

2.1.2.4 Units of Measurement

[DO-UOM-020] For all numerical data, the unit of measurement **shall** be recorded as metadata.

2.1.3 Data Product Specifications

[DO-DPS-010] The party requesting the origination, modification or withdrawal of data **shall** clearly specify the data and the action to be applied to it by means of a Data Product Specification.

[DO-DPS-020] The Data Product Specification **shall**:

a) clearly identify the entity to which the data must be provided;
b) clearly identify the report format to be used;
c) include the data quality requirements.

[DO-DPS-030] The data originator **shall** originate, modify or withdraw data in accordance with the Data Product Specification.

[DO-DPS-040] The data originator **shall** ensure that when data with a data integrity level of critical is originated, modified or withdrawn, it is independently verified to confirm that the origination has been conducted in accordance with the Data Product Specification.

[DO-DPS-050] The data originator **shall** record the actions carried out in order to originate, modify or withdraw the data in accordance with the Data Product Specification as metadata.

[DO-DPS-070] The party requesting the origination, modification or withdrawal of data **shall** verify that the data originator has correctly implemented the Data Product Specification.

2.1.4 Specific Categories of Data

2.1.4.1 Calculated and Derived Data

2.1.4.1.1 Source Data

[DO-CAT-040] Co-ordinate data not determined by survey **shall** either be:

a) Calculated using geodesic algorithms and source data that has been defined in WGS-84. For example:
- A bearing and distance from a point;
- The intersection of bearings from two points;
- The intersection of distances from three points.

b) l) Derived from source data that has been defined in WGS-84. For example:
- Manually selected points along a line of longitude or latitude;
- Manually selected points determined “by definition”.

[DO-CAT-050] The methods(s) employed to calculate or derive data **shall** be recorded as metadata.

[DO-CAT-060] Before a data item is calculated/derived, it **shall** be ensured that the quality of the input data used is sufficient to achieve the required quality of the output data.

[DO-CAT-120] Derived data **shall** be validated using appropriate means.

[DO-CAT-130] The method used to validate the calculated or derived data **shall** be documented.

2.1.5 Data Processing

[DO-PRO-010] Any processing of aeronautical data/information **shall** be conducted in a manner that ensures that the accuracy and resolution are maintained and that the data quality requirements are achieved.

2.1.6 Data Exchange

[DO-EXC-030] The means and format for data exchange **shall** be documented in the formal arrangements established between the sending and receiving party.

2.1.7 Data Validation and Verification

[DO-VAL-010] Data validation and verification processes **shall** be adequate for the assigned integrity level of the data item.

[DO-VAL-020] Prior to use in deriving or calculating other data, aeronautical data/information **shall** be validated and verified.

2.2 Survey

2.2.1 Facilities and Corresponding Minimum Data Requirements

[DO-SVY-020] The survey method for the origination of a feature's co-ordinate **shall** be capable of meeting the data quality requirements.

[DO-SVY-030] The survey method for the origination of a feature's co-ordinate **shall** be validated to ensure that it is capable of meeting the data quality requirements.

2.2.1.1 Calibration of Survey Equipment

[DO-SVY-050] All survey equipment deployed in relation to surveys covered by this EUROCONTROL Specification **shall** be shown to be calibrated and to perform to the accuracy appropriate to the task.

[DO-SVY-060] Sensor calibration instructions **shall** be based on the requirements of the survey method and the sensor manufacturer's requirements.

[DO-SVY-080] Equipment calibration **shall** be shown to be valid for the time of use.

[DO-SVY-090] Details of the calibration process and results **shall** be included in the survey report.

2.2.2 Handling of Data

[DO-SVY-100] Reference point co-ordinates **shall** be loaded into the survey equipment by digital data transfer.

[DO-SVY-120] The data originator **shall** ensure that the measurements in the field are digitally captured and stored.

[DO-SVY-130] Where information, such as lever arm or tripod height, cannot be measured by digital sensors, the surveyor **shall** provide evidence that such information is not affected by a gross error.

2.2.3 Data Maintenance

[DO-SVY-150] Surveyed, calculated and derived data **shall** be maintained throughout the lifetime of each data item and for at least five years following the end of that period or until five years after the end of the period of validity for any data item calculated or derived from it, whichever is the latter.

[DO-SVY-160] Surveyors **shall** digitally capture and store observations (raw data, etc), parameters and intermediate data.

[DO-SVY-170] All information (parameter, intermediate results, etc) and records (survey report including data quality evaluation, metadata, etc) related to a surveyed, calculated or derived aeronautical data item **shall** be maintained with the data item throughout the lifetime of the data item.

[DO-SVY-180] All survey data assigned a data integrity level of critical or essential **shall** be monitored for changes on a yearly basis, as a minimum.

[DO-SVY-210] Where the positional accuracy expressed as a combined uncertainty of measurements exceeds the accuracy requirement for that co-ordinate, re-survey (recalculation) of the relevant data **shall** be undertaken.

2.2.4 General Requirements and Survey Principles

[DO-SVY-230] Where co-ordinates in a local co-ordinate frame which meet the data quality requirements are converted to the International Terrestrial Reference Frame (ITRF)

mathematically, the conversion process **shall** be shown to be such that the required data quality requirements are maintained.

[DO-SVY-240] Survey accuracies **shall** be such that the uncertainties of each observation are sufficiently small that the data quality requirements are met.

[DO-SVY-260] The reliability of the origination of co-ordinate data, taking into account the survey method, the survey set-up and environmental conditions, **shall** be sufficient to meet the data quality requirements.

[DO-SVY-280] All survey data assigned a data integrity level of critical **shall** be subject to sufficient additional measurement to identify survey errors not detectable by single measurement.

[DO-SVY-300] Where it is operationally beneficial to work in a local (planar) co-ordinate system, evidence **shall** be given that the transformation to and from the local co-ordinate system does not impact the accuracy.

[DO-SVY-320] When a planar co-ordinate system is used, all projection parameters for the co-ordinate system **shall** be recorded in the metadata associated with the originated co-ordinates to allow unambiguous reconstruction of the projection.

[DO-SVY-340] The surveying organisation **shall** contact the requesting authority if it requires any clarification about any of the facilities[7] to be surveyed.

2.2.5 Geodetic Control Network

2.2.5.1 General Requirements

[DO-SVY-360] Where no geodetic network exists which allows the accurate and reliable geodetic connection to ITRF, or the geodetic network is not appropriate for the application and techniques proposed, a network of survey control stations **shall** be established.

2.2.5.2 Geodetic Control Network Quality Requirements

[DO-SVY-420] The distance between the survey control stations and the items to be surveyed **shall** ensure that the combined uncertainties of measurement (i.e. the predicted spatial accuracy) do not conflict with the accuracy requirement of the item to be surveyed.

[DO-SVY-430] The positions of the non-permanent survey control stations **shall** be monitored for changes annually, by visual inspection.

[DO-SVY-440] Where changes in the positions of the survey control stations are detected, these **shall** be re-surveyed prior to their use in conducting a survey.

2.2.5.3 Determination of Control Co-ordinates

[DO-SVY-580] Survey measurements **shall** be taken to connect the aerodrome geodetic control network to the ITRF geodetic frame in such a way that the uncertainties of measurement do not conflict with the accuracy requirement of the control network.

[DO-SVY-590] For each control station in the geodetic network, static relative differential Global Navigation Satellite System (GNSS) vectors **shall** be measured for a minimum of two points on an appropriate geodetic network.

[DO-SVY-600] Three or more points **shall** be used for the connection to ITRF.

[7] Details of aerodrome and heliport facilities that typically require survey can be found in Annex E and Annex F of Volume 2 to this Specification.

2.2.5.4 Determination of Local Relationship between the Known Existing Datum and ITRF

[DO-SVY-620] Where existing, relative surveys need to be related to ITRF (e.g. aerodrome obstacle surveys), and the local relationship (difference in latitude, longitude, orientation and scale) between the known, existing datum and ITRF has not been provided by the national geodetic agency, observations **shall** be taken to determine this.

[DO-SVY-630] Evidence **shall** be provided that the accuracy of the local relationship between the known, existing datum and ITRF is commensurate with the required accuracy of the data to be transformed.

[DO-SVY-640] The existing datum and the values and accuracies of the local relationship **shall** be recorded as metadata.

[DO-SVY-650] The transformation parameters from the existing datum to ITRF **shall** be recorded as metadata.

2.2.6 Survey Requirements for Facilities

2.2.6.1 Radio Navigation Facilities

[DO-SVY-660] For radio navigation facilities the survey reference point **shall** be located as close as practically possible to the antenna phase centre of the transmitting antenna (for some illustrations refer to Annex E of Volume 2 to this Specification).

[DO-SVY-670] For Ground Based Augmentation System (GBAS) ground facilities, the promulgated survey point **shall** be the GBAS reference point – see illustration in Annex E of Volume 2 to this Specification.

[DO-SVY-680] The surveying organisation **shall** contact the requesting authority if it requires any clarification about the facilities described in Annex E of Volume 2 to this Specification.

[DO-SVY-690] For collocated VOR/Distance Measuring Equipment (DME) with a separation between antennas of greater than 30 metres, both antennas **shall** be surveyed.

[DO-SVY-700] For collocated VOR/DME with a separation between antennas of 30 metres or less, the position of the DME element **shall** be taken as the position information of this item.

[DO-SVY-710] Where it is not possible to connect directly to ITRF, the method of local connection **shall** be recorded as metadata.

2.2.6.2 Runway Centre Lines and Thresholds

[DO-SVY-770] Where no threshold marker exists, the threshold has not been defined by the National Administration and there is no threshold marker or threshold lighting, the surveyor **shall** select an appropriate point for survey, in accordance with Annex E of Volume 2 to this Specification.

2.2.7 Survey Data Processing

[DO-SVY-1340] Control station and reference point information **shall** be digitally transferred and loaded into the survey sensor.

[DO-SVY-1350] Raw data **shall** be digitally transferred and loaded into the post-measurement processing software.

[DO-SVY-1360] Parameters used in the data processing and which impact the results of the data processing **shall** be recorded as metadata.

[DO-SVY-1370] Prior to use, parameters used in the transformation or conversion of critical and essential data **shall** be validated by independent verification.

[DO-SVY-1400] For every feature whose co-ordinate, distance/length, elevation/height or angle value cannot be directly measured but can be calculated, the association between the raw data, parameters and intermediate data used in the processing **shall** be recorded to ensure traceability.

[DO-SVY-1410] Where the geometry of features, such as obstacles, is derived by human interaction from base data, it **shall** be subject to independent verification to identify any errors that may have been introduced.

2.2.8 Quality Assurance

2.2.8.1 General

[DO-SVY-1420] Where survey data does not meet the identified data quality requirements or where the conformance with the data quality requirements cannot be proven, the data originator **shall** ensure that such elements are identified and any deviation reported.

2.2.8.2 Data Quality Evaluation

[DO-SVY-1430] All originated data **shall** be evaluated to ensure that it has met the data quality requirements specified in the request for origination.

[DO-SVY-1440] Data **shall** be processed and evidence of this processing maintained such that its quality can be evaluated and errors identified.

2.2.8.3 Quality Reporting

[DO-SVY-1460] Quantitative quality results **shall** be reported as metadata in compliance with the International Organisation for Standardisation (ISO) 19115:2003 [RD 4].

[DO-SVY-1470] Whenever a conformance quality level has been specified in the requirements, the data quality result **shall** be compared with it to determine conformance.

[DO-SVY-1480] Conformance of the data to its data quality requirement **shall** be reported as pass/fail information.

2.2.9 Survey Report Requirements

2.2.9.1 General

[DO-SVY-1490] All survey work undertaken to determine the co-ordinates of aeronautical data/information **shall** be reported as metadata in compliance with ISO 19115:2003 [RD 4].

[DO-SVY-1500] The level of detail recorded in metadata **shall** allow for the traceability of aeronautical data/information and the assessment of its suitability for use.

[DO-SVY-1520] The organisation responsible for the survey **shall** be reported in the metadata, in accordance with ISO 19115:2003 [RD 4] section 6.3.2.2.

[DO-SVY-1530] The purpose of the survey **shall** be stated in the metadata (see ISO 19115:2003 [RD 4] section 6.3.2.2).

2.2.9.2 Lineage Information

[DO-SVY-1550] Lineage information **shall** be reported in the metadata, in accordance with ISO 19115:2003 [RD 4] section 6.3.2.4.

[DO-SVY-1580] For each processing step, the name and role of the person that has interacted with the data **shall** be included in the lineage information.

[DO-SVY-1590] The method and sensor (equipment) used for data origination **shall** be included in the lineage information.

[DO-SVY-1610] When data from a third party supplier has been used in the data origination process (e.g. permanent GNSS network, geoid model), appropriate information regarding the data **shall** be recorded as metadata to ensure traceability.

2.2.9.3 Data Quality Information

[DO-SVY-1620] Data validation tasks **shall** be recorded in the metadata, in accordance with ISO 19115:2003 [RD 4] section 6.3.2.4.

2.3 Instrument Flight Procedure Design

2.3.1 General

[DO-FPD-090] Aeronautical information, and terrain and obstacle data sources **shall** be documented.

[DO-FPD-100] The designer **shall** be responsible for the verification of received data and the validation of data critical to the design.

[DO-FPD-140] Where manual data entry is used, additional verification checks **shall** be applied to ensure that no errors have been introduced.

2.3.2 Training and Qualification of Designers

[DO-FPD-170] Instrument flight procedure designers **shall** be suitably qualified and **shall** have successfully completed recognised training courses.

2.3.3 Validation and Verification of Instrument Flight Procedures

[DO-FPD-190] Prior to publication, the instrument flight procedure **shall** be validated to ensure that the design is correct, the procedure is flyable and the procedure description is complete and coherent.

[DO-FPD-200] An instrument flight procedure design **shall** be independently checked by a qualified instrument procedure designer prior to publication.

[DO-FPD-210] The checking process **shall** ensure that the data used in the design has been verified and validated, that criteria have been applied correctly, that the available guidance has been followed, that the proposed procedure meets the requirements for the intended operation and that the publication data is complete and coherent.

[DO-FPD-220] The results of the validation and verification, together with the conclusions, **shall** be recorded in the metadata for the procedure.

2.3.4 Quality Records

[DO-FPD-270] All instrument flight procedures **shall** be traceable to their source of production by an unbroken audit trail recorded as metadata.

[DO-FPD-280] Information to be recorded in the audit trail on the source of production **shall** include, as a minimum:

a) Name of procedure designer;
b) Design organisation;
c) Date of design;
d) Design rationale;

e) Version of applicable design criteria used;
f) Data sources;
g) Parameters used;
h) Design assumptions and constraints;
i) Name of design validator;
j) Date of design approval.

2.4 Airspace and Air Traffic Services Route Planning

2.4.1 General

[DO-ASD-120] Where common boundaries exist, these **shall** be formally co-ordinated with the authority responsible for the neighbouring airspace.

[DO-ASD-130] The horizontal dimensions **shall** be defined with reference to WGS-84.

[DO-ASD-170] Where manual data entry is used, additional verification checks **shall** be applied to ensure that no errors have been introduced.

2.4.2 Quality Records

[DO-ASD-180] All airspace structures **shall** be traceable to their source of production by an unbroken audit trail.

[DO-ASD-190] Information on the source of production **shall** include:

a) Name of Airspace Designer;
b) Design organisation;
c) Date of design.

[DO-ASD-200] Records **shall** be maintained for the lifetime of the airspace structure and for at least five years following the end of that period or until five years after the end of the period of validity for any data item calculated or derived from it, whichever is later.

3 Testing and Verification

3.1 Introduction

To achieve compliance with the possible MoC detailed in this EUROCONTROL Specification, the mandatory requirements listed in Chapter 2 shall be implemented and conformance against these tested. A description of the tests could form part of the material developed to support the necessary verification of conformity activities required by Article 5 and Article 6 of the Interoperability Regulation 552/2004 as amended.

4 Traceability to Regulatory Provisions

4.1 Implementation Conformance Statements (ICS)

This EUROCONTROL Specification may be used to support verification of conformity activities in relation to Commission Regulation (EU) No 73/2010 and relevant conformity assessment materials are, therefore, described in ANNEX B. These include ICS templates, which allow the level of compliance with this EUROCONTROL Specification to be recorded.

The ICS templates are intended to support clear statements of:

a) conformity or non-conformity with the requirements ('shall' items) of the Specification;

b) reasons or mitigations in the case of any declaration of non-conformity with the requirements of the Specification.

The ICS templates categorises the requirements, as follows

- "M" (Mandatory) for "**shall**" items;
- "CM" (Conditional and mandatory) items only apply when an optional parent requirement has been implemented. Conditional and mandatory items provide more detailed requirements about how the parent requirement is to be implemented;

Completed ICS can be used in support of the European Commission Declaration of Suitability for Use and/or part of Technical File accompanying the European Commission Declaration of Verification.

4.2 Traceability to Commission Regulation (EU) 73/2010

ANNEX C provides specific traceability between Commission Regulation (EU) 73/2010 [RD 1] provisions and the specific sections of this EUROCONTROL Specification.

ANNEX A - CONFIGURATION CONTROL

A.1 MoC ELEMENT IDENTIFICATION

MoC_Name	MoC_ID	MoC_Edition
EUROCONTROL Specification for the Origination of Aeronautical Data	EUROCONTROL-SPEC-154	1.0

A.2 MoC ELEMENT CHANGE RECORD

The following table records the complete history of the successive editions of MoC specifications.

Specification Document Identifier	Edition Number	Edition Date	Reason for Change	Sections Affected
EUROCONTROL-SPEC-154	1.0	04/02/2013	Initial specification	All

A.3 MoC ELEMENT TRACEABILITY TOWARDS REGULATORY PROVISIONS

The following table records the traceability history of regulatory provisions associated with this MoC element.

Specification Document Identifier	Edition Number	Implementing Rule References	References of Regulatory Provisions	Validation Date
EUROCONTROL-SPEC-154	1.0	Commission Regulation (EU) 73/2010	Article 6(4) and (6)	

ANNEX B - CONFORMITY MATERIAL

This section specifies the conformity assessment material available for the possible MoC specified in this EUROCONTROL Specification, in Chapter 2.

Applicants claiming conformance to this EUROCONTROL Specification should complete the Conformance Statement below.

Note: In the following table, compliance is indicated in the "Compliance Standard" column as "M" (Mandatory) or "CM" (Conditional and Mandatory).

Identifier	Feature	**Compliance Standard**	Dependency
DO-RDQ-010	Data quality requirements.	M	
DO-REF-010	Horizontal reference system.	M	
DO-REF-060	Version of horizontal reference frame.	M	
DO-REF-070	Recording of horizontal reference frame and co-ordinates.	M	
DO-REF-090	Height relative to Mean Sea Level.	M	
DO-REF-100	Geoid model to determine MSL reference surface.	M	
DO-REF-150	Recording of information about geoid model.	M	
DO-REF-180	Temporal reference system.	M	
DO-UOM-020	Recording of unit of measurement as metadata.	M	
DO-DPS-010	Use of Data Product Specification by requesting party.	M	
DO-DPS-020	Content of Data Product Specification.	M	
DO-DPS-030	Data originator - compliance with Data Product Specification.	M	
DO-DPS-040	Independent verification of data.	M	
DO-DPS-050	Data originator – production of report.	M	
DO-DPS-070	Requesting party – verification of implementation of Data Product Specification.	M	

Identifier	Feature	**Compliance Standard**	Dependency
DO-CAT-040	Calculation or derivation of data not determined by survey.	M	
DO-CAT-050	Method of calculation or derivation.	M	
DO-CAT-060	Quality of input data.	M	
DO-CAT-120	Validation of derived data.	M	
DO-CAT-130	Documenting of method of validation.	M	
DO-PRO-010	Processing of data/information.	M	
DO-EXC-030	Means and format for data exchange documented in formal arrangements.	M	
DO-VAL-010	Data validation and verification.	M	
DO-VAL-020	Validation and verification of data prior to use in deriving / calculating data.	M	
DO-SVY-020	Survey method for origination capable of meeting data quality requirements.	M	
DO-SVY-030	Validation that survey method capable of meeting data quality requirements.	M	
DO-SVY-050	Calibration and performance of survey equipment.	M	
DO-SVY-060	Sensor calibration instructions.	M	
DO-SVY-080	Valid time of use for equipment calibration.	M	
DO-SVY-090	Survey report content.	M	
DO-SVY-100	Loading of reference points.	M	
DO-SVY-120	Digital capture and storage of measurements.	M	
DO-SVY-130	Provision of evidence concerning gross errors – where information cannot be measured by digital sensors.	M	

Identifier	Feature	**Compliance Standard**	Dependency
DO-SVY-150	Maintenance period for surveyed, calculated and derived data.	M	
DO-SVY-160	Digital capture and storage of observations, parameters and intermediate data.	M	
DO-SVY-170	Maintenance of information and records.	M	
DO-SVY-180	Monitoring of critical and essential data.	M	
DO-SVY-210	Resurvey where positional accuracy exceeds accuracy requirement.	M	
DO-SVY-230	Conversion process requirements for conversion to ITRF.	M	
DO-SVY-240	Survey accuracies.	M	
DO-SVY-260	Reliability of origination of co-ordinate data.	M	
DO-SVY-280	Additional measurement for critical data.	M	
DO-SVY-300	Evidence for transformation to and from local co-ordinate system.	M	
DO-SVY-320	Recording of projection parameters for planar co-ordinate system.	CM	DO-SVY-310 (Vol 2)
DO-SVY-340	Contacts for clarification of facilities.	M	
DO-SVY-360	Establishment of survey control stations network where no geodetic network or inappropriate geodetic network.	M	
DO-SVY-420	Distance requirements between survey control stations and items to be surveyed.	M	
DO-SVY-430	Monitoring of position of survey control stations.	M	
DO-SVY-440	Resurvey of relevant data where changes in position of survey control stations.	M	

Identifier	Feature	**Compliance Standard**	Dependency
DO-SVY-580	Survey measurements to connect aerodrome geodetic control network to ITRF geodetic frame.	M	
DO-SVY-590	Measurement of static relative positioning GNSS vectors.	M	
DO-SVY-600	Number of points for connection to ITRF.	M	
DO-SVY-620	Observations for relating existing surveys to ITRF, where local relationship between existing datum and ITRF not provided.	M	
DO-SVY-630	Evidence that accuracy of local relationship existing datum and ITRF is commensurate with the data to be transformed.	M	
DO-SVY-640	Recording of existing datum and values and accuracies of local relationship in survey report.	M	
DO-SVY-650	Recording of transformation parameters from existing datum to ITRF in survey report.	M	
DO-SVY-660	Survey of centre of transmitting antenna for radio navigation facilities.	M	
DO-SVY-670	Survey of GBAS reference point.	M	
DO-SVY-680	Clarification of facilities.	M	
DO-SVY-690	Survey of both antennas for collocated VOR/DME with separation greater than 30m.	M	
DO-SVY-700	Survey of position of DME element for collocated VOR/DME with separation 30m or less.	M	
DO-SVY-710	Recording of method of local connection if not connected directly to ITRF.	M	
DO-SVY-770	Selection of point for survey for threshold, where no markings, no threshold has been defined, no indication of threshold point and no	M	

Identifier	Feature	**Compliance Standard**	Dependency
	threshold lighting.		
DO-SVY-1340	Digital transfer of control station and reference point into survey sensor		
DO-SVY-1350	Digital transfer of raw data for post-measurement processing	M	
DO-SVY-1360	Recording of parameters used in data processing.	M	
DO-SVY-1370	Independent verification of parameters used in the transformation or conversion.	M	
DO-SVY-1400	Recording of association between raw data, parameters and intermediate data used in the processing.	M	
DO-SVY-1410	Verification of geometry of features derived by human interaction with base data.	M	
DO-SVY-1420	Identification and reporting of any deviation from data quality requirements or unknown conformance of data.	M	
DO-SVY-1430	Evaluation of originated data.	M	
DO-SVY-1440	Evidence of processed data allowing quality to be evaluated and errors identified.		
DO-SVY-1460	Reporting of quantitative quality results.	M	
DO-SVY-1470	Determination of conformance with quality level.	M	
DO-SVY-1480	Reporting of conformance of data with data quality requirement.	M	
DO-SVY-1490	Reporting of survey work.	M	
DO-SVY-1500	Level of metadata recorded to allow traceability	M	
DO-SVY-1520	Reporting of organisation responsible for survey in metadata.	M	

Identifier	Feature	**Compliance Standard**	Dependency
DO-SVY-1530	Reporting of purpose of survey in metadata.	M	
DO-SVY-1550	Reporting of lineage information.	M	
DO-SVY-1580	Inclusion of name and role of person interacting with data for each processing step, in lineage information.	M	
DO-SVY-1590	Inclusion of method and sensor equipment used for originating data, in lineage information.	M	
DO-SVY-1610	Recording of data associated with data from third party supplier to ensure traceability.	M	
DO-SVY-1620	Recording of data validation tasks in metadata.	M	
DO-FPD-090	Documentation of data sources.	M	
DO-FPD-100	Verification and validation of received data by designer	M	
DO-FPD-140	Verification checks for manual data entry.	M	
DO-FPD-170	Training and qualification of instrument flight procedure designers.	M	
DO-FPD-190	Validation of instrument flight procedure.	M	
DO-FPD-200	Independent checking of instrument flight procedure design.	M	
DO-FPD-210	Validation and verification of the process used for procedure design checking.	M	
DO-FPD-220	Recording of results of validation and verification in metadata.	M	
DO-FPD-270	Traceability of instrument flight procedures.	M	
DO-FPD-280	Scope of information to be recorded on source of production of instrument flight procedures.	M	

Identifier	Feature	**Compliance Standard**	Dependency
DO-ASD-120	Co-ordination of common boundaries with authority responsible for neighbouring airspace.	M	
DO-ASD-130	Reference for horizontal dimensions.	M	
DO-ASD-170	Verification checks for manual data entry.	M	
DO-ASD-180	Traceability of airspace structures.	M	
DO-ASD-190	Scope of information to be recorded on source of production.	M	
DO-ASD-200	Maintenance of records related to airspace structures.	M	

ANNEX C - TRACEABILITY TO REGULATORY PROVISIONS

Introduction

This Appendix provides traceability from regulatory provisions, in particular, from the Articles and Annexes of Commission Regulation (EU) 73/2010, to the detailed technical provisions (per section) of the EUROCONTROL Specification for the Origination of Aeronautical Data.

Articles in Commission Regulation (EU) 73/2010

Relevant Articles of Commission Regulation (EU) 73/2010 are reproduced in the first two columns of the table below, followed by a cross-reference to the corresponding paragraph in this EUROCONTROL Specification, together with explanatory notes.

Article 6 - Data quality

Reg Ref.	Regulation Text	EUROCONTROL Specification Section Reference
Article 6(4)	When acting as data originators, the parties referred to in Article 2(2), shall comply with the data origination requirements laid down in Annex IV, Part D.	2.1.2.1, 2.1.2.2, 2.1.4.1, 2.1.7, 2.2.2, 2.2.3, 2.2.4, 2.2.6, 2.2.7
Article 6(6)	When acting as the entity responsible for the official request for a data origination activity, the parties referred to in Article 2(2) shall ensure that:	
	(a) the data are created, modified or deleted in compliance with their instructions	2.1.3
	(b) without prejudice to Annex IV, Part C, their data origination instructions contain, as a minimum	
	(i) an unambiguous description of the data that are to be created, modified or deleted	2.1.3
	(ii) confirmation of the entity to which the data are to be provided	2.1.3
	(iii) the date and time by which the data are to be provided	2.1.3
	(iv) the data origination report format to be used by the data originator	2.1.3

Annex IV

Reg Ref.	Regulation Text	EUROCONTROL Specification ref.
Part D	1. The surveying of radio navigation aids and the origination of calculated or derived data whose coordinates are published in the AIP shall be carried out in accordance with appropriate standards and at least in accordance with the relevant ICAO provisions referred to in point 20 of Annex III.	2.1.4.1, 2.2.6
	2. All surveyed data shall be referenced to WGS-84 as specified in the ICAO provisions referred to in point 2 of Annex III	2.1.2.1
	3. A geoid model, sufficient to meet the ICAO provisions referred to in point 3 of Annex III and the aeronautical data and aeronautical information quality requirements laid down in Annex IV, shall be used in order that all vertical data (surveyed, calculated or derived) may be expressed relative to mean sea level via the Earth Gravitational Model 1996. A 'geoid' means the equipotential surface in the gravity field of the Earth, which coincides with the undisturbed mean sea level extended continuously through the continents.	2.1.2.2

Reg Ref.	Regulation Text	EUROCONTROL Specification ref.
	4. Surveyed, calculated and derived data shall be maintained throughout the lifetime of each data item.	2.2.3
	5. Survey data categorised as critical or essential data shall be subject to a full initial survey, and thereafter shall be monitored for changes on a yearly basis, as a minimum. Where changes are detected, re-survey of the relevant data shall be undertaken.	2.2.3
	6. The following electronic survey data capture and storage techniques shall be employed:	
	(a) reference point coordinates shall be loaded to the surveying equipment by digital data transfer;	2.2.2
	(b) the measurements in the field shall be stored digitally;	2.2.2
	(c) raw data shall be digitally transferred and loaded into the processing software.	2.2.7
	7. All survey data categorised as critical data shall be subject to sufficient additional measurement to identify survey errors not detectable by single measurement.	2.2.4
	8. Aeronautical data and aeronautical information shall be validated and verified prior to use in deriving or calculating other data.	2.1.4.1, 2.1.7

ANNEX D - SPECIFICATION UPDATE PROCEDURES

It is necessary to periodically check this EUROCONTROL Specification for consistency with referenced material, notably ICAO international and regional SARPs and manuals[8]. It is also expected to evolve following real project and field experience, as well as advances in technology.

The main objectives of the continuous review are:

- to improve the quality of the requirements (e.g. clarity, testability, etc.);
- to verify that the level of detail published is adequate;
- to ensure that design-oriented requirements, imposing unnecessary constraints to technical solutions, have been avoided;
- to ensure that advances in technology are properly reflected;
- to make the supplying industry aware of the developments and directions in Aeronautical Information systems and prepared to cover and supply the appropriate systems.

Updates will follow EUROCONTROL Notice of Proposed Rule Making (ENPRM) procedures[9] using the process outlined in this section.

The update process for this EUROCONTROL Specification may be summarised as follows:

1) All change proposals and issued changes to referenced documents will be checked in detail by an Impact Assessment Group. An Impact Assessment Report will be generated for consideration by the Specification Drafting Group (SDG).
2) The SDG will compose a new Internal Draft to propose changes, covering the impact assessment, for internal discussion.
3) The new Internal Draft will be assessed for conformance against the regulations, any relevant ICAO policies and safety considerations.
4) If necessary further Internal Drafts will be produced.
5) After the SDG has finalised the updates a new Intermediate Draft will be issued for review by Stakeholders in accordance with ENPRM mechanisms. Workshops may need to be conducted depending on the extent of the changes.
6) Following the reception of comments, further Intermediate Drafts will be produced, as necessary, and distributed for confirmation of correct update (optional).
7) Following a suitable period for further response, assuming that no objections have been raised, the resulting draft will be upgraded to the new Baseline Version. Approval and document change record sections will be updated accordingly. A date will be negotiated with Stakeholders and set for applicability of the revised facilities. The new baseline document will be considered to be in force from that date onwards.
8) Where appropriate, a recommendation will be made to the European Commission to update the reference in the Official Journal of the European Union to recognise this new version as a European Community Specification acceptable as a MoC with the European Community Regulations.

[8] The mechanisms and working arrangements necessary to perform these checks are in the process of being considered.

[9] ENPRM procedures are defined in www.eurocontrol.int/enprm.

www.eurocontrol.int