1.0 PURPOSE

1.1 This Advisory Circular is intended to serve as guidance to AISPs, Cartography providers and data originators pertaining to aeronautical data requirements in the Civil Aviation (AIS) Regulations, Civil Aviation (Aeronautical Charts) Regulations and Civil Aviation (Aerodromes) Regulations. It outlines the requirements relating to data integrity, data accuracy, data resolution and chart resolution, with the objective of ensuring that aeronautical data and information of high quality and integrity are provided throughout the data chain so as to eliminate corruption of data.

The guidance material is applicable to all organizations/entities involved in the aeronautical data chain from origination right up to publication.

2.0 REFERENCES

a. The Civil Aviation (Certification of Air Navigation Service Providers) Regulations, 2017 as amended.

b. The Civil Aviation (Aerodromes Designs and Operations) Regulations, 2024 as amended.

c. The Civil Aviation (Aeronautical Information Services) Regulations, 2025 as amended.

d. The Civil Aviation (Aeronautical Charts) Regulations, 2017 as amended.

e. The Civil Aviation (Construction of Visual and Instrument flight procedures) Regulations, 2017 as amended.

f. The Civil Aviation (Air Traffic Services) Regulations, 2017 as amended.

g. ICAO Doc. 8126 AIS Manual).

h. ICAO Doc 9674 – WGS 1984 Manual

i. ICAO Doc 9881 - Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information.

j. ICAO Doc 10066 PANS-AIM.

3.0 INTRODUCTION

3.1 The Civil Aviation (Aeronautical Information Services) Regulations requires that all necessary measures are taken to introduce a properly organized quality system containing procedures, processes and resources necessary to implement quality management at each function stage (reception and/or origination, collation or assembling, editing, formatting, publishing/storing and distribution of aeronautical information/data).

3.2 The Civil Aviation (Aerodromes) Regulations requires that the operator of an aerodrome to ensure that aerodrome related aeronautical data is adequate and accurate and that the integrity of the data is maintained and protected throughout the data process from survey or origin up to the next intended user.

3.3 The Management of aeronautical data is critical in facilitating the implementation of area navigation (RNAV), performance-based navigation (PBN), airborne computer-based navigation systems, performance-based communication (PBC), performance-based surveillance (PBS), data link systems and satellite voice communications (SATVOICE).

3.4 Corrupt, erroneous, late, or missing aeronautical data and aeronautical information can potentially affect the safety of air navigation. Whilst the AIS/Cartography Provider are required to ensure that the accuracy, integrity and protection requirements for aeronautical data reported by the aerodrome operator are met throughout the data transfer process from the survey/origin to the next intended user.

3.5 The AIS/Cartography Provider shall develop and implement measures to ensure that required data quality requirements are in accordance with the applicable Civil Aviation (AIS) Regulations and Civil Aviation (aeronautical Charts) Regulations.

4.0 TYPE AND CLASSIFICATION OF POSITIONAL DATA

4.1 Air navigation points can be divided into two basic groups, as outlined in the table below:

a. area/en-route points; and

b. aerodrome/heliport points.

Air navigation-related coordinates of interest	
Area/en-route points	**Aerodrome/Heliport points**
Area/en-route coordinates	Aerodrome/heliport coordinates
ATS/RNAV route points	Aerodrome/heliport reference points
Holding points	Runway, FATO thresholds
En-route radio navigation aids	Terminal radio navigation aids
Restricted/prohibited/danger areas	FAF, FAP and other IAP essential points
Obstacles — en route	Runway centre line points
FIR boundaries	Aircraft standpoints
CTA, CTZ	Aerodrome/heliport obstacles

4.2 Besides this basic categorization, air navigation points can be categorized by three types of positional data: -

a. Surveyed points

A surveyed point is a clearly defined physical point, specified by latitude and longitude that has been determined by a survey. This includes:

i. NAVAIDS/Communication facilities;

ii. Aerodrome beacon;

iii. Start and end of Declared distances;

iv. Aerodrome elevation;

v. Aerodrome reference point;

vi. Navigation checkpoints;

vii. Obstacles;

viii. Runway thresholds;

ix. Aircraft parking stands;

x. Taxiway holding position; and

xi. PAPI.

b. Calculated points

A calculated point is a point in space that need not be specified explicitly in latitude and longitude, but that has been derived, by mathematical manipulation, from a known surveyed point. A fix, specified by radial/bearing and range from a known surveyed point such as a NAVAID or by the intersection of a number of radial/bearings from a number of NAVAIDs, is an example of a calculated point. En-route waypoints, which are computed from the intersection of routes or from cross radial fixes on routes, are also calculated points, although they are reported in latitude and longitude; and

c. Declared points

A declared point is a point in space, defined by latitude and longitude that is not dependent upon, nor formally related to, any known surveyed point. Flight information region (FIR) boundary points and prohibited, restricted or danger area points that are outside control areas are often declared points.

4.3 Determination and reporting of aeronautical data shall be in accordance with the accuracy and integrity requirements set forth in Appendix 1. Accuracy requirements for aeronautical data are based upon a 95 per cent confidence level.

5.0 SOURCES OF RAW AERONAUTICAL DATA

It is the responsibility of all aeronautical data originators within the (State), to ensure the determination of aeronautical data required for promulgation by the Aeronautical Information Service (AIS). On receipt of the data, the AISP/Cartography Provider shall check, record and edit the data so that they can be released to the next intended user in a standard format. Aeronautical data containing positional information can originate from a number of different sources:

a. En-route. The surveyed positions of navaids and communication facilities are normally provided by the owner/operator (ATC) of the equipment;

b. SID, STAR, Instrument approach procedures. The calculated positions are normally determined by the air traffic service provider responsible for the procedure, in coordination with the flight Procedure design unit;

c. Aerodrome/heliport. The surveyed positions of thresholds, gates, obstacles and navaids, etc. located at the aerodrome/heliport are normally provided by the owner or operator of the aerodrome/heliport; and

d. Airspace divisions and restrictions. The declared positions are normally defined by State civil aviation or military authorities or other government bodies.

6.0 DATA ACCURACY REQUIREMENTS

6.1 For aeronautical data to be usable, it must be accurate and, in this context, can be subdivided into two distinct categories:

a. evaluated aeronautical data; and

b. reference aeronautical data.

6.2 Evaluated aeronautical data include such information as positional data, elevation, runway length, declared distances, platform-bearing characteristics and magnetic variation.

6.3 Reference aeronautical data include NAVAID identifiers, NAVAID frequencies, way-point names, rescue and fire-fighting facilities, hours of operation, telephone numbers, etc.

6.4 The accuracy requirement for the reference data is absolute; the information is either correct or incorrect. Conversely, the required degree of accuracy of the evaluated data will vary depending upon the use to which the data are put.

6.5 For measured positional data the accuracy is normally expressed in terms of a distance from a stated position within which there is a defined confidence of the true position falling.

6.6 Accuracy requirements for aeronautical data are based upon a 95% confidence level. Determination and reporting of aeronautical data shall be in accordance with accuracy and integrity requirements set forth in tables S1-1 to S1-6

6.7 The RNP types specify the navigation performance accuracy of all the user and navigation system combinations within an airspace. RNP types can be used by airspace planners to determine airspace utilization potential and as input for defining route widths and traffic separation requirements, although RNP by itself is not a sufficient basis for setting a separation standard.

7.0 DATA RESOLUTION REQUIREMENTS

7.1 Resolution is the number of units or digits to which a measured or calculated value is expressed and used.

7.2 Resolution of positional data is the smallest separation that can be represented by the method employed to make the positional statement. Care must be taken that the resolution does not affect accuracy. The resolution is always a rounded value as opposed to a truncated value.

7.3 The order of publication and the charting resolution of aeronautical data be as specified in Appendix 1.

7.4 Precision is the smallest difference that can be reliably distinguished by a measurement process. In reference to the geodetic surveys, precision is a degree of refinement in performance of an operation or a degree of perfection in the instruments and methods used when making measurements.

7.5 The terms “precision” and “resolution” are often interchangeable in general use. Here precision is a measure of the data field capacities that are available within a specific system design. (Example: 54° 33' 15" is expressed to a resolution of one second.) Any process that manipulates data subsequent to the original measurement or definition cannot increase the precision to which the data were originally measured or defined, regardless of the resolution available within the system itself.

8.0 DATA INTEGRITY REQUIREMENTS

8.1 The data integrity is the degree of assurance that an aeronautical data and its value has not been lost or altered since the origination or authorized amendment.

8.2 The integrity of the data can be regarded as the degree of assurance that any data item retrieved from a storage system has not been corrupted or altered in any way since the original data entry or its latest authorized amendment.

8.3 This integrity must be maintained throughout the data process from survey to data application. In respect to AIS, integrity must be maintained to the next intended user.

8.4 Integrity is expressed in terms of the probability that a data item, retrieved from a storage system with no evidence of corruption, does not hold the same value as intended. Loss of integrity does not necessarily mean loss of accuracy. However, it does mean that it is no longer possible to prove that the data are accurate without a further verification of the data from the point at which integrity can be confirmed.

8.5 The integrity requirements for data are not absolute. The risk associated with a point being in error is dependent upon how that data point is being used. Thus, the integrity of a point at threshold used for landing needs a higher integrity than one used for en-route guidance. It is important to note that a lower accuracy does not necessarily imply a lower integrity requirement.

8.6 Requirement for aeronautical data integrity

8.6.1 A data item’s use forms the basis for determining its integrity requirement. Aeronautical data integrity requirements must therefore be based upon the potential risk resulting from the corruption of data and upon the particular use of the data item. Consequently, the following classification of data integrity must apply:

a. Critical data. There is a high probability when using corrupted critical data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe;

b. Essential data. There is a low probability when using corrupted essential data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe; and

c. Routine data. There is a very low probability when using corrupted routine data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe.

8.6.2 To each of these types of data, an integrity level requirement has been assigned as follows:

a. Critical data: This level is given to the runway threshold data which define the landing

point. The level of integrity has been derived from the integrity requirement for autoland and is defined to ensure that the overall process, of which aeronautical data are only a part, has the required integrity;

b. Essential data: This level is assigned to points which, while an error can in itself result in an aircraft being outside of the envelope required, excursion does not necessarily result in a catastrophe. Examples include en-route navigation aids and obstacles. The reason why obstacle data can be held with a relatively lower level of integrity is that, while the data need to be accurate at the time the procedures are designed, any subsequent corruption should have no impact on the safety of the aircraft on the condition that it conforms to the procedure requirements; and

c. Routine data: This level is assigned to data for which errors do not affect the navigation performance. These include FIR boundary points.

8.6.3 The AIS/Cartography Provider should ensure that integrity of aeronautical data is maintained throughout the data process from survey/origin to the next intended user. Based on the applicable integrity classification, the validation and verification procedures shall:

a. for critical data: ensure corruption does not occur at any stage of the entire process and include additional integrity assurance procedures to fully mitigate the effects of faults identified by thorough analysis of the overall system architecture as potential data integrity risks;

b. for essential data: ensure corruption does not occur at any stage of the entire process and may include additional processes as needed to address potential risks in the overall system architecture to further assure data integrity at this level; and

c. for routine data: avoid corruption throughout the processing of the data.

9.0 DATA PROCESS

9.1 The Generic Data Process:

a. The generic data process is designed to describe, at a high-level, those processes which have been found to exist within many States and may not necessarily be the only applicable process. However, once fully understood, it provides a reasonable approximation to process flow.

b. A high-level generic process for all Aeronautical Information/data involves: -

i. Data/information is provided by defined/approved/certified, ISO9001: 2000 (series as appropriate).

ii. Data/information is held in electronic or other available media, preferably through use of standard worksheets which are used throughout the process;

iii. In order to ensure that data/ information being transferred electronically is received at the next activity without having suffered any change, be it accidental or malicious, it is necessary that a Cyclic Redundancy Check (CRC) value be calculated and used;

iv. Data/information being transferred electronically is encrypted to provide further protection to its integrity;

v. Data/information is checked/verified by the Responsible Organisation (Aerodrome Authority, ANSP, CAA etc) if provided by a subcontractor (e.g. surveyor);

vi. The data forwarded to the authority for evaluation and approval

vii. Data/information is transferred to AIS;

viii. AIS verifies completeness and integrity of data; and AIS processes the data for publication in the relevant aeronautical information products.

9.2 **Data Origination**

Data Origination addresses the functions performed by Requesting Authorities, Originating Authorities, Surveyors and any other third-party organizations supplying aeronautical data to such authorities. Those functions are:

a. Surveyed Data:

i. Geodetic datum specification and use;

ii. Establishment of Aerodrome survey control networks;

iii. Recommended procedures for achieving minimum data requirements;

iv. Documentation of survey control stations;

v. Production of survey reports;

vi. Ongoing maintenance of data;

vii. Data management and quality assurance; and

viii. Document configuration management.

b. Calculated and Derived Data (Originating Authority activities):

i. Geodetic datum specification and use;

ii. Airspace design;

iii. Instrument flight procedure design;

iv. Audit;

v. Data management and quality assurance; and

vi. Document configuration management.

9.3 **Data Publication**

Data publication addresses the functions undertaken by AIS authorities receiving surveyed, calculated and derived data from their receipt to publication. These apply to both electronic and paper publication. Data publication includes:

a. Document management:
    i. Quality assurance;
    ii. Data management;
    iii. Document processing requirements;
    iv. Document modification;
    v. Document configuration management.
b. Document publication tool;
c. Guidance for specific publication types.

APPENDIX 1

AERONAUTICAL DATA CATALOGUE

***Note 1**: — The Aeronautical Data Catalogue is a general description of the aeronautical Information management (AIM) data scope and consolidates all data that can be collected and maintained by the aeronautical information service (AIS). It provides a reference for aeronautical data origination and publication requirements.*

***Note 2**: — The Aeronautical Data Catalogue provides a means for service Providers to facilitate the identification of the organizations and authorities responsible for the origination of the aeronautical data and aeronautical information. It also provides a common list of terms and facilitates the formal arrangements between data originators and the AIS. It includes data quality requirements applicable from origination through to publication.*

***Note 3**: — The Aeronautical Data Catalogue contains the aeronautical data subjects, properties and sub-properties organized in:*

Table A1-1 Aerodrome data;

Table A1-2 Airspace data;

Table A1-3 ATS and other routes data;

Table A1-4 Instrument flight procedure data;

Table A1-5 Radio navigation aids/systems data;

Table A1-6 Obstacle data;

Table A1-7 Geographic data;

Table A1-8 Terrain data;

Table A1-9 Data types; and

Table A1-10 Information about national and local regulation, services and procedures.

***Note 4**: — The Aeronautical Data Catalogue provides detailed descriptions of all subjects, properties and sub-properties, the data quality requirements and the data types.*

***Note 5**: — The data types describe the nature of the property and sub-property and specify the data elements to be collected.*

***Note 6**: — The tables of the Aeronautical Data Catalogue are composed of the following columns:*

(1) Subject for which data can be collected.
(2)(3) Property is an identifiable characteristic of a subject which can be further defined into sub-properties. The classification of a catalogue element as subject, property or sub-property does not impose a certain data model.

(4) The data is classified in different types. See Table A1-9 for more information on data types.

(5) A description of the data element.

(6) Notes are additional information or conditions of the provision.

(7) Accuracy requirements for aeronautical data are based on a 95 per cent confidence level. For those fixes and points that are serving a dual purpose, e.g. holding point and missed approach point, the higher accuracy applies. Accuracy requirements for obstacle and terrain data are based on a 90 per cent confidence level.

(8) Integrity classification.

(9) Origination type. Positional data is identified as surveyed, calculated or declared.

(10) Publication resolution. The publication resolutions for geographical position data (latitude and longitude) are applicable to coordinates formatted in degrees, minutes and seconds. When a different format is used (such as degrees with decimals for digital data sets) or when the location is significantly further to the north/south, the publication resolution needs to be commensurate with the accuracy requirements.

(11) Chart resolution

Table A 1-1 Aerodrome/Heliport data

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Aerodrome / Heliport				A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.					-	-
	Designator			Designator of the aerodrome / heliport						
		ICAO location indicator	Text	The four letter ICAO location indicator of the aerodrome/heliport, as listed in ICAO DOC 7910 (Location Indicators).	if any					
		Designator IATA	Text	The identifier that is assigned to a location in accordance with rules (resolution 767) governed by the International Air Transport Association (IATA).	if any					
		Other	Text	A locally defined airport identifier, if other than an ICAO Location Indicator						
	Name		Text	The primary official name of an aerodrome as designated by an appropriate authority.						
	Served city		Text	The full name of the city or town the aerodrome/heliport is serving						
	Type of traffic permitted									
		International_national	Code list	Indication if international and/or national flights are permitted at the aerodrome/heliport						
		IFR_VFR	Code list	Indication if IFR and/or VFR flights are permitted at the aerodrome/heliport						
		Sched_nonsched	Code list	Indication if scheduled and/or nonscheduled flights are permitted at the aerodrome/heliport						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
		Civil_military	Code list	Indication if civil commercial aviation and/or general aviation and/or military flights are permitted at the aerodrome/heliport						
		Restricted_use	Text	Indication if an aerodrome or heliport is not open for the public (Only for the use of the owners).						
	Heliport type		Text	The type of the heliport as mentioned in Annex 14 Volume II (Surface-level, elevated, shipboard or helideck)						
	Control type		Text	Indication if an aerodrome is under civil control, military control or joint control						
	Certified ICAO		Text	Indication if airport is/is not certified according to the ICAO rules						
	Certification date		Date	The date when the airport certification has been issued by the supervising authority.						
	Certification expiration date		Date	The date when the airport certification will become invalid.						
	Field elevation									
		Elevation	Elevation	The vertical distance above Mean Sea Level (MSL) of the highest point of the landing area.		0.5 m	essential	surveyed	1m or 1 ft	1 m or 1 ft
		Geoid undulation	Height	Geoid undulation at the aerodrome/ heliport elevation position	where appropriate	0.5 m	essential	surveyed	1 m or 1 ft	1 m or 1 ft
	Reference temperature		Value	The monthly mean of the daily maximum temperatures for the hottest month of the year at an aerodrome. This temperature should be averaged over a period of years. (ICAO recommendation)						
	Mean low temperature		Value	The mean lowest temperature of the coldest month of the year, for the last five years of data at the aerodrome elevation.		5 degrees				
	Magnetic variation			The angular difference between True North and Magnetic North.						
		Angle	Angle	The magnetic variation angle value		1 degree	essential	surveyed	1 degree	1 degree
		Date	Date	The date on which the magnetic variation had the corresponding value.						
		Annual change	Value	The annual rate of change of the magnetic variation.						
	Reference point			The designated geographical location of an aerodrome.						
		Position	Point	Geographical location of aerodrome reference point.		30 m	routine	surveyed/ calculated	1 sec	1 sec
		Site	Text	The location of the reference point on the aerodrome.						
		Direction	Text	Direction of aerodrome reference point from centre of the city or town which the aerodrome serves						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
		Distance	Distance	Distance of aerodrome reference point from centre of the city or town which the aerodrome serves						
Landing direction indicator				A device to indicate visually the direction currently designated for landing and for take-off.						
	Location		Text	Location of landing direction indicator						
	Lighting		Text	Lighting of landing direction indicator	if any					
Secondary Power Supply										
	Characteristics		Text	The description of the secondary power supply						
	Switch-over time		Value	Secondary power supply switch-over time						
Anemometer				Device used for measuring wind speed						
	Location		Text	Location of anemometer						
	Lighting		Text	Lighting of anemometer	if any					
ABN / IBN				Aerodrome beacon / identification beacon used to indicate the location of an aerodrome/heliport from the air.						
	Location		Text	Location of aerodrome/heliport beacon/identification beacon	if any					
	Characteristics		Text	Description of aerodrome/heliport beacon/identification beacon						
	Hours of operation		Schedule	Hours of operation of aerodrome/heliport beacon/identification beacon						
Wind Direction Indicator										
	Location		Text	Location of wind direction indicator						
	Lighting		Text	Lighting of wind direction indicator						
RVR observation site				The observation site of Runway Visual Range.						
	Position		Point	Geographical location of runway visual range (RVR) observation sites						
Frequency Area				Designated part of a surface movement area where a specific frequency is required by air traffic control or ground control.						
	Station		Text	Name of the station providing the service						
	Frequency		Value	Frequency of the station providing the service						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	Boundary		Polygon	Area boundary of the frequency area						
Hot spot				A location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots/drivers is necessary.						
	Identifier		Text	The indentifier of the hot spot						
	Annotation		Text	Additional information about the hot spot						
	Geometry		Polygon	The geographical area of the hot spot						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Runway				A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft. (Annex 14)		-	-	-	-	-
	Designator		Text	The full textual designator of the runway, used to uniquely identify it at an aerodrome/heliport. E.g. 09/27, 02R/20L, RWY 1.						
	Nominal length		Distance	The declared longitudinal extent of the runway for operational (performance) calculations.		1 m	critical	surveyed	1 m or 1 ft	1 m
	Nominal width		Distance	The declared transversal extent of the runway for operational (performance) calculations.		1 m	essential	surveyed	1 m or 1 ft	1 m
	Geometry		Polygon	Geometries of RunwayElement, RunwayDisplacedArea and RunwayIntersection						
	Centre line points									
		Position	Point	The geographical location of runway centre line at each end of the runway, at the stopway and at the origin of each take-off flight path area, and at each significant change in slope of runway and stopway	Definition from Annex 4 3.8.4.2	1 m	critical	surveyed		
		Elevation	Elevation	The elevation of the corresponding centre line point. (See Annex 14 I 2.3.2: ---- for non-precision approaches … any significant high and low intermediate points along the runway shall be measured to the accuracy of one-half metre or foot…) See Note 3)		0.25 m	critical	surveyed		
		Geoid undulation	Height	The geoid undulation at the correspoding centre line point						
	RWY exit line									

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
		Exit guidance line	Line	The geographical location of the runway exit line		0.5 m	essential	surveyed	1/100 sec	1 sec
		Colour	Text	Colour of runway exit line						
		Style	Text	Style of runway exit line						
		Directionality	Code List	Directionality of RWY exit line (one-way or two-way)						
	Surface type		Text	The surface type of the runway defined as specified in Annex 14 Volume I						
	Strength									
		PCN	Text	Pavement classification number						
		Pavement type	Text	Pavement type for aircraft classification number — pavement classification number (ACN-PCN) determination						
		Subgrade category	Text	Subgrade strength category						
		Allowable pressure	Text	Maximum allowable tire pressure category or maximum allowable tire pressure value						
		Evaluation method	Text	The evaluation method used						
	Strip			A defined area including the runway and the stop-way if provided a) to reduce the risk of damage to aircraft running off a runway; and b) to protect aircraft flying over it during take-off or landing operations						
		Length	Distance	The longitudinal extent of the runway strip.						
		Width	Distance	The transversal extent of the runway strip						
		Surface type	Text	The surface type of the runway strip						
	Shoulder			An area adjacent to the edge of a pavement so prepared as to provide a transition between the pavement and the adjacent surface.						
		Geometry	Polygon	The geographical location of the shoulders						
		Surface type	Text	The surface type of the shoulder						
		Width	Distance	The width of the runway shoulder		1m	essential	surveyed	1 m or 1 ft	
	Blastpad			The area provided to reduce the erosive effects of jet blast and propeller wash.						
		Geometry	Polygon	The geographical location of the blastpad						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	Obstacle free zone		Text	Existence of an obstacle-free zone for a precision approach runway category I	when provided					
	RWYmarking									
		Type	Text	Type of runway marking						
		Description	Text	Description of the runway markings						
		Geometry	Polygon	The geographical location of the runway marking						
	RWY center line LGT									
		Length	Distance	The longitudinal extent of the runway centre line lights						
		Spacing	Distance	Spacing of runway centre line lights						
		Colour	Text	Colour of runway centre line lights						
		Intensity	Text	Intensity of runway centre line lights						
		Position	Point	Geographical location of each individual light of the runway center line lights						
	RWY Edge LGT									
		Length	Distance	The longitudinal extent of the runway edge lights						
		Spacing	Distance	Spacing of the runway edge lights						
		Colour	Text	Colour of runway edge lights						
		Intensity	Text	Intensity of runway edge lights						
		Position	Point	Geographical location of each individual light of the runway edge lights						
	Reference Code			The intent of the reference code is to provide a simple method for interrelating the numerous specifications concerning the characteristics of aerodromes so as to provide a series of aerodrome facilities that are suitable for the aeroplanes that are intended to operate at the aerodrome						
		Number	Code list	A number based on the aeroplane reference field length						
		Letter	Code list	A letter based on the aeroplane wingspan and outer main gear wheel span						
	Restriction		Text	Description of restrictions imposed on runway						
Runway Direction										

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	Designator		Text	The full textual designator of the landing and take-off direction. Examples: 27, 35L, 01R.						
	True bearing		Bearing	The true bearing of the runway.		1/100 deg	Routine	surveyed	1/100 degree	1 degree
	Type		Text	Type of runway: precision (CAT I, II, III) / non-precision / non-instrument						
	Threshold			The beginning of that portion of the runway usable for landing.						
		Position	Point	Geographical location for runway threshold		1 m	critical	surveyed	1/100 sec	1 sec
		Elevation	Elevation	Elevation of the runway threshold		See Note 1)				
		Geoid undulation	Height	WGS-84 Geoid undulation at runway threshold position		See Note 2)				
		Type	Text	The indication if the threshold is displaced/ not displaced. A displaced threshold is not located at the extremity of a runway.						
		Displacement	Distance	Distance of displaced threshold	If displaced threshold	1 m	routine	surveyed	1m or 1ft	
	Runway end			Runway end (flight path alignment point)						
		Position	Point	Location of the runway end in the direction of departure		1 m	critical	surveyed	1/100 sec	1 sec
		Elevation	Elevation	Elevation of the end position of the runway		See Note 3				
	Departure end of runway			Departure end of the runway (DER), which is the end of the area declared suitable for take-off (i.e. the end of the runway or, where a clearway is provided, the end of the clearway).	Beginning of departure procedure					
		Position	Point	Geographical location of DER						
		Elevation	Elevation	The elevation of DER is the elevation of the end of the runway or the elevation of the end of the clearway, whichever is higher.						
	Touchdown zone			The portion of a runway, beyond the threshold, where it is intended landing aeroplanes first contact the runway.						
		Elevation	Elevation	Highest elevation of the touchdown zone of a precision approach runway	precision approach RWY	0.25 m or 1 ft				
		Slope	Value	The slope of the runway touchdown zone						
	Slope		Value	Slope of the runway						
	LAHSO			Land and Hold Short Operations						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
		Geometry	Line	Geographical location of Land and Hold Short Operations (LAHSO)						
		Protected element	Text	Name of runway or taxiway being protected						
	Displaced area			That portion of a runway between the beginning of the runway and the displaced threshold.						
		Geometry	Polygon	Geographical location of the displaced area						
		PCN	Text	Pavement classification number of the displaced area						
		Surface type	Text	The surface type of the displaced area						
		Aircraft restriction	Text	Usage restriction for specific aircraft type						
	Stopway			A defined rectangular area on the ground at the end of take-off run available prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned take-off.						
		Length	Distance	The longitudinal extent of stopway	if any	1 m	critical	surveyed	1 m or 1 ft	1 m
		Width	Distance	Width of the stopway		1 m	critical	surveyed	1 m or 1 ft	1 m
		Geometry	Polygon	Geographical location of the stopway						
		Slope	Value	Slope of stopway						
		Surface type	Text	The surface type of the stopway						
	Clearway			A defined rectangular area on the ground or water under the control of the appropriate authority, selected or prepared as a suitable area over which an aeroplane may make a portion of its initial climb to a specified height.						
		Length	Distance	The longitudinal extent of the clearway		1 m	essential	surveyed	1 m or 1 ft	
		Width	Distance	The transversal extent of the clearway		1 m	essential	surveyed	1 m or 1 ft	
		Ground profile		The vertical profile (or slope) of the clearway	if any					
	RESA			An area symmetrical about the extended runway centre line and adjacent to the end of the strip primarily intended to reduce the risk of damage to an aeroplane undershooting or overrunning the runway.						
		Length	Distance	The longitudinal extent of Runway End Safety Area						
		Width	Distance	The transversal extent of the Runway End Safety Area						
		Longitudinal slope	Value	Longitudinal slope of Runway End Safety Area						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
		Transverse slope	Value	Tranverse slope Runway End Safety Area						
	Declared distances									
		TORA	Distance	Take-off run available - The length of runway declared available and suitable for the ground run of an aeroplane taking off.		1 m	critical	surveyed	1 m or 1 ft	1 m
		TODA	Distance	Take-off distance available - The length of the take-off run available plus the length of the clearway, if provided.		1 m	critical	surveyed	1 m or 1 ft	1 m
		ASDA	Distance	Accelerate-stop distance available - The length of the take-off run available plus the length of the stopway, if provided.		1 m	critical	surveyed	1 m or 1 ft	1 m
		LDA	Distance	Landing distance available - The length of runway which is declared available and suitable for the ground run of an aeroplane landing.		1 m	critical	surveyed	1 m or 1 ft	1 m
		Remarks	Text	Remarks including runway entry or start point where alternative reduced declared distances have been declared.						
	RWY End LGT									
		Colour	Text	Colour of runway end lights						
		Position	Point	Geographical location of each individual light of the runway end lights						
	SWY LGT									
		Length	Distance	The longitudinal extent of stopway lights						
		Colour	Text	Colour of stopway lights						
		Position	Point	Geographical location of each individual light of the stopway lights						
	Approach lighting system									
		Type	Text	Classification of the approach lighting system using as criteria the ICAO Annex 14 standards						
		Length	Distance	The longitudinal extent of approach lighting system						
		Intensity	Text	A code indicating the relative intensity of the lighting system						
		Position	Point	Geographical location of each individual light of the approach lighting system						
	RWY threshold lights									
		Colour	Text	Colour of runway threshold lights						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
		Wing bar color	Text	Colour of runway threshold wing bars						
		Position	Point	Geographical location of each individual light of the threshold and wing bar lights						
	Touchdown zone lights									
		Lenght	Distance	The longitudinal extent of the runway touchdown zone lights						
		Position	Point	Geographical location of each individual light of the touchdown zone lights						
	Visual approach slope indicator system									
		MEHT	Height	Minimum Eye Height over the Threshold						
		Position	Point	Geographical location of Visual approach slope indicator system						
		Angle	Angle	Nominal approach slope angle(s)						
		Type	Text	Type of VGSI (VASI, PAPI etc.)						
		Displacement angle	Angle	Where the axis of the system is not parallel to the runway centre line, the angle of displacement						
		Displacement direction	Text	Where the axis of the system is not parallel to the runway centre line, the direction of displacement, i.e. left or right						
	Arresting gear		Line	Geographical location of the arresting gear cable across the runway						
	Arresting system			High energy absorbing material located at the end of a runway or stopway designed to crush under the weight of an aircraft as the material exerts deceleration forces on the aircraft landing gear.						
		Geometry	Polygon	The geographical location of the arresting system						
		Setback	Distance	Setback of the arresting system						
		Length	Distance	The longitudinal extent of arresting system						
		Width	Distance	The transverse extent of arresting system						
Radio altimeter area										
	Length		Distance	The longitudinal extent of radio altimeter area						
	Width		Distance	The transverse extent of radio altimeter area						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	Geometry		Polygon	Geographical location of radio altimeter area						

Note 1)	Threshold elevation for runways with non-precision approaches	0.5 m	essential	surveyed	1 m or 1 ft	1 m or 1 ft
	Threshold elevation for runways with precision approaches	0.25 m	critical	surveyed	0.1 m or 0.1 ft	0.5 m or 1 ft
Note 2)	WGS-84 geoid undulation at runway threshold, non-precision approaches	0.5 m	essential	surveyed	1 m or 1 ft	1 m or 1 ft
	WGS-84 geoid undulation at runway threshold, precision approaches	0.25 m	critical	surveyed	0.1 m or 0.1 ft	0.5 m or 1 ft
Note 3)	Elevation of the runway end and any significant high and low intermediate points along the runway for non-precision approaches	0.5 m or 1 ft				
	Elevation of the runway end and the highest elevation of the touchdown zone for precision approach runways	0.25 m or 1 ft				

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
FATO				Final approach and take-off area. A defined area over which the final phase of the approach manoeuvre to hover or landing is completed and from which the take-off manoeuvre is commenced. Where the FATO is to be used by helicopters operated in performance class 1, the defined area includes the rejected take-off area available.					-	-
	Threshold			The beginning of that portion of the FATO usable for landing.						
		Position	Point	Geographical location of FATO threshold		1m	critical	surveyed	1/100 sec	1 sec
		Elevation	Elevation	Elevation of the FATO threshold		See Note 1)				
		Geoid undulation	Height	WGS-84 Geoid undulation at FATO threshold position		See Note 2)				
	Departure end of runway			Departure end of the runway (DER), which is the end of the area declared suitable for take-off (i.e. the end of the runway or, where a clearway is						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
				provided, the end of the clearway or the end of the final approach and take-off (FATO) area).						
		Position	Point	Geographical location of DER		1m	critical	surveyed	1/100 sec	1 sec
		Elevation	Elevation	The elevation of the DER is the higher of the elevations of the beginning and end of the runway/FATO.						
	Type		Text	Type of FATO according to ICAO Heliport Manual (Doc 9261)						
	Designation		Text	The full textual designator of the landing and take-off area.						
	Length		Distance	The longitudinal extent of FATO		1m	critical	surveyed	1 m or 1 ft	1 m
	Width		Distance	The transversal extent of FATO						
	Geometry		Polygon	Geographical location of FATO element						
	Slope		Value	The slope of FATO						
	Surface type		Text	The surface type of FATO						
	True bearing		Bearing	The true bearing of FATO		1/100 deg	routine	surveyed	1/100 degree	
	Declared distances									
		TODAH	Distance	Take-off distance available - The length of the FATO plus the length of helicopter clearway (if provided)	and if applicable, alternative reduced declared distances;	1m	critical	surveyed	1 m or 1 ft	
		RTODAH	Distance	Rejected Take-off distance available - The length of the FATO declared available and suitable for helicopters operated in performance class 1 to complete a rejected take-off.		1m	critical	surveyed	1 m or 1 ft	
		LDAH	Distance	Landing distance available - The length of the FATO plus any additional area declared available and suitable for helicopters to complete the landing manoeuvre from a defined height.		1m	critical	surveyed	1 m or 1 ft	
		Remarks	Text	Remarks including entry or start point where alternative reduced declared distances have been declared.						
	FATO marking									
		Description	Text	Description of FATO markings						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	Approach lighting system									
		Type	Text	Classification of the approach lighting system using as criteria the ICAO Annex 14 standards						
		Length	Distance	The longitudinal extent of approach lighting system.						
		Intensity	Text	A code indicating the relative intensity of the lighting system.						
		Position	Point	Geographical location of each individual light of the approach lighting system						
	Area lights									
		Description	Text	Characteristics of area lights						
		Position	Point	Geographical location of each individual light of the area lights						
	Aiming point lights									
		Description	Text	Characteristics of aiming point lights						
		Position	Point	Geographical location of each individual light of the aiming point lights						
TLOF				Touchdown and lift-off area. An area on which a helicopter may touch down or lift off.						
	Designator		Text	The full textual designator of TLOF						
	Centre point									
		Position	Point	Geographical location of TLOF geometric centre		1m	critical	surveyed	1/100 sec	1 sec
		Elevation	Elevation	Elevation of the TLOF geometric centre		See Note 1)				
		Geoid undulation	Height	WGS-84 Geoid undulation at TLOF geometric centre position		See Note 2)				
	Length		Distance	The longitudinal extent of TLOF		1m	critical	surveyed	1 m or 1 ft	1 m
	Width		Distance	The transversal extent of TLOF		1m	critical	surveyed	1 m or 1 ft	1 m
	Geometry		Polygon	Geographical location of TLOF element						
	Slope		Value	The slope of TLOF						
	Surface type		Text	The surface type of TLOF						
	Bearing strength		Value	The bearing strength of TLOF					1 tone	

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	Visual approach slope indicator system type		Text	Type of visual approach slope indicator system						
	Marking									
		Description	Text	Description of TLOF markings						
Safety area				A defined area on a heliport surrounding the FATO which is free of obstacles, other than those required for air navigation purposes, and intended to reduce the risk of damage to helicopters accidentally diverging from the FATO.						
	Length		Distance	The longitudinal extent of safety area						
	Width		Distance	The transversal extent of safety area						
	Surface type		Text	The surface type of safety area						
Helicopter clearway				A defined area on the ground or water, selected and/or prepared as a suitable area over which a helicopter operated in performance class 1 may accelerate and achieve a specific height.						
	Length		Distance	The longitudinal extent of the helicopter clearway						
	Ground profile		Value	Vertical profile (or slope) of helicopter clearway						

Note 1)	FATO threshold, for heliports with or without a PinS approach FATO threshold, for heliports intended to be operated in accordance with ICAO Annex 14, Appendix 2	0.5m 0.25m	essential critical	surveyed surveyed	1 m or 1 ft 1 m or 1 ft (non-precision) 0.1 m or 0.1 ft (precision)	
Note 2)	WGS–84 geoid undulation at FATO threshold, TLOF geometric centre, for heliports with or without a PinS approach WGS–84 geoid undulation at FATO threshold, TLOF geometric centre, for heliports intended to be operated in accordance with ICAO Annex 14, Appendix 2	0.5m 0.25m	essential critical	surveyed surveyed	1 m or 1 ft 1 m or 1 ft (non-precision) 0.1 m or 0.1 ft (precision)	

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Apron				A defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance.					-	-
	Designator		Text	The full textual name or designator used to identify an apron at an aerodrome/heliport.						
	Geometry		Polygon	Geographical location of the apron element		1m	routine	surveyed	1/10 sec	1 sec
	Type		Text	Classification of the primary use for the apron						
	Aircraft restriction		Text	Usage restriction (prohibition) for specified aircraft type						
	Surface type		Text	The surface type of the apron						
	Strength									
		PCN	Text	Pavement classification number of apron						
		Pavement type	Text	Pavement type for aircraft classification number — pavement classification number (ACN-PCN) determination						
		Subgrade category	Text	Subgrade strength category of apron						
		Allowable pressure	Text	Maximum allowable tire pressure category or maximum allowable tire pressure value						
		Evaluation method	Text	The evaluation method used to determine the apron strength						
	Elevation		Elevation	The elevation of the apron						
Taxiway				A defined path on a land aerodrome established for the taxiing of aircraft and intended to provide a link between one part of the aerodrome and another,						
	Designator		Text	The full textual designator of the taxiway.						
	Width		Distance	The transversal extent of the taxiway.		1m	essential	surveyed	1 m or 1 ft	
	Geometry		Polygon	Geographical location of the taxiway element						
	Bridge		Text	Type of bridge (none, overpass, underpass)						
	Surface type		Text	Surface type of taxiway						
	Strength									
		PCN	Text	Pavement classification number of taxiway						
		Pavement type	Text	Pavement type for aircraft classification number — pavement classification number (ACN-PCN) determination						
		Subgrade category	Text	Subgrade strength category of taxiway						
		Allowable pressure	Text	Maximum allowable tire pressure category or maximum allowable tire pressure value						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
		Evaluation method	Text	The evaluation method used to determine the taxiway strength						
	Aircraft restrictions		Text	Usage restriction (prohibition) for specified aircraft type						
	Reference code letter		Code list	A letter based on the aeroplane wingspan and outer main gear wheel span						
	Center line points									
		Position	Point	Geographical coordinates of taxiway center line points		0.5m	essential	surveyed	1/100 sec	1/100 sec
		Elevation	Elevation	Elevation of taxiway center line points		1m	essential	surveyed		
	Shoulder			An area adjacent to the edge of a pavement so prepared as to provide a transition between the pavement and the adjacent surface.						
		Geometry	Polygon	Geographical location of the taxiway shoulder						
		Surface type	Text	Surface type of taxiway shoulder						
		Width	Distance	The width of the taxiway shoulder		1m	essential	surveyed	1 m or 1 ft	
	Guidance lines									
		Geometry	Line	Geographical location of guidance lines		0.5 m	essential	surveyed	1/100 sec	1/100 sec
		Colour	Text	Colour of taxiway guidance lines						
		Style	Text	Style of taxiway guidance lines						
		Wingspan	Value	Wingspan						
		Maxspeed	Value	Maximum speed						
		Direction	Text	Direction						
	Intermediate holding position marking line		Line	Intermediate holding position marking line		0.5 m	essential	surveyed	1/100 sec	1 sec
	Taxiway marking									
		Description	Text	Description of taxiway marking						
	Taxiway edge lights									
		Description	Text	Description of taxiway edge lights						
		Position	Point	Geographical location of each individual light of the taxiway edge lights						
	Taxiway centre line lights									
		Description	Text	Description of taxiway centre line lights						
		Position	Point	Geographical location of each individual light of the taxiway center line lights						
	Stop bars									
		Description	Text	Description of the stop bars	if any					

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
		Geometry	Line	Location of the stop bar						
	Runway guard lights									
		Description	Text	Description of the runway guard lights and other runway protection measures	if any					
		Position	Point	Location of the stop bar	Configuration A					
		Geometry	Line	Location of the stop bar	Configuration B					
	Runway holding position			A designated position intended to protect a runway, an obstacle limitation surface, or an ILS/ MLS critical/sensitive area at which taxiing aircraft and vehicles shall stop and hold, unless otherwise authorized by the aerodrome control tower.						
		Geometry	Line	Geographical location of runway holding position		0.5m	essential	surveyed	1/100 sec	1 sec
		Protected runway	Text	Designator of the runway protected						
		Catstop	Code list	CAT of runway (0, I, II, III)						
		RWY ahead text	Text	Actual text as it exists in the marking. For example, RWY AHEAD or RUNWAY AHEAD.						
	Intermediate holding position	Geometry	Line	Geographical location of intermediate holding position - A designated position intended for traffic control at which taxiing aircraft and vehicles shall stop and hold until further cleared to proceed, when so instructed by the aerodrome control tower.						
Helicopter ground taxiway				A ground taxiway intended for the ground movement of wheeled undercarriage helicopters. (Annex 14)						
	Designator		Text	The full textual designator of helicopter ground taxiway						
	Center line points		Point	Geographical location of helicopter ground center line taxiway points		0.5m	essential	surveyed/ calculated		
	Elevation		Elevation	Elevantion of helicopter ground taxiway		1m	essential	surveyed		
	Width		Distance	The transversal extent of the helicopter ground taxiway		1m	essential	surveyed		
	Surface type		Text	The surface type of the helicopter ground taxiway						
	Intersection marking line		Line	Helicopter ground taxiway intersection marking line		0.5 m	essential	surveyed	1/100 sec	1 sec
	Lighting									
		Description	Text	Description of helicopter ground taxiway light						
		Position	Point	Geographical location of each individual light of the helicopter ground taxiway lights						
	Marking									

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
		Description	Text	Description of helicopter ground taxiway marking						
Helicopter air taxiway				A defined path on the surface established for the air taxiing of helicopters. (Annex 14)						
	Designator			The full textual designator of helicopter air taxiway						
	Center line points		Point	Geographical location of helicopter air taxiway center line points		0.5m	essential	surveyed/ calculated		
	Elevation		Elevation	Elevation of helicopter air taxiway		1m	essential	surveyed		
	Width		Distance	The transversal extent of the helicopter air taxiway		1m	essential	surveyed		
	Surface type		Text	Surface type of helicopter air taxiway						
	Lighting									
		Description	Text	Description of helicopter air taxiway lighting						
		Position	Point	Geographical location of each individual light of the helicopter air taxiway lights						
	Marking									
		Description	Text	Description of helicopter air taxiway marking						
Helicopter air transit routes				A defined path established for the movement of helicopters from one part of a heliport to another. A taxi-route includes a helicopter air or ground taxiway which is centred on the taxi-route.						
	Designator		Text	Designator of helicopter air transit route						
	Geometry		Line	Geographical location of helicopter air transit route						
	Width		Distance	The transversal extent of the helicopter air transit route		1m	essential	Surveyed		
INS checkpoint										
	Position		Point	Geographical location of the INS check point	where available	0.5m	routine	surveyed	1/100 sec	1/100 sec
VOR checkpoint										
	Position		Point	Geographical location of the VOR check point	where available					
	Frequency		Value	Frequency of the VOR check point						
Altimeter checkpoint										
	Position		Point	Geographical location of altimeter checkpoints						
	Elevation		Elevation	Elevation of altimeter checkpoints						
Aircraft stand				A designated area on an apron intended to be used for parking an aircraft						
	Name		Text	Name of the aircraft stand point						
	Acft stand points	Position	Point	Geographical location of aircraft stand point		0.5m	routine	surveyed	1/100 sec	1/100 sec

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
		Aircraft types	Code list	Aircraft types						
	Identification sign		Text	Description of aircraft stand identification sign						
	Visual docking parking guidance system		Text	Description of visual docking/parking guidance system at the aircraft stand						
	Parking stand area		Polygon	Geographical location of parking stand area						
	Jetway		Code list	Jetway available at aircraft stand						
	Fuel		Code list	Fuel available at aircraft stand						
	Ground power		Code list	Ground power available at aircraft stand						
	Towing		Code list	Towing available at aicraft stand						
	Terminal		Text	Terminal building reference						
	Surface type		Text	Surface type of the aircraft stand						
	Aircraft restriction		Text	Usage restriction (prohibition) for specified aircraft type						
	PCN		Text	Pavement classification number of aircraft stand						
	Stand guidance line									
		Geometry	Line	Geographical location of stand guidance line		0.5m	essential	surveyed	1/100 sec	
		Elevation	Elevation	Parking guidance line points elevation		1m	essential	surveyed		
		Direction	Text	Direction of stand guidance line						
		Wingspan	Value	Wingspan						
		Colour	Code list	Colour of stand guidance line						
		Style	Code list	Style of stand guidance line						
Helicopter stand				An aircraft stand which provides for parking a helicopter and where ground taxi operations are completed or where the helicopter touches down and lifts off for air taxi operations. (Annex 14)						
	Name		Text	Name of helicopter stand						
	Position		Point	Geographical location of helicopter stand point/ INS checkpoints		0.5m	essential	surveyed	1/100 sec	

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Communication facility										
	Service designation		Text	Designation of the service provided						
	Call sign		Text	Call sign of the communication facility						

	Channel		Text	Channel/Frequency of the communication facility							
	Logon address		Text	The logon address of the facility	as appropriate						
	Hours of operation		Schedule	Operational hours of the station serving the unit							

Table A1-2 Airspace data

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
ATS Airspace				Airspaces of defined dimensions, alphabetically designated, within which specific types of flights may operate and for which air traffic services and rules of operation are specified.						
	Type		Text	Type of ATS airspace according to ICAO Annex 11.						
	Name		Text	The designator given to an airspace by a responsible authority						
	Lateral limits		Polygon	The surface defining the horizontal shape of the Airspace		see Note 1)				
	Vertical limits									
		Upper limit	Altitude	The upper limit of the airspace						
		Lower limit	Altitude	The lower limit of the airspace		50 m	routine	calculated	50 m or 100 ft	50 m or 100 ft
	Class of airspace		Code list	A categorisation of airspace which determines the operating rules, flight requirements, and services provided, as indicated in Annex 11, Section 2.6 and Appendix 4						
	Transition altitude		Altitude	The altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes.						
	Hours of applicability		Schedule	The hours of applicability of the airspace						
	ATS Unit			Unit providing service						
		Name	Text	The name of the unit providing the service						
		Call sign	Text	The call sign of the aeronautical station serving the unit						
		Language	Code list	Information on the language(s) used, specifying area and conditions, when and where to be used, if applicable						
		Applicability	Text	Information on the area and conditions when to be used						
		Hours of service	Schedule	Operational hours of the station serving the unit						
	SATVOICE number									

		Value	Value	The SATVOICE number of the ATS aispace						
		Purpose	Text	Indications for specific purposes of the SATVOICE number.						

Note 1)	FIR, UIR	2 km	routine	declared	1 min	as plotted
	TMA, CTA	100 m	essential	calculated	1 sec	as plotted
	CTR	100 m	essential	calculated	1 sec	as plotted

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Special activity airspace										
	Type		Code list	Type of special activity airspace (See Note 1)						
	Identification		Text	The identification assigned to uniquely identify the airspace						
	Name		Text	The name given to the airspace by a responsible authority						
	Lateral limits		Polygon	The surface defining the horizontal shape of the airspace		See Note 2) for P,R,D Areas only				
	Vertical limits									
		Upper limit	Altitude	The upper limit of the airspace						
		Lower limit	Altitude	The lower limit of the airspace						
	Restriction		Text	Type of restriction or nature of hazard						
	Activation		Text	Information on system and means of activation announcements together with information pertinent to civil flights and applicable ADIZ procedures;						
	Time of activity		Schedule	Time interval when the special activity takes place						
	Risk of interception		Text	Risk of interception in the event of penetration						

Note 1) type:	Prohibited Area	Note 2)	inside CTA/CTR	100 m	essential	calculated	1 sec	as plotted
	Restricted Area		outside CTA/CTR	2 km	routine	declared	1 min	as plotted
	Danger Area							
	Military Execise Area							
	Military Training Area							
	Air Defence Identification Zone (ADIZ)							

Other

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Aerial sporting activities airspace				Airspace with intensive aerial sporting and recreational activities						
	Type of activity		Text	Type of aerial sporting or recreational activity						
	Designator		Text	The designation of the airspace						
	Lateral limits		Polygon	The surface defining the horizontal shape of the airspace						
	Vertical limits									
		Upper limit	Altitude	The upper limit of the airspace						
		Lower limit	Altitude	The lower limit of the airspace						
	Time of activity		Schedule	Time interval when the activity takes place						
	Operator		Text	Contact details (Tel. Nr. or Frequency) of operator / user						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Other regulated airspace										
	Type		Text	Type of airspace (RVSM, ELT etc.)						
	Identification		Text	The identification assigned to uniquely identify the airspace						
	Name		Text	The name given to the airspace by a responsible authority						
	Lateral limits		Polygon	The surface defining the horizontal shape of the airspace						
	Vertical limits									
		Upper limit	Altitude	The upper limit of the airspace						
		Lower limit	Altitude	The lower limit of the airspace						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	Restriction		Text	Type of restriction if any						
	Activation		Text	Information on system and means of activation announcements together with information pertinent to civil flights and applicable ADIZ procedures.						
	Time of activity		Schedule	Time interval when the special activity takes place						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
ATS control sector										
	Identification		Text	The identification given to the sector						
	Lateral limits		Polygon	The surface defining the horizontal shape of the ATC-sector						
	Vertical limits									
		Upper limit	Altitude	The upper limit of the sector						
		Lower limit	Altitude	The lower limit of the sector						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
ATS Route				A specified route designed for channelling the flow of traffic as necessary for the provision of air traffic services.						
	Designator		Text	Designators for ATS routes according to Annex 11 Appendix 1 (or Appendix 3 for standard departure and arrival routes).						
Other Route				A specified route designed for channelling the flow of traffic as necessary without provision of air traffic services						
	Designator		Text	Designator of the route						
	Type		Text	Type of route (e.g. VFR uncontrolled navigation routes)						
	Flight rules		Code list	Information on the flight rules that apply on the route (IFR / VFR)						
Route segment										

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	Navigation specification		Text	Designation of the navigation specification(s) applicable to a specified segment(s) - There are two kinds of navigation specifications: Required navigation performance (RNP) specification. A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH. Area navigation (RNAV) specification. A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.						
	From point			Reference to the first point of a route segment						
		Designator	Text	The coded designators or name-codes of significant point						
		Reporting	Code list	Indication of ATS / MET reporting requirement “compulsory” or“on-request”						
	To point			Reference to the second point of a route segment						
		Designator	Text	The coded designators or name-codes of significant point						
		Reporting	Code list	Indication of the ATS / MET reporting requirement “compulsory” or “on-request”						
	Track		Bearing	Track, VOR radial or magnetic bearing of a route segment		1/10 degree (terminal arrival departure)	routine (terminal arrival departure)	calculated (terminal arrival departure)	1 degree (terminal arrival departure)	1 degree (terminal arrival departure)
	Change-over point		Point	The point at which an aircraft navigating on an ATS route segment defined by reference to very high frequency omnidirectional radio ranges is expected to transfer its primary navigational reference from the facility behind the aircraft to the next facility ahead of the aircraft.	in case of VOR radial					
	Length		Distance	The geodesic distance between from point and to point		See Note 2)				
	Upper limit		Altitude	The upper limit of the route segment						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	Lower limit		Altitude	The lower limit of the route segment						
	MEA		Altitude	Minimum en-route altitude (MEA). The altitude for an en-route segment that provides adequate reception of relevant navigation facilities and ATS communications, complies with the airspace structure and provides the required obstacle clearance.	Lower ATS Routes	50 m	routine	calculated	50 m or 100 ft	50 m or 100 ft
	MOCA		Altitude	Minimum obstacle clearance altitude (MOCA). The minimum altitude for a defined segment of flight that provides the required obstacle clearance.	Lower ATS routes	50 m	routine	calculated	50 m or 100 ft	50 m or 100 ft
	Minimum flight altitude		Altitude	Minimum flight altitude	Helicopter route	50 m	routine	calculated	50 m or 100 ft	50 m or 100 ft
	Lateral Limits		Distance	Lateral limits of route						
	Restrictions		Text	Indication on any area speed and level/altitude restrictions where established.						
	Direction of cruise levels		-	Indication on the direction of the cruising level (even, odd, NIL)						
		Foward	Code list	Indication on the direction of the cruising level (even, odd, NIL) from first point to second point of route segment						
	-	Backward	Code list	Indication on the direction of the cruising level (even, odd, NIL) from second point to first point of route segment						
	Availability		Text	Information on the route availability						
	Class of airspace		Text	Classification of airspace (A, B, … G) which determines the operating rules, flight requirements, and services provided. According to Annex 11, Appendix 4						
	PBN requirements			Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace requirements	PBN only					
		Navigation performance requirements	Text	The navigation accuracy requirement for each PBN (RNAV or RNP) route segment						
		Sensor requirements	Text	Indication on the sensor requirements including any navigation specification limitations						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	Controlling unit									
		Name	Text	Name of the unit providing the service						
		Channel	Text	Operating channel / frequency of controlling unit						
		Logon address	Text	A specified code used for data link logon to the controlling ATS unit	if applicable					
AMA										
	Lateral Limits		Distance	Lateral limits of the sectors						
	Vertical Limit		Altitude	Area Minimum Altitude (AMA) - The minimum altitude to be used under instrument meteorological conditions (IMC), that provides a minimum obstacle clearance within a specified area, normally formed by parallels and meridians.						
MVA										
	Lateral Limits		Distance	Lateral limits of the sectors						
	Vertical Limit		Altitude	Minimum Vector Altitude						

Note 1)	U) Upper	Note 2)	Airway segments length	1/10 km	routine	calculated	1/10 km or 1/10 NM	1 km or 1 NM
	K) Helicopter		Terminal arrival/departure route segments length	1/100 km	essential	calculated	1/100 km or 1/100 NM	1 km or 1 NM
	S) Supersonic							
	T) Tacan							
	Other							

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Waypoint										
	Identification		Text	Names, coded designators or name-codes assigned to the significant point.						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	Position		Point	Geographical location of the waypoint		100 m	essential	surveyed calculated	1 sec	1 sec
	Formation									
		Navaid	Text	The station identification of the reference VOR/DME						
		Bearing	Bearing	The bearing from the reference VOR/DME, if the waypoint is not collocated with it.		See Note 1.				
		Distance	Distance	The distance from the reference VOR/DME, if the waypoint is not collocated with it.		See Note 2.				

Note 1.	Bearing used for the formation of an en-route fix	1/10 degree	routine	calculated	1/10 degree	1/10 degree

Note 2.	Distance used for the formation of an en-route fix	1/10 km	routine	calculated	1/10 km or 1/10 NM	2/10 km (1/10 NM)

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
En-route Holding				A predetermined manoeuvre which keeps an aircraft within a specified airspace while awaiting further clearance.						
	Identification		Text	Identification of the holding procedure						
	Fix		Text	Identification of the holding procedure fix						
	Waypoint		Point	Geographical location of the holding waypoint		100m	essential	surveyed calculated	1 sec	1 sec
	Inbound track		Bearing	The inbound track of the holding procedure						
	Turn Direction		Text	Direction of the procedure turn						
	Speed		Value	Maximum indicated airspeed						
	Level									
		Minimum holding level	Altitude	Minimum holding level of the holding procedure						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
		Maximum holding level	Altitude	Maximum holding level of the holding procedure						
	Time/distance outbound		Value	Time/distance value of the holding procedure						
	Controlling unit									
		Name	Text	Indication of the controlling unit						
		Frequency	Value	The operating frequency/channel of the controlling unit						
	Special holding entry procedure		Text	Textual description of the Special VOR/DME entry procedure	In case an entry radial to a secondary fix at the end of the outbound leg has been established for a VOR/DME holding pattern					

Table A1-4 Instrument flight procedure data

Subject	Propoerty	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Procedure										
	Identification									
		FAS Guidance	Code list	The name describing the type of radio navigation aid providing the final approach lateral guidance. This could be: ILS, VOR, RNAV, etc	APCH				-	-
		Runway	Text	The runway designator of the landing and take-off direction. Examples: 27, 35L, 01R.						
		Circling	Code list	Indication if a procedure is/ is not a circling approach	APCH					

Subject	Propoerty	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
		Multiple Code	Text	A single letter suffix, starting with the letter z following the radio navigation aid type shall be used if two or more procedures to the same runway cannot be distinguished by the radio navigation aid type only. For example: VOR y Rwy 20 VOR z Rwy 20	APCH					
		NS Limiter	Text	Sensor specific information in case of a limitation of use	PBN only					
		Name	Text	Name of the instrument flight procedure						
	Plain Language Designation									
		Basic Indicator	Text	The basic indicator shall be the name or name-code of the significant point where the standard departure route terminates.	SID, STAR					
		Validity Indicator	Text	The validity indicator shall be a number from 1 to 9.	SID, STAR					
		Route Indicator	Text	The route indicator shall be one letter of the alphabet. The letters "I" and "O" shall not be used.	SID, STAR					
		Visual Indication	Text	Indication if the route has been established for use by aircraft operating in accordance with the visual flight rules (VFR)	VFR only					
	Coded Designation									
		Significant Point	Text	The coded designator or name-code of the significant point	SID, STAR					
		Validity Indicator	Text	The Validity Indicator of the procedure	SID, STAR					
		Route Indicator	Text	The Route Indicator of the procedure	SID, STAR					
	Procedure Type		Code list	Indication of the type of procedure (departure, arrival, approach, other)						
	PBN or Conventional		Code list	Indication if the procedure is PBN or Conventional	IFR only					
	Precision Type		Text	The instrument procedure type. Instrument approach procedures are classified as follows: Non-precision approach (NPA) procedure. - An instrument approach procedure which utilizes lateral guidance but does not utilize vertical guidance. Approach procedure with vertical guidance (APV). - An instrument procedure which utilizes lateral and vertical guidance but does not meet the requirements established for precision approach and landing operations. Precision approach (PA) procedure. - An instrument approach procedure using precision lateral and vertical	APCH					

Subject	Propoerty	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
				guidance with minima as determined by the category of operation.						
	Aircraft Category		Code list	Indication of which aircraft categories the procedure is intended for						
	Magnetic variation		Angle	The magnetic variation considered for the procedure design						
	OCA/H			Obstacle clearance Altitude (Height)	APCH	-				
		Aircraft category	Code list	Aircraft category according to ICAO Doc 8168 Vol I or II	APCH					
		Approach type	Code list	Approach type (e.g. Straight-in Cat I, Cat II, LLZ, Circling ...) or specific navigation aid (e.g. stepdown fixes), or a specific navigation specification	APCH					
		Altitude	Altitude	The lowest altitude used in establishing compliance with appropriate obstacle clearance criteria.	APCH	as specified in Doc 8168	essential			as specified in Doc 8168
		Height	Height	The lowest height above the elevation of the relevant runway threshold or the aerodrome elevation as applicable, used in establishing compliance with appropriate obstacle clearance criteria.	APCH	as specified in Doc 8168	essential			as specified in Doc 8168
	DA/H			Decision Altitude (Height)	APCH					
		Aircraft category	Code list	Aircraft category according to ICAO Doc 8168 Vol I or II	APCH					
		Approach type	Code list	Approach type (e.g. Straight-in, Circling ...) or specific navigation aid (e.g. stepdown fixes), or a specific navigation specification	APCH					
		Altitude	Altitude	A specified altitude in a 3D instrument approach operation at which a missed approach must be initiated if the required visual reference to continue the approach has not been established	APCH					
		Height	Height	A specified height in a 3D instrument approach operation at which a missed approach must be initiated if the required visual reference to continue the approach has not been established	APCH					
	MDA/H			Minimum Descent Altitude (Height)	APCH					
		Aircraft category	Code list	Aircraft category according to ICAO Doc 8168 Vol I or II	APCH					
		Approach type	Code list	Approach type (e.g. Straight-in, Circling ...) or specific navigation aid (e.g. stepdown fixes), or a specific navigation specification	APCH					

Subject	Propoerty	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
		Altitude	Altitude	A specified altitude in a 2D instrument approach operation or circling approach operation below which descent must not be made without the required visual reference.	APCH					
		Height	Height	A specified height in a 2D instrument approach operation or circling approach operation below which descent must not be made without the required visual reference.	APCH					
	MSA			Minimum sector altitude - The lowest altitude which may be used which will provide a minimum clearance of 300 m (1 000 ft) above all objects located in an area contained within a sector of a circle of 46 km (25 NM) radius centred on a radio aid to navigation.	IFR only					
		Sector start angle	Angle	Start angle of a sector						
		Sector end angle	Angle	End angle of a sector						
		Based on Fix	Text	Center of the MSA						
		Altitude	Altitude	The minimum altitude for each sector						
		Restrictions	Text	Minimum sector altitude - The lowest altitude which may be used which will provide a minimum clearance of 300 m (1 000 ft) above all objects located in an area contained within a sector of a circle of 46 km (25 NM) radius centred on a radio aid to navigation.						
		Radius	Value	The radius of each sector						
	TAA			Terminal arrival altitude - The lowest altitude that will provide a minimum clearance of 300 m (1 000 ft) above all objects located in an arc of a circle defined by a 46 km (25 NM) radius centred on the initial approach fix (IAF), or where there is no IAF on the intermediate approach fix (IF), delimited by straight lines joining the extremity of the arc to the IF. The combined TAAs associated with an approach procedure shall account for an area of 360 degrees around the IF.	APCH, PBN only					
		Reference point	Text	TAA reference point (IAF or IF)						
		IAF	Text	TAA Initial Approach Fix reference point						
		IF	Text	TAA Intermediate Fix reference point						
		Dist To IAF	Distance	The distance of the TAA area boundary from the IAF						
		Altitude	Altitude	The terminal arrival altitude value						
		Sector start angle	Angle	Start angle of a sector (bearing to TAA reference point						

Subject	Propoerty	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
		Sector end angle	Angle	End angle of a sector (bearing to TAA reference point)						
		Stepdown arc	Distance	Radius of inner area with lower altitude.						
	Nav Spec Name		Text	A set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace. There are two kinds of navigation specifications: Required navigation performance (RNP) specification. A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH. Area navigation (RNAV) specification. A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.	PBN only					
	Operating minima		Text	Aerodrome Operating Minima - The limits of usability of an aerodrome for: a) take-off, expressed in terms of runway visual range and/or visibility and, if necessary, cloud conditions; b) landing in precision approach and landing operations, expressed in terms of visibility and/or runway visual range and decision altitude/height (DA/H) as appropriate to the category of the operation; c) landing in approach and landing operations with vertical guidance, expressed in terms of visibility and/or runway visual range and decision altitude/height (DA/H); and d) landing in non-precision approach and landing operations, expressed in terms of visibility and/or runway visual range, minimum descent altitude/height (MDA/H) and, if necessary, cloud conditions	APCH, DEP					
	Temperature									
		Minimum temperature	Value	Minimum temperature reference	APCH, PBN only					
		Maximum temperature	Value	Maximum temperature reference	APCH, PBN only					
	Remote Altimeter Source		Text	Cautionary note indicating the altimetry source	APCH					
	Proc Ref Datum		Text	Airport or landing threshold	APCH					

Subject	Propoerty	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	PBN Requirements			Specific requirements related to a PBN procedure	PBN					
			Code list	Identification of the navigation specification (RNAV 5, PBN 0.3 …)						
		Navigation specification	Text	Any navigation sensor limitations (GNSS required …)						
		Functional requirements	Text	Any required functionalities that are described as options in the navigation specification, that is, not included in the core navigation specification (RF required …)						
Procedure Segment					SID, STAR, APCH					
	Start		Text	Identification of the start point of the segment						
	End		Text	Identification of the end point or a description of the end of the segment						
	End fix functionality		Code list	Indication if the end fix is a fly-by point (A waypoint which requires turn anticipation to allow tangential interception of the next segment of a route or procedure) or fly-over point (A waypoint at which a turn is initiated in order to join the next segment of a route or procedure)	PBN					
	End fix role		Code list	Indication of the role of the end fix (MAPt, IF, IAF, FAF, MAHF…)						
	Procedure altitude/height		Altitude/Height	A specified altitude/height flown operationally a tor above the minimum altitude/height and established to accommodate a stabilized descent ata prescribed descent gradient/angle in the intermediate/final approach segment.	SID, STAR, APCH certain segments only	as specified in Doc 8168	essential			as specified in Doc 8168
	MOCA		Altitude	The minimum altitude for a defined segment that provides the required obstacle clearance.	SID, STAR, APCH					
	Distance		Distance	Geodesic distance to the nearest tenth of a kilometer or tenth of a nautical mile between each successive designated significant point;		1/100 km	essential	calculated	1/100 km or 1/100 NM	1 km or 1 NM
	True bearing		Bearing	True track to the nearest tenth of a degree to the nearest degree between each successive significant point;	SID, STAR, APCH	1/10 degree	routine	calculated	1/10 degree	1 degree
	Magnetic bearing		Bearing	Magnetic track to the nearest tenth of a degree to the nearest degree between each successive significant point;	SID, STAR, APCH	1/10 degree	routine	calculated	1 degree	1 degree
	Gradient		Value		APCH, DEP					
	Speed		Value	Speed limit at a significant point, expressed in units of 10 knots applicable						

Subject	Propoerty	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	Controlling obstacle				APCH, DEP					
		Type	Text	Indication if the obstacle is lit/unlit, type of obstacle (church/windturbine,…)						
		Position	Point	Coordinates of the controlling obstacle		see obstacles				
		Elevation:	Elevation	Elevation of the top of the controlling obstacle		see obstacles				
Final Approach Segment				That segment of an instrument approach procedure in which alignment and descent for landing are accomplished.	SBAS APCH GBAS APCH					
	Operation type		Text	A number that indicates the type of the final approach segment (e.g "0" is coded for a straight-in approach procedure including offset procedures.)						
	Approach performance designator		Text	A number that identifies the type of an approach. (“0” is used to identify an LPV approach procedure and a “1” indicates a Category I approach procedure)						
	SBAS provider		Text	Identifier of a particular satellite-based approach system service provider	SBAS only					
	RPDS		Text	Reference path data selector (RPDS) - A numerical identifier that is unique on a frequency in the broadcast region and used to select the FAS data block.	GBAS only					
	RPI		Text	Reference Path Identifier - A four-character identifier that is used to confirm selection of the correct approach procedure.						
	LTP/FTP			Landing threshold point (LTP) or fictitious threshold point (FTP)						
		Position	Point	Latidude and Longitude of the LTP/FTP		0.3 m (1 ft)	critical		0.0005" (0.01")	
		Ellipsoid height	Elevation	The height of the LTP/FTP above the WGS-84 ellipsoid		0.25 m	critical		0.1 m	
		Orthometric height	Elevation	The height of the LTP/FTP as related to the geoid and presented as an MSL elevation						
	FPAP			Flight path alignment point (FPAP)						
		Position	Point	Latidude and Longitude of the FPAP		0.3 m (1 ft)	critical		0.0005" (0.01")	
		Orthometric height	Elevation	The height of the FPAP as related to the geoid and presented as an MSL elevation						
	TCH		Height	Approach Threshold Crossing Height (TCH) - The designated crossing height of the flight path angle above the LTP (or FTP).		0.5 m	critical	calculated	0.05 m	

Subject	Propoerty	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	GPA		Value	Glide Path Angle (GPA) - The angle of the approach path (glide path) with respect to the horizontal plane defined according to WGS-84 at the LTP/FTP.		0.01°	N/A		0.01°	
	Course Width at threshold		Value	The semi-width of the lateral course width at the LTP/FTP, defining the lateral offset at which the receiver will achieve full-scale deflection.		N/A	critical		0.25 m	
	Delta Length Offset		Distance	The distance from the stop end of the runway to the FPAP.It defines the location where lateral sensitivity changes to the missed approach sensitivity.		N/A	N/A		8 m	
	HAL		Value	Horizontal Alert Limit	SBAS only					
	VAL		Value	Vertical Alert Limit	SBAS only					
	FAS Data Block		Text	Binary string describing the Final Approach Segment (FAS) data block generated with an appropriate software tool. The FAS data block is set of parameters to identify a single precision approach or APV and define its associated approach						
	CRC Remainder		Text	An 8-character hexadecimal representation of the calculated remainder bits used to determine the integrity of the FAS data block data during transmission and storage.						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Procedure Fix										
	Identification		Text	Names, coded designators or name-codes assigned to the significant point.						
	ATC Reporting requirements		Text	Indication of ATS / MET reporting requirement “compulsory”, “on-request” or "nil"						
	VFR Reporting point		Text	Bridge, Church Name	VFR					
	Position		Point	Geographical location of the fix		See Note 1.				
	Type		Text	Indication of the type of fix, such as: Navaid, Int, WPT						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	Formations									
		Navaid	Text	The station identification of the reference VOR/DME						
		Bearing	Bearing	The bearing from the reference VOR/DME, if the waypoint is not collocated with it.		See Note 2.				
		Distance	Distance	The distance from the reference VOR/DME, if the waypoint is not collocated with it.		1/100 km	essential	calculated	1/100 km or 1/100 NM	2/10 km (1/10 NM)
						See Note 3.				

Note 1.	En-route navaids and fixes,holding, STAR/SID points	100 m	essential	surveyed / calculated	1 sec	1 sec
	Final approach fixes/points and other essential fixes/points comprising the instrument approach procedure	3 m	essential	surveyed / calculated	1/10 sec	1 sec

Note 2.	Bearing used for the formation of a terminal fix	1/10 degree	routine	calculated	1/10 degree	1/10 degree
	Bearing used for the formation of an instrument approach procedure fix	1/100 degree	essential	calculated	1/100 degree	1/10 degree

Note 3.	Distance used for the formation of a terminal and instrument approach procedure fix	1/100 km	essential	calculated	1/100 km or 1/100 NM	2/10 km (1/10 NM)

Subject	Propoerty	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Req.	Chart Res.
Procedure Holding				A predetermined manoeuvre which keeps an aircraft within a specified airspace while awaiting further clearance.						
	Identification		Text	Identification of the holding procedure						
	Fix		Point	Geographical location that serves as a reference for a holding procedure.		same as proc fix				
	Inbound course		Angle	Inbound true course					1/10 degree	
	Outboundcourse		Angle	Outbound true course					1/10 degree	
	Leg distance		Distance	Outbound dIstance of the leg					1/10 km or 1/10 NM	
	Leg time		Value	Outbound time of the leg						
	Limiting radial		Angle	Limiting radial from the VOR/DME on which the holding is based						
	Turn direction		Value	Direction of the procedure turn						
	Minimum altitude		Altitude	Minimum holding level to the nearest higher 50 m or 100 ft/flight level		50 m	routine	calculated	50 m or 100 ft/flight level	
	Maximum altitude		Altitude	Maximum holding level to the nearest higher 50 m or 100 ft/flight level					50 m or 100 ft/flight level	
	Speed		Value	Maximum indicated air speed					10 kts	
	Magnetic variation									
		Angle	Angle	The magnetic variation of the radio navigation aid of the procedure						
		Date	Date	The date on which the magnetic variation had the coresponding value.						
	Nav Spec Name		Text	Name of the Navigation Specification - set of aircraft and aircrew requirements needed to support a navigation application within a defined airspace concept	RNAV/RNP					

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Publ. Res.	Chart Res
Helicopter Procedure Specifics										
	Helicopter Procedure Title (RNAV 263)		Text	Identification of the helicopter procedure						
	HCH		Height	Heliport crossing height		0.5 m	essential	calculated	1 m or 1 ft	1 m or 1 ft
	IDF		Point	Initial departure fix	DEP					
	MAPt		Point	Missed Approach Point	APCH					
	Direct Visual Segment			For PinS APP: the portion of flight that connects directly the PinS to the landing location. For PinS DEP: the portion of flight that connects directly the landing location to the IDF						
		Track	Line							
		Distance	Distance							
		Bearing	Angle							
		Crossing height	Height							
	Manoeuvring VS			Manoeuvring Visual Segment - PinS visual segment protected for the following manoeuvres: For PinS APCH: Visual manoeuvre from the MAPt around the heliport or landing location to land from a direction other than directly from the MAPt. For PinS DEP: Take-off in a direction other than directly to the IDF followed by visual manoeuvre to join the instrument segment at the IDF.	APCH DEP					
		Center line	Angle	Centre line of take-off climb surface	DEP					
		Manoeuvring Area	Polygon	Area where the pilot is expected to manoeuvre visually	APCH DEP					
		No Manoeuvring Area	Polygon	Area where manoeuvring is prohibited	APCH DEP					
		Ingress Tracks	Line	Maneuvering Visual Segment - PinS visual segment protected for the following manoeuvres: For PinS APCH: Visual manoeuvre from the MAPt around the	APCH DEP					

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Publ. Res.	Chart Res
				heliport or landing location to land from a direction other than directly from the MAPt. For PinS DEP: Take-off in a direction other than directly to the IDF followed by visual manoeuvre to join the instrument segment at the IDF.						
	HAS			Height above surface diagram	APCH					
		Radius	Distance							
		Height above Surface	Height							
	Proceed Visually Text		Text	Text indicating that the procedure has Proceeed Visually instruction						
	Proceed VFR Text		Text	Text indicating that the procedure has Proceeed VFR instruction						
	VSDA		Value	Visual segment descent angle						
	Ingress Tracks									
		Length	Distance							
		Width	Distance							
		Bearing	Angle							

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type
AITF				Notes on charts (Aeronautical Information in Textual Format)				
	Non-align between Instrument and Visual Slope Indications		Text					
	Missed Approach Description		Text	Missed approach description for the procedure				
	SID/STAR Route Description		Text	Textual description of the SID or STAR procedure				
	Missed Apch Climb Gradient		Value	The value of the missed apprach climb gradient for the approach procedure				
	CAT H Note		Text					
	CAT D Large		Text					
	Authorization Required		Text	Indication that RNP AR				
	Units of Measure		Text					

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Publ. Res.	Chart Res
	GNSS In-Lieu-Of		Text							
	Comm Failure		Text	Communication failure description						
	Surveillance/Radar Required		Text							
	SID Close-in Obstacle Note		Text	Indication wherever close-in obstacles exist which were not considered in the determination of the published procedure design gradient						
	Off-Set Alignment		Text							
	PDG greater then 3%		Text							

Table A1-5 Radio navigation aids/systems data;

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Radio navigation aid										
	Type		Text	Type of radio navigation aid						
	Identification		Text	The code assigned to uniquely identify the navaid						
	Name		Text	The textual name assigned to the navaid						
	Purpose		Code list	Indication whether navigation aid serves en-route (E), aerodrome (A) or dual (AE) purposes.						
	Aerodrome/heliport served		Text	The ICAO location indicator or name of the aerodrome/heliport served						
	Runway served		Text	Designator of the runway served						
	Operating authority		Text	Name of the operating authority of the facility						
	Type of supported ops		Code list	Indication of the type of supported operation for ILS/MLS and GBAS						
	Co-location		Text	Information that a navaid is co-located with another navaid						
	Hours of operation		Schedule	The hours of operation of the radio navigation aid						
	Magnetic variation			The angular difference between True North and Magnetic North						
		Angle	Angle	The magnetic variation at the radio navigation aid	ILS/NDB	See Note 1)				
		Date	Date	The date on which the magnetic variation had the corresponding value.						
	Station declination		Angle	An alignment variation of the navaid between the zero degree radial and true north, determined at the time the station is calibrated.	VOR/ILS/MLS					

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	Zero bearing direction		Text	Direction of the 'zero bearing' provided by the station. For example: magnetic north, true north	VOR					
	Frequency		Value	Frequency or tuning frequency of the radio navigation aid						
	Channel		Text	The channel number of the radio navigation aid	DME					
	Position		Point	Geographical location of the radio navigation aid		See Note 2)				
	Elevation		Elevation	The elevation of the transmitting antenna of DME The elevation of GBAS reference point	DME GBAS	See Note 3)				
	Ellipsoidal height		Height	The ellipsoid height of the GBAS reference point,	GBAS					
	Localizer alignment									
		Bearing	Bearing	The localizer course	ILS Localizer	1/100 deg	essential	surveyed	1/100 degree (if true)	1 degree
		Type	Text	Type of localizer alligment, true or magnetic	ILS Localizer					
	Zero azimuth alignment		Bearing	MLS zero azimuth alignment	MLS	1/100 deg	essential	surveyed	1/100 degree (if true)	1 degree
	Angle		Angle	The angle of the glide path of an ILS or the normal glide path angle for the MLS installation	ILS GP /MLS					
	RDH		Value	The value of the ILS Reference Datum Height (ILS RDH).	ILS GP	0.5m	critical	calculated	0.1m or 0.1ft	0.5m or 1ft
	Localizer antenna rwy end distance		Distance	ILS localizer runway/FATO end distance	ILS Localizer	3 m	routine	calculated	1 m or 1 ft	as plotted
	ILS glideslope antenna TRSH distance		Distance	ILS glideslope antenna - threshold distance along centerline	ILS GP	3 m	routine	calculated	1 m or 1 ft	as plotted
	ILS marker TRSH distance		Distance	ILS marker - threshold distance	ILS	3 m	essentail	calculated	1 m or 1 ft	2/10 km (1/10 NM)
	ILS DME antenna TRSH distance		Distance	ILS DME antenna - threshold distance along centerline	ILS	3 m	essential	calculated	1 m or 1 ft	as plotted
	MLS azimuth antenna rwy end distance		Distance	MLS azimuth antenna - runway/FATO end distance	MLS	3 m	routine	calculated	1 m or 1 ft	as plotted
	MLS elevation antenna TRHS distance		Distance	MLS elevation antenna - threshold distance along centre line	MLS	3 m	routine	calculated	1 m or 1 ft	as plotted
	MLS DME antenna TRHS distance		Distance	MLS DME/P antenna - threshold distance along centre line	MLS	3 m	essential	calculated	1 m or 1 ft	as plotted
	Signal polarization		Code list	GBAS signal polarization (GBAS/H or GBAS/E)	GBAS					

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	DOC		Text	Designated operational coverage (DOC or stadard service volume SSV) as range or service volume radius from the navaid / GBAS reference point, height and sectors if required						
					Note 1)	ILS Localizer NDB	1 degree 1 degree	essential routine	surveyed surveyed	1 degree 1 degree	
					Note 2)	Aerodrome Navaid GBAS Ref Point Enroute	3 m 1 m 100 m	essential essential	surveyed surveyed	1/10 sec 1 sec	as plotted
					Note 3)	DME DME/P GBAS Ref Point	30m (100ft) 3 m 0.25 m	essential essential essential	surveyed surveyed	30 m (100 ft) 3 m (10 ft) 1 m or 1 ft	30 m (100 ft)

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
GNSS				A worldwide position and time determination system that includes one or more satellite constellations, aircraft receivers and system integrity monitoring, augmented as necessary to support the required navigation performance for the intended operation.						
	Name		Text	The name of the GNSS element (GPS, GBAS, GLONASS, EGNOS, MSAS, WAAS, etc.)						
	Frequency		Value	Frequency of the GNSS	as appropriate					
	Service area		Polygon	Geographical location of the GNSS service area						
	Coverage area		Polygon	Geographical location of the GNSS coverage area						
	Operating authority		Text	Name of the operating authority of the facility						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Aeronautical ground lights				Ground lights and other light beacons designating geographical positions which are selected by the State as being significant.						
	Type		Text	Type of beacon						
	Designator		Text	The code assigned to uniquely identify to the beacon						
	Name		Text	The name of the city or town or other identification of the beacon						
	Intensity		Value	Intensity of the light of the beacon					1000 candela	
	Characteristics		Text	Information about the characteristics of beacon						
	Hours of operations		Schedule	The hours of operation of the beacon						
	Position		Point	Geographical location of the beacon						
Marine lights										
	Position		Point	Geographical location of the beacon						
	Visibility range		Distance	The visibility range of the beacon						
	Characteristics		Text	Information about the characteristics of the beacon						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Special navigation system				Stations associated with special navigation systems (DECCA, LORAN, etc.).						
	Type		Text	Type of service available (master signal, slave signal, colour).						
	Designator		Text	The code assigned to uniquely identify to the special navigation system						
	Name		Text	The textual name assigned to the special navigation system						
	Frequency		Value	Frequency (channel number, basic pulse rate, recurrence rate, as applicable) of the special navigation system						
	Hours of operations		Schedule	The hours of operation of the special navigation system						

	Position		Point	Geographical location of the special navigation system		100m	essential	surveyed / calculated		
	Operating authority		Text	Name of the operating authority of the facility						
	Facility coverage		Text	Description of special navigation system faciity coverage						

Table A1-6 Obstacle data

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Obstacle				All fixed (whether temporary or permanent) and mobile obstacles or parts thereof.						
	Obstacle identifier		Text	Unique identifier of obstacle						
	Operator / Owner		Text	Name and Contact information of obstacle operator or owner						
	Geometry type		Code list	An indication whether the obstacle is a point, line or polygon.						
	Horizontal position		Point Line Polygon	Horizontal position of obstacle		See Note 1)				
	Horizontal extent		Distance	Hoizontal extent of the obstacle						
	Elevation		Elevation	Elevation of the highest point of the obstacle.		See Note 2)				
	Height		Height	Height of the obstacle above ground						
	Type		Text	Type of obstacle						
	Date and time stamp		Date	Date and time the obstacle was created						
	Operations		Text	Feature operations of mobile obstacles						
	Effectivity		Text	Effectivity of temporary types of obstacles						
	Lighting									
		Type	Text	Type of lighting						
		Colour	Text	Colour of the obstacle lighting						
	Marking		Text	Type of marking of obstacle						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	Material		Text	Predominant surface material of the obstacle						

Note 1)	Obstacles in Area 1	50 m	routine	surveyed	1 sec	as plotted
	Obstacles in Area 2 (including 2a, 2b, 2c, 2d, take-off flight path area and obstacle limitation surfaces)	5 m	essential	surveyed	1/10 sec	1/10 sec
	Obstacles in Area 3	0.5 m	essential	surveyed	1/10 sec	1/10 sec
	Obstacles in Area 4	2.5 m	essential	surveyed		
Note 2)	Obstacles in Area 1	30 m	routine	surveyed	1 m or 1 ft	3 m (10 ft)
	Obstacles in Area 2 (including 2a, 2b, 2c, 2d, take-off flight path area and obstacle limitation surfaces)	3 m	essential	surveyed	1 m or 1 ft	1 m or 1 ft
	Obstacles in Area 3	0.5 m	essential	surveyed	0.1 m or 0.1 ft 0.01 m	1m or 1 ft
	Obstacles in Area 4	1 m	essential	surveyed	0.1 m	

Table A1-7 Geographic data

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Buildings				Buildings (of operational significance) and other salient/prominent (aerodrome) features						
	Name		Text	Name of the building						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	Geometry		Polygon	Geographical location of the building						
Built up areas				Areas covered by cities, towns and villages						
	Name		Text	Name of the build-up area						
	Geometry		Point/ Polygon	Geographical location of the build-up area						
Railroads				All railroads having landmark value						
	Name		Text	Name of the railroad						
	Geometry		Line	Geographical location of the railroads						
Highways and Roads				All highways and roads having landmark value						
	Name		Text	Name of highways and roads						
	Geometry		Line	Geographical location of highways and roads						
Landmarks				Natural and cultural landmarks, such as bridges, prominent transmission lines, permanent cable car installations, wind turbines, mine structures, forts, ruins, levees, pipelines, rocks, bluffs, cliffs, sand dunes, isolated lighthouses and lightships, when considered to be of importance for visual air navigation.						
	Characteristics		Text	Description of the landmark						
	Geometry		Point	Geographical location of the landmark						
Political boundaries				International political boundaries						
	Geometry		Line	Geographical location of international political boundaries						
Hydrography				All water features comprising shore lines, lakes, rivers and streams (including those non-perennial in nature), salt lakes, glaciers and ice caps						
	Name		Text	Name of the water feature						
	Geometry		Line/ Polygon	Geographical location of water feature						
Wooded areas				Wooded areas						
	Geometry		Polygon	Geographical location of wooded area						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
Service roads				Part of aerodrome surface used by service vehicles						
	Geometry		Polygon	Geographical location of the service roads						
	featbase		Text	Identification of the feature type affected						
	Idbase		Text	Name of the underlying taxiway, parking stand area or apron						
Construction area				Part of aerodrome area under construction						
	Geometry		Polygon	Geographical location of the construction area						
Aircraft movement unsuitable area				Areas unsuitable for aircraft movement						
	Geometry		Polygon	Depicted movement area permanently unsuitable for aircraft, clearly identified as such						
Survey control point				A monumented survey control point						
	idnumber		Text	Special unique identifier permanently assigned to a feature instance by the data provider						
	Location		Point	Geographical location of the survey control point						
	Elevation		Elevation	Elevation of survey control point						
ASRN node				A vertex in a graph defining the Aerodrome Surface Routing Network						
	idnetwrk		Text	Logical name comprised of a delimited list of names for one or more features associated with this ASRN feature						
	idthr		Text	Name of feature instance						
	idnumber		Text	Special unique identifier permanently assigned to a feature instance by a data provider						
	termref		Text	Terminal building associated with the feature instance						
	nodetype		Text	Type of node						
	catstop		Text	Low visibility operation category of holding position						
	Position		Point	Geographical location of the ASRN node						
ASRN edge				A connection between teo nodes in a graph defining the Aerodrome Surface Routing Network						
	idnetwrk		Text	Logical name comprised of a delimited list of names for one or more features associated with this ASRN feature						
	direc		Text	Directionality of corresponding feature instance, which can be one-way or two-way						

Subject	Property	Sub-Property	Type	Description	Note	Accuracy	Integrity	Orig Type	Pub. Res.	Chart Res.
	node1ref		Text	The idnumber of the ASRN Node corresponding to the start point of the edge geometry						
	node2ref		Text	The idnumber of the ASRN Node corresponding to the end point of the edge geometry						
	edgetype		Text	Type of edge						
	edgederv		Text	Derivation method of edge geometry						
	Geometry		Line	Geographical location of the ASRN edge						

Table A1-8. Terrain data

	Area 1	Area 2	Area 3	Area 4
Post spacing	3 arc seconds (approx. 90 m)	1 arc second (approx. 30 m)	0.6 arc seconds (approx. 20 m)	0.3 arc seconds (approx. 9 m)
Vertical accuracy	30 m	3 m	0.5 m	1 m
Vertical resolution	1 m	0.1 m	0.01 m	0.1 m
Horizontal accuracy	50 m	5 m	0.5 m	2.5 m
Confidence level	90%	90%	90%	90%
Integrity classification	routine	essential	essential	essential
Maintenance period	as required	as required	as required	as required

Table A1-9. Data types

Type (1)	Description (2)	Data elements (3)
Point	A pair of coordinates (latitude and longitude) referenced to the mathematical reference ellipsoid which define the position of the point on the surface of the Earth.	Latitude Longitude Horizontal reference system Units of measurement Horizontal accuracy achieved
Line	Sequence of Points defining a linear object	Sequence of Points
Polygon	Sequence of Points forming the boundary of the polygon. The first and last Point are identical.	Closed sequence of Points
Height	The vertical distance of a level, point or an object considered as a point, measured from a specific datum.	Numerical value Vertical reference system Units of measurement Vertical accuracy achieved
Altitude	The vertical distance of a level, a point or an object considered as a point, measured from mean sea level.	Numerical value Vertical reference system Units of measurement Vertical accuracy achieved
Elevation	The vertical distance of a point or a level, on or affixed to the surface of the earth, measured from mean sea level.	Numerical value Vertical reference system Units of measurement Vertical accuracy
Distance	A linear value	Numerical value

Type (1)	Description (2)	Data elements (3)
		Units of measurement Accuracy achieved
Angle / Bearing	An angular value	Numerical value Units of measurement Accuracy achieved
Value	Any measured, declared or derived value not listed above.	Numerical Value Units of Measurement Accuracy achieved
Date	A calendar date referencing a particular day or month	Text
Schedule	A repetitive time period, composed of one or more intervals or special dates (e.g. holidays) occurring cyclically	Text
Code list	A set of predefined Text strings or values	Text
Text	Free text	String of characters without constraints

Table A1-10 Information about national and local regulation, services and procedures

1	National regulations and requirements
1.1	Civil aviation regulation
1.1.1.	Name, contact information and description of the civil aviation authorities concerned with the facilitation of international air navigation.
1.1.2	National regulations and international agreements / conventions ratified by the State affecting air navigation
1.1.3.	Differences between national regulations and practices of the State and related ICAO provisions, including:
	a) Provision concerned (Annex number, title, edition number and paragraph)
	b) The complete text of the difference.

1.1.4	Regulations and other requirements concerning entry, transit and departure of aircraft on international flights including;
	a) Regulations applicable to all types of operations
	b) Scheduled flight
	c) Non-scheduled flights
	d) Private flights
1.1.5	Aircraft instruments, equipment and flight documents, including:
	a) Instruments, equipment (including aircraft communication and navigation equipment) and flight documents to be carried on aircraft.
	b) Emergency locator transmitter (ELT), signalling devices and lifesaving equipment
1.1.6	Information on rules as applied within the State:
	a) General rules
	b) Visual flight rules
	c) Instrument flight rules
1.1.7	General conditions under which low visibility procedures applicable to Cat II/III operations at aerodromes are applied.
1.1.8	The details of aerodrome operating minima applied by the State.
1.1.9	ATS airspace classification and description
1.1.10	Conditions under which coordination between the aerodrome operator and air traffic services is effected
1.1.11	Criteria used to determine minimum flight altitudes.
1.1.12	Name, contact information and description of the authorities concerned with aircraft accident investigation.
1.1.13	Interception procedures and visual signals to be used with a clear indication of whether ICAO provisions are applied and, if not, that differences exist.
1.1.14	Procedures to be applied in case of unlawful interference.
1.1.15	Information on the traffic incidents reporting system.
1.2	Aerodrome regulation and requirements
1.2.1	Name, contact information and description of the State's designated authority responsible for aerodromes and heliports.
1.2.2	ICAO documents on which the operation of aerodromes is based.
1.2.3	General conditions under which aerodromes/heliports and associated facilities are available for use.
1.2.4	Criteria applied by the State in grouping aerodromes/heliports shall be provided for the production/distribution/provision of information purposes (e.g. international/national; primary/secondary; major/other; civil/military; etc.).
1.2.5	Regulations concerning civil use of military air bases.

1.2.6	Rules governing the establishment of rescue and firefighting services at aerodromes and heliports together with an indication of rescue and firefighting categories established by the State.
1.2.7	Information on general snow plan considerations for aerodromes/heliports available for public use at which snow conditions are normally liable to occur
1.3.	Customs regulation and requirements
1.3.1.	Name, contact information and description of the customs authorities.
1.3.2	Customs regulations and requirements concerning entry, transit and departure passengers and crew.
1.3.3	Customs regulations and requirements concerning entry, transit and departure of cargo and other articles.
1.4.	Immigration regulation and requirements
1.4.1.	Name, contact information and description of the immigration authorities.
1.4.2	Immigration regulations and requirements concerning entry, transit and departure passengers and crew.
1.5.	Health regulation and requirements
1.5.1.	Name, contact information and description of the health authorities.
1.5.2	Regulations and requirements concerning public health measures applied to aircraft on entry, transit and departure on international flights.
1.5.3	Public health regulations and requirements concerning entry, transit and departure passengers and crew.
1.6.	Agricultural quarantine regulation and requirements
1.6.1.	Name, contact information and description of the authorities concerned with agricultural quarantine.
1.6.2	Agricultural quarantine regulations and requirements concerning entry, transit and departure of cargo.
2	**Information on services and procedures**
2.1	Aeronautical information services
2.1.1	Name, contact information and description of aeronautical information service and charting service provided
2.1.2	Indication if service is not H24
2.1.3	ICAO documents on which the service is based.
2.1.4	Area of responsibility
2.1.5	Information on the elements of the aeronautical information products managed by the aeronautical information services including how they may be obtained.
2.1.6	Information on the AIRAC system provided including present and near future AIRAC dates.
2.1.7	Information on the pre-flight information service available at aerodromes/heliports

	a) Elements of the Aeronautical Information Products held;
	b) Maps and charts held; and
	c) General area of coverage of such data.
2.1.8	Information on aeronautical charts and chart series availability including:
	a) Title of series;
	b) Scale of series;
	c) Name and/or number of each chart or each sheet in a series;
	d) Information on maintenance (chart revision and amendment);
	e) Information on how charts may be obtained;
2.1.9	Information on availability of topographical charts
2.2	Air traffic services and procedures
2.2.1.	Name, contact information and description of air traffic service provider and ATS units
2.2.2	ICAO documents on which the service is based
2.2.3	Indication if service is not H24
2.2.4	Area of responsibility
2.2.5	Types of air traffic services provided
2.2.6	Holding, approach and departure procedures:
	a) Criteria on which holding, approach and departing procedures are established,
	b) Procedures (conventional or area navigation or both) for arriving flights which are common to flights into or within the same type of airspace
	c) Information if different procedures apply within a terminal airspace
	d) Procedures (conventional or area navigation or both) for departing flights which are common to flights departing from any aerodrome/heliport.
	e) Other relevant information and procedures e.g. entry procedures, final approach alignment, holding procedures and patterns.
2.2.7	ATS surveillance services and procedures for:
	a) Primary radar
	b) Secondary surveillance radar (SSR)
	c) Automatic dependent surveillance – broadcast (ADS-B)
	d) Other relevant information and procedures, e.g. radar failure procedures and transponder failure procedures
2.2.8	Altimeter setting procedures

2.2.9	Regional supplementary procedures (SUPPs) affecting the entire area of responsibility.
2.2.10	Information on air traffic flow management (ATFM) system and airspace management
2.2.11	Flight planning
	a) Restriction, limitation or advisory information related to the flight planning stage which may assist the user in the presentation of the intended flight operation
	b) Information on addressing of flight plans
2.2.12	Information on the type of air navigation service charges including methods of payment and exemptions/reductions where applicable.
2.3	Communication services
2.3.1.	Name, contact information and description of service provider of telecommunication and navigation facilities
2.3.2	ICAO documents on which the service is based
2.3.3	Indication if service is not H24.
2.3.4	Area of responsibility
2.3.5	Information on types of services and facilities provided and an indication where detailed information can be obtained.
2.3.6	Information on requirements and conditions under which the communication service is available.
2.4	Meteorological services
2.4.1	Name, contact information and description of the authorities concerned with meteorology and of the meteorological service.
2.4.2.	ICAO documents on which the service is based.
2.4.3	Indication if service is not H24
2.4.4	Area of responsibility
2.4.5	Information on meteorological observations and reports provided for international air navigation
	a) Name of the station and the ICAO location indicator;"
	b) Type and frequency of observation including an indication of automatic observing equipment;
	c) Types of meteorological reports (e.g. METAR) and availability of a trend forecast;
	d) specific type of observation system and number of observation sites used to observe and report surface wind, visibility, runway visual range, cloud base, temperature and, where applicable, wind shear (e.g. anemometer at intersection of runways, transmissometer next to touchdown zone, etc.);
	e) Hours of operation; and
	f) Indication of aeronautical climatological information available.
2.4.6	Information on the main type of service provided

2.4.7	Minimum amount of advance notice required by the meteorological authority from operators in respect of briefing, consultation and flight documentation and other meteorological information they require or change.
2.4.8	Requirements of the meteorological authority for the making and transmission of aircraft reports
2.4.9	Information on VOLMET and/or D-VOLMET service, including:
	a) Name of transmitting station;"
	b) call sign or identification and abbreviation for the radio communication emission;
	c) Frequency or frequencies used for broadcast;
	d) Broadcasting period;
	e) Hours of service;
	f) list of aerodromes/heliports for which reports and/or forecasts are included; and
	g) Reports, forecasts and SIGMET information included.
2.4.10	SIGMET and AIRMET service: Information on Meteorological watch provided within flight information regions or control areas for which air traffic services are provided, including a list of the meteorological watch offices with:
	a) Name of the meteorological watch office, ICAO location indicator;"
	b) Hours of service;
	c) Flight information region(s) or control area(s) served;
	d) SIGMET validity periods;
	e) Specific procedures applied to SIGMET information (e.g. for volcanic ash and tropical cyclones);
	f) Procedures applied to AIRMET information (in accordance with relevant regional air navigation agreements);
	g) The air traffic services unit(s) provided with SIGMET and AIRMET
2.4.11	Information on other available automated services for the provision of meteorological information.
2.5	Services, procedures and local regulations on aerodromes and heliports
2.5.1	Information on aerodrome / heliport operator including:
	a) Name and contact information
	b) Operational hours
2.5.2	Information on local regulations applicable to the traffic at use of the aerodrome including the acceptability of training flights, non-radio and micro light aircraft and similar, and to ground manoeuvring and parking.
2.5.3	Information on the type of aerodrome/heliport charges including methods of payment and exemptions/reductions where applicable.
2.5.4	Information on noise abatement procedures established at the aerodrome.

2.5.5	Information on the conditions and flight procedures, including radar and/or ADS-B procedures, established on the basis of airspace organization at the aerodrome.
2.5.6	Information on low visibility procedures
	a) Runway(s) and associated equipment authorized for use under low visibility procedures;
	b) Information on meteorological conditions under which initiation, use and termination of low visibility procedures would be made.
	c) Description of ground marking/lighting for use under low visibility procedures
2.5.7	Information on bird concentrations at the aerodrome, together with an indication of significant daily movement between resting and feeding areas.
2.5.8	Information on runway friction measuring devices and runway friction level minima.
2.5.9	Information on the equipment and operational priorities established for the clearance of aerodrome movement areas including type(s) of clearing equipment and clearance priorities
2.5.10	Information on the rescue and firefighting services and equipment available at the aerodrome, including:
	a) aerodrome category for firefighting;
	b) rescue equipment;
	c) capability for removal of disabled aircraft
2.5.11	Information on passenger facilities available at the aerodrome/heliport at or in the vicinity of aerodrome or a reference to other information sources such as a website:
	a) hotels
	b) restaurants
	c) transportation
	d) medical facilities
	e) bank and post office
	f) tourist office
2.5.12	Information on handling services and facilities available at the aerodrome/heliport including:
	a) cargo-handling facilities
	b) fuel and oil types
	c) fuelling facilities and capacity and hours of service;
	d) de-icing facilities and hours of service
	e) hangar space for visiting aircraft

	f) repair facilities for visiting aircraft
2.5.13	Information on the existence of an obstacle free zone / sector
2.5.14	Meteorological information provided at the aerodrome and an indication of which meteorological office is responsible for the service enumerated, including:
	a) name of the associated meteorological office and information on hours of service
	b) office responsible for preparation of TAFs and periods of validity, interval of issuance of the forecasts, availability of the trend forecasts for the aerodrome, and interval of issuance
	c) information on how briefing and/or consultation is provided
	d) types of flight documentation supplied and language(s) used in flight documentation;
	e) charts and other information displayed or available for briefing or consultation;
	f) supplementary equipment available for providing information on meteorological conditions, e.g. weather radar and receiver for satellite images;
	g) the air traffic services unit(s) provided with meteorological information; and
	h) additional information (e.g. concerning any limitation of service, etc.).
2.5.15	Information on hours of operation of AIS briefing office
2.5.16	Information on hours of operation of ATS reporting office (ARO)
2.5.17	Information on hours of operation of MET briefing office
2.5.18	Information on hours of operation of air traffic service
2.5.19	Information on hours of operation of customs and immigration
2.5.20	Information on hours of operation of health and sanitation
2.5.21	Information on hours of operation of security
2.6	Search and Rescue services and procedures
2.6.1	Name, contact information and description of the authorities responsible for search and rescue.
2.6.2	ICAO documents on which the service is based.
2.6.3	Area of responsibility
2.6.4	Types of services
2.6.5	Information on SAR agreements
2.6.6	Brief description on provisions for SAR including general conditions under which the service and facilities are available for international use, including an indication of whether a facility available for search and rescue is specialized in SAR techniques and functions, or is specially used for

	other purposes but adapted for SAR purposes by training and equipment, or is only occasionally available and has no particular training or preparation for SAR work.
2.6.7	Procedures and signals employed by rescue aircraft and also the signals to be used by survivors.

Tanzania Civil Aviation Authority