ANNEX III

Draft Annex III to draft Commission Regulation (EU) …/… amending Regulation (EU) 2017/373 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight and Regulation (EU) No 139/2014 laying down requirements and administrative procedures related to aerodromes

ANNEX III — COMMON REQUIREMENTS FOR SERVICE PROVIDERS (Part-ATM/ANS.OR) to Regulation (EU) 2017/373 is amended as follows:

1. New ATM/ANS.OR.A.080 is added as follows:

‘**ATM/ANS.OR.A.080 Provision of aeronautical data**

(a) A service provider shall ensure that aeronautical data related to its services is provided in due time to the AIS provider.

(b) When aeronautical data related to its services is published, the service provider shall:

(1) monitor the data;

(2) notify the AIS provider of any changes necessary to ensure that the data is correct and complete; and

(3) notify the AIS provider when the data is incorrect or inappropriate.’.

2. New ATM/ANS.OR.A.085 is added as follows:

‘**ATM/ANS.OR.A.085 Aeronautical data quality management**

When originating, processing or transmitting data to the AIS provider, the service provider shall:

(a) ensure that aeronautical data of Appendix 1 to this Annex conform to the specifications of the aeronautical data catalogue;

(b) meet the following data quality requirements:

(1) the accuracy of aeronautical data shall be as specified in the aeronautical data catalogue;

(2) the integrity of aeronautical data shall be maintained; and

(3) based on the integrity classification specified in the aeronautical data catalogue, procedures shall be put in place so that:

(i) for routine data, corruption is avoided throughout the processing of the data;

(ii) for essential data, corruption does not occur at any stage of the entire process and additional processes are included, as needed, to address potential risks in the overall system architecture to further assure data integrity at this level; and

(iii) for critical data, corruption does not occur at any stage of the entire process and additional integrity assurance processes are included to fully mitigate the

effects of faults identified as potential data integrity risks by thorough analysis of the overall system architecture;

(4) the resolution of aeronautical data shall be commensurate with the actual data accuracy;

(5) the traceability of aeronautical data shall be ensured;

(6) the timeliness of the aeronautical data shall be ensured, including any limits on the effective period of the data;

(7) the completeness of the aeronautical data shall be ensured; and

(8) the delivered data shall meet the format requirements as specified in the aeronautical data catalogue;

(c) transmit aeronautical data by electronic means;

(d) establish formal arrangements with:

(1) all parties transmitting data to them; and

(2) other service providers or aerodrome operators when exchanging aeronautical data and aeronautical information;

(e) ensure that the information listed in AIS.OR.505(a) is provided in due time to the AIS provider;

(f) collect and transmit metadata which shall include as a minimum:

(1) the identification of the organisations or entities performing any action of originating, transmitting or manipulating the aeronautical data;

(2) the action performed; and

(3) the date and time the action was performed;

(g) ensure that tools and software used to support or automate aeronautical data and aeronautical information processes perform their functions without adversely impacting the quality of aeronautical data and aeronautical information;

(h) with regard to data origination, establish specific formal arrangements that contain instructions for data creation, modification or deletion, which include as a minimum:

(1) an unambiguous description of the aeronautical data to be created, modified or deleted;

(2) the entity to which the aeronautical data is to be provided;

(3) the date and time by which the aeronautical data is to be provided;

(4) the format of the data origination report to be used;

(5) the format of the aeronautical data to be transmitted; and

(6) the requirement to identify any limitation on the use of the data;

(i) ensure that data validation and verification techniques are employed to ensure that the aeronautical data meets the associated data quality requirements; in addition:

(1) the verification shall ensure that aeronautical data is received without corruption and that corruption does not occur at any stage of the entire aeronautical data process;

(2) aeronautical data and aeronautical information entered manually shall be subject to independent verification to detect any errors that may have been introduced; and

(3) when using aeronautical data to derive or calculate new aeronautical data, the initial data shall be verified and validated, except when provided by an authoritative source;

(j) ensure that digital data error detection techniques are used during the transmission and/or storage of aeronautical data in order to support the applicable data integrity levels;

(k) ensure that the transfer of aeronautical data is subject to a suitable authentication process such that recipients are able to confirm that the data has been transmitted by an authorised source; and

(l) ensure that errors identified during data origination and after data delivery are addressed, corrected or resolved and that priority is given to managing errors in critical and essential aeronautical data.'.

3. New ATM/ANS.OR.A.090 is added as follows:

'**ATM/ANS.OR.A.090 Common reference systems for air navigation**

For the purpose of air navigation, service providers shall use the:

(a) World Geodetic System — 1984 (WGS-84) as the horizontal reference system;

(b) mean sea level (MSL) datum as the vertical reference system; and

(c) Gregorian calendar and coordinated universal time (UTC) as the temporal reference systems.'.

4. New Appendix 1 is added as follows:

‘**Appendix 1**

AERONAUTICAL DATA CATALOGUE

Introduction

(a) The aeronautical data catalogue is a reference to the aeronautical data subjects, properties and sub-properties organised in:

(1) aerodrome data;

(2) airspace data;

(3) ATS and other routes data;

(4) instrument flight procedure data;

(5) radio navigation aids/systems data;

(6) obstacle data; and

(7) geographical position data.

(b) The tables of the aeronautical data catalogue are composed of the following columns:

(1) subject for which data can be collected;

(2) property: an identifiable characteristic of a subject which may be further defined into sub-properties;

(3) same as 2;

(4) types: the data is classified into different types;

(5) description: a description of the data element;

(6) notes: containing additional information or conditions for the provision of the data;

(7) accuracy: requirements for aeronautical data are based on a 95 % confidence level;

(8) integrity classification;

(9) origination type: positional data is identified as surveyed, calculated or declared;

(10) publication resolution; and

(11) chart resolution.

Note for items 2 & 3: the classification of a catalogue element as subject, property or sub-property does not impose a certain data model.

Note for item 7: for those fixes and points that serve 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 % confidence level.

Note for item 10: the publication resolutions for geographical position data (latitude and longitude) are applicable to coordinates formatted in degrees, minutes, 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.

1. Aerodrome 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					
		IATA designator	Text	The identifier that is assigned to a location in accordance with IATA rules (Resolution 767)	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 the competent authority						
	Served city		Text	The full name (free text) 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						
		Instrument flight rules (IFR) / Visual flight rules (VFR)	Code list	Indication if IFR and/or VFR flights are permitted at the aerodrome/ heliport						
		Scheduled/ non-scheduled	Code list	Indication if scheduled and/or non-scheduled flights are permitted at the aerodrome/ heliport						
		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 use by the owners)						
	Heliport type		Text	The type of the heliport (surface level, elevated, shipboard or helideck)						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
	Control type		Text	Indication if an aerodrome is under civil control, military control or joint control						
	Certified		Text	Indication if an aerodrome is/is not certified in accordance with the ICAO rules or Regulation (EU) No 139/2014						
	Certification date		Date	The date when the airport certification was issued by the competent authority						
	Certification expiration date		Date	The date when the aerodrome certification becomes invalid						
	Field elevation									
		Elevation	Elevation	The vertical distance above mean sea level (MSL) from the highest point of the landing area		0.5 m	Essential	Surveyed	1m or 1 ft	1 m or 1 ft
		Geoid undulation	Height	The 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.						
	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 the true and the magnetic north						
		Angle	Angle	The angle value of the magnetic variation		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 the aerodrome reference point		30 m	Routine	Surveyed/ calculated	1 sec	1 sec
		Site	Text	Location of the reference point on the aerodrome						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
		Direction	Text	Direction of the aerodrome reference point from the centre of the city or town which the aerodrome serves						
		Distance	Distance	Distance of the aerodrome reference point from the centre of the city or town which the aerodrome serves.						
Landing direction indicator				A device to visually indicate the direction currently designated for landing and for take-off.						
	Location		Text	Location of the landing direction indicator						
	Lighting		Text	Lighting of the landing direction indicator	If any					
Secondary power supply										
	Characteristics		Text	Description of the secondary power supply						
	Switch-over time		Value	Secondary power supply switch-over time						
Anemometer				Device used for measuring the wind speed						
	Location		Text	Location of the anemometer						
	Lighting		Text	Lighting of the anemometer	If any					
Aerodrome beacon (ABN) / identification beacon (IBN)				Aerodrome beacon/identification beacon used to indicate the location of an aerodrome from the air						
	Location		Text	Location of the aerodrome beacon/identification beacon	If any					
	Characteristics		Text	Description of the aerodrome beacon/identification beacon						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
	Hours of operation		Schedule	Hours of operation of the aerodrome beacon/identification beacon						
Wind direction indicator										
	Location		Text	Location of the wind direction indicator						
	Lighting		Text	Lighting of the wind direction indicator						
Runway visual range (RVR) observation site				The observation site of the RVR.						
	Position		Point	Geographical location of the RVR observation sites						
Frequency area				The designated part of a surface movement area where a specific frequency is required by ATC or ground control.						
	Station		Text	Name of the station providing the service						
	Frequency		Value	Frequency of the station providing the service						
	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 RWY incursion, and where heightened attention by pilots/drivers is necessary.						
	Identifier		Text	The identifier of the hot spot						
	Annotation		Text	Additional information about the hot spot						
	Geometry		Polygon	Geographical area of the hot spot						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
RWY				A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft						
	Designator		Text	The full textual designator of the RWY, used to uniquely identify the RWY at an aerodrome/heliport(e.g. 09/27, 02R/20L,						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
				RWY 1)						
	Nominal length		Distance	The declared longitudinal extent of the RWY for operational (performance) calculations.		1 m	Critical	Surveyed	1 m or 1 ft	1 m
	Nominal width		Distance	The declared transversal extent of the RWY for operational (performance) calculations.		1 m	Essential	Surveyed	1 m or 1 ft	1 m
	Geometry		Polygon	Geometries of the RWY element, RWY displaced area and RWY intersection						
	Centre line points									
		Position	Point	Geographical location of the RWY centre line at each end of the RWY, at the stopway (SWY), and at the origin of each take-off flight path area, as well as at each significant change in the slope of the RWY and SWY	Definition from Annex 4 3.8.4.2	1 m	Critical	Surveyed		
		Elevation	Elevation	The elevation of the corresponding centre line point. For non-precision approaches any significant high and low intermediate points along the RWY shall be measured to the accuracy of one-half metre or foot,		0.25 m	Critical	Surveyed		
		Geoid undulation	Height	The geoid undulation at the corresponding centre line point						
	RWY exit line									
		Exit guidance line	Line	Geographical location of the RWY exit line		0.5 m	Essential	Surveyed	1/100 sec	1 sec
		Colour	Text	Colour of the RWY exit line						
		Style	Text	Style of the RWY exit line						
		Directionality	Code list	Directionality of the RWY exit line (one-way or two-way)						
	Surface type		Text	The surface type of the RWY						
	Strength									
		Pavement classification number (PCN)	Text	PCN						
		Pavement type	Text	Pavement type for the aircraft classification number — pavement classification number (ACN-PCN) determination						
		Subgrade category	Text	Subgrade strength category of the RWY						
		Allowable pressure	Text	The maximum allowable tire pressure category or the maximum allowable tire pressure value						
		Evaluation method	Text	The evaluation method used						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
	Strip			A defined area including the RWY and the SWY, if provided: (a) to reduce the risk of damage to aircraft running off a RWY; and (b) to protect aircraft flying over the RWY during take-off or landing operations						
		Length	Distance	The longitudinal extent of the RWY strip						
		Width	Distance	The transversal extent of the RWY strip						
		Surface type	Text	The surface type of the RWY strip						
	Shoulder			An area adjacent to the edge of a pavement, so prepared as to provide a transition area between the pavement and the adjacent surface						
		Geometry	Polygon	Geographical location of the RWY shoulders						
		Surface type	Text	The surface type of the RWY shoulder						
		Width	Distance	The width of the RWY shoulder		1 m	Essential	Surveyed	1 m or 1 ft	
	Blast pad			Specially prepared surface placed adjacent to the end of a RWY to eliminate the erosive effect of the strong wind forces produced by aeroplanes at the beginning of their take-off roll						
		Geometry	Polygon	Geographical location of the blast pad						
	Obstacle-free zone		Text	Existence of an obstacle-free zone for a precision approach RWY category I	When provided					
	RWY marking									
		Type	Text	Type of the RWY marking						
		Description	Text	Description of the RWY markings						
		Geometry	Polygon	The geographical location of the RWY marking						
	RWY centre line LGT									
		Length	Distance	The longitudinal extent of the RWY centre line lights						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
		Spacing	Distance	Spacing of the RWY centre line lights						
		Colour	Text	Colour of the RWY centre line lights						
		Intensity	Text	Intensity of the RWY centre line lights						
		Position	Point	Geographical location of each individual light of the RWY centre line lights						
	RWY edge LGT									
		Length	Distance	The longitudinal extent of the RWY edge lights						
		Spacing	Distance	Spacing of the RWY edge lights						
		Colour	Text	Colour of the RWY edge lights						
		Intensity	Text	Intensity of the RWY edge lights						
		Position	Point	Geographical location of each individual light of the RWY 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 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 the RWY						
RWY direction										
	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 RWY		1/100 degree	Routine	Surveyed	1/100 degree	1 degree
	Type		Text	Type of RWY: precision (Cat I, II, III)/ non-precision/ non-instrument						
	Threshold			The beginning of the portion of the RWY usable for landing						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
		Position	Point	The geographical location of the RWY threshold		1 m	Critical	Surveyed	1/100 sec	1 sec
		Elevation	Elevation	Elevation of the RWY threshold		See Note 1				
		Geoid undulation	Height	WGS-84 geoid undulation at the RWY threshold position		See Note 2				
		Type	Text	The indication if the threshold is displaced or not displaced; a displaced threshold is not located at the extremity of the RWY						
		Displacement	Distance	Distance of the displaced threshold	If threshold displaced	1 m	Routine	Surveyed		
	RWY end			RWY end (flight path alignment point)						
		Position	Point	Location of the RWY end in the direction of departure		1 m	Critical	Surveyed	1/100 sec	1 sec
		Elevation	Elevation	Elevation of the end position of the RWY		See RWY centre line points				
	Departure end of RWY (DER)			The end of the area declared suitable for take-off (i.e. the end of the RWY or, where a clearway is provided, the end of the clearway)	Beginning of the departure procedure					
		Position	Point	The geographical location of the DER						
		Elevation	Elevation	The elevation of the DER is the elevation of the end of the RWY or of the clearway, whichever is higher.						
	Touchdown zone			The portion of a RWY beyond the threshold, where landing aeroplanes are intended to first contact the RWY						
		Elevation	Elevation	The highest elevation of the touchdown zone of a precision approach RWY	Precision approach RWY	0.25 m or 0.25 ft				
		Slope	Value	The slope of the RWY touchdown zone						
	Slope		Value	The slope of the RWY						
	Land-and-hold short operations (LAHSOs)			LAHSOs						
		Geometry	Line	The geographical location of the LAHSOs						
		Protected element	Text	The name of the RWY or taxiway (TWY) being protected						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
	Displaced area			The portion of a RWY between the beginning of the RWY and the displaced threshold						
		Geometry	Polygon	Geographical location of the displaced area						
		PCN	Text	The PCN of the displaced area						
		Surface type	Text	The surface type of the displaced area						
		Aircraft restriction	Text	Usage restriction for a specific aircraft type						
	SWY			A defined rectangular area on the ground at the end of the take-off RWY available, prepared as a suitable area in which aircraft may be stopped in case of an abandoned take-off						
		Length	Distance	The longitudinal extent of the SWY	If any	1 m	Critical	Surveyed	1 m or 1 ft	1 m
		Width	Distance	The width of the SWY		1 m	Critical	Surveyed	1 m or 1 ft	1 m
		Geometry	Polygon	Geographical location of the SWY						
		Slope	Value	The slope of the SWY						
		Surface type	Text	The surface type of the SWY						
	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					
	RWY end safety area (RESA)			An area symmetrical about the extended RWY 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 RWY						
		Length	Distance	The longitudinal extent of the RESA						
		Width	Distance	The transversal extent of the RESA						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
		Longitudinal slope	Value	The longitudinal slope of the RESA						
		Transversal slope	Value	The transversal slope of the RESA						
	Declared distances									
		Take-off run available (TORA)	Distance	The length of the RWY, declared available and suitable for the ground run of an aeroplane taking off		1 m	Critical	Surveyed	1 m or 1 ft	1 m
		Take-off distance available (TODA)	Distance	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
		Accelerate-stop distance available (ASDA)	Distance	The length of the take-off run available plus the length of the SWY, if provided		1 m	Critical	Surveyed	1 m or 1 ft	1 m
		Landing distance available (LDA)	Distance	The length of the RWY, 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 RWY entry or start point, where alternative reduced distances have been declared						
	RWY end LGT									
		Colour	Text	Colour of the RWY end lights						
		Position	Point	Geographical location of each individual light of the RWY end lights						
	SWY LGT									
		Length	Distance	The longitudinal extent of the SWY lights						
		Colour	Text	Colour of the SWY lights						
		Position	Point	Geographical location of each individual light of the SWY lights						
	Approach lighting system									
		Type	Text	Classification of the approach lighting system, using as criteria Regulation (EU) No 139/2014 and CS-ADR, especially CS ADR-DSN.M.625 and CS ADR-DSN.M.626.						
		Length	Distance	The longitudinal extent of the approach lighting system.						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
		Intensity	Text	A code indicating the relative intensity of the approach lighting system.						
		Position	Point	Geographical location of each individual light of the approach lighting system						
	RWY threshold lights									
		Colour	Text	Colour of the RWY threshold lights						
		Wing bar colour	Text	Colour of the RWY threshold wing bars						
		Position	Point	Geographical location of each individual light of the threshold and wing bar lights						
	Touchdown zone lights									
		Length	Distance	The longitudinal extent of the RWY touchdown zone lights						
		Position	Point	Geographical location of each individual light of the RWY touchdown zone lights						
	Visual-approach slope indicator system									
		Minimum eye height over the threshold (MEHT)	Height	MEHT						
		Location	Point	Geographical location of the visual-approach slope indicator system						
		Angle	Angle	The nominal-approach slope angle(s)						
		Type	Text	The type of visual glide slope indicator (VGSI), visual approach slope indicator (VASI), precision approach path indicator (PAPI), etc.						
		Displacement angle	Angle	Where the axis of the system is not parallel to the RWY centre line, the angle of and the direction of displacement, i.e. left or right						
		Displacement direction	Text	Where the axis of the system is not parallel to the RWY centre line, the angle of and the direction of displacement, i.e. left or right						
	Arresting gear		Line	The geographical location of the arresting-gear cable across the RWY						
	Arresting system			High-energy-absorbing material located at the end of a RWY or SWY, designed to be crushed under the weight of an aeroplane as the material exerts deceleration forces on the aircraft landing gear						
		Geometry	Polygon	Geographical location of the arresting system						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
		Setback	Distance	Setback of the arresting system						
		Length	Distance	The longitudinal extent of the arresting system						
		Width	Distance	The transversal extent of the arresting system						
Radio altimeter area										
	Length		Distance	The longitudinal extent of the radio altimeter area						
	Width		Distance	The transversal extent of the radio altimeter area						
	Geometry		Polygon	Geographical location of the radio altimeter area						
			Note 1	Threshold elevation for RWYs with non-precision approaches		0.5 m	Essential	Surveyed	1 m or 1 ft	1 m or 1 ft
				Threshold elevation for RWYs 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 the RWY threshold for non-precision approaches		0.5 m	Essential	Surveyed	1 m or 1 ft	1 m or 1 ft
				WGS-84 geoid undulation at the RWY threshold for precision approaches		0.25 m	Critical	Surveyed	0.1 m or 0.1 ft	0.5 m or 1 ft

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Final-approach and take-off area (FATO)				A defined area over which the final phase of the approach manoeuvre before hover or landing is completed and from which the take-off manoeuvre is commenced; where the FATO is used by helicopters operated in performance class 1, the defined area includes the rejected take-off area available.						
	Threshold point			The beginning of the portion of the FATO, usable for landing						
		Position	Point	Geographical location of the FATO threshold point		1 m	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 the FATO threshold position		See Note 2				
	DER			The end of the area declared suitable for take-off (i.e. the end of the RWY or, where a clearway is provided, the end of the clearway or the end of the FATO area)						

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

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
		Type	Text	Classification of the approach lighting system, using as criteria Regulation (EU) No 139/2014 and CS-ADR, specifically CS ADR-DSN.M.625 and CS ADR-DSN.M.626.						
		Length	Distance	The longitudinal extent of the approach lighting system.						
		Intensity	Text	A code indicating the relative intensity of the approach lighting system						
		Position	Point	Geographical location of each individual light of the approach lighting system						
	Area lights									
		Description	Text	Description of the area lights						
		Position	Point	Geographical location of each individual light of the area lights						
	Aiming point lights									
		Description	Text	Description of the aiming point lights						
		Position	Point	Geographical location of each individual light of the aiming point lights						
Touchdown and lift-off area (TLOF)				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 the TLOF threshold point		1 m	Critical	Surveyed	1/100 sec	1 sec
		Elevation	Elevation	Elevation of the TLOF threshold		See Note 1				
		Geoid undulation	Height	The WGS-84 geoid undulation TLOF centre point position		See Note 2				
	Length		Distance	The longitudinal extent of TLOF		1 m	Critical	Surveyed	1 m or 1 ft	1 m
	Width		Distance	The transversal extent of TLOF		1 m	Critical	Surveyed	1 m or 1 ft	1 m
	Geometry		Polygon	The geographical location of the TLOF element						
	Slope		Value	The slope of TLOF						
	Surface type		Text	The surface type of TLOF						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
	Bearing strength		Value	The bearing strength of TLOF					1 ton	
	Visual-approach slope indicator system type		Text	Type of the visual-approach slope indicator system						
	Marking									
		Description	Text	Description of the 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 the safety area						
	Width		Distance	The transversal extent of the safety area						
	Surface type		Text	The surface type of the 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	The vertical profile (or slope) of the helicopter clearway						
			Note 1	The FATO threshold for heliports with or without a Point-in-Space (PinS) approach		0.5 m	Essential	Surveyed	1 m or 1 ft	
				The FATO threshold for heliports intended to be operated.		0.25 m	Critical	Surveyed	1 m or 1 ft (non-precision) 0.1 m or 0.1 ft (precision)	
			Note 2	The WGS–84 geoid undulation at the FATO threshold and the TLOF geometric centre, for heliports with or without a PinS approach		0.5 m	Essential	Surveyed	1 m or 1 ft	
				The WGS–84 geoid undulation at the FATO threshold and the TLOF geometric centre, for heliports intended to be operated.		0.25 m	Critical	Surveyed	1 m or 1 ft (non-precision) 0.1 m or	

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
									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 as regards 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		1 m	Routine	Surveyed	1/10 sec	1 sec
	Type		Text	Classification of the primary use of the apron						
	Aircraft restriction		Text	Usage restriction (prohibition) for a specified aircraft type						
	Surface type		Text	The surface type of the apron						
	Strength									
		PCN	Text	PCN of the apron						
		Pavement type	Text	ACN-PCN determination						
		Subgrade category	Text	Subgrade strength category of the apron						
		Allowable pressure	Text	The maximum allowable tire pressure category or the maximum allowable tire pressure value						
		Evaluation method	Text	The evaluation method used to determine the apron strength						
	Elevation		Elevation	The elevation of the apron						
TWY				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 TWY						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
	Width		Distance	The transversal extent of the TWY		1 m	Essential	Surveyed	1 m or 1 ft	
	Geometry		Polygon	Geographical location of the TWY element						
	Bridge		Text	Type of the bridge (none, overpass, underpass)						
	Surface type		Text	Surface type of the TWY						
	Strength									
		PCN	Text	PCN of the TWY						
		Pavement type	Text	ACN-PCN determination						
		Subgrade category	Text	Subgrade strength category of the TWY						
		Allowable pressure	Text	Maximum allowable tire pressure category or maximum allowable tire pressure value						
		Evaluation method	Text	The evaluation method used to determine the taxiway strength						
	Aircraft restrictions		Text	Usage restriction (prohibition) for a specified aircraft type						
	Reference code letter		Code list	A letter based on the aeroplane wingspan and outer main gear wheel span						
	Centre line points									
		Position	Point	Geographical coordinates of the TWY centre line points		0.5 m	Essential	Surveyed	1/100 sec	1/100 sec
		Elevation	Elevation	Elevation of taxiway centre line points		1 m	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	The geographical location of the TWY shoulder						
		Surface type	Text	Surface type of the TWY shoulder						
		Width	Distance	The width of the TWY shoulder		1 m	Essential	Surveyed	1 m or 1 ft	
	Guidance lines									
		Geometry	Line	Geographical location of the guidance lines		0.5 m	Essential	Surveyed	1/100 sec	1/100 sec
		Colour	Text	Colour of TWY guidance lines						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
		Style	Text	Style of TWY guidance lines						
		Wingspan	Value	Wingspan						
		Maximum speed	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
	TWY marking									
		Description	Text	Description of the TWY marking						
	TWY edge lights									
		Description	Text	Description of the TWY edge lights						
		Position	Point	Geographical location of each individual light of the TWY edge lights						
	TWY centre line lights									
		Description	Text	Description of the TWY centre line lights						
		Position	Point	Geographical location of each individual light of the TWY centre line lights						
	Stop bars									
		Description	Text	Description of the stop bars	If any					
		Location	Line	Location of the stop bars						
	RWY guard lights									
		Description	Text	Description of the RWY guard lights and other RWY protection measures	If any					
		Location	Point	Location of the stop bar	Configuration A					
		Location	Line	Location of the stop bar	Configuration B					
	RWY holding position			A designated position intended to protect a RWY, an obstacle limitation surface, or an instrument landing system (ILS)/microwave landing system (MLS) critical/sensitive area, at which taxiing aircraft and vehicles shall stop and hold, unless otherwise authorised by the aerodrome control tower						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
		Geometry	Line	Geographical location of the RWY holding position		0.5 m	Essential	Surveyed	1/100 sec	1 sec
		Protected RWY	Text	Designator of the RWY protected						
		Cat stop	Code list	Category (CAT) of the RWY (0, I, II, III)						
		RWY ahead text	Text	Actual text as in the marking; e.g. 'RWY AHEAD' or 'RUNWAY AHEAD'						
	Intermediate holding position	Geometry	Line	Geographical location of the 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 TWY				A ground TWY intended for the ground movement of wheeled undercarriage helicopters.						
	Designator		Text	The full textual designator of the helicopter ground TWY						
	Centre line points		Point	Geographical location of the helicopter ground centre line TWY points		0.5 m	Essential	Surveyed/calculated		
	Elevation		Elevation	Elevation of the helicopter ground TWY		1 m	Essential	Surveyed		
	Width		Distance	The transversal extent of the helicopter ground TWY		1 m	Essential	Surveyed		
	Surface type		Text	The surface type of the helicopter ground TWY						
	Intersection marking line		Line	Helicopter ground TWY intersection marking line		0.5 m	Essential	Surveyed	1/100 sec	1 sec
	Lighting									
		Description	Text	Description of the helicopter ground TWY light						
		Position	Point	Geographical location of each individual light of the helicopter ground TWY lights						
	Marking									
		Description	Text	Description of helicopter ground TWY marking						
Helicopter air TWY				A defined path on the surface, established for the air taxiing of helicopters						
	Designator			The full textual designator of the helicopter air TWY						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
	Centre line points		Point	Geographical location of the helicopter air TWY centre line points		0.5 m	Essential	Surveyed/calculated		
	Elevation		Elevation	Elevation of the helicopter air TWY		1 m	Essential	Surveyed		
	Width		Distance	The transversal extent of the helicopter air TWY		1 m	Essential	Surveyed		
	Surface type		Text	Surface type of the helicopter air TWY						
	Lighting									
		Description	Text	Description of the helicopter air TWY lighting						
		Position	Point	Geographical location of each individual light of the helicopter air TWY lights						
	Marking									
		Description	Text	Description of the helicopter air TWY marking						
Helicopter air transit routes				A defined path established for the movement of helicopters from one part of a heliport to another; a taxiing route includes a helicopter air or ground TWY centred on the taxiing route.						
	Designator		Text	Designator of the helicopter air transit route						
	Geometry		Line	Geographical location of the helicopter air transit route						
	Width		Distance	The transversal extent of the helicopter air transit route		1 m	Essential	Surveyed		
INS checkpoint										
	Location		Point	Geographical location of the INS checkpoint	Where available	0.5 m	Routine	Surveyed	1/100 sec	1/100 sec
Very-high-frequency (VHF) omnidirectional range (VOR) checkpoint										
	Location		Point	Geographical location of the VOR checkpoint	Where available					
	Frequency		Value	Frequency of the VOR checkpoint						
Altimeter checkpoint										
	Location		Point	Geographical location of the altimeter checkpoints						
	Elevation		Elevation	Elevation of the altimeter checkpoints						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Aircraft stand				A designated area on an apron intended to be used for parking an aircraft						
	Name		Text	Name of the aircraft stand point						
	Aircraft stand points	Location	Point	Geographical location of the aircraft stand point		0.5 m	Routine	Surveyed	1/100 sec	1/100 sec
		Aircraft types	Code list	Aircraft types						
	Identification sign		Text	Description of the aircraft stand identification sign						
	Visual docking/parking guidance system		Text	Description of the visual docking/parking guidance system at the aircraft stand						
	Parking-stand area		Polygon	Geographical location of the parking-stand area						
	Jetway		Code list	Jetway available at the aircraft stand						
	Fuel		Code list	Fuel available at the aircraft stand						
	Ground power		Code list	Ground power available at the aircraft stand						
	Towing		Code list	Towing available at the aircraft stand						
	Terminal		Text	Terminal-building reference						
	Surface type		Text	Surface type of the aircraft stand						
	Aircraft restriction		Text	Usage restriction (prohibition) for a specified aircraft type						
	PCN		Text	PCN of the aircraft stand						
	Stand guidance line									
		Geometry	Line	Geographical location of the stand guidance line		0.5 m	Essential	Surveyed	1/100 sec	
		Elevation	Elevation	Elevation of the parking guidance line points		1 m	Essential	Surveyed		
		Direction	Text	Direction of the stand guidance line						
		Wingspan	Value	Wingspan						
		Colour	Code list	Colour of the stand guidance line						
		Style	Code list	Style of the stand guidance line						
Helicopter stand				An aircraft stand that provides for parking a helicopter, and where ground taxi operations are completed, or where the helicopter touches down and lifts off for air taxiing operations.						
	Name		Text	Name of the helicopter stand						
	Location		Point	Geographical location of the helicopter stand point/INS checkpoints		0.5 m	Essential	Surveyed	1/100 sec	

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
De-icing area				A facility where frost, ice or snow is removed (de-icing) from the aeroplane to provide clean surfaces, and/or where clean surfaces of the aeroplane receive protection (anti-icing) against the formation of frost or ice, and accumulation of snow or slush, for a limited period of time						
	Identifier		Text	Identifier of the de-icing area						
	Geometry		Polygon	Geographical location of the de-icing area		1 m	Routine	Surveyed	1/10 sec	1 sec
	Surface type		Text	The surface type of the de-icing area						
	Id base		Text	Name of the underlying TWY, parking stand or apron element						
	Aircraft restriction		Text	Usage restriction (prohibition) for a specified aircraft type						

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	Logon address of the facility	As appropriate					
	Hours of operation		Schedule	Operational hours of the station serving the unit						

2. Airspace data

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
ATS airspace				Airspace of defined dimensions, alphabetically designated, within which specific types of flights may operate, and for which ATS and air traffic rules of operation are specified						
	Type		Text	Type of ATS airspace in accordance with Appendix 4 of Regulation (EU) No 923/2012 (SERA)						
	Designation		Text	The designator given to the airspace by a responsible authority						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
	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.						
	Transition altitude		Altitude	The altitude at or below which the vertical position of 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, as well as 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						
	Frequency									
		Value	Value	The frequency of the ATS airspace						
		Purpose	Text	Indications for specific purposes of the frequency						
			Note 1	FIR, UIR		2 km	Routine	Declared	1 min	As plotted
				TMA, CTA		100 m	Essential	Calculated	1 sec	As plotted
				Controlled traffic region (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 the special-activity airspace (see Note 1)						
	Identification		Text	The identification given to uniquely identify the airspace						
	Name		Text	The name given to the airspace by an authority nominated by the Member State						
	Lateral limits		Polygon	The surface defining the horizontal shape of the airspace		See Note 2 for P, R, and 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 to air defence identification zone (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	100 m	Essential	Calculated	1 sec	As plotted
				Restricted area		2 km	Routine	Declared	1 min	As plotted
				Danger area						
				Military exercise area						
				Military training area						
				ADIZ						
				Other						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Other regulated airspace										
	Type		Text	Type of airspace (reduced vertical separation minima (RVSM), emergency locator transmitter (ELT), etc.)						

	Identification		Text	The identification given to uniquely identify the airspace						
	Name		Text	The name given to the airspace by an authority nominated by the Member State						
	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						
	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 to 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						

3. ATS and other routes data

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 ATS						
	Designator		Text	Designators for ATS routes in accordance with Annex XI (Part-FPD) to this Regulation						
	Designator prefix		Text	The prefix of the route designator as specified in Note 1						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Other route				A specified route designed for channelling the flow of traffic as necessary without provision of ATS						
	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 to the route (IFR/VFR)						
Route segment										
	Navigation specification		Text	Designation of the navigation specification(s) applicable to a specified segment or segments; there are two kinds of navigation specifications: (a) required navigation performance (RNP) specifications: navigation specifications based on area navigation (RNAV) that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH, etc.; and (b) RNAV specifications: navigation specifications based on RNAV that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1, etc.						
	From point			Reference to the first point of a route segment						
		Name	Text	The coded designators or code names of a significant point						
		Reporting	Code list	Indication of the ATS/MET reporting requirement as ‘compulsory’ or ‘on request’						
	To point			Reference to the second point of a route segment						
		Name	Text	The coded designators or code names of a significant point						
		Reporting	Code list	Indication of the ATS/MET reporting requirement as ’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)

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
	Change over point		Point	The point at which an aircraft navigating on an ATS route segment defined by reference to the VOR ranges is expected to transfer its primary navigation reference from the facility behind it to the next facility ahead of it	In case of a 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						
	Lower limit		Altitude	The lower limit of the route segment						
	Minimum en-route altitude (MEA)		Altitude	It is the altitude of 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
	Minimum obstacle clearance altitude (MOCA)		Altitude	It is the minimum altitude of a defined segment that provides the required obstacle clearance		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 the route						
	Area minimum altitude (AMA)		Altitude	It is the minimum altitude to be used under instrument meteorological conditions (IMC), which provides a minimum obstacle clearance within a specified area, normally formed by parallels and meridians						
	Minimum vectoring altitude (MVA)		Altitude	MVA						
	Restrictions		Text	Indication on any area speed and level/altitude restrictions, where established						
	Direction of cruising levels		-	Indication of the direction of the cruising level (even, odd, none (NIL))						
		Forward	Code list	Indication of the direction of the cruising level (even, odd, NIL) from the first point to the second point of the route segment						
	-	Backward	Code list	Indication of the direction of the cruising level (even, odd, NIL) from the second point to the first point of the route segment						
	Availability		Text	Information on the route availability						
	Class of airspace		Text	Classification of airspace which determines the operating rules, flight requirements and services provided						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
	Performance-based navigation (PBN) requirements			Area navigation based on PBN requirements for aircraft operating along an ATS route, on an instrument approach procedure, or in a designated airspace	PBN only					
		Navigation performance requirements	Text	The navigation accuracy requirement for each PBN (RNAV or RNP) route segment						
		Sensor requirements	Text	Indication of the sensor requirements including any navigation specification limitations						
	Controlling unit									
		Name	Text	Name of the unit providing the service						
		Channel	Text	Operating channel/frequency of the controlling unit						
		Logon address	Text	A specified code used for data link logon to the controlling ATS unit	If applicable					
			Note 1	U = upper	Note 2	1/10 km	Routine	Calculated	1/10 km or 1/10 nm	1 km or 1 nm
				H = helicopter		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 code names given to the significant point.						
	Position		Point	Geographical location of the waypoint		100 m	Essential	Surveyed/ calculated	1 sec	1 sec
	Formation									
		Navigation aid (navaid)	Text	The station identification of the VOR/DME reference						
		Bearing	Bearing	The bearing to the VOR/DME reference if the waypoint is not collocated with it		See Note 1 below				
		Distance	Distance	The distance from the VOR/DME reference if the waypoint is not collocated with it		See Note 2 below				

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
					Note 1	1/10 degree	Routine	Calculated	1/10 degree	1/10 degree
						1/100 degree	Essential	Calculated	1/100 degree	1/10 degree
								Calculated		
					Note 2	1/10 km	Routine	Calculated	1/10 km or 1/10 nm	2/10 km (1/10 nm)
						1/100 km	Essential	Calculated	1/100 km or 1/100 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 that keeps the aircraft within the specified airspace while awaiting further clearance						
	Identification		Text	Identification of the holding procedure						
	Fix		Text	Identification of the holding-procedure fix		100 m	Essential	Surveyed/ calculated	1 sec	1 sec
	Waypoint		Point	Geographical location of the holding waypoint						
	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						
		Maximum holding level	Altitude	Maximum holding level of the holding procedure						
	Outbound time/distance		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						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
	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					

4. Instrument flight procedure data

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Procedure										
	Identification									
		Final-approach segment (FAS) guidance	Code list	The name describing the type of radio navigation aid providing the final approach lateral guidance e.g. ILS, VOR, RNAV, etc.	APCH					
		RWY	Text	The RWY designator of the landing and take-off direction, e.g. 27, 35L, 01R						
		Circling	Code list	Indication if a procedure is/is not a circling approach	APCH					
		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 RWY cannot be distinguished by the radio navigation aid type only, e.g.VOR y RWY 20 or VOR z RWY 20.	APCH					
		NS limiter	Text	Sensor-specific information in case of a use limitation	PBN only					
		Name	Text	Name of the instrument flight procedure						
	Plain- language designation									
		Basic indicator	Text	The basic indicator shall be the name or code names 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	SID, STAR					

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
				not be used.						
		Visual indication	Text	Indication if the route has been established for aircraft operating in accordance with VFR	VFR only					
	Coded designation									
		Significant Point	Text	The coded designator or code names 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: (a) non-precision approach (NPA) procedure: an instrument approach procedure that utilises lateral but not vertical guidance. (b) approach procedure with vertical guidance (APV): an instrument procedure that utilises lateral and vertical guidance but does not meet the requirements established for precision-approach and -landing operations. (c) precision approach (PA) procedure: an instrument approach procedure using precision lateral and vertical guidance with minima as determined by the category of operation.	APCH					
	Aircraft category		Code list	Indication of which aircraft categories the procedure is intended for						
	Magnetic variation		Value	The magnetic variation considered for the procedure design						
	Obstacle clearance altitude/height (OCA/H)			OCA/H	APCH					
		Aircraft category	Code list	Aircraft category	APCH					

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
		Approach type	Code list	Approach type (e.g. straight-in, Cat I, Cat II, LLZ, circling, etc.), or specific navigation aid (e.g. step-down fixes), or a specific navigation specification	APCH					
		Altitude	Altitude	The lowest altitude used in establishing compliance with appropriate obstacle clearance criteria	APCH		Essential			
		Height	Height	The lowest height above the elevation of the relevant RWY threshold or the aerodrome elevation, as applicable, used in establishing compliance with appropriate obstacle clearance criteria	APCH		Essential			
	Decision altitude/height (DA/H)			DA/H	APCH					
		Aircraft category	Code list	Aircraft category	APCH					
		Approach type	Code list	Approach type (e.g. straight-in, circling, etc.), or specific navigation aid (e.g. step-down fixes), or a specific navigation specification	APCH					
		Altitude	Altitude	A specified altitude in a 3D instrument approach operation at which a missed approach shall be initiated if the required visual reference to continue the approach is not established	APCH					
		Height	Height	A specified height in a 3D instrument approach operation at which a missed approach shall be initiated if the required visual reference to continue the approach is not established	APCH					
	Minimum descent altitude/height (MDA/H)			MDA/H	APCH					
		Aircraft category	Code list	Aircraft category	APCH					
		Approach type	Code list	Approach type (e.g. straight-in, circling, etc.), or specific navigation aid (e.g. step-down fixes), or a specific navigation specification	APCH					
		Altitude	Altitude	A specified altitude in a 2D instrument approach operation or circling approach operation below which descent shall not be initiated without the required visual reference	APCH					

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
		Height	Height	A specified height in a 2D instrument approach operation or circling approach operation below which descent shall not be initiated without the required visual reference	APCH					
	Minimum sector altitude (MSA)			The lowest altitude that may be used and 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	Centre of the MSA						
		Altitude	Altitude	The minimum altitude for each sector						
		Restrictions	Text	MSA: the lowest altitude that may be used and 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						
	Terminal arrival altitude (TAA)			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 or PBN only					
		Reference point	Text	TAA reference point (IAF or IF)						
		IAF	Text	TAA IAF reference point						
		IF	Text	TAA IF reference point						
		Distance 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 the TAA reference point)						
		Sector end angle	Angle	End angle of a sector (bearing to the TAA						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
				reference point)						
		Step-down arc	Distance	Radius of the inner area at a lower altitude.						
	Navigation specification name		Text	A set of aircraft and flight crew requirements needed to support PBN operations within a defined airspace; there are two kinds of navigation specifications: (a) RNP specifications: navigation specifications based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH. (b) RNAV specifications: navigation specifications 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 usability limits of an aerodrome for: (a) take-off, expressed in terms of RVR and/or visibility and, if necessary, cloud conditions; (b) landing in precision approach and landing operations, expressed in terms of visibility and/or RVR and 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 RVR and DA/H; and (d) landing in non-precision approach and landing operations, expressed in terms of visibility and/or RVR, minimum descent altitude/height (MDA/H) and, if necessary, cloud conditions	APCH, DEP					
	Temperature									
		Minimum temperature	Value	Minimum temperature reference	APCH or PBN only					
		Maximum temperature	Value	Maximum temperature reference	APCH or PBN only					
	Remote altimeter source		Text	Cautionary note indicating the altimetry source	APCH					
	Proc Ref datum		Text	Aerodrome or landing threshold	APCH					
	PBN requirements			Specific requirements related to a PBN procedure	PBN					
			Code list	Identification of the navigation						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
				specification (RNAV 5, RNP 0.3, etc.)						
		Navigation specification	Text	Any navigation sensor limitations (global navigation satellite system (GNSS) required)						
		Functional requirements	Text	Any required functionalities described as options in the navigation specification, that is, not included in the core navigation specification (radio frequency (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 that requires a turn to allow tangential interception of the next segment of a route or procedure) or flyover 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 missed-approach point (MAPt), IF, IAF, final-approach fix (FAF), missed approach holding fix (MAHF), etc.						
	Procedure altitude/ height		Altitude/ height	A specified altitude/height flown operationally above the minimum altitude/height and established to accommodate a stabilised descent at a prescribed-descent gradient/angle in the intermediate/final approach segment	Certain segments of SID, STAR, APCH only		Essential			
	Minimum obstruction clearance altitude (MOCA)		Altitude	The minimum altitude of a defined segment, which provides the required obstacle clearance	SID, STAR, APCH					
	Distance		Distance	Geodesic distance to the nearest tenth of a kilometre or 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 between each successive significant point	SID, STAR, APCH	1/10 degree	Routine	Calculated	1/10 degree	

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
	Magnetic bearing		Bearing	Magnetic track to the nearest tenth of a 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 kt, as applicable						
	Controlling obstacle				APCH, DEP					
		Type	Text	Indication if the obstacle is lit/unlit, type of obstacle (church/wind turbine, etc.)						
		Position	Point	Coordinates of the controlling obstacle		See Section 6 'Obstacle data'.				
		Elevation:	Elevation	Elevation of the top of the controlling obstacle		See Section 6 'Obstacle data'				
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 indicating 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 identifying the type of an approach ('0' is used to identify a localizer performance with vertical guidance (LPV) approach procedure and a '1' indicates a Category I approach procedure)						
	SBAS provider		Text	Identifier of a service provider of a particular satellite-based approach system	SBAS only					
	Reference path data selector (RPDS)		Text	A numerical identifier, unique on a frequency in the broadcast region and used to select the FAS data block	GBAS only					
	Reference path identifier (RPI)		Text	A four-character identifier used to confirm the selection of the correct approach procedure						
	Landing threshold point (LTP) or fictitious threshold point (FTP)			LTP/FTP						
		Position	Point	Latitude and longitude of the LTP/FTP		0.3 m (1 ft)	Critical		0.0005" (0.01")	

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
		Ellipsoidal 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						
	Flight path alignment point (FPAP)			FPAP						
		Position	Point	Latitude 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						
	Approach threshold crossing height (TCH)		Height	The designated crossing height of the flight path angle above the LTP (or FTP)		0.5 m	Critical	Calculated	0.05 m	
	Glide path angle (GPA)		Value	The angle of the approach path (glide path) with respect to the horizontal plane, defined in accordance with WGS-84 at the LTP/FTP		0.01°m	N/a		0.01°m	
	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 achieves full-scale deflection.		N/a	Critical		0.25 m	
	Delta length offset		Distance	The distance from the stop end of the RWY to the FPAP; it defines the location where lateral sensitivity changes to missed-approach sensitivity.		N/a	N/a		8 m	
	Horizontal alert limit (HAL)		Value	HAL	SBAS only					
	Vertical alert limit (VAL)		Value	VAL	SBAS only					
	FAS data block		Text	A binary string describing the FAS data block generated with an appropriate software tool; the FAS data block is a set of parameters to identify a single precision approach or an 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 during transmission and storage.						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Procedure fix										
	Identification		Text	Names, coded designators or code names given to the significant point						
	ATC reporting requirements		Text	Indication of the ATS/MET reporting requirement as ‘compulsory’, ‘on request’ or ‘NIL’						
	VFR reporting point		Text	Bridge or church name	VFR					
	Position		Point	Geographical location of the fix		See Note 1				
	Type		Text	Indication of the type of the fix, such as navaid, Int, waypoint						
	Formations									
		Navaid	Text	The station identification of the VOR/DME reference						
		Bearing	Bearing	The bearing to the VOR/DME reference if the waypoint is not collocated with it		See Note 2				
		Distance	Distance	The distance from the VOR/DME reference 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)
					Note 1	100 m	Essential	Surveyed/ calculated	1 sec	1 sec
						3 m	Essential	Surveyed/ calculated	1/10 sec	1 sec
					Note 2	1/10 degree	Routine	Calculated	1/10 degree	1/10 degree
						1/10 degree	Essential	Calculated	1/10 degree	1/10 degree

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Procedure holding				A predetermined manoeuvre that keeps the aircraft within the specified airspace while awaiting further clearance						
	Identification		Text	Identification of the holding procedure						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
	Fix		Point	Geographical location that serves as a reference for a holding procedure		Same as the procedure fix				
	Inbound course		Course	Inbound true course					1/10 degree	
	Outbound course		Course	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 kt	
	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 corresponding value						
	Navigation specifications 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	Pub. Res.	Chart Res.
Helicopter procedure specifics										
	Helicopter procedure title (RNAV 263)		Text	Identification of the helicopter procedure						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
	Heliport crossing height (HCH)		Height	Heliport crossing height			Essential		1 m or 1 ft	1 m or 1 ft
	Initial departure fix (IDF)		Point	Initial departure fix	DEP					
	Missed-approach point (MAPt)		Point	MAPt	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 visual segment (VS)			PinS VS protected for the following manoeuvres: (a) 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; and (b) for PinS DEP: take-off in a direction other than directly to the IDF, followed by a visual manoeuvre to join the instrument segment at the IDF	APCH DEP					
		Centre line	Angle	Centre line of the 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	PinS VS protected for the following manoeuvres: (a) 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; and (b) for PinS DEP: take-off in a direction other than directly to the IDF, followed by a visual manoeuvre to join the instrument segment at the IDF	APCH DEP					
	HAS			Height above the surface diagram	APCH					
		Radius	Distance							

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
		Height above surface	Height							
	'Proceed visually' text		Text	Text indicating that the procedure has a 'Proceed visually' instruction						
	'Proceed VFR' text		Text	Text indicating that the procedure has a 'Proceed VFR' instruction						
	Visual segment descent angle (VSDA)		Value	VSDA						
	Ingress tracks									
		Length	Distance							
		Width	Distance							
		Bearing	Angle							

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
AITF				Notes on charts (aeronautical information in textual format)						
	Non-aligned between instrument and visual slope indications		Text							
	Missed-approach description		Text	Missed-approach description of the procedure						
	SID/STAR route description		Text	Textual description of the SID or STAR procedure						
	Missed-approach climb gradient		Value	The value of the missed-approach climb gradient of the approach procedure						
	CAT H note		Text							
	CAT D large		Text							
	Authorisation required (AR)		Text	Indication that RNP AR						
	Units of measurement		Text							
	GNSS in lieu of									
	Communication failure		Text	Communication failure description						
	Surveillance/radar required									

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
	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						
	Offset alignment									
	PDG greater than 3 %									

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 the radio navigation aid						
	Identification		Text	The code assigned to uniquely identify the navaid						
	Name		Text	The textual name assigned to the navaid						
	Area of operation		Text	Indication whether navigation aid serves en-route (E), aerodrome (A) or dual (AE) purposes						
	Aerodrome served		Text	The ICAO location indicator or name of the aerodromes served						
	RWY served		Text	Designator of the RWY served						
	Operating entity		Text	Name of the operating entity of the facility						
	Type of supported operations		Code list	Indication of the type of supported operation for ILS/MLS and GBAS						
	Collocation		Text	Information that a navaid is collocated with another navaid						
	Hours of operation		Schedule	The hours of operation of the radio navigation aid						
	Magnetic variation			The angular difference between the true north and the magnetic north						
		Angle	Angle	The magnetic variation at the radio navigation aid	ILS/NDB	See Note 1 below				
		Date	Date	The date on which the magnetic variation had the corresponding value						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
	Station declination		Angle	An alignment variation of the navaid between the zero degree radial and the true north, determined at the time the station is calibrated	VOR/ILS/ MLS					
	Zero bearing direction		Text	Direction of the 'zero bearing' provided by the station, e.g. magnetic north, true north, etc.	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 below				
	Elevation		Elevation	The elevation of the transmitting antenna of the DME or the elevation of the GBAS reference point	DME or GBAS	See Note 3 below				
	Ellipsoidal height		Height	The ellipsoidal height of the GBAS reference point	GBAS					
	Localiser alignment									
		Bearing	Bearing	The localiser course	ILS localiser	1/100 degree	Essential	Surveyed	1/100 degree (if true)	1 degree
		Type	Text	The type of localiser alignment, true or magnetic	ILS localiser					
	Zero azimuthal alignment		Bearing	MLS zero azimuthal alignment	MLS	1/100 degree	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 of an MLS installation	ILS GP/MLS					
	RDH		Value	The value of the ILS reference datum height (ILS RDH)	ILS GP	0.5 m	Critical	Calculated		
	Localiser antenna to RWY end distance		Distance	ILS localiser —RWY/FATO end distance	ILS localiser	3 m	Routine	Calculated	1 m or 1 ft	As plotted
	ILS glideslope antenna to TRSH distance		Distance	ILS glideslope antenna — threshold distance along the centre line	ILS GP	3 m	Routine	Calculated	1 m or 1 ft	As plotted
	ILS marker to TRSH distance		Distance	ILS marker — threshold distance	ILS	3 m	Essential	Calculated	1 m or 1 ft	2/10 km (1/10 nm)
	ILS DME antenna to TRSH distance		Distance	ILS DME antenna — threshold distance along the centre line	ILS	3 m	Essential	Calculated	1 m or 1 ft	As plotted
	MLS azimuthal antenna to RWY end distance		Distance	MLS azimuthal antenna — RWY/FATO end distance	MLS	3 m	Routine	Calculated	1 m or 1 ft	As plotted

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
	MLS elevation antenna to TRHS distance		Distance	MLS elevation antenna — threshold distance along the centre line	MLS	3 m	Routine	Calculated	1 m or 1 ft	As plotted
	MLS DME antenna to TRHS distance		Distance	MLS DME/P antenna — threshold distance along the centre line	MLS	3 m	Essential	Calculated	1 m or 1 ft	As plotted
	Signal polarisation		Code list	GBAS signal polarisation (GBAS/H or GBAS/E)	GBAS					
	Designated operational coverage (DOC)		Text	DOC or standard service volume (SSV) as range or service volume radius from the navaid/GBAS reference point, height and sectors, if required						
			Note 1		ILS Localiser	1 degree	Essential	Surveyed	1 degree	
					NDB	1 degree	Routine	Surveyed	1 degree	
								Surveyed		
			Note 2		Aerodrome navaid	3 m	Essential	Surveyed	1/10 sec	As plotted
					GBAS reference point	1 m		Surveyed		
					En-route	100 m	Essential	Surveyed	1 sec	
								Surveyed		
			Note 3		DME	30 m (100 ft)	Essential	Surveyed	30 m (100 ft)	30 m (100 ft)
					DME/P	3 m	Essential	Surveyed	3 m (10 ft)	
					GBAS reference point	0.25 m	Essential		1 m or 1 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 that are selected by the Member State as being significant						
	Type		Text	Type of beacon						
	Designator		Text	The code assigned to uniquely identify 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 cd	
	Characteristics		Text	Information about the characteristics of the 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 the special navigation system						
	Name		Text	The textual name assigned to the special navigation system						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
	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		100 m	Essential	Surveyed/ calculated		
	Operating entity		Text	Name of the operating entity of the facility						
	Facility coverage		Text	Description of the special navigation system facility coverage						

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 the obstacle						
	Operator/ owner		Text	Name and contact information of the obstacle operator or owner						
	Geometry type		Code list	An indication whether the obstacle is a point, line or polygon						
	Horizontal position		Point or line or polygon	Horizontal position of the obstacle		See Note 1 below				
	Horizontal extent		Distance	Horizontal extent of the obstacle						
	Elevation		Elevation	Elevation of the highest point of the obstacle		See Note 2 below				
	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						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
	Operations		Text	Feature operations of the 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 obstacle marking						
	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 or 0.01 m	1 m or 1 ft
				Obstacles in Area 4		1 m	Essential	Surveyed	0.1 m	

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 built-up area						
	Geometry		Point/ polygon	Geographical location of the built-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		Line	Geographical location of the railroads						
Political boundaries				International political boundaries						
	Geometry		Line	Geographical location of the international political boundaries						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Hydrography				All water features comprising shorelines, 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 the water feature						
Wooded areas				Wooded areas						
	Geometry		Polygon	Geographical location of the wooded area						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Service roads				Part of the aerodrome surface used by service vehicles						
	Geometry		Polygon	Geographical location of the service roads						
	Feature base		Text	Identification of the feature type affected						
	Identifier base		Text	Name of the underlying TWY, parking stand area or apron						
Construction area				Part of the aerodrome area under construction						
	Geometry		Polygon	Geographical location of the construction area						
Area unsuitable for aircraft movement				Areas unsuitable for aircraft movement						
	Geometry		Polygon	Depicted movement area permanently unsuitable for aircraft and clearly identified as such						
Survey control point				A monumented survey control point						
	Identifier number		Text	Special unique identifier permanently assigned to a feature instance by the data provider						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
	Location		Point	Geographical location of the survey control point						
	Elevation		Elevation	Elevation of the survey control point						
Aerodrome surface routing network (ASRN) node				A vertex in a graph defining the ASRN						
	Identifier network		Text	Logical name comprised of a delimited list of names for one or more features associated with the ASRN feature						
	Identifier threshold		Text	Name of the feature instance						
	Identifier number		Text	Special unique identifier permanently assigned to a feature instance by a data provider						
	Term ref		Text	Terminal building associated with the feature instance						
	Node type		Text	Type of node						
	Cat stop		Text	Low-visibility operation category of the holding position						
	Position		Point	Geographical location of the ASRN node						
ASRN edge				A connection between the nodes in a graph, which defines the ASRN						
	Identifier network		Text	Logical name comprised of a delimited list of names for one or more features associated with the ASRN feature						
	Direction		Text	One-way or two-way directionality of the corresponding feature instance						
	Node1 ref		Text	The identifier number of the ASRN node corresponding to the start point of the edge geometry						
	Node2 ref		Text	The identifier number of the ASRN node corresponding to the end point of the edge geometry						
	Edge type		Text	Type of edge						
	Edge derv		Text	Derivation method of the edge geometry						
	Geometry		Line	Geographical location of the ASRN edge						

Data types referred to in column 4 'Type'

Type	Description	Data elements
Point	A pair of coordinates (latitude and longitude) referenced to the mathematical 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, point or an object, considered as a point, measured from the MSL	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 the MSL	Numerical value Vertical reference system Units of measurement Vertical accuracy achieved
Distance	An angular value	Numerical value 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

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