ARRANGEMENT OF REGULATIONS

Part XII

VISUAL APPROACH CHART

Aeronautical Data

Part XIII

AERODROME OR HELIPORT CHART

Part XIV

AERODROME GROUND MOVEMENT CHART

Part XV

AIRCRAFT PARKING CHART

Part XVI

WORLD AERONAUTICAL CHART – 1:1,000,000

Culture and Topography

SCHEDULES

GRENADA

STATUTORY RULES AND ORDERS NO. 14 OF 2025

IN EXERCISE OF THE POWERS CONFERRED UNDER SECTION 49(1) OF THE CIVIL AVIATION ACT CAP. 54A, THE DIRECTOR GENERAL HEREBY MAKES THE FOLLOWING REGULATIONS–

(Gazetted 14th March, 2025).

PART I

PRELIMINARY

1. Citation. These Regulations may be cited as the

CIVIL AVIATION (AERONAUTICAL CHARTS) REGULATIONS, 2025.

2. Application. These Regulations apply to a person responsible for the design and production of aeronautical charts for civil aviation purposes.

3. Interpretation. In these Regulations, unless the context otherwise requires–

"Act" means the Civil Aviation Act, Chapter 54A;

"aerodrome" means 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;

"aerodrome elevation" means the elevation of the highest point of the landing area;

"aerodrome operating minima" means the limits of usability of an aerodrome for–

(a) take-off, expressed in terms of runway visual range or visibility and, if necessary, cloud conditions;

(b) landing in precision approach and landing operations, expressed in terms of visibility or runway visual range and decision altitude or height (DA/H) as appropriate to the category of the operation;

(c) landing in approach and landing operations with vertical guidance, expressed in terms of visibility or runway visual range and decision altitude or height (DA/H); and

(d) landing in non-precision approach and landing operations, expressed in terms of visibility or runway visual range, minimum descent altitude or height (MDA/H) and, if necessary, cloud conditions;

"aerodrome reference point" means the designated geographical location of an aerodrome;

"aeronautical cartographic service provider" means the entity responsible for the production and publication of aeronautical charts;

"aeronautical chart" means a representation of a portion of the Earth, its culture and relief, specifically designated to meet the requirements of air navigation;

"aircraft stand" means a designated area on an apron intended to be used for parking an aircraft;

"air defence identification zone" means special designated airspace of defined dimensions within which aircraft are required to comply with special identification and reporting procedures additional to those related to the provision of air traffic services (ATS);

"air traffic service" includes flight information service, alerting service, air traffic advisory service, air traffic control service (area control service, approach control service or aerodrome control service);

"air transit route" means a defined route for the air transiting of helicopters;

"airway" means a control area or portion thereof established in the form of a corridor;

"altitude" means the vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL);

"application" means manipulation and processing of data in support of user requirements;

"apron" means a defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fueling, parking or maintenance;

"area minimum altitude" or "AMA" means 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;

"area navigation" or "RNAV" means a method of navigation which permits aircraft operation on any desired flight path within the coverage of ground or space-based navigation aids or within the limits of the capability of self-contained aids or a combination of these;

"arrival routes" means routes identified in an instrument approach procedure by which aircraft may proceed from the en-route phase of flight to an initial approach fix;

"ATS route" means a specified route designed for channeling the flow of traffic as necessary for the provision of air traffic services;

"ATS surveillance system" includes ADS-B, PSR, SSR or any comparable ground-based system that enables the identification of aircraft;

"Authority" means the Eastern Caribbean Civil Aviation Authority established under the Act;

"bare earth" means surface of the Earth including bodies of water and permanent ice and snow, and excluding vegetation and man-made objects;

"calendar" means discrete temporal reference system that provides the basis for defining temporal position to a resolution of one day;

"canopy" means bare earth supplemented by vegetation height;

"change-over point" means the point at which an aircraft navigating on an ATS route segment defined by reference to very high frequency omni directional radio ranges is expected to transfer its primary navigational reference from the facility behind the aircraft to the next facility ahead of the aircraft;

"clearway" means 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;

"contour line" means a line on a map or chart connecting points of equal elevation;

"culture" means all man-made features constructed on the surface of the earth, such as cities, railways and canals;

"cyclic redundancy check" means a mathematical algorithm applied to the digital expression of data that provides a level of assurance against loss or alteration of data;

"danger area" means an airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times;

"data product specification" means detailed description of a data set or data set series together with additional information that will enable it to be created, supplied to and used by another party;

"data quality" means a degree or level of confidence that the data provided meets the requirements of the data user in terms of accuracy, resolution, integrity or equivalent assurance level, traceability, timeliness, completeness and format;

"data resolution" means a number of units or digits to which a measured or calculated value is expressed and used;

"data set" means identifiable collection of data;

"data set series" means collection of data sets sharing the same product specification;

"datum" means any quantity or set of quantities that may serve as a reference or basis for the calculation of other quantities;

"digital elevation model" means the representation of terrain surface by continuous elevation values at all intersections of a defined grid, referenced to common datum;

"displaced threshold" means a threshold not located at the extremity of a runway;

"distance measuring equipment" is a radio navigation system that measures the slant distance between the system and aircraft equipped with a receiver on board;

"electronic aeronautical chart display" means an electronic device by which flight crews are enabled to execute, in a convenient and timely manner, route planning, route monitoring and navigation by displaying required information;

"elevation" means the vertical distance of a point or a level on or affixed to the surface of the earth, measured from mean sea level;

"ellipsoid height or geodetic height" means the height related to the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question;

"feature" means abstraction of real world phenomena;

"feature attribute" means characteristic of a feature;

"final approach" means that part of an instrument approach procedure which commences at the specified final approach fix or point, or where such a fix or point is not specified–

(a) at the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified; or

(b) at the point of interception of the last track specified in the approach procedure and ends at a point in the vicinity of an aerodrome from which–

(i) a landing can be made; or

(ii) a missed approach procedure is initiated;

"final approach and take-off area" or "FATO" means a defined area over which the final phase of the approach manoeuvre to hover or landing is completed and from which the take-off manoeuvre is commenced; where the FATO is to be used by performance Class 1 helicopters, the defined area includes the rejected take-off area available;

"final approach fix or point" means that fix or point of an instrument approach procedure where the final approach segment commences;

"final approach segment" means that segment of an instrument approach procedure in which alignment and descent for landing are accomplished;

"flight information region" means an airspace of defined dimensions within which flight information service and alerting service are provided;

"flight level" means a surface of constant atmospheric pressure which is related to a specific pressure datum, 1,013.2 hectopascals (hPa), and is separated from other surfaces by specific pressure intervals;

"geodesic distance" means the shortest distance between any two points on a mathematically defined ellipsoidal surface;

"geodetic datum" means a minimum set of parameters required to define location and orientation of the local reference system with respect to the global reference system or frame;

"geoid" means the equipotential surface in the gravity field of the Earth which coincides with the undisturbed mean sea level extended continuously through the continents;

"geoid undulation" means the distance of the geoid above positive or below negative the mathematical reference ellipsoid;

"glide path" means a descent profile determined for vertical guidance during a final approach;

"Gregorian calendar" means calendar in general use; first introduced in 1582 to define a year that more closely approximates the tropical year than the Julian calendar;

"height" means the vertical distance of a level, point or an object considered as a point, measured from a specific datum;

"helicopter stand" means an aircraft stand which provides for parking a helicopter and where ground taxi operations are completed or where the helicopter touches down and lifts off for air taxi operations;

"heliport" means an aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters;

"heliport reference point" means the designated location of a heliport or a landing location;

"holding procedure" means a predetermined manoeuvre which keeps an aircraft within a specified airspace while awaiting further clearance;

"hot spot" means a location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots or drivers is necessary;

"human factors principles" means principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance;

"hypsometric tints" means a succession of shades or colour gradations used to depict ranges of elevation;

"ICAO" means International Civil Aviation Organisation;

"initial approach segment" means that segment of an instrument approach procedure between the initial approach fix and the intermediate approach fix or, where applicable, the final approach fix or point;

"instrument approach procedure" means a series of predetermined manoeuvres by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or en-route obstacle clearance criteria apply;

"instrument landing system" means a precision runway approach aid employing two radio beams to provide pilots with vertical and horizontal guidance during an approach to land;

"integrity classification of aeronautical data" means classification based upon the potential risk resulting from the use of corrupted data and aeronautical data is classified as–

(a) routine data: where there is a very low probability when using corrupted routine data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe;

(b) essential data: where there is a very low probability when using corrupted essential data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe; and

(c) critical data: where there is a very low probability when using corrupted critical data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe;

"intermediate approach segment" means that segment of an instrument approach procedure between either the intermediate approach fix and the final approach fix or point, or between the end of a reversal, racetrack or dead reckoning track procedure and the final approach fix or point, as appropriate;

"intermediate holding position" means 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;

"isogonal" means a line on a map or chart on which all points have the same magnetic variation for a specified epoch;

"isogriv" means a line on a map or chart which joins points of equal angular difference between the North of the navigation grid and Magnetic North;

"landing area" means that part of a movement area intended for the landing or take-off of aircraft;

"landing direction indicator" means a device to indicate visually the direction currently designated for landing and for take-off;

"level" means the vertical position of an aircraft in flight and includes height, altitude or flight level;

"logon address" means a specified code used for data link logon to an ATS unit;

"magnetic variation" means the angular difference between True North and Magnetic North;

"maneuvering area" means that part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons;

"marking" means a symbol or group of symbols displayed on the surface of the movement area to convey aeronautical information;

"metadata" means data about data;

"microwave landing system" means a precision radio landing system installed at airports which utilizes microwave signals to provide aircraft with the information necessary for a safe approach and landing;

"minimum en-route altitude" or "MEA" means the altitude for an en-route segment that provides adequate reception of relevant navigation facilities and ATS communications, complies with the airspace structure and provides the required obstacle clearance;

"minimum obstacle clearance altitude" or "MOCA" means the minimum altitude for a defined segment of flight that provides the required obstacle clearance;

"minimum sector altitude" or "MSA" means the lowest altitude which may be used to 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 significant point, the aerodrome reference point or the heliport reference point;

"missed approach point" or "MAPT" means that point in an instrument approach procedure at or before which the prescribed missed approach procedure must be initiated to ensure that the minimum obstacle clearance is not infringed;

"missed approach procedure" means the procedure to be followed if the approach cannot be continued;

"movement area" means that part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the maneuvering area and the apron;

"navigation specification" means a set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace including–

(a) required navigation performance specification: a navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, such as RNP 4, RNP APCH;

(b) area navigation (RNAV) specification: a navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, such as RNAV 5, RNAV1;

"obstacle" means all fixed whether temporary or permanent and mobile objects or parts of objects that–

(a) are located on an area intended for the surface movement of aircraft;

(b) extend above a defined surface intended to protect aircraft in flight; or

(c) stand outside those defined surfaces and that have been assessed as being a hazard to air navigation;

"obstacle clearance altitude", "OCA", "obstacle clearance height" or "OCH" means the lowest altitude or the lowest height above the elevation of the relevant runway threshold or the aerodrome elevation as applicable, used in establishing compliance with appropriate obstacle clearance criteria;

"obstacle free zone" or "OFZ" means the airspace above the inner approach surface, inner transitional surfaces, and balked landing surface and that portion of the strip bounded by these surfaces, which is not penetrated by any fixed obstacle other than a low-mass and frangibly mounted one required for air navigation purposes;

"orthometric height" means height of a point related to the geoid, generally presented as an MSL elevation;

"performance-based navigation" or "PBN" means area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace;

"point light" means a luminous signal appearing without perceptible length;

"portrayal" means presentation of information to humans;

"position", in relation to geography, means set of coordinates (latitude and longitude) referenced to the mathematical reference ellipsoid which define the position of a point on the surface of the Earth;

"precision approach" means an instrument approach and landing using precision lateral and vertical guidance with minima as determined by the category of operation–

(a) Category I operation: a precision instrument approach and landing with a decision height not lower than 60m (200ft) and with either a visibility not less than 800m or a runway visual range not less than 550m;

(b) Category II operation: a precision instrument approach and landing with a decision height lower than 60m (200ft) but not lower than 30m (100ft), and a runway visual range not less than 300m;

(c) Category IIIA operation: a precision instrument approach and landing with–

(i) a decision height lower than 30m (100ft), or no decision height; and

(ii) a runway visual range not less than 175m;

(d) Category IIIB operation: a precision instrument approach and landing with–

(i) a decision height lower than 15m (50ft), or no decision height; and

(ii) a runway visual range less than 175m but not less than 50m;

(e) Category IIIC operation: a precision instrument approach and landing with no decision height and no runway visual range limitations;

"precision approach procedure" means an instrument approach procedure utilising azimuth and glide path information provided by ILS or PAR;

"procedure altitude or height" means a published altitude or height used in defining the vertical profile of a flight procedure, at or above the minimum obstacle clearance altitude or height where established;

"procedure turn" means manoeuvre in which a turn is made away from a designated track followed by a turn in the opposite direction to permit the aircraft to intercept and proceed along the reciprocal of the designated track;

"prohibited area" means an airspace of defined dimensions above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited;

"relief" means the inequalities in elevation of the surface of the Earth represented on aeronautical charts by contours, hypsometric tints, shading or spot elevations;

"reporting point" means a specified geographical location in relation to which the position of an aircraft can be reported;

"restricted area" means an airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with specified conditions;

"reversal procedure" means a procedure designed to enable aircraft to reverse direction during the initial approach segment of an instrument approach procedure and the sequence may include procedure turns or base turns;

"runway" means a defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft;

"runway-holding position" means a designated position intended to protect a runway, an obstacle limitation surface, or an ILS/MLS critical or sensitive area at which taxiing aircraft and vehicles shall stop and hold, unless otherwise authorised by the aerodrome control tower;

"runway strip" means a defined area including the runway and stopway, if provided, intended–

(a) to reduce the risk of damage to aircraft running off a runway; and

(b) to protect aircraft flying over it during take-off or landing operations;

"runway visual range" or "RVR" means the range over which the pilot of an aircraft on the centre line of a runway can see the runway surface markings or the lights delineating the runway or identifying its centre line;

"shoulder" means an area adjacent to the edge of a pavement prepared to provide a transition between the pavement and the adjacent surface;

"significant point" means a specified geographical location used in defining an ATS route or the flight path of an aircraft and for other navigation and ATS purposes;

"stopway" means a defined rectangular area on the ground at the end of take-off run available prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned take-off;

"taxiing" means movement of an aircraft on the surface of an aerodrome under its own power, excluding take-off and landing;

"taxi-route" means a defined path established for the movement of helicopters from one part of a heliport to another and includes a helicopter air or ground taxiway which is centred on the taxi-route;

"taxiway" means 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, including–

(a) aircraft stand taxi lane: a portion of an apron designated as a taxiway and intended to provide access to aircraft stands only;

(b) apron taxiway: a portion of a taxiway system located on an apron and intended to provide a through taxi route across the apron;

(c) rapid exit taxiway: a taxiway connected to a runway at an acute angle and designed to allow landing aeroplanes to turn off at higher speeds than are achieved on other exit taxiways thereby minimising runway occupancy times;

"terminal arrival altitude" or "TAA" means 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;

"terrain" means the surface of the Earth containing naturally occurring features such as mountains, hills, ridges, valleys, bodies of water, permanent ice and snow, and excluding obstacles;

"threshold" means the beginning of that portion of the runway usable for landing;

"touchdown and lift-off area" or "TLOF" means a load bearing area on which a helicopter may touch down or lift off;

"touchdown zone" means the portion of a runway, beyond the threshold, where it is intended landing aeroplanes first contact the runway;

"track" means the projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (true, magnetic or grid);

"transition altitude" means the altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes;

"vectoring" means provision of navigational guidance to aircraft in the form of specific headings, based on the use of an ATS surveillance system;

"very high frequency omnidirectional range" or "VOR" means a radio navigation system that determines the position and course of aircraft equipped with a receiver unit on board;

"visual approach procedure" means a series of predetermined manoeuvres by visual reference, from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, a go-around procedure can be carried out;

"waypoint" means a specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation.

PART II

GENERAL SPECIFICATIONS

4. Availability of charts. The State shall–

(a) on the request of another State provide all information relating to its area of jurisdiction;

(b) make available aeronautical charts in accordance with these Regulations as appropriate for a particular chart or single sheet of a chart series;

(c) for any chart or single sheet of aeronautical chart series entirely contained within the State either–

(i) produce the chart or sheet itself; or

(ii) arrange for the production of the chart or sheet by another State or by an agency;

(iii) provide another Contracting State prepared to accept an obligation to produce the chart or sheet with the data necessary for its production;

(d) for any chart or single sheet of a chart series which includes the territory of another State, in consultation with the State having jurisdiction over the territory so included, determine the manner in which the chart or sheet shall be made available, taking into consideration the regional air navigation agreements and any plan of allocation established by ICAO;

(e) take all reasonable measures to ensure that the information provided and the aeronautical charts made available are adequate and accurate and that aeronautical charts are maintained and are up to date by an adequate revision service;

(f) make available appropriate charts produced by the State to other Contracting States without charge, on request on a reciprocal basis.

5. Operational requirements for aeronautical charts. The aeronautical cartographic service provider shall–

(a) ensure that each type of chart provides information relevant to the function of the chart and the design of the chart observes human factors principles to facilitate the optimum use of the chart;

(b) ensure that each type of chart provides information appropriate to the phase of flight for the safe and expeditious operation of the aircraft as listed below–

(i) phase 1 – taxi from aircraft stand to take off point;

(ii) phase 2 – take off and climb to en-route air traffic service route structure;

(iii) phase 3 – en-route air traffic service route structure;

(iv) phase 4 – descent to approach;

(v) phase 5 – approach to land and missed approach;

(vi) phase 6 – landing and taxi to aircraft stand;

(c) present the information that is accurate, free from distortion and clutter, unambiguous and readable under all normal operating conditions;

(d) use colours or tints and size that ensure that the chart can be easily read and interpreted by the pilot in varying conditions of natural and artificial light;

(e) ensure that the information is in a form which enables the pilot to acquire information in a reasonable time consistent with workload and operating conditions; and

(f) present the information on each type of chart in a way that permits smooth transition from chart to chart as appropriate to the phase of flight.

(2) The charts shall be True North orientated.

(3) The basic sheet size of the charts shall be 210 × 148 mm (8.27 x 5.82 inches) (A5).

6. Titles of charts. The aeronautical cartographic service provider shall ensure that the title of a chart or chart series is prepared in accordance with the specifications in these Regulations and satisfy the functions the chart or chart series are intended to perform.

7. Symbols. The aeronautical cartographic service provider shall–

(a) use the symbols conforming to Schedule 1, except where it is desired to show on an aeronautical chart special features or items of importance to civil aviation for which no symbol is prescribed in Schedule 1, any appropriate symbol may be chosen for this purpose, provided that it does not cause confusion with symbols in Schedule 1 or impair the legibility of the chart;

(b) use the same basic symbol on all charts on which the symbol appears, regardless of chart purpose to represent ground-based navigation aids, intersections and waypoints;

(c) use the symbol for significant points based on a hierarchy of symbols and selected in the following order–

(i) ground-based navigation aid;

(ii) intersection; and

(ii) waypoint symbol;

(d) use a waypoint symbol only when a significant point does not exist as either a ground-based navigation aid or intersection; and

(e) show symbols in the manner specified in paragraph (b), (c) and (d) and Schedule 1, symbol number 121.

8. Units of measurement. The aeronautical cartographic service provider shall–

(a) derive the distances as geodesic distances;

(b) express the distances in either kilometres or nautical miles or both, provided the units are clearly differentiated;

(c) express the altitudes, elevations and heights in feet;

(d) express the linear dimensions on aerodromes and short distances in metres;

(e) specify the order of resolution of distances, dimensions, elevations and heights for a chart;

(f) conspicuously indicate on the face of each chart the units of measurement used to express distances, altitudes, elevations and heights; and

(g) provide the conversion scales on the chart on which distances, elevations or altitudes are shown and place the conversion scales on the face of the chart.

9. Scale and projection. The aeronautical cartographic service provider shall–

(a) indicate the name, basic parameters and scale of the projection on the charts of large areas; and

(b) in the case of charts of small areas, indicate only a linear scale.

10. Date of validity of aeronautical information. The aeronautical cartographic service provider shall clearly indicate on the face of the chart the date of validity of the aeronautical information.

11. Spelling of geographical names. The aeronautical cartographic service provider shall–

(a) use the symbols of the roman alphabet for all writing;

(b) where the abbreviation word of geographical terms such as "cape", "point", "gulf", "river", is used on a chart, spell out the abbreviated term in full in respect of the most important example of each type; and

(c) not use punctuation marks in abbreviations within the body of a chart.

12. Abbreviations. The aeronautical cartographic service provider shall use abbreviations on aeronautical charts whenever they are appropriate that are selected from the Procedures for Air Navigation Services – ICAO Abbreviations and Codes (Doc 8400), where applicable.

13. Political boundaries. The aeronautical cartographic service provider shall–

(a) show the international boundaries which may be interrupted if data more important to the use of the chart is likely to be obscured; and

(b) indicate the names identifying the countries where the territory of more than one State appears on a chart.

14. Colours. The aeronautical cartographic service provider shall, in designing and producing charts use the colours prescribed in Schedule 2.

15. Relief. The aeronautical cartographic service provider shall–

(a) depict the relief, where shown, in a manner that satisfy the needs of the chart users for–

(i) orientation and identification;

(ii) safe terrain clearance;

(iii) clarity of aeronautical information when shown; and

(iv) planning;

(b) where relief is shown by hypsometric tints, use the tints that comply with the specifications in Schedule 3;

(c) show the spot elevations for selected critical points where spot elevations are used; and

(d) ensure that the value of spot elevations of doubtful accuracy is followed by the sign ±.

16. Prohibited, restricted and danger areas. The aeronautical cartographic service provider shall include the reference or other identification where prohibited, restricted or danger areas are shown, but may omit the nationality letter.

17. Air traffic services airspaces.—(1) The aeronautical cartographic service provider shall indicate the class of airspace, type, name or call sign, vertical limits and radio frequency to be used when air traffic service airspace is shown on a chart and shall depict the horizontal limits in accordance with Schedule 1.

(2) For charts used for visual flight, the parts of air traffic services airspace classes indicated in the Civil Aviation (Air Traffic Services) Regulations, 2025, applicable to airspaces depicted on the chart shall be on the face or reverse of each chart.

18. Magnetic variation. The aeronautical cartographic service provider shall–

(a) indicate the True North and magnetic variation and the order of resolution of magnetic variation as specified for a particular chart;

(b) ensure that when magnetic variation is shown on a chart, the values shown are those for the year nearest to the date of publication that is divisible by five; and

(c) for instrument procedure charts, complete the publication of a magnetic variation change within a maximum of six AIRAC cycles.

19. Aeronautical data. The aeronautical cartographic service provider shall–

(a) take all necessary measures to introduce a properly organised quality system containing procedures, processes and resources necessary to implement quality management at each function stage as specified in the Civil Aviation (Aeronautical Information Services) Regulations, 2025;

(b) execute quality management that is demonstrable for each function stage, when required;

(c) establish procedures to ensure that aeronautical data is traceable to its origin to detect any data anomalies or errors during the production and maintenance phases or in the operational use so as to correct them;

(d) ensure that the order of chart resolution of aeronautical data is as specified for a particular chart and presented in the Civil Aviation (Aeronautical Information Services) Regulations, 2025;

(e) maintain the integrity of aeronautical data throughout the data process from origination to distribution to the next intended user; and

(f) use digital data error detection techniques during the transmission and storage of aeronautical data and digital data sets.

20. Horizontal reference system. The aeronautical cartographic service provider shall–

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

(b) ensure published aeronautical geographical coordinates indicating latitude and longitude in terms of WGS-84 geodetic reference datum;

(c) identify by an asterisk the geographical coordinates which have been transformed into WGS-84 coordinates but whose accuracy of original field work does not meet the requirements in the Civil Aviation (Air Traffic Services) Regulations, 2025 and the Civil Aviation (Aerodrome) Regulations, 2025; and

(d) ensure that the chart resolution of geographical coordinates is that specified for a particular chart series in the Civil Aviation (Aeronautical Information Services) Regulations, 2025.

21. Vertical reference system. The aeronautical cartographic service provider shall–

(a) use the mean sea level datum as the vertical reference system;

(b) publish the elevations referenced to mean sea level, for the specific surveyed ground positions, geoid undulation referenced to the WGS-84 ellipsoid, for the surveyed positions as specified for a particular chart; and

(c) ensure that the chart resolution of elevation and geoid undulation is as specified for a particular chart series in the Civil Aviation (Aeronautical Information Services) Regulations, 2025.

22. Temporal reference system. The aeronautical cartographic service provider shall–

(a) use the Gregorian calendar and Coordinated Universal Time as the temporal reference system; and

(b) indicate in GEN 2.1.2 of the Aeronautical Information Publication a temporal reference system used for charting, if different from the one specified in paragraph (a).

23. Miscellaneous information. The aeronautical cartographic service provider shall–

(a) use the marginal note layout as prescribed in Schedule 4, except where otherwise specified for a particular chart;

(b) show the following information on the face of each chart unless otherwise stated in the specification of the chart concerned–

(i) designation or title of the chart series;

(ii) name and reference of the sheet;

(iii) on each margin an indication of the adjoining sheet, where applicable;

(c) provide a legend to the symbols and abbreviations used on the face or reverse of each chart except that, where it is impracticable for reasons of space, publish a legend separately; and

(d) show the name and address of the State in the margin of the chart except that, where the chart is published as part of an aeronautical document, this information may be placed in the front of the aeronautical document.

PART III

AERODROME OBSTACLE CHART – TYPE A (OPERATING LIMITATIONS)

24. Function of Aerodrome Obstacle Chart – Type A. The aeronautical cartographic service provider shall ensure that the Aerodrome Obstacle Chart – Type A, in combination with the relevant information published in the Aeronautical Information Publication, provides the data necessary to enable an operator to comply with the operating limitations of the Civil Aviation (Flight Safety) Regulations, 2024.

25. Availability of Aerodrome Obstacle Chart – Type A. The aeronautical cartographic service provider shall–

(a) make available the Aerodrome Obstacle Chart – Type A in the manner specified in regulation 4 (b) for all aerodromes regularly used by international civil aviation, except for those aerodromes where there are no obstacles in the take-off flight path areas or where the Aerodrome Terrain and Obstacle Chart – (Electronic) is provided in accordance with Part IV of these Regulations; and

(b) publish a notification in the Aeronautical Information Publication where a chart is not required due to nonexistence of obstacles in the take-off flight path area.

26. Unit of measurement on Aerodrome Obstacle Chart – Type A. The aeronautical cartographic service provider shall indicate on the Aerodrome Obstacle Chart – Type A the elevations to the nearest foot and the linear dimensions to the nearest half-metre.

27. Coverage and scale on an Aerodrome Obstacle Chart – Type A. The aeronautical cartographic service provider shall–

(a) ensure that the extent or coverage of each Aerodrome Obstacle Chart – Type A is sufficient to cover all obstacles;

(b) ensure that the horizontal scale is within the range of 1:10,000 to 1:15,000;

(c) ensure that vertical scale is ten times the horizontal scale; and

(d) include the horizontal and vertical linear scales showing both metres and feet in the charts.

28. Format of Aerodrome Obstacle Chart – Type A.—(1) The aeronautical cartographic service provider shall–

(a) depict on the Aerodrome Obstacle Chart – Type A, a plan and profile of each runway, any associated stop way or clearway, the take-off flight path area and obstacles;

(b) show the profile for each runway, stop way, clearway and the obstacles in the take-off flight path area above its corresponding plan.

(2) Subject to sub-regulation (1) (b), the profile of an alternative take-off flight path area shall comprise a linear projection of the full take-off flight path and shall be disposed above its corresponding plan in the manner most suited to the ready interpretation of the information.

(3) The aeronautical cartographic service provider shall–

(a) rule over the entire profile area exclusive of the runway a profile grid;

(b) ensure that zero for vertical coordinates is mean sea level and zero for horizontal coordinates is at the end of the runway furthest from the take-off flight path area concerned;

(c) show graduation marks indicating the sub-divisions of intervals along the base of the grid and along the vertical margins;

(d) ensure that vertical grid has intervals of 30m (100ft) and the horizontal grid has intervals of 300m (1 000ft); and

(e) ensure that the chart includes–

(i) a box for recording the operational data specified in regulation 33; and

(ii) a box for recording amendments and dates of amendments.

29. Identification. The aeronautical cartographic service provider shall identify the Aerodrome Obstacle Chart – Type A by the name of the country, name of the city, town or area which the aerodrome serves, the name of the aerodrome and the designator of the runway.

30. Magnetic variation. The aeronautical cartographic service provider shall indicate the magnetic variation to the nearest degree and date of information.

Aeronautical Data

31. Obstacles. The aeronautical cartographic service provider shall–

(a) consider the objects in the take-off flight path area which project above a plane surface having a 1.2 percent slope and having a common origin with the take-off flight path area as obstacles, except that obstacles lying wholly below the shadow of other obstacles as defined in paragraph (b) and (d) need not be shown;

(b) consider the mobile objects such as boats, trains and trucks, which may project above the 1.2 percent plane, as obstacles but shall not consider the mobile objects as being capable of creating a shadow;

(c) consider the shadow of an obstacle to be a plane surface originating at a horizontal line passing through the top of the obstacle at right angles to the centre line of the take-off flight path area;

(d) indicate that the plane covers the complete width of the take-off path area and extend to the plane defined in paragraphs (a) and (b) or to the next higher obstacle if it occurs first; for the first 300m of the take-off flight path area, the shadow planes are horizontal and beyond this point such planes have an upward slope of 1.2 percent; and

(e) where the obstacle creating a shadow is likely to be removed, show the objects that would become obstacles by removal of obstacle.

32. Take-off flight path area. The aeronautical cartographic service provider shall–

(a) provide the take-off flight path area consisting of a quadrilateral area on the surface of the earth lying directly below and symmetrically disposed about the take-off flight path with the following characteristics–

(i) commences at the end of the area declared suitable for take-off;

(ii) the width at the point of origin is 180m and this width increases at the rate of 0.25D to a maximum of 1800m, where D is the distance from the point of origin;

(iii) extends to the point beyond which no obstacles exist or to a distance of 10.0 km, whichever is the lesser; and

(b) for runways serving aircraft having operating limitations which do not preclude the use of a take-off flight path gradient of less than 1.2 per cent, increase the extent of the take-off flight path area specified in paragraph (a) (iii) to not less than 12km; in addition, reduce the slope of the plane surface specified in regulation 31 (a), (b) and (c) to 1.0 percent or less.

33. Declared distances. The aeronautical cartographic service provider shall–

(a) enter the following information in the space provided for each direction of each runway–

(i) take-off run available;

(ii) accelerate-stop distance available;

(iii) take-off distance available;

(iv) landing distance available; and

(b) identify a runway as "not usable for take-off, landing or both" where a declared distance is not provided due to a runway being usable in only one direction.

34. Plan and profile views.—(1) The aeronautical cartographic service provider shall ensure that the plan view shows–

(a) the outline of the runways by a solid line, including the length and width, the magnetic bearing to the nearest degree, and the runway number;

(b) the outline of the clearways by a broken line, including the length and identification of the clearways;

(c) the take-off flight path areas by a dashed line and the centre line by a fine line consisting of short and long dashes;

(d) the alternative take-off flight path areas and where alternative take-off flight path areas not centered on the extension of the runway centre line are shown, provide notes explaining the significance of the areas;

(e) obstacles, including–

(i) the exact location of each obstacle together with a symbol indicative of its type;

(ii) the elevation and identification of each obstacle; and

(iii) the limits of penetration of obstacles of large extent in a distinctive manner identified in the legend.

(2) The aeronautical cartographic service provider shall–

(a) indicate the nature of the runway and stopway surfaces;

(b) identify the stopways as such and depict them by a broken line; and

(c) indicate the length of each stopway, when stopways are shown.

(3) The aeronautical cartographic service provider shall ensure that the profile view shows–

(a) the profile of the centre line of the runway by a solid line and the profile of the centre of any associated stopways and clearways by a broken line;

(b) the elevation of the runway center line at each end of the runway, at the stopway and at the origin of each take-off flight path area, and at each significant change in slope of runway and stopway;

(c) obstacles including–

(i) each obstacle by a solid vertical line extending from a convenient grid line over at least one other grid line to the elevation of the top of the obstacle;

(ii) identification of each obstacle;

(iii) the limits of penetration of obstacles of large extent in a distinctive manner identified in the legend.

35. Accuracy. The aeronautical cartographic service provider shall–

(a) show the order of accuracy attained on the chart;

(b) determine the horizontal dimensions and the elevations of the runway, stop way and clearway to be printed on the chart are determined to the nearest 0.5 m;

(c) ensure that the order of accuracy of the field work and the precision of chart production are such that measurements in the take-off flight path areas can be taken from the chart within the following maximum deviations–

(i) horizontal distances: 5 m at a point of origin increasing at a rate of 1 per 500;

(ii) vertical distances: 1.5ft in the first 1 000ft and increasing at a rate of 1 per 1 000; and

(d) state the elevation of the datum used and identify the datum as assumed, where no accurate datum for vertical reference is available.

PART IV

AERODROME OBSTACLE CHART – TYPE B

36. Function of Aerodrome Obstacle Chart – Type B. The aeronautical cartographic service provider shall ensure that the Aerodrome Obstacle Chart – Type B provides information to satisfy the following functions–

(a) the determination of minimum safe altitudes or heights including those for circling procedures;

(b) the determination of procedures for use in the event of an emergency during take-off or landing;

(c) the application of obstacle clearing and marking criteria; and

(d) the provision of source material for aeronautical charts.

37. Availability of Aerodrome Obstacle Chart – Type B. The aeronautical cartographic service provider shall–

(a) make available the Aerodrome Obstacle Chart – Type B in the manner prescribed in regulation 4 (b) for all aerodromes regularly used by international civil aviation, except for those aerodromes where the Aerodrome Terrain and Obstacle Chart – Electronic is provided in accordance with Part V of these Regulations; and

(b) where the chart combines the specifications of Part III and Part IV of these Regulations, name the Aerodrome Obstacle Chart – Type B as the Aerodrome Obstacle Chart – Comprehensive.

38. Units of measurement on Aerodrome Obstacle Chart – Type B. The aeronautical cartographic service provider shall show the elevations on the Aerodrome Obstacle Chart – Type B to the nearest foot and the linear dimensions to the nearest half-metre.

39. Coverage and scale of Aerodrome Obstacle Chart – Type B. The aeronautical cartographic service provider shall–

(a) ensure that the extent or coverage of each Aerodrome Obstacle Chart – Type B is sufficient to cover all obstacles;

(b) use the horizontal scale within the range of 1:10 000 to 1:20 000; and include in the chart a horizontal linear scale showing both metres and feet and when necessary, a linear scale for kilometres and a linear scale for nautical miles.

40. Format of Aerodrome Obstacle Chart – Type B. The aeronautical cartographic service provider shall include on the Aerodrome Obstacle Chart – Type B–

(a) any necessary explanation of the projection used;

(b) any necessary identification of the grid used;

(c) a notation indicating that obstacles are those which penetrate the surfaces specified in the Civil Aviation (Aerodromes) Regulations, 2025;

(d) a box for recording amendments and dates of amendments; and

(e) outside the neat line, every minute of latitude and longitude marked in degrees and minutes.

41. Identification. The aeronautical cartographic service provider shall identify the Aerodrome Obstacle Chart – Type B by the name of the country, name of the city, town or area which the aerodrome serves, and the name of the aerodrome.

42. Culture and topography. The aeronautical cartographic service provider shall–

(a) keep the drainage and hydrographic details to a minimum;

(b) show the buildings and other salient features associated with the aerodrome and wherever possible, to scale;

(c) all objects, either cultural or natural, that project above the take-off and approach surfaces specified in regulation 44 or the clearing and marking surfaces specified in the Civil Aviation (Aerodrome) Regulations,2025; and

(d) show roads and railroads within the take-off and approach area, and less than 600m from the end of the runway or runway extensions.

43. Magnetic variation. The aeronautical cartographic service provider shall show a compass rose on the chart, orientated to the True North or a North point, showing the magnetic variation to the nearest degree with the date of magnetic information and annual change.

44. Aeronautical data. The aeronautical cartographic service provider shall show on the Aerodrome Obstacle Chart – Type B–

(a) the aerodrome reference point and its geographical coordinates in degrees, minutes and seconds;

(b) the outline of the runways by a solid line;

(c) the length and width of the runway;

(d) the magnetic bearing to the nearest degree of the runway and the runway number;

(e) the elevation of the runway centre line at each end of the runway, stopway, origin of each take-off and approach area, and at each significant change of slope of runway and stopway;

(f) taxiways, aprons and parking areas identified as such and the outlines by a solid line;

(g) stop ways identified and depicted by a broken line;

(h) the length of each stopway;

(i) clearways identified and depicted by a broken line;

(j) the length of each clear way;

(k) take-off and approach surfaces identified as such and depicted by a broken line;

(l) take-off and approach areas;

(m) obstacles at their exact location, including–

(i) a symbol indicative of their type;

(ii) elevation;

(iii) identification; and

(iv) limits of penetration of large extent in a distinctive manner identified in the legend; and

(n) any additional obstacles, as determined by regulations 31 (a) and (b) including obstacles in the shadow of an obstacle, which would otherwise be exempted.

(2) The aeronautical cartographic service provider shall–

(a) provide the nature of the runway and stopway surfaces;

(b) where practicable, indicate the highest object or obstacle between adjacent approach areas within a radius of 5000m from aerodrome reference point in a prominent manner; and

(c) show the extent of tree areas and relief features, part of which constitute obstacles.

45. Accuracy on Aerodrome Obstacle Chart – Type B. The aeronautical cartographic service provider shall–

(a) show the order of accuracy attained on the chart;

(b) ensure that the horizontal dimensions and the elevations of the movement area, stopways and clearways to be printed on the chart are determined to the nearest 0.5 m;

(c) ensure that the order of accuracy of the field work and the precision of chart production is such that the resulting data is within the maximum deviations as follows–

(i) for the take-off and approach areas, indicate the horizontal distances of 5 m at point of origin increasing at a rate of 1 per 500 and vertical distances of 1.5ft in the first 1,000ft and increasing at a rate of 1 per 1,000; and

(ii) for other areas, indicate the horizontal distances of 5m within 5,000m of the aerodrome reference point and 12m beyond that area and vertical distances of 3ft within 5,000ft of the aerodrome reference point increasing at a rate of 1 per 1 000; and

(d) state the elevation of the datum used and identify the datum as assumed, where no accurate datum for vertical reference is available.

Part V

AERODROME TERRAIN AND OBSTACLE CHART – ELECTRONIC

46. Function of Aerodrome Terrain and Obstacle Chart – Electronic. The aeronautical cartographic service provider shall ensure that the Aerodrome Terrain and Obstacle Chart – Electronic portrays the terrain and obstacle data in combination with aeronautical data, as appropriate, necessary to–

(a) enable an operator to comply with the operating limitations of the Civil Aviation (Flight Safety) Regulations, 2024, by developing contingency procedures for use in the event of an emergency during a missed approach or take-off, and by performing aircraft operating limitations analysis; and

(b) support the following air navigation applications–

(i) instrument procedure design including circling procedure;

(ii) aerodrome obstacle restriction and removal; and

(iii) provision of source data for the production of other aeronautical charts.

47. Availability of Aerodrome Terrain and Obstacle Chart – Electronic. The aeronautical cartographic service provider shall–

(a) make available the Aerodrome Terrain and Obstacle Charts –Electronic in the manner specified in regulation 4 (b) for aerodromes regularly used by international civil aviation;

(b) make available the Aerodrome Terrain and Obstacle Chart – Electronic in hard copy format upon request; and

(c) use ISO 19100 series of standards for geographic information as a general data modelling framework.

48. Identification. The aeronautical cartographic service provider shall identify the Aerodrome Terrain and Obstacle Chart – Electronic by the name of the country, name of the city or town which the aerodrome serves and the name of the aerodrome.

49. Chart coverage of Aerodrome Terrain and Obstacle Chart – Electronic. The aeronautical cartographic service provider shall ensure that the extent of each Aerodrome Terrain and Obstacle Chart – Electronic chart is sufficient to cover Area 2 as specified in the Civil Aviation (Aeronautical Information Services) Regulations, 2025.

50. General specifications for Aerodrome Terrain and Obstacle Chart – Electronic. The aeronautical cartographic service provider shall–

(a) specify the relationships between features, feature attributes, the underlying spatial geometry and associated topological relationships by an application schema when developing computer graphic applications that are used to portray features on the chart;

(b) provide the portrayed information based on portrayal specifications applied according to defined portrayal rules where portrayal specifications and portrayal rules are not part of the data set;

(c) store the portrayal rules in a portrayal catalogue referring to separately stored portrayal specifications; and

(d) portray features using the symbols specified in regulation 7 and Schedule 1.

51. Terrain feature. The aeronautical cartographic service provider shall–

(a) ensure that the terrain feature and associated attributes to be portrayed and database-linked to the Aerodrome Terrain and Obstacle Chart – Electronic are based on the terrain data sets which satisfy the requirements of the Civil Aviation (Aeronautical Information Services) Regulations, 2025;

(b) portray the terrain feature in a manner that provides an effective general impression of a terrain and a representation of terrain surface by continuous elevation values at all intersections of the defined grid, also known as the digital elevation model;

(c) provide the representation of terrain surface as a selectable layer of contour lines in addition to the digital elevation model;

(d) use an ortho-rectified image which matches the features on the digital elevation model with features on the overlying image to enhance the digital elevation model and provide the image as a separate selectable layer;

(e) link the portrayed terrain feature to the following associated attributes in the database–

(i) horizontal positions of grid points in geographic coordinates and elevations of the points;

(ii) surface type;

(iii) contour line values, if provided; and

(iv) names of cities, towns and other prominent topographic features;

(f) link additional terrain attributes provided in the database to the portrayed terrain feature.

52. Obstacle features. The aeronautical cartographic service provider shall–

(a) ensure that the obstacle features and associated attributes, portrayed or database linked to the Aerodrome Terrain and Obstacle Chart – Electronic on obstacle data sets satisfy the requirements of the Civil Aviation (Aeronautical Information Services) Regulations, 2025;

(b) portray each obstacle by an appropriate symbol and obstacle identifier;

(c) link the portrayed obstacle feature to the following associated attributes in the database–

(i) horizontal position in geographic coordinates and associated elevation;

(ii) obstacle type; and

(iii) obstacle extent, if appropriate; and

(d) link the additional obstacle attributes provided in the database to the portrayed obstacle feature.

53. Aerodrome features. The aeronautical cartographic service provider shall–

(a) portray the aerodrome features and associated attributes and link the database to the chart based on the aerodrome data which satisfy the requirements of the Civil Aviation (Aeronautical Information Services) Regulations, 2025;

(b) portray the following aerodrome features by an appropriate symbol–

(i) aerodrome reference point;

(ii) runways, with designation numbers, and if available, stopways and clearways; and

(iii) taxiways, aprons, large buildings and other prominent aerodrome features;

(c) link the portrayed aerodrome feature to the following associated attributes in the database–

(i) geographical coordinates of the aerodrome reference point;

(ii) aerodrome magnetic variation, year of information and annual change;

(iii) length and width of runways, stop ways and clearways;

(iv) type of surface of runways and stopways;

(v) magnetic bearings of the runways to the nearest degree;

(vi) elevations at each end of runways, stopways and clearways, and at each significant change in slope of runways and stopways;

(vii) declared distances for each runway direction, or the abbreviation "NU" where a runway direction cannot be used for take-off or landing or both.

54. Radio navigation aid features. The aeronautical cartographic service provider shall portray each radio navigation aid feature located within the chart coverage by an appropriate symbol.

55. Accuracy and resolution of Aerodrome Terrain and Obstacle Chart – Electronic. The aeronautical cartographic service provider shall–

(a) ensure that the order of accuracy of aeronautical, terrain and obstacle data is in accordance with its intended use; and

(b) ensure that the aeronautical, terrain and obstacle data resolution is commensurate with the actual data accuracy.

56. Electronic functionality. The aeronautical cartographic service provider shall–

(a) ensure that it is possible to vary the scale at which the chart is viewed;

(b) ensure that the symbols and text size vary with chart scale to enhance readability;

(c) geo-reference the information on the chart and make it possible to determine cursor position to at least the nearest second;

(d) ensure that the chart is compatible with widely available desktop computer hardware, software and media;

(e) include a reader software on the chart;

(f) put in place measures to guard against removal of information from the chart without an authorised update;

(g) provide the selectable information layers to allow for the customised combination of information when due to congestion of information, the details necessary to support the function of the chart cannot be shown with sufficient clarity on a single comprehensive chart view; and

(h) ensure that the chart can be printed in hard copy format according to the content specifications and scale determined by the user.

57. Aerodrome Terrain and Obstacle Chart – Electronic data product specifications.—(1) The aeronautical cartographic service provider shall provide a comprehensive statement of the data sets comprising the Aerodrome Terrain and Obstacle Chart – Electronic chart in the form of data product specifications on which basis air navigation users will be able to evaluate the chart data product and determine whether it fulfils the requirements for its intended use.

(2) The chart data product specifications in sub-regulation (1) shall include–

(a) an overview;

(b) a specification scope;

(c) a data product identification;

(d) data content information;

(e) the reference systems used;

(f) the data quality requirements and information on data or data capture;

(g) data maintenance;

(h) data portrayal;

(i) data product delivery

(j) metadata; and

(k) any additional information available.

(3) The overview of the chart data product specifications referred to in sub-regulation (2) (a) shall provide an informal description of the product and shall contain the general information about the data product.

(4) The specification scope of the chart data product specifications referred to in sub-regulation (2) (b) shall contain the spatial extent of the chart coverage.

(5) The chart data product identification referred to in sub-regulation (2) (c) shall include the title of the product, a brief narrative summary of the content and purpose and a description of the geographic area covered by the chart.

(6) The data content of the chart data product specifications shall clearly identify the type of coverage and imagery and provide a narrative description of each.

(7) The aeronautical cartographic service provider shall include on the Aerodrome Obstacle Chart – Type B data product specifications, information that defines the reference systems used including the spatial reference system, horizontal and vertical, and if appropriate, temporal reference system.

(8) The chart data product specifications shall identify the data quality requirements including a statement on–

(a) acceptable conformance quality levels; and

(b) corresponding data quality measures covering all the data quality elements and data quality sub-elements or where appropriate, a statement to the effect that specific data quality element or sub-element is not applicable.

(9) The chart data product specifications shall–

(a) include a data capture statement describing the sources and processes applied for the capture of chart data;

(b) provide the principles and criteria applied in the maintenance of the chart, including the frequency with which the chart product is updated and shall–

(i) state the maintenance information of obstacle data sets included on the chart; and

(ii) indicate the principles, methods and criteria applied for obstacle data maintenance;

(c) contain information on how data are portrayed on the chart, as prescribed in regulation 51;

(d) contain the data product delivery information which include delivery formats and delivery medium information;

(e) include core chart metadata elements and any additional metadata items required to be supplied in the product specifications together with the format and encoding of the metadata.

Part VI

PRECISION APPROACH TERRAIN CHART

58. Function of Precision Approach Terrain Chart. The aeronautical cartographic service provider shall ensure that the precision approach terrain chart provides detailed terrain profile information within a defined portion of the final approach to enable aircraft operating agencies to assess the effect of the terrain on decision height determination using radio altimeters.

59. Availability of Precision Approach Terrain Chart. The aeronautical cartographic service provider shall–

(a) make available the Precision Approach Terrain Chart for all precision approach runways Categories II and III at aerodromes used by international civil aviation, except where the requisite information is provided in the Aerodrome Terrain and Obstacle Chart – Electronic in accordance with Part V; and

(b) revise the Precision Approach Terrain Chart whenever any significant change occurs.

60. Scale of Precision Approach Terrain Chart. The aeronautical cartographic service provider shall–

(a) ensure that the scale of the Precision Approach Terrain Chart is horizontal 1:2500 and vertical 1:500; and

(b) ensure that when the Precision Approach Terrain Chart includes a profile of the terrain to a distance greater than 900m from the runway threshold, the horizontal scale is 1:5000.

61. Identification. The aeronautical cartographic service provider shall identify the Precision Approach Terrain Chart by the name of the country, name of the city, town or area which the aerodrome serves, the name of the aerodrome and the designator of the runway.

62. Plan and profile information.—(1) The aeronautical cartographic service provider shall include on the precision approach terrain chart the following–

(a) a plan showing contours at 1m (3ft) intervals in the area 60m (200 ft) on either side of the extended centre line of the runway, to the same distance as the profile, the contours to be related to the runway threshold;

(b) an indication where the terrain or any object, within the plan defined in paragraph (a), differs by ±3 m (10 ft) in height from the centre line profile and is likely to affect a radio altimeter; and

(c) a profile of the terrain to a distance of 900m from the threshold along the extended centre line of the runway.

(2) The aeronautical cartographic service provider shall–

(a) where the terrain at a distance greater than 900m from the runway threshold is mountainous or otherwise significant to users of the chart, show the profile of the terrain to a distance not exceeding 2000m from the runway threshold;

(b) show the instrument landing system (ILS) reference datum height to the nearest foot.

Part VII

ENROUTE CHART

63. Function of Enroute Chart. The aeronautical cartographic service provider shall ensure that the Enroute chart provides flight crews with information to facilitate navigation along Air Traffic Service routes in compliance with air traffic services procedures.

64. Availability of Enroute Chart. The aeronautical cartographic service provider shall–

(a) make available the Enroute chart in the manner prescribed in regulation 4 (b) for all areas where flight information regions have been established;

(b) provide separate Enroute charts where different air traffic services routes, position reporting requirements or lateral limits of flight information regions or control areas exist in different layers of airspace and cannot be shown with sufficient clarity on one chart.

65. Coverage and scale of Enroute Chart. The aeronautical cartographic service provider shall–

(a) determine the layout of sheet lines by the density and pattern of the air traffic service route structure;

(b) avoid large variations of scale between adjacent charts showing a continuous route structure; and

(c) provide an adequate overlap of charts to ensure continuity of navigation.

66. Projection. The aeronautical cartographic service provider shall–

(a) use a conformal projection on which a straight line approximates a great circle;

(b) show the parallels and meridians at suitable intervals; and

(c) place the graduation marks at consistent intervals along selected parallels and meridians.

67. Identification. The aeronautical cartographic service provider shall identify each sheet of the Enroute Chart by chart series and number.

68. Culture and topography. The aeronautical cartographic service provider shall–

(a) show the generalised shorelines of all open water areas, large lakes and rivers except where they conflict with data more applicable to the function of the Enroute Chart;

(b) show the area minimum altitude within each quadrilateral formed by the parallels and meridians; and

(c) indicate clearly the selected orientation used, where charts are not True North orientated.

69. Magnetic variation. The aeronautical cartographic service provider shall indicate the isogonal and the date of the isogonic information.

70. Bearings, tracks and radials. The aeronautical cartographic service provider shall–

(a) ensure that the bearings, tracks and radials are magnetic and show the bearings and tracks in parentheses to the nearest tenth of a degree where bearings and tracks are additionally provided as true values for area navigation segments; and

(b) clearly indicate, where bearings, tracks or radials are given with reference to True North or Grid North and identify the reference grid meridian when Grid North is used.

Aeronautical Data

71. Aerodromes. The aeronautical cartographic service provider shall show on an Enroute Chart, all aerodromes used by international civil aviation to which an instrument approach can be made.

72. Prohibited, restricted and danger areas. The aeronautical cartographic service provider shall depict on an Enroute Chart the prohibited, restricted and danger areas relevant to the layer of airspace with their identification and vertical limits.

73. Air traffic services system. The aeronautical cartographic service provider shall–

(a) show the components of the established air traffic services system on an Enroute Chart, where appropriate;

(b) include the following components on the Enroute Chart–

(i) the radio navigation aids associated with the air traffic services system together with their names, identifications, frequencies and geographical coordinates in degrees, minutes and seconds;

(ii) in respect of distance measuring equipment (DME), additionally the elevation of the transmitting antenna of the DME to the nearest 30m (100ft);

(iii) an indication of all designated airspace, including lateral and vertical limits and the appropriate class of airspace;

(iv) all air traffic services routes for en-route flight including route designators, the track to the nearest degree in both directions along each segment of the routes and, where established, the designation of the navigation specifications including any limitations and the direction of traffic flow;

(v) all significant points which define the air traffic services routes and are not marked by the position of a radio navigation aid, together with their name-codes and geographical coordinates in degrees, minutes and seconds;

(vi) in respect of waypoints defining very high frequency omni directional range (VOR) or DME area navigation routes, additionally–

(A) the station identification and radio frequency of the reference VOR or DME;

(B) the bearing to the nearest tenth of a degree and the distance to the nearest two-tenths of a kilometre (tenth of a nautical mile) from the reference VOR or DME, if the waypoint is not collocated with it;

(vii) an indication of all compulsory and "on-request" reporting points and air traffic service (ATS) or meteorological reporting points;

(viii) the distances to the nearest kilometre or nautical mile between significant points constituting turning points or reporting points;

(ix) change-over points on route segments defined by reference to very high frequency omnidirectional radio ranges, indicating the distances to the nearest kilometre or nautical mile to the navigation aids;

(x) minimum en-route altitudes and minimum obstacle clearance altitudes, on ATS routes to the nearest higher 50 metres or 100 feet;

(xi) communication facilities listed with their channels and, if applicable, logon address and satellite voice communications (SATVOICE) number; and

(xii) air defence identification zone (ADIZ) properly identified.

74. Supplementary information. The aeronautical cartographic service provider shall–

(a) indicate the details of departure, arrival routes and associated holding patterns in terminal areas on an Enroute Chart unless they are shown on an Area Chart, a Standard Departure Chart – Instrument (SID) or a Standard Arrival Chart – Instrument (STAR); and

(b) show and identify the altimeter setting regions where established.

Part VIII

AREA CHART

75. Function of Area Chart. The aeronautical cartographic service provider shall ensure that the Area Chart provides the flight crew with information to facilitate the following phases of instrument flight–

(a) the transition between the en-route phase and approach to an aerodrome;

(b) the transition between take-off or missed approach and en-route phase of flight; and

(c) areas of complex ATS routes or airspace structure.

76. Availability of Area Chart. The aeronautical cartographic service provider shall–

(a) make available the Area Chart in the manner specified in regulation 4 (b) where the air traffic services routes or position reporting requirements are complex and cannot be adequately shown on an Enroute Chart; and

(b) provide separate Area Charts where air traffic services routes or position reporting requirements are different for arrivals and for departures and cannot be shown with sufficient clarity on one Area Chart.

77. Coverage and scale of Area Chart. The aeronautical cartographic service provider shall–

(a) ensure that the coverage of each Area Chart extends to points that effectively show departure and arrival routes; and

(b) draw the Area Chart to scale and show a scale-bar.

78. Projection. The aeronautical cartographic service provider shall–

(a) use a conformal projection on which a straight line approximates a great circle;

(b) depict the parallels and meridians at suitable intervals; and

(c) place the graduation marks at consistent intervals along the neat lines, as appropriate.

79. Identification. The aeronautical cartographic service provider shall identify the Area Chart by a name associated with the airspace portrayed.

80. Culture and topography. The aeronautical cartographic service provider shall–

(a) show the generalised shorelines of all open water areas, large lakes and rivers on the Area Chart except where they conflict with data more applicable to the function of the charts;

(b) show all relief exceeding 300m (1000ft) above the elevation of the primary aerodrome by smoothed contour lines, contour values and layer tints printed in brown, in areas where significant relief exists; and

(c) show appropriate spot elevations, including the highest elevation within each top contour line, printed in black and obstacles shown.

81. Magnetic variation. The aeronautical cartographic service provider shall show the average magnetic variation of the area covered by the Area Chart to the nearest degree.

82. Bearings, tracks and radials. The aeronautical cartographic service provider shall–

(a) ensure that the bearings, tracks and radials are magnetic and show the bearings and tracks in parentheses to the nearest tenth of a degree where bearings and tracks are additionally provided as true values for RNAV segments; and

(b) clearly indicate where bearings, tracks or radials are given with reference to True North or Grid North and identify the reference grid meridian, when Grid North is used.

Aeronautical Data

83. Aerodromes. The aeronautical cartographic service provider shall show all aerodromes which affect the terminal routings and where appropriate, use a runway pattern symbol.

84. Prohibited, restricted and danger areas. The aeronautical cartographic service provider shall depict the prohibited, restricted and danger areas with their identification and vertical limits on the Area Chart.

85. Area minimum altitudes. The aeronautical cartographic service provider shall show the area minimum altitudes within quadrilaterals formed by the parallels and meridians.

86. Air traffic services system.—(1) The aeronautical cartographic service provider shall show on the Area Chart the components of the established relevant air traffic services system.

(2) The components referred to in sub-regulation (1) include–

(a) the radio navigation aids associated with the air traffic services system, together with their names, identifications, frequencies and geographical coordinates in degrees, minutes and seconds;

(b) in respect of DME, additionally the elevation of the transmitting antenna of the DME to the nearest 30 m (100 ft);

(c) terminal radio aids which are required for outbound and inbound traffic and for holding patterns;

(d) the lateral and vertical limits of all designated airspace and the appropriate class of airspace;

(e) the designation of the navigation specifications including any limitations, where established;

(f) holding patterns and terminal routings, together with the route designators, and the track to the nearest degree along each segment of the prescribed airways and terminal routings;

(g) all significant points which define the terminal routings and are not marked by the position of a radio navigation aid, together with their name-codes and geographical coordinates in degrees, minutes and seconds;

(h) in respect of waypoints defining VOR or DME area navigation routes, additionally–

(i) the station identification and radio frequency of the reference VOR/DME; and

(ii) the nearest two-tenths of a kilometre (tenth of a nautical mile) from the reference VOR/DME, if the waypoint is not collocated with it;

(i) an indication of all compulsory and "on-request" reporting points;

(j) the distances to the nearest kilometre or nautical mile between significant points constituting turning points or reporting points;

(k) change-over points on route segments defined by reference to very high frequency omnidirectional radio ranges, indicating the distances to the nearest kilometre or nautical mile to the radio navigation aids;

(l) minimum en-route altitudes and minimum obstacle clearance altitudes, on ATS routes to the nearest higher 50 metres or 100 feet;

(m) established minimum vectoring altitudes to the nearest higher 50m or 100 ft, clearly identified;

(n) area speed and level or altitude restrictions where established;

(o) communication facilities listed with their channels and, if applicable, logon address and SATVOICE number; and

(p) an indication of "flyover" significant points.

Part IX

STANDARD DEPARTURE CHART – INSTRUMENT (SID)

87. Function of Standard Departure Chart – Instrument. The aeronautical cartographic service provider shall ensure that the Standard Departure Chart – Instrument provides the flight crew with information to enable it to comply with the designated standard departure route instrument from take-off phase to the en-route phase.

88. Availability of SID. The aeronautical cartographic service provider shall make available the Standard Departure Chart – Instrument (SID) wherever standard departure route-instrument has been established and cannot be shown with sufficient clarity on the Area Chart.

89. Coverage and scale of SID. The aeronautical cartographic service provider shall–

(a) ensure that the coverage of the Standard Departure Chart – Instrument is sufficient to indicate the point where the departure route begins and the

specified significant point at which the en-route phase of flight along a designated air traffic services route can be commenced;

(b) draw the Standard Departure Chart – Instrument to scale and show a scale-bar; and

(c) use the annotation "NOT TO SCALE" and the symbol for scale break on tracks and other aspects of the Standard Departure Chart – Instrument chart which are too large to be drawn to scale, when the chart is not drawn to scale.

90. Projection. The aeronautical cartographic service provider shall–

(a) use a conformal projection on which a straight line approximates a great circle on a Standard Departure Chart – Instrument;

(b) show the parallels and meridians at suitable intervals when the Standard Departure Chart – Instrument is drawn to scale; and

(c) place the graduation marks at consistent intervals along the neat lines.

91. Identification. The aeronautical cartographic service provider shall identify the chart by the name of the city or town or area which the aerodrome serves, the name of the aerodrome and the identification of the standard departure route-instrument as established in accordance with the Procedures for Air Navigation Services – Aircraft Operations (PANS OPS, DOC 8168) Volume II.

92. Culture and topography. The aeronautical cartographic service provider shall–

(a) show the generalised shore lines of all open water areas, large lakes and rivers where the chart is drawn to scale except where they conflict with data more applicable to the function of the chart;

(b) draw the chart to scale and show all relief exceeding 300m (1000ft) above the aerodrome elevation by smoothed contour lines, contour values and layer tints printed in brown in areas where significant relief exists; and

(c) show appropriate spot elevations, including the highest elevation within each top contour line, printed in black and show obstacles.

93. Magnetic variation. The aeronautical cartographic service provider shall indicate the magnetic variation used in determining the magnetic bearings, tracks and radials to the nearest degree.

94. Bearings, tracks and radials. The aeronautical cartographic service provider shall–

(a) ensure that bearings, tracks and radials are magnetic and the bearings and tracks are shown in parentheses to the nearest tenth of a degree where bearings and tracks are additionally provided as true values for RNAV segments; and

(b) clearly indicate where bearings, tracks and radials are given with reference to True North or Grid North and identify the reference grid meridian when Grid North is used.

Aeronautical Data

95. Aerodromes. The aeronautical cartographic service provider shall–

(a) show the runway pattern for the aerodrome of departure;

(b) show and identify all aerodromes which affect the designated standard departure route-instrument and where appropriate, the aerodrome runway patterns.

96. Prohibited, restricted and danger areas. The aeronautical cartographic service provider shall depict the prohibited, restricted and danger areas with their identification and vertical limits on the Standard Departure Chart – Instrument which may affect the execution of the procedures.

97. Minimum sector altitude. The aeronautical cartographic service provider shall–

(a) show the established minimum sector altitude on the Standard Departure Chart – Instrument with a clear indication of the sector to which minimum sector altitude applies;

(b) draw the Standard Departure Chart – Instrument to scale and show the area minimum altitudes within quadrilaterals formed by the parallels and meridians; and

(c) show the area minimum altitudes in those parts of the chart not covered by the minimum sector altitude where the minimum sector altitude has not been established.

98. Air traffic services system.—(1) The aeronautical cartographic service provider shall show the components of the established relevant air traffic services system on the Standard Departure Chart – Instrument.

(2) The components of the air traffic services system referred to in sub-regulation (1) include–

(a) a graphic portrayal of each standard departure route-instrument, including–

(i) for departure procedures designed specifically for helicopters the term "CAT H" shall be depicted in the departure chart plan view;

(ii) route designator;

(iii) significant points defining the route;

(iv) track or radial to the nearest degree along each segment of the route;

(v) distances to the nearest kilometre or nautical mile between significant points;

(vi) minimum obstacle clearance altitudes, along the route or route segments and altitudes required by the procedure to the nearest higher 50m or 100ft and flight level restrictions where established; and

(vii) where the chart is drawn to scale and vectoring on departure is provided, established minimum vectoring altitudes to the nearest higher 50 m or 100 ft, clearly identified;

(b) the radio navigation aid associated with the routes including— when the radio navigation aid is used for conventional navigation:

(i) plain language name;

(ii) identification;

(iii) Morse code;

(iv) frequency;

(v) geographical coordinates in degrees, minutes and seconds;

(vi) for DME, the channel and the elevation of the transmitting antenna of the DME to the nearest 30 m (100 ft);

(c) the radio navigation aid associated with the routes including when the radio navigation aid is used as a significant point for area navigation:

(i) plain language name;

(ii) identification;

(d) the name-codes of the significant points not marked by the position of a radio navigation aid, their geographical coordinates in degrees, minutes and seconds and the bearing to the nearest tenth of a degree and distance to the nearest two-tenths of a kilometre (tenth of a nautical mile) from the reference radio navigation aid and identification of the reference radio navigation aid;

(e) applicable holding patterns;

(f) transition altitude or height to the nearest higher 300m or 1 000ft;

(g) the position and height of close-in obstacles which penetrate the obstacle identification surface (OIS) and a note is included whenever close-in obstacles penetrating the OIS exist but which were not considered for the published procedure design gradient;

(h) area speed restrictions, where established;

(i) the designation of the navigation specifications including any limitations, where established;

(j) all compulsory and "on-request" reporting points;

(k) radio communication procedures, including–

(i) call signs of ATS units;

(ii) frequency and if applicable, SATVOICE number;

(iii) transponder setting, where appropriate; and

(l) an indication of "flyover" significant points.

(3) The aeronautical cartographic service provider shall provide a textual description of standard departure route-instrument and relevant communication failure procedures and whenever feasible, on the chart or on the same page which contains the chart.

99. Aeronautical database requirements. The aeronautical cartographic service provider shall publish the appropriate data to support navigation database coding in accordance with the Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS, Doc 8168), Volume II, on the verso of the chart or as a separate, properly referenced sheet.

Part X

STANDARD ARRIVAL CHART – INSTRUMENT (STAR)

100. Function of Standard Arrival Chart – Instrument. The aeronautical cartographic service provider shall ensure that the Standard Arrival Chart – Instrument provides information to enable the flight crew to comply with the designated standard arrival route instrument from the en-route phase to the approach phase.

101. Availability of Standard Arrival Chart – Instrument. The aeronautical cartographic service provider shall make available the Standard Arrival Chart – Instrument (STAR) wherever a standard arrival route-instrument has been established and cannot be shown with sufficient clarity on the Area Chart.

102. Coverage and scale of Standard Arrival Chart – Instrument. The aeronautical cartographic service provider shall–

(a) ensure that the coverage of the Standard Arrival Chart – Instrument is sufficient to indicate the points where the en-route phase ends and the approach phase begins;

(b) draw the chart to scale and show a scale-bar; and

(c) use the annotation "NOT TO SCALE" and the symbol for scale break on tracks and other aspects of the Standard Arrival Chart – Instrument which are too large to be drawn to scale, when the chart is not drawn to scale.

103. Projection. The aeronautical cartographic service provider shall–

(a) use a conformal projection on which a straight line approximates a great circle;

(b) show the parallels and meridians at suitable intervals when the chart is drawn to scale; and

(c) place the graduation marks at consistent intervals along the neat lines.

104. Identification. The aeronautical cartographic service provider shall identify the Standard Arrival Chart – Instrument chart by the name of the city or town or area which the aerodrome serves, the name of the aerodrome and the identification of the standard arrival route-instrument as established in accordance with the Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS, Doc 8168), Volume II.

105. Culture and topography. The aeronautical cartographic service provider shall–

(a) show the generalised shore lines of all open water areas, large lakes and rivers where the chart is drawn to scale, except where they conflict with data more applicable to the function of the Standard Arrival Chart – Instrument;

(b) draw the STAR to scale and show all relief exceeding 300m (1000ft) above the aerodrome elevation by smoothed contour lines, contour values and layer tints printed in brown in areas where significant relief exists; and

(c) show the appropriate spot elevations, including the highest elevation within each top contour line, printed in black and show the obstacles.

106. Magnetic variation. The aeronautical cartographic service provider shall show the magnetic variation used in determining the magnetic bearings, tracks and radials to the nearest degree.

107. Bearings, tracks and radials. The aeronautical cartographic service provider shall–

(a) ensure that the bearings, tracks and radials are magnetic and show the bearings and tracks in parentheses to the nearest tenth of a degree where bearings and tracks are additionally provided as true values for RNAV segments; and

(b) indicate clearly the bearings, tracks and radials where bearings, tracks or radials are given with reference to True North or Grid North and identify the reference grid meridian when Grid North is used.

Aeronautical Data

108. Aerodromes. The aeronautical cartographic service provider shall–

(a) show the runway pattern for the aerodrome of landing; and

(b) show and identify all aerodromes which affect the designated standard arrival route-instrument and where appropriate, the aerodrome runway patterns.

109. Prohibited, restricted and danger areas. The aeronautical cartographic service provider shall depict the prohibited, restricted and danger areas with their identification and vertical limits on the Standard Arrival Chart – Instrument which may affect the execution of the procedures.

110. Minimum sector altitude. The aeronautical cartographic service provider shall–

(a) show the established minimum sector altitude on the Standard Arrival Chart – Instrument with a clear indication of the sector to which minimum sector altitude applies;

(b) draw the Standard Arrival Chart – Instrument to scale and show the area minimum altitude within quadrilaterals formed by the parallels and meridians where the minimum sector altitude has not been established; and

(c) show the area minimum altitudes in those parts of the chart not covered by the minimum sector altitude.

111. Air traffic services system.—(1) The aeronautical cartographic service provider shall show the components of the established relevant air traffic services system on the Standard Arrival Chart – Instrument.

(2) The components of the air traffic services system referred to in sub-regulation (1) shall include–

(a) a graphic portrayal of each standard arrival route-instrument, including–

(i) route designator;

(ii) significant points defining the route;

(iii) track or radial to the nearest degree along each segment of the route;

(iv) distances to the nearest kilometer or nautical mile between significant points;

(v) minimum obstacle clearance altitudes, along the route or route segments and altitudes required by the procedure to the nearest higher 50m or 100ft and flight level restrictions, where established; and

(vi) where the chart is drawn to scale and vectoring on arrival is provided, established minimum vectoring altitudes to the nearest higher 50 m or 100 ft, clearly identified;

(b) the radio navigation aids associated with the routes including— when the radio navigation aid is used for conventional navigation:

(i) plain language name;

(ii) identification;

(iii) frequency;

(iv) geographical coordinates in degrees, minutes and seconds;

(v) for DME, the channel and the elevation of the transmitting antenna of the DME to the nearest 30 m (100 ft);

(c) the radio navigation aids associated with the routes including—when the radio navigation aid is used as a significant point for area navigation:

(i) plain language name;

(ii) identification;

(d) the name-codes of the significant points not marked by the position of a radio navigation aid, their geographical coordinates in degrees, minutes and seconds and the bearing to the nearest tenth of a degree and distance to the nearest two-tenths of a kilometre (tenth of a nautical mile) from the reference radio navigation aid;

(e) applicable holding patterns;

(f) transition altitude or height to the nearest higher 300m or 1 000ft;

(g) area speed restrictions, where established;

(h) the designation of the navigation specifications including any limitations, where established;

(i) all compulsory and "on-request" reporting points;

(j) radio communication procedures, including–

(i) call signs of air traffic services units;

(ii) frequency and if applicable, SATVOICE number;

(iii) transponder setting, where appropriate;

(k) an indication of "flyover" significant points; and for arrival procedures to an instrument approach designed specifically for helicopters, the term "CAT H" shall be depicted in the arrival chart plain view.

(3) The aeronautical cartographic service provider shall provide a textual description of standard arrival route-instrument and relevant communication failure procedures and whenever feasible, on the chart or on the same page which contains the chart.

112. Aeronautical database requirements. The aeronautical cartographic service provider shall publish the appropriate data to support navigation database coding in accordance with the Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS, Doc 8168), Volume II, on the verso of the chart or as a separate, properly referenced sheet.

Part XI

INSTRUMENT APPROACH CHART

113. Function of Instrument Approach Chart. The aeronautical cartographic service provider shall ensure that the Instrument Approach Chart provides flight crews with information to enable them perform an approved instrument approach procedure to the runway of intended landing including the missed approach procedure and where applicable, associated holding patterns.

114. Availability of Instrument Approach Chart. The aeronautical cartographic service provider shall–

(a) make available the Instrument Approach Charts for all aerodromes used by international civil aviation where instrument approach procedures have been established by the Authority;

(b) provide a separate Instrument Approach Chart for each precision approach procedure established by the Authority;

(c) provide a separate Instrument Approach Chart for each non-precision approach procedure established by the Authority;

(d) provide more than one Instrument Approach Chart when the values for track, time or altitude differ between categories of aircraft other than the final approach segment of the instrument approach procedures and the listing of these differences on a single chart could cause clutter or confusion; and

(e) revise the instrument Approach Charts whenever information essential to safe operation becomes out of date.

115. Coverage and scale of Instrument Approach Chart. The aeronautical cartographic service provider shall–

(a) ensure that the coverage of the Instrument Approach Chart is sufficient to include all segments of the instrument approach procedure and such additional areas as may be necessary for the type of approach intended;

(b) select the scale that ensures optimum legibility consistent with–

(i) the procedure shown on the chart; and

(ii) sheet size;

(c) indicate the scale used;

(d) indicate a distance circle with a radius of 20km (10NM) centered on a DME located on or close to the aerodrome, or on the aerodrome reference point where no suitable DME is available and the radius of the DME on the circumference, except where this is not practicable; and

(e) indicate a distance scale directly below the profile.

116. Format of Instrument Approach Chart. The aeronautical cartographic service provider shall publish an Instrument Approach Chart on a sheet size of 210 × 148 mm (8.27 x 5.82 inches) (A5).

117. Projection. The aeronautical cartographic service provider shall–

(a) use a conformal projection on which a straight line approximates a great circle; and

(b) place the graduation marks at consistent intervals along the neat lines on the Instrument Approach Chart.

118. Identification. The aeronautical cartographic service provider shall identify the Instrument Approach Chart by the name of the city or town or area which the aerodrome serves, the name of the aerodrome and the identification of the instrument approach procedure as established in accordance with the Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS, Doc 8168), Volume II.

119. Culture and topography. The aeronautical cartographic service provider shall–

(a) indicate the culture and topographic information pertinent to the safe execution of the instrument approach procedure, including the missed approach procedure, associated holding procedures and visual maneuvering procedure, when established;

(b) indicate the topographic information, only when necessary to facilitate the understanding of that information and the minimum delineation of land masses and significant lakes and rivers;

(c) indicate the relief in a manner best suited to the elevation characteristics of the area;

(d) indicate all relief exceeding 150m (500ft) above the aerodrome elevation by smoothed contour lines, contour values and layer tints printed in brown, in areas where relief exceeds 1200m (4000ft) above the aerodrome elevation within the coverage of the chart or 600m (2000ft) within 11 km (6 NM) of the aerodrome reference point or when final approach or missed approach procedure gradient is steeper than optimal due to terrain;

(e) indicate the appropriate spot elevations, including the highest elevation within each top contour line and printed in black; and

(f) indicate in areas where relief is lower than that specified in paragraph (d), all relief exceeding 150m (500ft) above the aerodrome elevation by smoothed contour lines, contour values and layer tints printed in brown and appropriate spot elevations, including the highest elevation within each top contour line, printed in black.

120. Magnetic variation. The aeronautical cartographic service provider shall–

(a) indicate the magnetic variation on the Instrument Approach Chart; and

(b) indicate the value of the variation, to the nearest degree, used in determining magnetic bearings, tracks and radials.

121. Bearings, tracks and radials. The aeronautical cartographic service provider shall–

(a) ensure that the bearings, tracks and radials are magnetic;

(b) indicate the bearings and tracks in parentheses to the nearest tenth of a degree where bearings and tracks are additionally provided as true values for RNAV segments;

(c) clearly indicate the bearings, tracks and radials where bearings, tracks or radials are given with reference to True North or Grid North; and

(d) identify the reference grid meridian when Grid North is used.

Aeronautical Data

122. Aerodromes. The aeronautical cartographic service provider shall–

(a) identify all aerodromes which show a distinctive pattern from the air on the Instrument Approach Chart by the appropriate symbol and abandoned aerodromes as abandoned;

(b) identify the runway pattern, at a scale sufficiently large to show it clearly for–

(i) the aerodrome on which the procedure is based;

(ii) aerodromes affecting the traffic pattern or so situated as to be likely, under adverse weather conditions, to be mistaken for the aerodrome of intended landing;

(c) indicate the aerodrome elevation to the nearest foot in a prominent position on the chart; and

(d) indicate the threshold elevation or where applicable, the highest elevation of the touchdown zone to the nearest foot.

123. Obstacles. The aeronautical cartographic service provider shall–

(a) indicate the obstacles on the plan view of the Instrument Approach Chart;

(b) identify the obstacles, if one or more obstacles are the determining factor of an obstacle clearance altitude or height;

(c) indicate the elevation of the top of obstacles to the nearest foot;

(d) indicate the heights of obstacles above a datum other than mean sea level in parentheses on the chart when shown;

(e) indicate the datum as the aerodrome elevation when the heights of obstacles above a datum other than mean sea level are shown, except that, at aerodromes having an instrument runway with a threshold elevation more than 7ft below the aerodrome elevation, the chart datum is the threshold elevation of the runway to which the instrument approach is related;

(f) indicate the datum in a prominent position on the chart, where a datum other than mean sea level is used;

(g) indicate the obstacle free zone, where an obstacle free zone has not been established for a precision approach runway Category I; and

(h) identify obstacles that penetrate the visual segment surface on the instrument approach chart.

124. Prohibited, restricted and danger areas. The aeronautical cartographic service provider shall indicate on the Instrument Approach Chart the prohibited areas, restricted areas and danger areas which may affect the execution of the procedures and their identification and vertical limits.

125. Radio communication facilities and navigation aids. The aeronautical cartographic service provider shall–

(a) indicate on the Instrument Approach Chart the radio navigation aids required for the procedures together with their frequencies, identifications and track-defining characteristics, if any;

(b) identify the facility to be used for track guidance for final approach in the case of a procedure in which more than one station is located on the final approach track;

(c) eliminate from the approach chart the facilities that are not used by the procedure;

(d) indicate the initial approach fix, the intermediate approach fix, the final approach fix or final approach point for an ILS approach procedure, the missed approach point, where established, and other essential fixes or points comprising the procedure;

(e) identify the final approach fix or final approach point for an ILS approach procedure with its geographical coordinates in degrees, minutes and seconds;

(f) indicate on the chart the radio navigation aids that might be used in diversionary procedures together with their track-defining characteristics, if any;

(g) indicate the radio communication frequencies, including call signs that are required for the execution of the procedures;

(h) indicate on the chart the distance to the aerodrome from each radio navigation aid concerned with the final approach to the nearest kilometre or nautical mile when required by the procedures; and

(i) indicate the bearing to the nearest degree, when no track-defining aid indicates the bearing of the aerodrome.

126. Minimum sector altitude or terminal arrival altitude. The aeronautical cartographic service provider shall indicate on the Instrument Approach Chart the minimum sector altitude or terminal arrival altitude established, with a clear indication of the sector to which the minimum sector altitude or terminal arrival altitude applies.

127. Portrayal of procedure tracks. The aeronautical cartographic service provider shall–

(a) provide the plan view of the Instrument Approach Chart shows the following information in the manner indicated–

(i) the approach procedure track by an arrowed continuous line indicating the direction of flight;

(ii) the missed approach procedure track by an arrowed broken line;

(iii) any additional procedure track, other than those specified in subparagraphs (i) and (ii), by an arrowed dotted line;

(iv) bearings, tracks, radials to the nearest degree and distances to the nearest two-tenths of a kilometre or tenth of a nautical mile or times required for the procedure;

(v) where no track-defining aid is available, the magnetic bearing to the nearest degree to the aerodrome from the radio navigation aids concerned with the final approach;

(vi) the boundaries of any sector in which visual manoeuvring is prohibited;

(vii) where specified, the holding pattern and minimum holding altitude or height associated with the approach and missed approach;

(viii) caution notes where required, prominently displayed on the face of the chart; and

(ix) an indication of "flyover" significant points;

(b) ensure that the plan view shows the distance to the aerodrome from each radio navigation aid concerned with the final approach;

(c) provide a profile below the plan view showing the following data—

(i) the aerodrome by a solid block at aerodrome elevation;

(ii) the profile of the approach procedure segments by an arrowed continuous line indicating the direction of flight;

(iii) the profile of the missed approach procedure segment by an arrowed broken line and a description of the procedure;

(iv) the profile of any additional procedure segment, other than those specified in subparagraphs (i) and (ii), by an arrowed dotted line;

(v) bearings, tracks, radials to the nearest degree and distances to the nearest two-tenths of a kilometre or tenth of a nautical mile or times required for the procedure;

(vi) altitudes or heights required by the procedures, including transition altitude and procedure altitudes or heights and heliport crossing height (HCH) where established;

(vii) limiting distance to the nearest kilometre or nautical mile on procedure turn, when specified;

(viii) the intermediate approach fix or point, on procedures where no course reversal is authorised;

(ix) a line representing the aerodrome elevation or threshold elevation, as appropriate, extended across the width of the chart including a distance scale with its origin at the runway threshold;

(d) indicate the heights required by procedures in parentheses, using the height datum selected in accordance with regulation 123 (e);

(e) provide a profile view including a ground profile or a minimum altitude or height portrayal as follows–

(i) a ground profile shown by a solid line depicting the highest elevations of the relief occurring within the primary area of the final approach segment and the highest elevations of the relief occurring in the secondary areas of the final approach segment shown by a dashed line; or

(ii) the minimum altitudes or heights in the intermediate and final approach segments indicated within bounded shaded blocks.

128. Aerodrome operating minima. The aeronautical cartographic service provider shall–

(a) indicate the aerodrome operating minima when established;

(b) indicate the obstacle clearance altitudes or heights for the aircraft categories for which the procedure is designed;

(c) publish for precision approach procedures, the OCA/H for Cat DL aircraft of wing span between 65m and 80m and vertical distance between the flight path of the wheels and the glide path antenna between 7m and 8m, when necessary.

129. Supplementary information. The aeronautical cartographic service provider shall–

(a) where the missed approach point is defined by–

(i) a distance from the final approach fix; or

(ii) a facility or a fix and the corresponding distance from the final approach fix,

show the distance to the nearest two-tenths of a kilometer or tenth of a nautical mile and a table showing ground speeds and times from the final approach fix to the missed approach point;

(b) indicate a table showing altitudes or heights for each 2 km or 1 NM as appropriate when DME is required for use in the final approach segment and the table does not include distances which would correspond to altitudes or heights below the OCA/H;

(c) include a table showing the altitudes or heights for procedures in which DME is not required for use in the final approach segment but where a suitably located DME is available to provide advisory descent profile information;

(d) indicate a rate of descent table;

(e) indicate the final approach descent gradient to the nearest one-tenth of a percent and, in parentheses, descent angle to the nearest one-tenth of a degree for non-precision approach procedures with a final approach fix;

(f) indicate the reference datum height to the nearest half metre or foot and the glide path or elevation or vertical path angle to the nearest one-tenth of a degree for precision approach procedures and approach procedures with vertical guidance;

(g) give a clear indication whether it applies to the ILS, the associated ILS localizer only procedure or both, when a final approach fix is specified at the final approach point for ILS;

(h) in the case of MLS, give a clear indication when a final approach fix (FAF) has been specified at the final approach point; and

(i) include a cautionary note, if the final approach descent gradient or angle for any type of instrument approach procedure exceeds the maximum value specified in the Procedures for Air Navigation Services – Aircraft (PANS-OPS, Doc 8168), Vol II.

130. Aeronautical database requirements. The aeronautical cartographic service provider shall publish appropriate data to support navigation database coding in accordance with the Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS, Doc 8168), Volume II, for non-RNAV procedures, on the verso of the chart or as a separate, properly referenced sheet.

PART X

VISUAL APPROACH CHART

131. Function of Visual Approach Chart. The aeronautical cartographic service provider shall ensure that the Visual Approach Chart provides information to enable the flight crew to transit from the en-route or descent to approach phases of flight to the runway of intended landing by means of visual reference.

132. Availability of Visual Approach Chart. The aeronautical cartographic service provider shall make available the Visual Approach Chart in the manner specified in regulation 4 (b) for all aerodromes used by international civil aviation where–

(a) only limited navigation facilities are available;

(b) radio communication facilities are not available;

(c) no adequate aeronautical charts of the aerodrome and its surroundings at 1:500,000 or greater scale are available; or

(d) visual approach procedures have been established.

133. Scale of Visual Approach Chart. The aeronautical cartographic service provider shall–

(a) ensure that the scale on a Visual Approach Chart is sufficiently large to permit depiction of significant features and indication of the aerodrome layout;

(b) not use a scale smaller than 1:500 000; and

(c) draw the Visual Approach Chart to the same scale, when an Instrument Approach Chart is available for a given aerodrome.

134. Format of Visual Approach Chart. The aeronautical cartographic service provider shall draw the Visual Approach Chart on a sheet size of 210 × 148 mm (8.27 x 5.82 inches) (A5).

135. Projection. The aeronautical cartographic service provider shall–

(a) use a conformal projection on which a straight line approximates a great circle; and

(b) place the graduation marks at consistent intervals along the neat lines.

136. Identification. The aeronautical cartographic service provider shall identify the Visual Approach Chart by the name of the city or town which the aerodrome serves and the name of the aerodrome.

137. Culture and topography. The aeronautical cartographic service provider shall–

(a) indicate the natural and cultural landmarks on the Visual Approach Chart;

(b) include the geographical place names only when they are required to avoid confusion or ambiguity;

(c) indicate the shore lines, lakes, rivers and streams on the Visual Approach Chart;

(d) indicate the relief on the chart in a manner best suited to the elevation and obstacle characteristics of the area covered by the chart;

(e) ensure that the spot elevations are carefully selected when shown; and

(f) distinguish the presentation of the figures relating to different reference levels.

138. Magnetic variation. The aeronautical cartographic service provider shall indicate the magnetic variation on the Visual Approach Chart.

139. Bearings, tracks and radials. The aeronautical cartographic service provider shall–

(a) provide the bearings, tracks and radials as magnetic;

(b) ensure that the bearings, tracks or radials are clearly indicated where given with reference to True North or Grid North; and

(c) identify the reference grid meridian when Grid North is used.

Aeronautical Data

140. Aerodromes. The aeronautical cartographic service provider shall–

(a) indicate all aerodromes on the Visual Approach Chart by the runway pattern;

(b) indicate the restrictions on the use of any landing direction;

(c) indicate where there is any risk of confusion between two neighbouring aerodromes;

(d) identify the abandoned aerodromes as abandoned; and

(e) indicate the aerodrome elevation in a prominent position on the chart.

141. Obstacles. The aeronautical cartographic service provider shall–

(a) show and identify the obstacles;

(b) indicate the elevation of the top of obstacles to the nearest next higher metre or foot;

(c) indicate the heights of obstacles above the aerodrome elevation; and

(d) when the heights of obstacles are shown, specify the height datum in a prominent position on the chart and give the heights in parentheses on the chart.

142. Prohibited, restricted and danger areas. The aeronautical cartographic service provider shall depict the prohibited areas, restricted areas and danger areas on the chart together with their identification and vertical limits.

143. Designated airspace. The aeronautical cartographic service provider shall depict the control zones and aerodrome traffic zones and their vertical limits and the appropriate class of airspace, where applicable.

144. Visual approach information. The aeronautical cartographic service provider shall–

(a) indicate the visual approach procedures, where applicable;

(b) indicate the visual aids for navigation as appropriate; and

(c) indicate the location and type of the visual approach slope indicator systems with their nominal approach slope angle, minimum eye height over the threshold of the on-slope signal and where the axis of the system is not parallel to the runway centre line, the angle and direction of displacement, either left or right.

145. Supplementary information for Visual Approach Chart. The aeronautical cartographic service provider shall–

(a) indicate on the Visual Approach Chart, the radio navigation aids together with their frequencies and identifications as appropriate; and

(b) indicate the radio communication facilities with their frequencies as appropriate.

Part XIII

AERODROME OR HELIPORT CHART

146. Function of Aerodrome or Heliport Chart. The aeronautical cartographic service provider shall–

(a) ensure that the Aerodrome Chart provides flight crews with information to facilitate the ground movement of aircraft–

(i) from the aircraft stand to the runway; and

(ii) from the runway to the aircraft stand;

(b) ensure that the Heliport Chart provides flight crews with information to facilitate the helicopter movement–

(i) from the helicopter stand to the touchdown and lift-off area and to the final approach and take-off area;

(ii) from the final approach and take-off area to the touchdown and lift-off area and to the helicopter stand;

(iii) along helicopter ground and air taxiways; and

(iv) along air transit routes;

(c) ensure that the Aerodrome or Heliport chart provides essential operational information at the aerodrome or heliport.

147. Availability of Aerodrome or Heliport Chart. The aeronautical cartographic service provider shall make available the Aerodrome or Heliport Chart in the manner specified in regulation 4 (b) for all aerodromes or heliports regularly used or available for use by international civil aviation.

148. Coverage and scale of Aerodrome or Heliport Chart. The aeronautical cartographic service provider shall ensure that the coverage and scale of Aerodrome or Heliport Chart are sufficiently large to show clearly all the elements listed in regulation 151 (1) on a linear scale.

149. Identification. The aeronautical cartographic service provider shall identify the chart by the name of the city or town or area which the aerodrome or heliport serves and the name of the aerodrome or heliport.

150. Magnetic variation. The aeronautical cartographic service provider shall indicate the True and Magnetic North arrows and magnetic variation to the nearest degree and annual change of the magnetic variation on the chart.

151. Aerodrome or heliport data.—(1) The aeronautical cartographic service provider shall provide the Aerodrome or Heliport Chart showing the following data–

(a) geographical coordinates in degrees, minutes and seconds for the aerodrome or heliport reference point;

(b) elevations, to the nearest foot, of the aerodrome or heliport and apron (altimeter checkpoint locations) where applicable; and for non-precision approaches, elevations and geoid undulations of runway thresholds and the geometric centre of the touchdown and lift-off area;

(c) elevations and geoid undulations, to the nearest foot, of the precision approach runway threshold, the geometric centre of the touchdown and lift-off area and at the highest elevation of the touchdown zone of a precision approach runway;

(d) all runways including those under construction with designation number, length and width to the nearest metre, bearing strength, displaced thresholds, stopways, clearways, runway directions to the nearest degree magnetic, type of surface and runway markings;

(e) all aprons, with aircraft or helicopter stands, lighting, markings and other visual guidance and control aids, where applicable, including location and type of visual docking guidance systems, type of surface for heliports and bearing strengths or aircraft type restrictions where the bearing strength is less than that of the associated runways;

(f) the geographical coordinates in degrees, minutes and seconds for thresholds, geometric centre of touchdown and lift-off area or thresholds of the final approach and take-off area (where appropriate);

(g) all taxiways, helicopter air and ground taxiways with type of surface, helicopter air transit routes, with designations, width, lighting, markings (including runway-holding positions and where established, intermediate holding positions), stop bars, other visual guidance and control aids and bearing strength or aircraft type restrictions where the bearing strength is less than that of the associated runways;

(h) where established, hot spot locations with additional information properly annotated;

(i) geographical coordinates in degrees, minutes, seconds and hundredths of seconds for appropriate taxiway centre line points and aircraft stands;

(j) where established, standard routes for taxiing aircraft with their designators;

(k) the boundaries of the air traffic control service;

(l) position of runway visual range (RVR) observation sites;

(m) approach and runway lighting;

(n) location and type of the visual approach slope indicator systems with their nominal approach slope angle, minimum eye height over the threshold of the on-slope signal, and where the axis of the system is not parallel to the runway centre line, the angle and direction of the displacement;

(o) relevant communication facilities listed with their channels and, if applicable, logon address;

(p) obstacles to taxiing;

(q) aircraft servicing areas and buildings of operational significance;

(r) VOR checkpoint and radio frequency of the aid concerned; and

(s) any part of the depicted movement area permanently unsuitable for aircraft, clearly identified as such.

(2) In addition to the requirements in sub-regulation (1) relating to heliports, the chart shall show–

(a) heliport type;

(b) touchdown and lift-off area including dimensions to the nearest metre, slope, type of surface and bearing strength in tonnes;

(c) final approach and take-off area including type, true bearing to the nearest degree, designation number (where appropriate), length and width to the nearest metre, slope and type of surface;

(d) safety area including length, width and type of surface;

(e) helicopter clearway including length and ground profile;

(f) obstacles including type and elevation of the top of the obstacles to the nearest foot;

(g) visual aids for approach procedures, marking and lighting of final approach and take-off area, and of touchdown and lift-off area;

(h) declared distances to the nearest metre for heliports, where relevant, including–

(i) take-off distance available;

(ii) rejected take-off distance available; and

(iii) landing distance available.

PART XIV

AERODROME GROUND MOVEMENT CHART

152. Function of Aerodrome Ground Movement Chart. The aeronautical cartographic service provider shall ensure that the Aerodrome Ground Movement Chart provides flight crew with detailed information to facilitate the ground movement of aircraft to and from the aircraft stands and the parking of aircraft.

153. Availability of Aerodrome Ground Movement Chart. The aeronautical cartographic service provider shall make available the Aerodrome Ground Movement Chart in the manner specified in regulation 4 (b) where, due to congestion of information, details necessary for the ground movement of aircraft along the taxiways to and from the aircraft stands cannot be shown with sufficient clarity on the Aerodrome or Heliport Chart.

154. Coverage and scale of Aerodrome Ground Movement Chart. The aeronautical cartographic service provider shall ensure that the coverage and scale are sufficiently large to show clearly all the elements listed in regulation 157 and shall indicate a linear scale.

155. Identification. The aeronautical cartographic service provider shall identify the Aerodrome Ground Movement Chart by the name of the city or town or area which the aerodrome serves and the name of the aerodrome.

156. Magnetic variation. The aeronautical cartographic service provider shall indicate–

(a) a True North arrow on the Aerodrome Ground Movement Chart; and

(b) the magnetic variation to the nearest degree and the annual change of the magnetic variation.

157. Aerodrome data. The aeronautical cartographic service provider shall provide the Aerodrome Ground Movement Chart showing in a similar manner all the information on the Aerodrome or Heliport Chart relevant to the area depicted, including–

(a) apron elevation to the nearest metre or foot;

(b) aprons with aircraft stands, bearing strengths or aircraft type restrictions, lighting, marking and other visual guidance and control aids, where applicable, including location and type of visual docking guidance systems;

(c) geographical coordinates in degrees, minutes, seconds and hundredths of seconds for aircraft stands;

(d) taxiways with designations, width to the nearest metre, bearing strength or aircraft type restrictions where applicable, lighting, markings, stop bars and other visual guidance and control aids;

(e) where established, hot spot locations with additional cartographic properly annotated;

(f) where established, standard routes for taxiing aircraft, with their designators;

(g) geographical coordinates in degrees, minutes, seconds and hundredths of seconds for appropriate taxiway centre line points;

(h) the boundaries of the air traffic control service;

(i) relevant communication facilities listed with their channels and, if applicable, logon address;

(j) obstacles to taxiing;

(k) aircraft servicing areas and buildings of operational significance;

(l) VOR checkpoint and radio frequency of the aid concerned; and

(m) any part of the depicted movement area permanently unsuitable for aircraft, clearly identified as such.

Part XV

AIRCRAFT PARKING CHART

158. Function of Aircraft Parking Chart. The aeronautical cartographic service provider shall ensure that the Aircraft Parking Chart provides flight crew with detailed information to facilitate the ground movement of aircraft between the taxiways and the aircraft stands and the parking of aircraft.

159. Availability of Aircraft Parking Chart. The aeronautical cartographic service provider shall make available the Aircraft Parking Chart in the manner prescribed in regulation 4 (2) where, due to the complexity of the terminal facilities, the information cannot be shown with sufficient clarity on the Aerodrome or Heliport Chart or on the Aerodrome Ground Movement Chart.

160. Coverage and scale of Aircraft Parking Chart. The aeronautical cartographic service provider shall ensure that the coverage and scale is sufficiently large to show clearly all the elements listed in regulation 163.

161. Identification. The aeronautical cartographic service provider shall identify the Aircraft Parking Chart by the name of the city or town or area which the aerodrome serves and the name of the aerodrome.

162. Magnetic variation. The aeronautical cartographic service provider shall indicate–

(a) a True North arrow on the Aircraft Parking Chart; and

(b) the magnetic variation to the nearest degree and its annual change.

163. Aerodrome data. The aeronautical cartographic service provider shall provide the Aircraft Parking Chart showing in a similar manner, all the information on the Aerodrome or Heliport Chart and the Aerodrome Ground Movement Chart relevant to the area depicted, including–

(a) apron elevation to the nearest foot;

(b) aprons with aircraft stands, bearing strengths or aircraft type restrictions, lighting, marking and other visual guidance and control aids, where applicable, including location and type of visual docking guidance systems;

(c) geographical coordinates in degrees, minutes, seconds and hundredths of seconds for aircraft stands;

(d) taxiways entries with designations, including runway-holding positions and where established, intermediate holding positions and stop bars;

(e) where established, hot spot locations with additional cartographic properly annotated;

(f) geographical coordinates in degrees, minutes, seconds and hundredths of seconds for appropriate taxiway centre line points;

(g) the boundaries of the air traffic control service;

(h) relevant communication facilities listed with their channels and if applicable, logon address;

(i) obstacles to taxiing;

(j) aircraft servicing areas and buildings of operational significance;

(k) VOR checkpoint and radio frequency of the aid concerned; and

(l) any part of the depicted movement area permanently unsuitable for aircraft, clearly identified as such.

Part XVI

WORLD AERONAUTICAL CHART – 1:1,000,000

164. Function of World Aeronautical Chart – 1:1,000,000. The aeronautical cartographic service provider shall ensure that the World Aeronautical Chart 1:1,000,000 provides information to satisfy the requirements of visual air navigation–

(a) as a basic aeronautical chart–

(i) when highly specialised charts are lacking;

(ii) to provide complete world coverage at a constant scale with a uniform presentation of plan metric data;

(iii) to produce other charts required by international civil aviation;

(b) as a pre-flight planning chart.

165. Availability of World Aeronautical Chart – 1:1,000,000. The aeronautical cartographic service provider shall–

(a) make available the World Aeronautical Chart – 1:1,000,000 in the manner specified in regulation 4 (b) for all areas delineated in Schedule 6; and

(b) ensure that the selection of a scale of other than 1:1,000,000 is determined by regional agreement to ensure complete coverage of all land areas and adequate continuity in any one coordinated series.

166. Scales of World Aeronautical Chart 1:1,000,000. The aeronautical cartographic service provider shall–

(a) indicate the linear scales for kilometres and nautical miles arranged with their zero points in the same vertical line in the margin in the following order–

(i) kilometres;

(ii) nautical miles;

(b) ensure that the length of the linear scales represents at least 200 km (110 NM); and

(c) indicate a conversion scale in metre or feet in the margin.

167. Format of World Aeronautical Chart – 1:1,000,000. The aeronautical cartographic service provider shall–

(a) ensure that the title and marginal notes on the World Aeronautical Chart – 1:1,000,000 are in the English language;

(b) ensure that the information regarding the number of the adjoining sheets and the unit of measurement expressing elevations is clearly visible when the sheet is folded;

(c) ensure that the method of folding is as follows–

(i) fold the chart on the long axis near the mid-parallel of latitude; face out, with the bottom part of the chart face upward;

(ii) fold inward near the meridian and fold both halves backward in accordion folds;

(d) ensure that the sheet lines conform with those shown in the index in Schedule 6, whenever practicable;

(e) notify ICAO for publication in the ICAO Aeronautical Chart Catalogue the sheet lines used;

(f) provide overlaps by extending the chart area on the top and right side beyond the area given on the index;

(g) ensure that the overlap area contain all aeronautical, topographical, hydrographical and cultural information; and

(h) ensure that the overlaps extend up to 28 km (15 NM), if possible, from the limiting parallels and meridians of each chart to the neat line.

168. Projection. The aeronautical cartographic service provider shall–

(a) ensure that between the equator and 80o, the projection is the Lambert conformal conic projection, in separate bands for each tier of charts

and the standard parallels for each 4° band are 40′ south of the northern parallel and 40′ north of the southern parallel;

(b) show the graticules and graduations as follows–

(i) Parallels:

Latitude	Distance between Parallels	Graduation on Parallels
0 to 72^0	30’	1’
72^0 to 84^0	30’	5’
84^0 to 89^0	30’	1^0
89^0 to 90^0	30’	5^0
		(Only on degree parallels From 720 to 890)

(ii) Meridians:

Latitude	Distance between Parallels	Graduation on Parallels
0^0 to 52^0	30’	1’
52^0 to 72^0	30’	1’
		(Only on even numbered Meridians)
72^0 to 84^0	1^0	1’
84^0 to 89^0	5^0	1’
89^0 to 90^0	15^0	1’
		(Only on every fourth meridian)

(c) ensure that the graduation marks at 1′ and 5′ intervals extend away from the Greenwich Meridian and from the Equator and each 10′ interval is shown by a mark on both sides of the graticule line;

(d) ensure that the length of the graduation marks are approximately 1.3 mm (0.05 in) for the 1′ intervals, and 2 mm (0.08 in) for the 5′ intervals and 2 mm (0.08 in) extending on both sides of the graticule line for the 10′ intervals;

(e) ensure that all meridians and parallels shown are numbered in the borders of the chart;

(f) ensure that each parallel is numbered within the body of the chart in such a manner that the parallel can be readily identified when the chart is folded;

(g) and indicate the name and basic parameters of the projection in the margin.

169. Identification. The aeronautical cartographic service provider shall ensure that sheet numbering on the World Aeronautical Chart – 1:1,000,000 is in conformity with the index set out in Schedule 6.

Culture and Topography

170. Built-up areas. The aeronautical cartographic service provider shall–

(a) select and show the cities, towns and villages on the World Aeronautical Chart – 1:1,000,000 according to their relative importance to visual air navigation; and

(b) indicate the cities and towns of sufficient size by the outline of their built-up areas and not of their established city limits.

171. Railroads. The aeronautical cartographic service provider shall indicate on the World Aeronautical Chart – 1:1,000,000 all railroads having landmark value and the important tunnels.

172. Highways and roads. The aeronautical cartographic service provider shall–

(a) show the road systems on the World Aeronautical Chart – 1:1,000,000 in sufficient detail to indicate significant patterns from the air; and

(b) not show the roads in built-up areas unless they can be distinguished from the air as definite landmarks.

173. Landmarks. The aeronautical cartographic service provider shall indicate on the World Aeronautical Chart – 1:1,000,000 the 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.

174. Political boundaries. The aeronautical cartographic service provider shall show the international boundaries on the World Aeronautical Chart – 1:1,000,000 and un-demarcated or undefined boundaries shall be distinguished by descriptive notes.

175. Hydrography. The aeronautical cartographic service provider shall–

(a) indicate all water features compatible with the scale of the chart comprising shore lines, lakes, rivers and streams including those non-perennial in nature, salt lakes, glaciers and ice caps on the World Aeronautical Chart – 1:1,000,000;

(b) ensure that the tint covering large open water areas is kept very light; and

(c) ensure that reefs and shoals, including rocky ledges, tidal flats, isolated rocks, sand, gravel, stone and all similar areas, are shown by symbols when of significant landmark value.

176. Contours. The aeronautical cartographic service provider shall–

(a) ensure that the contours are shown and the selection of intervals is governed by the requirement to depict clearly the relief features required in air navigation; and

(b) indicate the values of the contours used.

177. Hypsometric tints. The aeronautical cartographic service provider shall–

(a) ensure that the range of elevations for the tints is shown when hypsometric tints are used; and

(b) indicate the scale of the hypsometric tints used on the World Aeronautical Chart – 1:1,000,000 in the margin.

178. Spot elevations. The aeronautical cartographic service provider shall–

(a) indicate on the World Aeronautical Chart – 1:1,000,000 the spot elevations at selected critical points and ensure that the elevations selected are the highest in the immediate vicinity and indicate the top of a peak and ridge;

(b) indicate on the World Aeronautical Chart – 1:1,000,000 the elevations in valleys and at lake surface level which are of special value to the visual air navigation and the position of each selected elevation is shown by a dot;

(c) indicate the elevation of the highest point on the chart and its geographical position to the nearest five minutes in the margin; and

(d) ensure that spot elevation of the highest point in any sheet is cleared of hypsometric tinting.

179. Incomplete or unreliable relief. The aeronautical cartographic service provider shall–

(a) ensure that the areas that have not been surveyed for contour information are labelled "relief data incomplete"; and

(b) indicate on the chart on which spot elevations are generally unreliable a warning note prominently displayed on the face of the chart in the colour used for aeronautical information, as follows–

"Warning – the reliability of relief information on this chart is doubtful and elevations are used with caution."

180. Escarpments. The aeronautical cartographic service provider shall indicate on the chart the escarpments when they are prominent landmarks or when cultural detail is very sparse.

181. Wooded areas. The aeronautical cartographic service provider shall indicate on the World Aeronautical Chart – 1:1,000,000 wooded areas and the approximate extreme northern or southern limits of tree growth by a dashed black line and appropriate labels.

182. Date of topographic information. The aeronautical cartographic service provider shall indicate in the margin of the World Aeronautical Chart – 1:1,000,000 the date of the latest information shown on the topographic base.

183. Magnetic variation. The aeronautical cartographic service provider shall indicate in the margin of the World Aeronautical Chart – 1:1,000,000 the isogonic lines and the date of the isogonic information.

Aeronautical Data

184. General requirement. The aeronautical cartographic service provider shall ensure that the aeronautical data shown are kept to a minimum consistent with the use of the chart for visual navigation and the revision cycle.

185. Aerodromes. The aeronautical cartographic service provider shall ensure that–

(a) the land and water aerodromes and heliports are shown on the World Aeronautical Chart – 1:1,000,000 with their names, to the extent that they do not produce undesirable congestion on the chart, priority being given to those of greatest aeronautical significance;

(b) the aerodrome elevation, the lighting available, the type of runway surface and the length of the longest runway or channel, shown in abbreviated form for each aerodrome in conformity with Schedule 1, is indicated provided they do not cause undesirable clutter on the chart; and

(c) the abandoned aerodromes which are still recognisable as aerodromes from the air are shown and identified as abandoned.

186. Obstacles. The aeronautical cartographic service provider shall indicate on the World Aeronautical Chart – 1:1,000,000 the obstacles and the prominent transmission lines, permanent cable car installations and wind turbines, when considered of importance to visual flight.

187. Prohibited, restricted and danger areas. The aeronautical cartographic service provider shall indicate on the World Aeronautical Chart – 1:1,000,000 the prohibited, restricted and danger areas.

188. Air traffic services system. The aeronautical cartographic service provider shall–

(a) ensure that significant elements of the air traffic services system including, where practicable, control zones, aerodrome traffic zones,

control areas, flight information regions and other airspaces in which VFR flights operate are shown on the World Aeronautical Chart – 1:1,000,000 together with the appropriate class of airspace; and

(b) show and properly identify the air defense identification zone, where appropriate.

189. Radio navigation aids. The aeronautical cartographic service provider shall show the radio navigation aids on the World Aeronautical Chart – 1:1,000,000 by the appropriate symbol and name, excluding their frequencies, coded designators, times of operation and other characteristics unless any or all the information shown is kept up to date by means of new editions of the chart.

190. Supplementary information. The aeronautical cartographic service provider shall indicate on the World Aeronautical Chart – 1:1,000,000–

(a) the aeronautical ground lights together with their characteristics or identifications or both;

(b) the marine lights on outer prominent shoreline or isolated features of not less than 28 km (15 NM) visibility range where they are–

(c) not less distinguishable than more powerful marine lights in the vicinity;

(d) readily distinguishable from other marine or other types of lights in the vicinity of built-up shoreline; and

(e) the only lights of significance available.

Part XVII

AERONAUTICAL CHART–1:500,000

191. Function of Aeronautical Chart – 1:500,000. The aeronautical cartographic service provider shall ensure that the Aeronautical Chart – 1:500,000 provides information to satisfy the requirements of visual air navigation for low speed, short or medium-range operations at low and intermediate altitudes.

192. Availability of Aeronautical Chart – 1:500,000. The aeronautical cartographic service provider shall make available the Aeronautical Chart – 1:500,000 in the manner specified in regulation 4 (2) for all areas delineated in Schedule 6.

193. Scales for Aeronautical Chart – 1:500,000. The aeronautical cartographic service provider shall–

(a) arrange the linear scales for kilometres and nautical miles in the following order–

(i) kilometres;

(ii) nautical miles;

with their zero points in the same vertical line shown in the margin;

(b) ensure that the length of the linear scale is not less than 200 mm (8 in); and

(c) indicate a conversion scale in the margin.

194. Format of Aeronautical Chart – 1:500,000. The aeronautical cartographic service provider shall–

(a) indicate the title and marginal notes of the Aeronautical Chart – 1:500,000 in the English language;

(b) ensure that the information regarding the number of the adjoining sheets and the unit of measurement expressing elevation is clearly visible when the sheet is folded;

(c) ensure that the method of folding is as follows–

(i) fold the chart on the long axis near the mid-parallel of latitude, face out, with the bottom part of the chart face upward;

(ii) fold inward near the meridian; and

(iii) fold both halves backward in accordion folds;

(d) ensure that sheets are quarter sheets of the World Aeronautical Chart – 1:1,000,000 whenever practicable;

(e) include on the face of the chart or on the reverse side an appropriate index to adjacent sheets, showing the relationship between the two chart series;

(f) provide overlaps by extending the chart area on the top and right side beyond the area given on the index;

(g) ensure that overlap area in paragraph (f) contain all aeronautical, topographical, hydrographical and cultural information; and

(h) ensure that overlap extends up to 15 km (8 NM), if possible, from the limiting parallels and meridians of each chart to the neat line.

195. Projection. The aeronautical cartographic service provider shall–

(a) use a conformal projection;

(b) use the projection of the World Aeronautical Chart – 1:1,000,000;

(c) show the parallels at intervals of 30′;

(d) show the meridians at intervals of 30′;

(e) indicate the graduation marks at 1′ intervals along each whole degree meridian and parallel, extending away from the Greenwich Meridian and from the Equator and each 10′ interval by a mark on both sides of the graticule line;

(f) ensure that the length of the graduation marks is approximately 1.3 mm (0.05 in) for the 1′ intervals, and 2 mm (0.08 in) for the 5′ intervals and 2 mm (0.08 in) extending on both sides of the graticule line for the 10′ intervals;

(g) indicate the numbers of the meridians and parallels in the borders of the chart;

(h) indicate the numbers of each meridian and parallel within the body of the chart whenever this data is required operationally; and

(i) indicate the name and basic parameters of the projection in the margin.

196. Identification. The aeronautical cartographic service provider shall–

(a) identify each sheet of the Aeronautical Chart – 1:500,000 by a name of the principal town or of a main geographical feature appearing on the sheet;

(b) identify the sheets of the Aeronautical Chart – 1:500,000 by the reference number of the corresponding World Aeronautical Chart – 1:1,000,000 where applicable, with the addition of one or more of the following letter suffixes indicating the quadrant or quadrants–

Letter	Chart quadrant
A	North-West
B	North-East
C	South-East
D	South-West

Culture and Topography

197. Built-up areas. The aeronautical cartographic service provider shall–

(a) select and show the cities, towns and villages on the Aeronautical Chart 1:500,000 according to their relative importance to visual air navigation; and

(b) indicate the cities and towns of sufficient size by the outline of their built-up areas and not of their established city limits.

198. Railroads. The aeronautical cartographic service provider shall indicate on the Aeronautical Chart 1:500,000 all railroads having landmark value and the important tunnels which serve as prominent landmarks.

199. Highways and roads. The aeronautical cartographic service provider shall–

(a) show the road systems on the Aeronautical Chart 1:500,000 in sufficient detail to indicate significant patterns from the air; and

(b) not show the roads in built-up areas unless they can be distinguished from the air as definite landmarks.

200. Landmarks. The aeronautical cartographic service provider shall indicate on the Aeronautical Chart 1:500,000, the 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.

201. Political boundaries. The aeronautical cartographic service provider shall show the international boundaries on the Aeronautical Chart 1: 00,000 and distinguish the un-demarcated and undefined boundaries by descriptive notes.

202. Hydrography. The aeronautical cartographic service provider shall–

(a) indicate on the Aeronautical Chart 1:500,000 all water features compatible with the scale of the chart comprising shore lines, lakes, rivers and streams including those non-perennial in nature, salt lakes, glaciers and ice caps;

(b) ensure that the tint covering large open water areas is kept very light; and

(c) ensure that reefs and shoals, including rocky ledges, tidal flats, isolated rocks, sand gravel, stone and all similar areas, are shown by symbols when of significant landmark value.

203. Contours. The aeronautical cartographic service provider shall–

(a) ensure that the contours are shown on the Aeronautical Chart 1:500,000 and the selection of intervals is governed by the requirement to depict clearly the relief features required in air navigation; and

(b) indicate the values of the contours used on the Chart.

204. Hypsometric tints. The aeronautical cartographic service provider shall, when hypsometric tints are used, show the range of elevations for the tints and indicate the scale of the hypsometric tints in the margin.

205. Spot elevations. The aeronautical cartographic service provider shall–

(a) indicate on the Aeronautical Chart 1:500,000 the spot elevations at selected critical points and ensure that the elevations selected are the highest in the immediate vicinity and indicate the top of a peak and ridge;

(b) indicate on the Aeronautical Chart 1:500,000 the elevations in valleys and at lake surface level which are of navigational value and the show position of each selected elevation by a dot;

(c) indicate the elevation of the highest point on the chart and its geographical position to the nearest five minutes in the margin; and

(d) ensure that spot elevation of the highest point in any sheet is cleared of hypsometric tinting.

206. Incomplete or unreliable relief. The aeronautical cartographic service provider shall–

(a) label the areas that have not been surveyed for contour information with the words "relief data incomplete"; or

(b) state on the charts where spot elevations are generally unreliable a warning note prominently displayed on the face of the chart in the colour used for aeronautical information, the words "warning-the reliability of relief information on this chart is doubtful and elevations should be used with caution".

207. Escarpments. The aeronautical cartographic service provider shall indicate on the Aeronautical Chart – 1:500,000, the escarpments where the escarpments are prominent landmarks or where cultural detail is very sparse.

208. Wooded areas. The aeronautical cartographic service provider shall indicate on the Aeronautical Chart – 1:500,000, wooded areas, the approximate extreme northern or southern limits of tree growth by a dashed black line and approximate labels.

209. Date of topographic information. The aeronautical cartographic service provider shall indicate in the margin of the Aeronautical Chart – 1:500,000, the date of the latest information shown on the topographic base.

210. Magnetic variation. The aeronautical cartographic service provider shall indicate in the margin of the Aeronautical Chart – 1:500,000, the isogonic lines and the date of the isogonic information.

Aeronautical Data

211. General requirement. The aeronautical cartographic service provider shall ensure that the aeronautical data shown on the Aeronautical Chart – 1:500,000 are kept to a minimum consistent with the use of the chart for visual navigation and the revision cycle.

212. Aerodromes. The aeronautical cartographic service provider shall–

(a) indicate on the Aeronautical Chart – 1:500,000 the land and water aerodromes and heliports with their names, to the extent that they do not produce undesirable congestion on the chart, priority being given to those of greatest aeronautical significance;

(b) indicate the aerodrome elevation, the lighting available, the type of runway surface and the length of the longest runway or channel, in abbreviated form for each aerodrome in conformity with Schedule 1, provided that they do not cause undesirable clutter on the chart; and

(c) indicate and identify the abandoned aerodromes which are still recognised as aerodromes from the air as abandoned.

213. Obstacles. The aeronautical cartographic service provider shall indicate on the Aeronautical Chart – 1:500,000 the obstacles and the prominent transmission lines, permanent cable car installations and wind turbines, which are obstacles, when considered of importance to visual flight.

214. Prohibited, restricted and danger areas. The aeronautical cartographic service provider shall indicate on the Aeronautical Chart – 1:500,000, the prohibited, restricted and danger areas.

215. Air traffic services system. The aeronautical cartographic service provider shall–

(a) indicate on the Aeronautical Chart – 1:500,000 together with the appropriate class of airspace, the significant elements of the air traffic services system including, where practicable, control zones, aerodrome traffic zones, control areas, flight information regions and other airspaces in which VFR flights operate; and

(b) indicate and identify the air defense identification zone, where appropriate.

216. Radio navigation aids. The aeronautical cartographic service provider shall indicate the radio navigation aids on the Aeronautical Chart – 1:500,000 by the appropriate symbol and name but excluding their frequencies, coded designators, times of operation and other characteristics unless any or all the information shown is kept up to date by means of new editions of the chart.

217. Supplementary information. The aeronautical cartographic service provider shall indicate on the Aeronautical Chart – 1:500,000–

(a) the aeronautical ground lights together with their characteristics or identification or both;

(b) the marine lights on outer prominent shoreline or isolated features of not less than 28km(15NM) visibility range where they are–

(i) not less distinguishable than more powerful marine lights in the vicinity;

(ii) readily distinguishable from other marine or other types of lights in the vicinity of built-up shoreline; and

(iii) the only lights of significance available.

Part XVIII

AERONAUTICAL NAVIGATION CHART – SMALL SCALE

218. Function of Aeronautical Navigation Chart – Small Scale. The aeronautical cartographic service provider shall ensure that the Aeronautical Navigation Chart – Small Scale–

(a) serves as an air navigation aid for flight crews of long-range aircraft at high altitudes;

(b) provides selective checkpoints over extensive ranges for identification at high altitudes and speeds, which are required for visual confirmation of position;

(c) provides for continuous visual reference to the ground during long-range flights over areas lacking radio or other electronic navigation aids, or over areas where visual navigation is preferred or becomes necessary; and

(d) provides a general-purpose chart series for long-range flight planning and plotting.

219. Availability of Aeronautical Navigation Chart – Small Scale. The aeronautical cartographic service provider shall make available the Aeronautical Navigation Chart – Small Scale in the manner specified in regulation 4 (b) for all areas delineated in Schedule 6.

220. Coverage and scale of Aeronautical Navigation Chart – Small Scale. The aeronautical cartographic service provider shall–

(a) ensure that the Aeronautical Navigation Chart – Small Scale provides as a minimum, complete coverage of the major land masses of the world;

(b) ensure that the scale is in the range of 1:2,000,000 to 1:5,000,000;

(c) substitute the scale of the chart in the title for the words "Small Scale";

(d) arrange the linear scales for kilometres and nautical miles in the following order–

(i) kilometers;

(ii) nautical miles,

with their zero points in the same vertical line shown in the margin;

(e) ensure that the length of the linear scale is not less than 200 mm (8 in); and

(f) indicate a conversion scale in metre or feet in the margin.

221. Format of Aeronautical Navigation Chart – Small Scale. The aeronautical cartographic service provider shall–

(a) indicate the title and marginal notes on the Aeronautical Navigation Chart – Small Scale in English; and

(b) ensure that the information regarding the number of the adjoining sheets and the unit of measurement expressing elevations is clearly visible when the sheet is folded.

222. Projection. The aeronautical cartographic service provider shall–

(a) use a conformal projection;

(b) indicate the name and basic parameters of the projection in the margin;

(c) use the parallels at intervals of 1°;

(d) indicate the graduations on the parallels at sufficiently close intervals compatible with the latitude and the scale of the chart;

(e) indicate the meridians at intervals compatible with the latitude and the scale of the chart.

(f) show the graduations on the meridians at intervals not exceeding 5′;

(g) ensure that the graduation marks extend away from the Greenwich Meridian and from the Equator;

(h) indicate the numbers of all meridians and parallels in the borders of the chart; and

(i) in addition, when required, indicate the numbers of meridians and parallels within the body of the chart in such a manner that they can be readily identified when the chart is folded.

Culture and Topography

223. Built-up areas. The aeronautical cartographic service provider shall–

(a) select and show the cities, towns, and villages on the Aeronautical Navigation Chart – Small Scale according to their relative importance to visual air navigation; and

(b) indicate the cities and towns of sufficient size by the outline of their built-up areas and not of their established city limits.

224. Railroads. The aeronautical cartographic service provider shall indicate on the Aeronautical Navigation Chart – Small Scale, all railroads having landmark value and the important tunnels.

225. Colours. The aeronautical cartographic service provider shall–

(a) use the subdued colours for the chart background to facilitate plotting; and

(b) use good colour contracts to emphasize features important to visual air navigation.

226. Highways and roads. The aeronautical cartographic service provider shall–

(a) show the road systems on the Aeronautical Navigation Chart – Small Scale in sufficient detail to indicate significant patterns from the air; and

(b) not show the roads in built-up areas unless they can be distinguished from the air as definite landmarks.

227. Landmarks. The aeronautical cartographic service provider shall indicate on the Aeronautical Navigation Chart – Small Scale, the 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.

228. Political boundaries. The aeronautical cartographic service provider shall show the international boundaries on the Aeronautical Navigation Chart – Small Scale and distinguish the un-demarcated and undefined boundaries by descriptive notes.

229. Hydrography. The aeronautical cartographic service provider shall–

(a) indicate on the Aeronautical Navigation Chart – Small Scale, all water features compatible with the scale of the chart comprising shore lines, lakes, rivers and streams including those non-perennial in nature, salt lakes, glaciers and ice caps;

(b) ensure that the tint covering large open water areas is kept very light; and

(c) ensure that reefs and shoals, including rocky ledges, tidal flats, isolated rocks, sand gravel, stone and all similar areas, are shown by symbols when of significant landmark value.

230. Contours. The aeronautical cartographic service provider shall–

(a) ensure that the contours are shown on the Aeronautical Navigation Chart – Small Scale and the selection of intervals is governed by the requirement to depict clearly the relief features required in air navigation; and

(b) indicate the values of the contours used on the Chart.

231. Hypsometric tints. The aeronautical cartographic service provider shall, when hypsometric tints are used, show the range of elevations for the tints and indicate the scale of the hypsometric tints in the margin.

232. Spot elevations. The aeronautical cartographic service provider shall–

(a) indicate on the Aeronautical Navigation Chart – Small Scale the spot elevations at selected critical points and ensure that the elevations selected are the highest in the immediate vicinity and indicate the top of a peak and ridge;

(b) indicate on the Aeronautical Navigation Chart – Small Scale the elevations in valleys and at lake surface level which are of navigational value and the show position of each selected elevation by a dot;

(c) indicate the elevation of the highest point on the chart and its geographical position to the nearest five minutes in the margin; and

(d) ensure that spot elevation of the highest point in any sheet is cleared of hypsometric tinting.

233. Incomplete or unreliable relief. The aeronautical cartographic service provider shall–

(a) label the areas that have not been surveyed for contour information with the words "relief data incomplete"; or

(b) state on the charts where spot elevations are generally unreliable a warning note prominently displayed on the face of the chart in the colour used for aeronautical information, the words "warning-the reliability of relief information on this chart is doubtful and elevations are used with caution".

234. Escarpments. The aeronautical cartographic service provider shall indicate on the Aeronautical Navigation Chart – Small Scale, the escarpments where the escarpments are prominent landmarks or where cultural detail is very sparse.

235. Wooded areas. The aeronautical cartographic service provider shall indicate on the Aeronautical Navigation Chart – Small Scale, wooded areas, the approximate extreme northern or southern limits of tree growth by a dashed black line and approximate labels.

236. Date of topographic information. The aeronautical cartographic service provider shall indicate in the margin of the Aeronautical Navigation Chart – Small Scale, the date of the latest information shown on the topographic base.

237. Magnetic variation. The aeronautical cartographic service provider shall indicate in the margin of the Aeronautical Navigation Chart – Small Scale, the isogonic lines and the date of the isogonic information.

Aeronautical Data

238. Aerodromes. The aeronautical cartographic service provider shall ensure that land and water aerodromes and heliports are shown on the Aeronautical Navigation Chart with their names, to the extent that they do not produce undesirable congestion on the chart, priority being given to those of greatest aeronautical significance.

239. Obstacles. The aeronautical cartographic service provider shall indicate all the obstacles on the Aeronautical Navigation Chart.

140. Prohibited, restricted and danger areas. The aeronautical cartographic service provider shall indicate on the Aeronautical Navigation Chart the prohibited, restricted and danger areas when considered to be of importance to air navigation.

241. Air traffic services system. The aeronautical cartographic service provider shall–

(a) ensure that significant elements of the air traffic services system are shown on the Aeronautical Navigation Chart when considered to be of importance to air navigation; and

(b) show and properly identify the air defense identification zone, where appropriate.

242. Radio navigation aids. The aeronautical cartographic service provider may indicate the radio navigation aids on the Aeronautical Navigation Chart – Small Scale by the appropriate symbol and name.

Part XIX

ELECTRONIC AERONAUTICAL CHART DISPLAY

243. Function of electronic aeronautical chart display. The aeronautical cartographic service provider shall–

(a) ensure that the Electronic Aeronautical Chart Display is prepared and made available in accordance with the requirements of the Civil Aviation (Flight Safety) Regulations, 2024;

(b) put in place adequate back-up arrangements; and

(c) ensure that the Electronic Aeronautical Chart Display enables flight crews to execute, in a convenient and timely manner, route planning, route monitoring and navigation by displaying the required information.

244. Information available for display. The aeronautical cartographic service provider shall ensure that the Electronic Aeronautical Chart Display is capable of displaying all aeronautical, cultural and topographic information required by Part V and Part IX through to

PART XVIII

DISPLAY REQUIREMENTS

245. Display categories. The aeronautical cartographic service provider shall–

(a) divide the information available for display into the following categories–

(i) basic display information, permanently retained on the display and consisting of the minimum information essential for the safe conduct of flight; and

(ii) other display information, which may be removed from the display or displayed individually on demand, and consisting of information not considered essential for the safe conduct of flight;

(b) ensure that adding or removing other display information is a simple function but not possible to remove information contained in the basic display.

246. Display mode and generation of neighbouring area. The aeronautical cartographic service provider shall ensure that–

(a) the Electronic Aeronautical Chart Display is capable of continuously plotting the position of an aircraft in a true motion mode where reset and generation of the surrounding area takes place automatically; and

(b) it is manually possible to change the chart area and the position of the aircraft relative to the edge of the display.

247. Scale of Electronic Aeronautical Chart Display. The aeronautical cartographic service provider shall ensure that it is possible to vary the scale at which a chart is displayed.

248. Symbols. The aeronautical cartographic service provider shall–

(a) use the symbols specified for electronic charts in Schedule 1 except where it is desired to show items for which no chart symbol is provided in Schedule 1;

(b) in cases where no chart symbols are provided in Schedule 1, choose electronic chart symbols which–

(i) employ a minimum use of lines, arcs and area fills;

(ii) do not cause confusion with any existing aeronautical chart symbol;

(iii) do not impair the legibility of the display.

249. Display hardware. The aeronautical cartographic service provider shall–

(a) ensure that the effective size of the chart presentation is sufficient to display the information required by regulation 180 without excessive scrolling;

(b) ensure that the display has the capabilities required to accurately portray required elements of Schedule 1;

(c) use a method of presentation that ensures that the displayed information is clearly visible to the observer in the conditions of natural and artificial light experienced in the cockpit; and

(d) ensure that the display luminance is adjustable by the flight crew.

250. Provision and updating of data. The aeronautical cartographic service provider shall–

(a) provide and update the data for use by the display in accordance with the aeronautical data quality system requirements;

(b) ensure that the display is capable of automatically accepting authorised updates to existing data and means of ensuring that authorised data and all relevant updates to that data have been correctly loaded into the display;

(c) ensure that the display is capable of accepting updates to authorised data entered manually with simple means for verification prior to final acceptance of the data and updates entered manually are distinguishable on the display from authorised data and its authorised updates and shall not affect display legibility;

(d) keep a record of all updates, including date and time of application; and

(e) ensure that the display allows the flight crew to display updates and review the contents of the updates.

251. Performance tests, malfunction alarms and indication. The aeronautical cartographic service provider shall–

(a) provide a means of carrying out on-board tests of major functions and in case of a failure, the test displays information to indicate which part of the system is at fault; and

(b) provide a suitable alarm or indication of system malfunction.

252. Back-up arrangements. The aeronautical cartographic service provider shall provide backup arrangements to ensure safe navigation in case of a failure of the Electronic Aeronautical Chart Display, including–

(a) facilities enabling a safe takeover of display functions to ensure that a failure does not result in a critical situation; and

(b) a back-up arrangement facilitating the means for safe navigation of the remaining part of the flight.

Part XX

ATC SURVEILLANCE MINIMUM ALTITUDE CHART

253. Function of ATC Surveillance Minimum Altitude Chart. The aeronautical cartographic service provider shall ensure that–

(a) the ATC Surveillance Minimum Altitude chart provides information to enable flight crews to monitor and cross-check altitudes assigned by a controller using an ATS surveillance system; and

(b) a note indicating that the chart may only be used for cross-checking of altitudes assigned while the aircraft is identified is prominently displayed on the face of the chart.

254. Availability of ATC Surveillance Minimum Altitude Chart. The aeronautical cartographic service provider shall make available the ATC Surveillance Minimum Altitude Chart in the manner prescribed in regulation 4 (2) where vectoring procedures are established and minimum vectoring altitudes cannot be shown adequately on the Area Chart, Standard Departure Chart-Instrument (SID) or Standard Arrival Chart-Instrument (STAR).

255. Coverage and scale of ATC Surveillance Minimum Altitude Chart. The aeronautical cartographic service provider shall ensure that–

(a) the coverage of the chart under this Part is sufficient to effectively show the information associated with vectoring procedures;

(b) the chart referred to under paragraph (a) is drawn to scale; and

(c) the chart is drawn to the same scale as the associated Area Chart.

256. Projection. The aeronautical cartographic service provider shall–

(a) use a conformal projection on which a straight line approximates a geodesic line on the ATC Surveillance Minimum Altitude Chart; and

(b) place the graduation marks at consistent intervals along the neat lines, as appropriate.

257. Identification. The aeronautical cartographic service provider shall identify the chart under this Part by the name of the aerodrome for which the vectoring procedures are established or, when procedures apply to more than one aerodrome, the name associated with the airspace portrayed.

258. Culture and topography. The aeronautical cartographic service provider shall show–

(a) the generalised shorelines of all open water areas, large lakes and rivers on a chart under this Part, except where they conflict with data more applicable to the function of the chart; and

(b) the appropriate spot elevations and obstacles.

259. Magnetic variation. The aeronautical cartographic service provider shall indicate the average magnetic variation of the area covered by the chart under this Part to the nearest degree.

260. Bearings, tracks and radials. The aeronautical cartographic service provider shall–

(a) ensure that the bearings, tracks and radials are magnetic; and

(b) clearly indicate where bearings, tracks or radials are given with reference to True North or Grid North, and identify the reference grid meridian when Grid North is used.

Aeronautical Data

261. Aerodromes. The aeronautical cartographic service provider shall show on the chart under this Part–

(a) all aerodromes that affect the terminal routings and where appropriate, use a runway pattern symbol; and

(b) the elevation of the primary aerodrome to the nearest metre or foot.

262. Prohibited, restricted and danger areas. The aeronautical cartographic service provider shall ensure that the prohibited, restricted and danger areas are depicted with their identification on a chart under this Part.

263. Air traffic services system. The aeronautical cartographic service provider shall indicate on the ATC Surveillance Minimum Altitude Chart the components of the established air traffic services system including–

(a) the relevant radio navigation aids together with their identifications;

(b) the lateral limits of relevant designated airspace;

(c) the relevant significant points associated with standard instrument departure and arrival procedures;

(d) the transition altitude, where established;

(e) the information associated with vectoring including–

(i) minimum vectoring altitudes to the nearest higher 50m or 100ft, clearly identified;

(ii) lateral limits of minimum vectoring altitude sector normally defined by bearings and radials to or from radio navigation aids to

the nearest degree or, if not practicable, geographical coordinates in degrees, minutes and seconds and shown by heavy lines to clearly differentiate between established sectors;

(iii) distance circles at 20-km or 10-NM intervals or, when practicable, 10-km or 5-NM intervals shown as fine dashed lines with the radius indicated on the circumference and centred on the identified aerodrome main VOR radio navigation aid or, if not available, on the aerodrome or heliport reference point;

(iv) notes concerning correction for low temperature effect, as applicable; and

(v) communications procedures including call signs and channels of the ATC units concerned.

(2) The aeronautical cartographic service provider shall provide a textual description of relevant communication failure procedures and whenever feasible, that description shall be shown on the chart or on the same page that contains the chart.

Part XXI

PLOTTING CHART

264. Function of the Plotting Chart. The aeronautical cartographic service provider shall ensure that the plotting chart provide–

(a) a means of maintaining a continuous flight record of the aircraft position by various fixing methods and

(b) dead reckoning in order to maintain an intended flight path.

265. Availability of the Plotting Chart. The aeronautical cartographic service provider shall make available the Plotting Chart in the manner prescribed in regulation 4 (b) for all areas delineated in Schedule 6.

266. Coverage and scale of Plotting Chart. The aeronautical cartographic service provider shall ensure that–

(a) ensure that the Plotting Chart provides coverage of major air routes and their terminals on a single sheet.

(b) ensure that the scale is in the range of 1:3,000,000 to 1:7,500,000.

267. Format of the Plotting Chart. The aeronautical cartographic service provider shall ensure that the sheet be of a size that can be adapted for use on a navigator's plotting table.

268. Projection. The aeronautical cartographic service provider shall–

(a) use a conformal projection;

(b) show the parallels and meridians with intervals arranged to permit accurate plotting to be carried out with a minimum of time and effort.

(c) show Graduation marks at consistent intervals along an appropriate number of parallels and meridians. The interval selected shall, regardless of scale, minimize the amount of interpolation required for accurate plotting.

(d) ensure that Parallels and meridians are numbered so that a number appears at least once every 15 cm (6 in) on the face of the chart.

(e) ensure that, if a navigational grid is shown on charts covering the higher latitudes, it shall comprise lines parallel to the Meridian or anti-Meridian of Greenwich.

269. Identification. The aeronautical cartographic service provider shall identify each sheet by chart series and number.

270. Culture and topography. The aeronautical cartographic service provider shall–

(a) show generalized shore lines of all open water areas, large lakes and rivers;

(b) show spot elevations for selected features constituting a hazard to air navigation;

(c) emphasise particularly hazardous or prominent relief features;

(d) show large cities and towns.

271. Magnetic variation. The aeronautical cartographic service provider shall–

(a) indicate isogonal or, in higher latitudes, isogrivs, or both, at consistent intervals throughout the chart regardless of scale, minimize the amount of interpolation required;

(b) show the date of the isogonic information on the chart.

272. Aeronautical data. The aeronautical cartographic service provider shall ensure that the following aeronautical data is shown on the Plotting Chart–

(a) aerodromes regularly used by international commercial air transport together with their names;

(b) selected radio aids to navigation that will contribute to position-finding together with their names and identifications;

(c) lattices of long-range electronic aids to navigation, as required;

(d) boundaries of flight information regions, control areas and control zones necessary to the function of the chart;

(e) designated reporting points necessary to the function of the chart;

(f) ocean station vessels;

(g) other aeronautical data that do not detract from the legibility of essential information.

Part XXII

EXEMPTIONS

273. Application for exemption.—(1) A person may apply to the Authority for an exemption from any of the provisions of these Regulations.

(2) The application referred to in sub-regulation (1) shall be made at least sixty days prior to the proposed effective date, stating the following–

(a) name and contact address including electronic mail and fax, if any;

(b) telephone number;

(c) citation of the requirement from which the applicant seeks exemption;

(d) justification for the exemption;

(e) a description of the type of chart to be produced and published under the proposed exemption;

(f) the proposed duration of the exemption;

(g) an explanation of how the exemption would be in the public interest;

(h) a detailed description of the alternative means by which the applicant will ensure a level of service or safety equivalent to that established by the provision in question;

(i) a safety risk assessment carried out in respect of the exemption applied for; and

(j) any other information that the Authority may require.

(3) Where the applicant seeks emergency processing of an application for exemption, the application shall contain supporting evidence and reasons for not filing the application within the time specified in sub-regulation (2) and reason for deeming the application an emergency.

(4) The Authority may, in writing, refuse an application made under sub-regulation (3), where the reasons given for emergency processing are not satisfactory.

274. Review and publication of application.—(1) The Authority shall review the application for exemption for accuracy and compliance with these Regulations and if the application is satisfactory, the Authority shall publish a detailed summary of the application for comments, within a prescribed time, in either–

(a) the *Gazette;* or

(b) aeronautical information circular.

(2) Where the requirements for application have not been complied with, the Authority shall request the applicant in writing to comply prior to publication.

(3) If the request is for emergency relief, the Authority shall publish the decision after processing the application.

275. Evaluation of application.—(1) Where the application requirements have been satisfied, the Authority shall conduct an evaluation of the request to include–

(a) determination of whether an exemption would be in the public interest;

(b) a determination, after a technical evaluation of whether the proposal of the applicant would provide a level of safety equivalent to that established by the regulation, although where the Authority decides that a technical evaluation of the request would impose a significant burden on the Authority's technical resources, the Authority may deny the exemption on that basis;

(c) a determination of whether a grant of the exemption would contravene these Regulations; and

(d) a recommendation based on the preceding elements, of whether the request should be granted or denied and of any conditions or limitations that should be part of the exemption.

(2) The Authority shall notify the applicant in writing, the decision to grant or deny the request and publish a detailed summary of its evaluation and decision.

(3) The summary referred to in sub-regulation (2) shall specify the duration of the exemption and any conditions or limitations of the exemption.

(4) If the exemption affects a significant population of the aviation community, the Authority shall publish the summary in the aeronautical information circular.

Part XXIII

GENERAL

276. Use and retention of approvals and records.—(1) A person shall not–

(a) use any approval, permission, exemption or other document issued or required by or under these Regulations which has been forged, altered, revoked or suspended or to which the person is not entitled to use;

(b) forge or alter any approval, permission, exemption or other document issued or required under these Regulations;

(c) lend any approval, permission, exemption or other document issued or required under these Regulations to any other person; or

(d) make any false representation for the purpose of procuring for himself or any other person the issue, renewal or variation of an approval, permission or exemption or other document.

(2) A person shall not, during the period for which a record is required under these Regulations to be preserved–

(a) mutilate, alter, render illegible or destroy any records, or any entry made in the record;

(b) make, procure or assist in the making of any false entry in an approval or record; or

(c) omit to make a material entry in an approval or record.

(3) A record required to be maintained under these Regulations shall be recorded in a permanent and indelible material.

(4) A person shall not purport to issue an approval or exemption for the purpose of these Regulations unless that person is authorised to do so.

(5) The Authority may suspend or cancel an approval of an aeronautical cartographic service provider who contravenes any provision of these Regulations.

277. Deviation from regulations and procedures. Any deviation from a requirement or procedure under these Regulations shall be put in an endorsement on the Manual of Air Navigation Services Operations (MANSPOS) Part III-AIS/MAP.

278. Inspections and audits. The Authority shall–

(a) carry out inspections and audits as may be necessary for the purpose of verifying compliance with these Regulations;

(b) carry out inspections and audits of any documents and records of aeronautical cartographic service provider, which may be necessary to determine compliance with the requirements of these Regulations.

279. Staff operational competence. The aeronautical cartographic service provider shall–

(a) develop job description for all technical staff involved in cartographic services and aeronautical charts production;

(b) develop training program for cartographic technical staff, which covers initial on-the-job, recurrent and advanced or specialized training;

(c) develop annual training plan detailing and prioritizing what type of training will be provided and this training shall cover recurrent training;

(d) prior to assigning tasks and responsibilities to new cartographic technical staff, ensure that they have satisfactorily completed initial and on-job-training in accordance with the training program; and

(e) develop a system for the maintenance of training records for all air navigation services and cartographic technical staff.

Part XXIV

OFFENCES AND PENALTIES

280. Contravention of regulations. A person who contravenes any provision of these Regulations may have his or her licence, approval or exemption cancelled or suspended.

281. Offences and penalties. A person who contravenes any provision of these Regulations is, upon conviction, liable to a fine not exceeding $5000 Eastern Caribbean Dollars or to a term of imprisonment not exceeding six months or both, and in the case of a continuing contravention, each day of the contravention shall constitute a separate offence.

SCHEDULE 1

CHART SYMBOLS

Regulations 7(a) and (b), 17(1), 50(d), 185(b), 212(b), 247(a) and (b) and 248 (b)

1. CATEGORY INDEX

	Symbol No.
TOPOGRAPHY (1–18)	
Approximate contours	*2*
Areas not surveyed for contour information or relief data incomplete	*18*
Bluff, cliff or escarpment	*4*
Contours	*15*
Gravel	*1*
Highest elevation on chart	*8*
Lava flow	*12*
Levee or esker	*5*
Mountain pass	*9*
Other trees	*11*
Palms	*16*
Relief shown by hachures	*17*
Sand area	*3*
Sand dunes	*7*
Spot elevation (of doubtful accuracy)	*14*
Spot elevation	*13*
Unusual land features appropriately labelled	*10*
HYDROGRAPHY (19–46)	
Abandoned canal	*30*
Canal	*29*
Charted isolated rock	*44*
Coral reefs and ledges	*22*
Danger line (2 m or one fathom line)	*43*
Dry lake bed	*39*
Falls	*28*
Glaciers and ice caps	*42*
Lakes (non-perennial)	*32*
Lakes (perennial)	*31*
Large river (perennial)	*23*
Rapids	*27*

	Symbol No.
Reservoir	*38*
Rice field	*36*
Rivers and streams (non-perennial)	*25*
Rivers and streams (unsurveyed)	*26*
Rock awash	*45*
Salt lake	*33*
Salt pans (evaporator)	*34*
Shoals	*41*
Shore line (reliable)	*19*
Shore line (unreliable)	*20*
Small river (perennial)	*24*
Spring, well or water hole	*37*
Swamp	*35*
Tidal flats	*21*
Unusual water features appropriately labelled	*46*
Wash	*40*
CULTURE (47–83)	
Built-up Areas (47–50)	
Buildings	*50*
City or large town	*47*
Town	*48*
Village	*49*
Railroads (51–56)	
Railroad (single track)	*51*
Railroad (two or more tracks)	*52*
Railroad (under construction)	*53*
Railroad bridge	*54*
Railroad station	*56*
Railroad tunnel	*55*
Highways and Roads (57–62)	
Dual highway	*57*
Primary road	*58*
Road bridge	*61*
Road tunnel	*62*
Secondary road	*59*
Trail	*60*
Miscellaneous (63–83)	
Boundaries (international)	*63*
Church	*80*
Coast guard station	*73*

	Symbol No.
Dam	*47*
Fence	*65*
Ferry	*68*
Forest ranger station	*76*
Fort	*79*
Lookout tower	*74*
Mine	*75*
Mosque	*81*
Nuclear power station	*72*
Oil or gas field	*70*
Outer boundaries	*64*
Pagoda	*82*
Pipeline	*69*
Race track or stadium	*77*
Ruins	*78*
Tank farms	*71*
Telegraph or telephone line (when a landmark)	*66*
Temple	*83*
AERODROMES (84–95)	
Abandoned or closed aerodrome	*91*
Aerodrome for use on charts on which aerodrome classification is not required	*93*
Civil — Land	*84*
Civil — Water	*85*
Emergency aerodrome or aerodrome with no facilities	*90*
Heliport	*94*
Joint civil and military — Land	*88*
Joint civil and military — Water	*89*
Military — Land	*86*
Military — Water	*87*
Runway pattern in lieu of the aerodrome symbol	*95*
Sheltered anchorage	*92*
Aerodrome data in abbreviated form which may be in association with aerodrome symbols	*96*
Aerodrome symbols for Approach Charts (97 and 98)	
Aerodromes affecting the traffic pattern on the aerodrome on which the procedure is based	*97*
The aerodrome on which the procedure is based	*98*
RADIO NAVIGATION AIDS (99–110)	

	Symbol No.
Basic radio navigation aid symbol	*99*
Collocated VOR and DME radio navigation aids — VOR/DME	*103*
Collocated VOR and TACAN radio navigation aids — VORTAC	*107*
Compass rose	*110*
Distance measuring equipment — DME	*102*
DME distance	*104*
Instrument landing system — ILS	*108*
Non-directional radio beacon — NDB	*100*
Radio marker beacon	*109*
UHF tactical air navigation aid — TACAN	*106*
VHF omnidirectional radio range — VOR	*101*
VOR radial	*105*
AIR TRAFFIC SERVICES (111–144)	
Advisory airspace — ADA	*115*
Advisory route — ADR	*118*
Aerodrome traffic zone — ATZ	*112*
Air defence identification zone — ADIZ	*117*
Altitudes/flight levels	*125*
ATS/MET reporting point — MRP	*123*
Change-over point — COP	*122*
Control area, Airway, Controlled route	*113*
Control zone — CTR	*116*
Final approach fix — FAF	*124*
Flight information region — FIR	*111*
Reporting and Fly-by/Flyover functionality	*121*
Scale-break (on ATS route)	*120*
Uncontrolled route	*114*
Visual flight path	*119*
Airspace Classifications (126 and 127)	
Aeronautical data in abbreviated form to be used in association with airspace classification symbols	*127*
Airspace classifications	*126*
Airspace Restrictions (128 and 129)	
International boundary closed to passage of aircraft except through air corridor	*129*
Restricted airspace (prohibited, restricted or danger	*128*
Obstacles (130–136)	
Elevation of top/Height above specified datum	*136*
Exceptionally high obstacle — lighted (optional symbol)	*135*
Exceptionally high obstacle (optional symbol)	*134*

	Symbol No.
Group obstacles	*132*
Lighted group obstacles	*133*
Lighted obstacle	*131*
Obstacle	*130*
Miscellaneous ((137–141)	
Isogonic line or isogonal	*138*
Ocean station vessel (normal position)	*139*
Prominent transmission line	*137*
Wind turbine — unlighted and lighted	*140*
Wind turbines — minor group and group in major area, lighted	*141*
Visual Aids (142–144)	
Aeronautical ground light	*143*
Lightship	*144*
Marine light	*142*
SYMBOLS FOR AERODROME/HELIPORT CHARTS (145–161)	
Aerodrome reference point	*151*
Hard surface runway	*145*
Helicopter alighting area on an aerodrome	*150*
Hot spot	*161*
Intermediate holding position	*160*
Landing direction indicator (lighted)	*156*
Landing direction indicator (unlighted)	*157*
Obstacle light	*155*
Pierced steel plank or steel mesh runway	*146*
Point light	*154*
Runway-holding position	*159*
Runway visual range (RVR) observation site	*153*
Stop bar	*158*
Stopway	*148*
Taxiways and parking areas	*149*
Unpaved runway	*147*
VOR check-point	*152*
SYMBOLS FOR AERODROME OBSTACLE CHARTS — TYPE A, B AND C (162–170)	
Building or large structure	*164*
Clearway	*170*
Escarpment	*168*
Pole, tower, spire, antenna, etc.	*163*

	Symbol No.
Railroad	*165*
Stopway	*169*
Terrain penetrating obstacle plane	*167*
Transmission line or overhead cable	*166*
Tree or shrub	*162*
ADDITIONAL SYMBOLS FOR USE ON PAPER AND ELECTRONIC CHARTS (171–180)	
Collocated DME fix and marker beacon	*180*
Collocated radio navigation aid and marker beacon	*178*
DME fix	*179*
Holding pattern	*173*
Minimum sector altitude	*171*
Missed approach track	*174*
Radio marker beacon	*177*
Radio navigation aid	*176*
Runway	*175*
Terminal arrival altitude	*172*

2. ALPHABETICAL INDEX

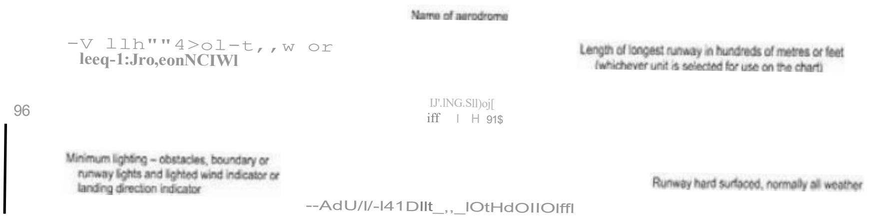
Gravel	*8*
H	
Hard surface runway	*145*
Helicopter alighting area on an aerodrome	*150*
Heliport	*94*
Highest elevation on chart	*12*
Highway, dual	*57*
Highways and roads	*57-62*
Holding pattern	*173*
Hot spot	*161*
Hydrography	*19-46*
I	
Ice caps	*42*
Instrument landing system — ILS	*108*
Intermediate holding position	*160*
	Symbol No.
International boundary closed to passage of aircraft except through air corridor	*129*
Intersection INT	*121*
Isogonic line or isogonal	*138*
L	
Lake bed, dry	*39*
Lakes	
Non-perennial	*32*
Perennial	*31*
Land	
Civil	*84*
Military	*86*
Joint civil and military	*88*
Land features appropriately labelled, unusual	*10*
Landing direction indicator	
Lighted	*156*
Unlighted	*157*
Large river (perennial)	*23*
Large structure	*164*
Lava flow	*5*
Ledges	*22*
Levee	*9*
Lightship	*144*
Lookout tower	*74*

S	
Salt lake	*133*
Salt pans (evaporator)	*34*
Sand area	*7*
Sand dunes	*6*
Scale-break (on ATS route)	*120*
Secondary road	*59*
Sheltered anchorage	*92*
Shoals	*41*
Shore line Reliable Unreliable	 *19* *20*
Shrub	*162*
Small river (perennial)	*24*
Spire	*163*
Spot elevation	*13*
Spot elevation (of doubtful accuracy)	*14*
Spring (perennial or intermittent)	*37*
Stadium	*77*
	Symbol No.
Steel mesh runway	*146*
Steel plank, pierced	*146*
Stop bar	*158*
Stopway — SWY (on Aerodrome/Heliport Charts)	*148*
Stopway — SWY (on Aerodrome Obstacle Charts)	*169*
Streams	*25, 26*
Structure, large	*164*
Swamp	*35*
T	
TACAN	*121*
TACAN (UHF tactical air navigation aid)	*106, 110*
Tank farms	*71*
Taxiways	*149*
Telegraph or telephone line (when a landmark)	*66*
Temple	*83*
Terminal arrival altitude — TAA	*172*
Terrain penetrating obstacle plane	*167*
Tidal flats	*21*
Topography	*1-18*
Tower Lookout	*74*
On Aerodrome Obstacle Charts	*163*
Town	*48*

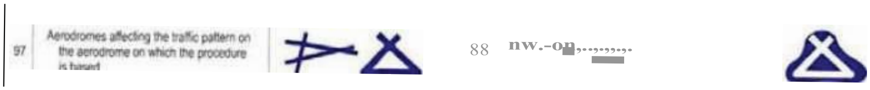
AERODROMES (Cont.)

AERODROME: DATA IN ABBREVIATED FORM WHICH MAY BE: IN ASSOCIATION WITH AERODROME SYMBOLS

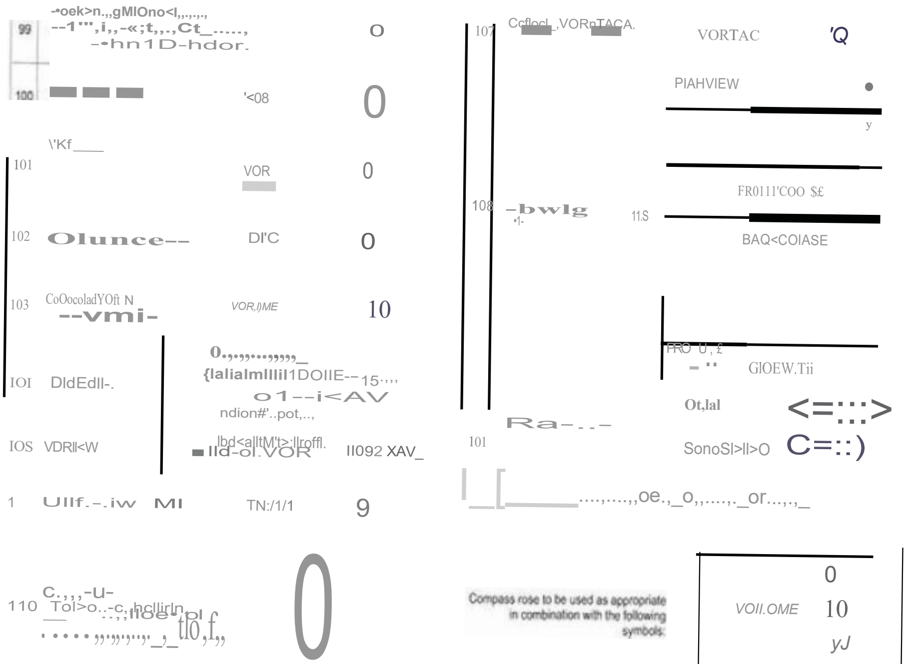
(Reference 16.9.2.2 and 17.9.2.2)



AERODROME SYMBOLS FOR APPROACH CHARTS

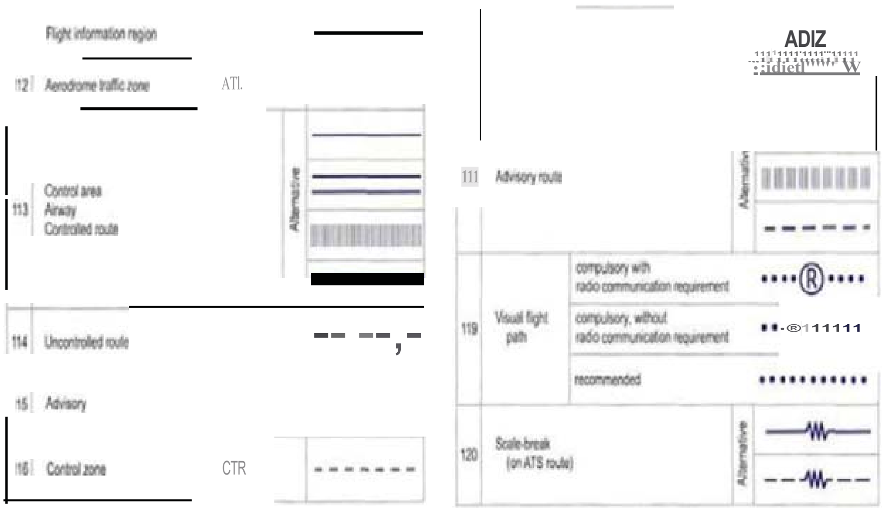


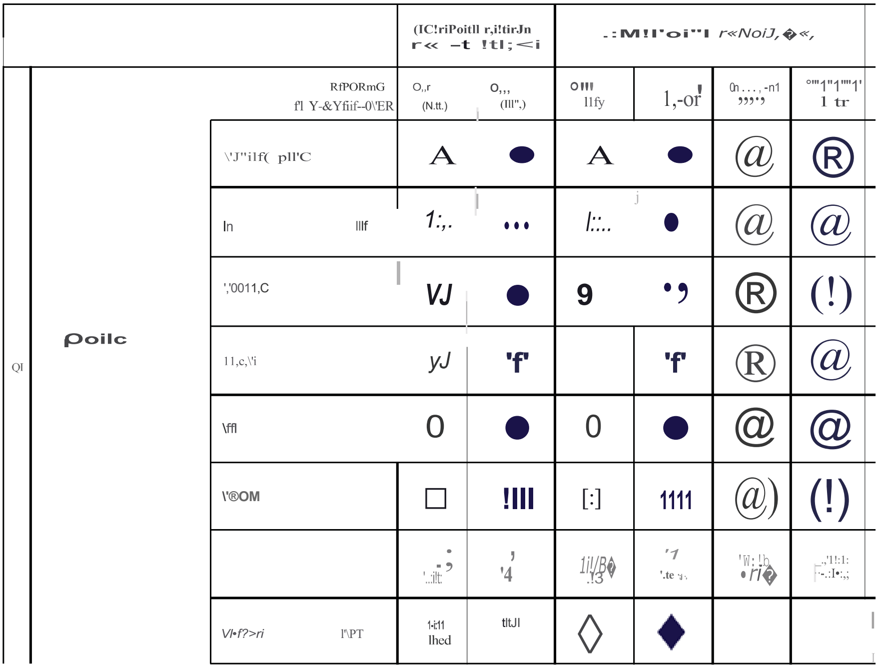
RADIO NAVIGATION AIDS•



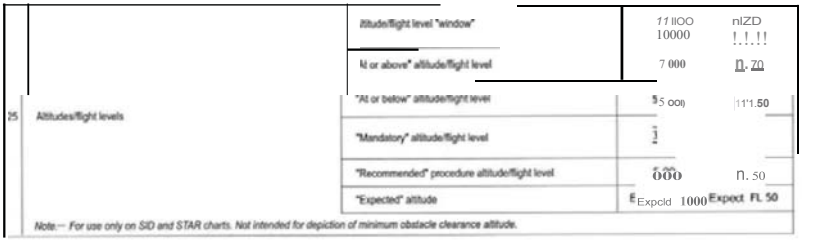
Note.— Additional points of compass may be added as [redacted]

AIR TRAFFIC SERVICes

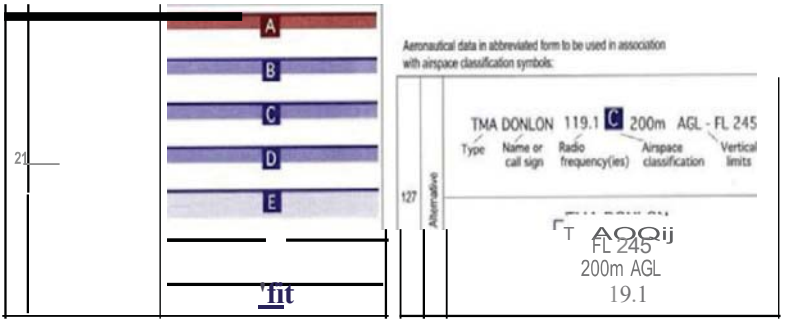




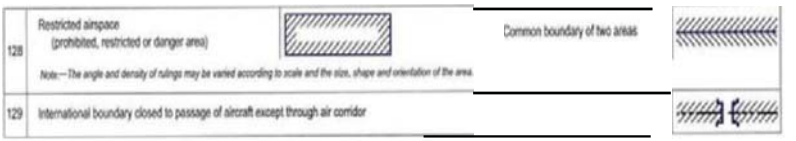
AIR TRAFFtC SERV.IOES *(C()nt.)*



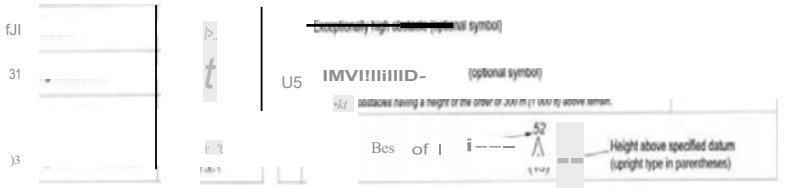
AIRSPACE CLA SfFICATIONS



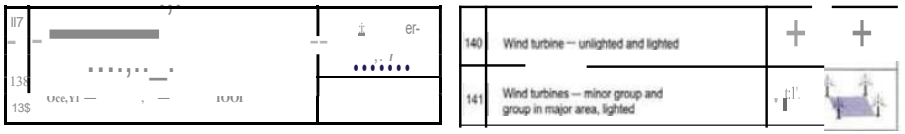
AJRSPACe RESTRICTIONS



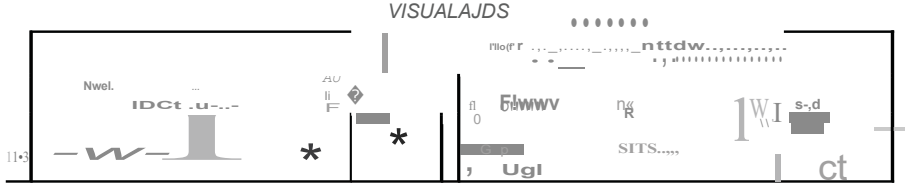
OBSTACLES



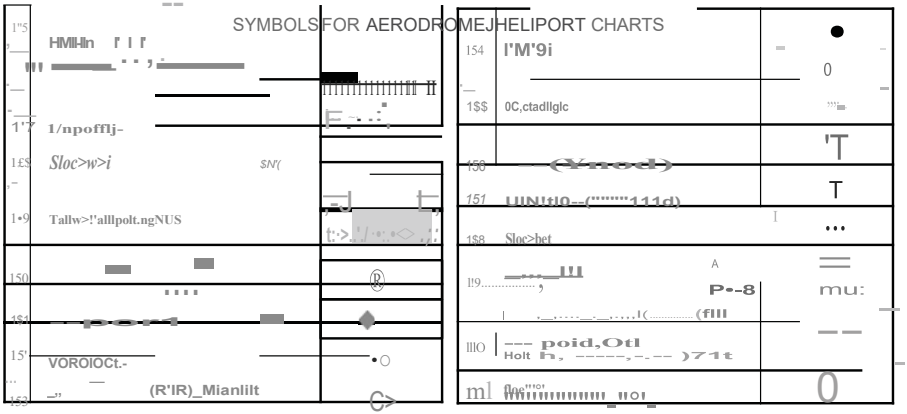
MISCELLANEOUS



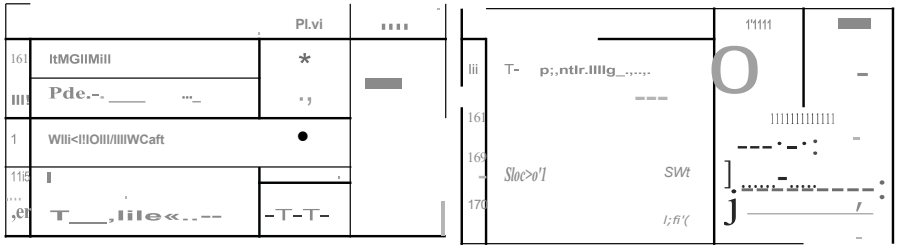
VISUALAJDS



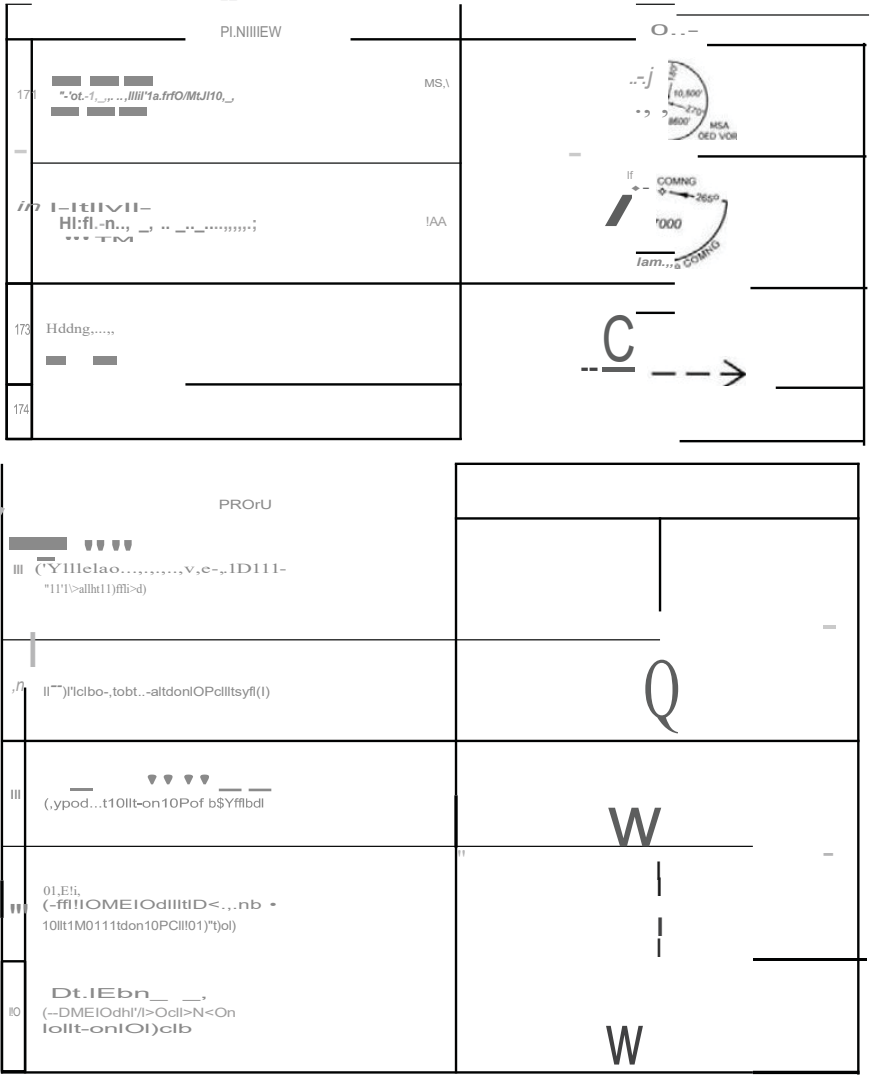
SYMBOLS FOR AERODROMEJHELIPORT CHARTS



SYMBOLS FOR AERODROME OBS TACLE CHARTS - TYPE A, BAND C



ADDITIONAL SYMBOLS FOR USE ON PAPER AND ELECTRONIC CHARTS



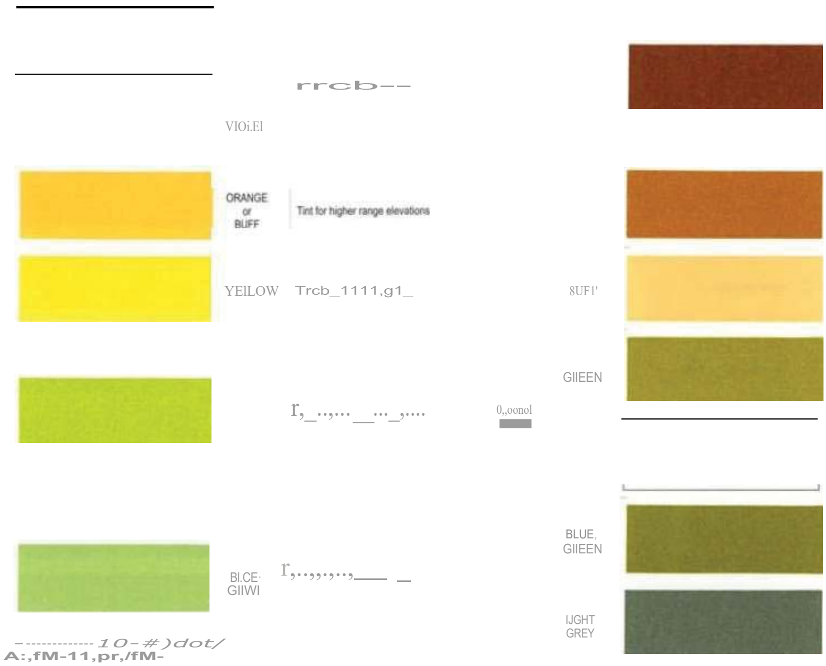
SCHEDULE 2

Regulation 14

COULOUR GUIDE

CHART SYMBOLS *(Cont.)*

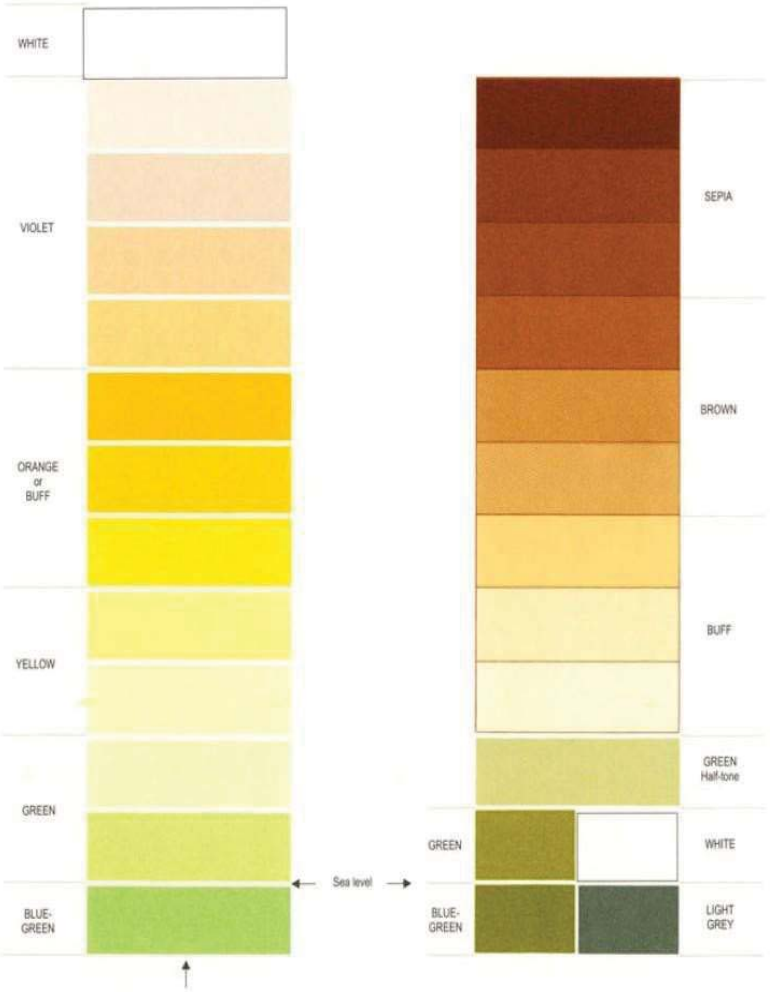
HYPSOMETRIC TINTS



SCHEDULE 3

Regulation15(b)

HYPOSOMETRIC TINT GUIDE



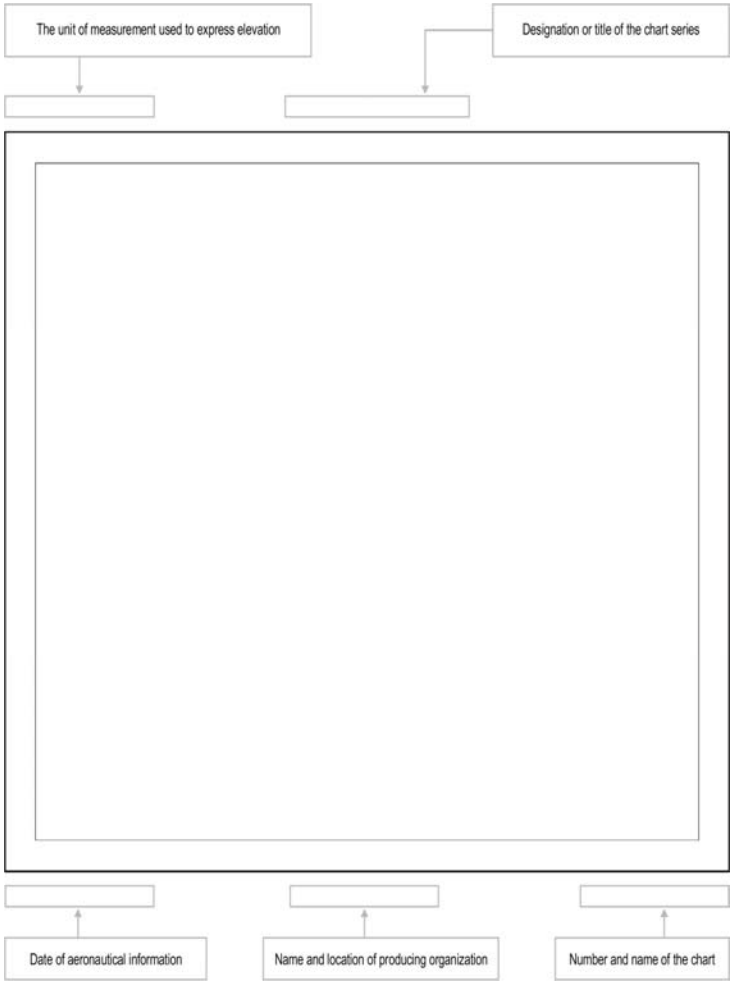
Note 1.— These tints are identical to those specified for the International Map of the World.

Note 2.— Elevations have not been associated with tints of either system in order to allow for flexibility in their selection.

SCHEDULE 4

Regulation 23(a)

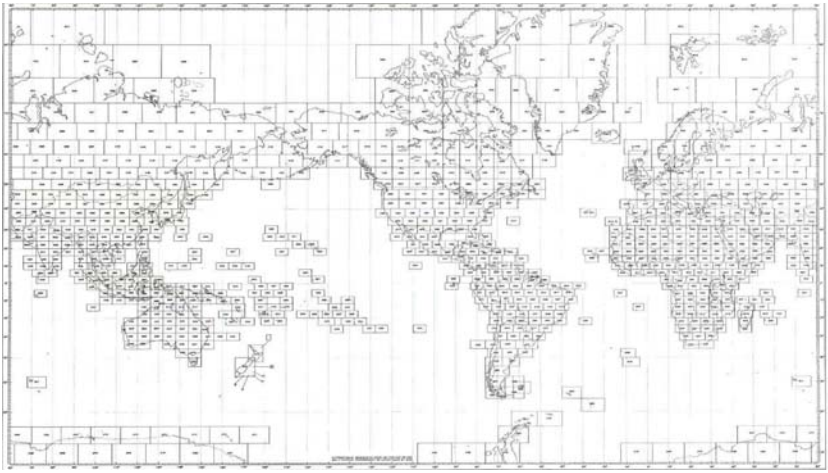
MARGINAL LAYOUT



SCHEDULE 5

Regulations 165,167(d), 169, 192 and 219

SHEET LAYOUT FOR THE WORLD AERONAUTICAL CHART ICAO 1:1,000,000



Made by the Director General this 30th day of August, 2024.

MR. ANTHONY WHITTIER
Director General,
Eastern Caribbean Civil Aviation Authority.

GRENADA
PRINTED BY THE GOVERNMENT PRINTER, AT THE GOVERNMENT PRINTING OFFICE, ST. GEORGE'S
14/3/2025.