

Schedule 22

Part E - Aeronautical Charts

SUBPART A – DEFINITIONS	2
22.501 Definitions	2
 SUBPART B - GENERAL	 2
22.503 Applicability	2
22.505 Availability	2
22.507 Operational requirements for charts.....	2
22.509 Symbols	3
22.511 Units of measurement	3
22.513 Scale and projection.....	4
22.515 Date of validity of aeronautical information	4
22.517 Spelling of geographical names.....	4
22.519 Abbreviations	4
22.521 Political boundaries.....	4
22.523 Colors	4
22.525 Relief	4
22.527 Prohibited, restricted and danger areas	5
22.529 Air traffic services airspaces	5
22.531 Magnetic variation	5
22.533 Typography	5
22.535 Aeronautical data.....	5
22.537 Common reference systems.....	6
22.539 Chart Templates.....	6
22.541 Identification and definition.....	6
 SUBPART C: SAFETY AND QUALITY MANAGEMENT SYSTEMS.....	 7
22.543 Safety management system.....	7
22.545 Quality management system	7

SUBPART A – DEFINITIONS

22.501 Definitions

Terms used in this Part shall have the meanings assigned to them in Annex 4 to the Convention.

SUBPART B - GENERAL

22.503 Applicability

- (a) The requirements of this Part apply to the provision of Aeronautical Charts published by the Aeronautical Information Services section, within the Bahamas Air Navigation Services Division (“BANSD”).
- (b) In accordance with section 61 to the Civil Aviation Act 2016, aeronautical charts service providers shall ensure that all aeronautical charts produced conform to the Standards, Recommended Practices and Specifications contained in Annex 4 to the Convention and to the requirements prescribed by the Authority under this Part.

22.505 Availability

The aeronautical charts service provider shall:

- (a) on the request of another State provide all information relating to its area of jurisdiction;
- (b) ensure the availability of charts in whichever way is appropriate for a particular chart or single sheet of a chart series;
- (c) for any chart or single sheet of a chart series entirely contained within the territory of the Bahamas either:
 - (i) produce the chart or sheet itself;
 - (ii) arrange for the production of the chart or sheet by another State or by an accredited agency; or
 - (iii) provide another 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 two or more Contracting States, in consultation with the States having jurisdiction over the territory so included, determine the manner in which the chart or sheet will be made available;
- (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 up to date by an adequate revision service.

22.507 Operational requirements for charts

- (a) The Aeronautical Charts service provider shall ensure that each type of chart provides information:
 - (1) relevant to the function of the chart and the design of the chart shall observe Human Factor principles, to facilitate its optimum use;
 - (2) for the safe and expeditious operation of the aircraft appropriate to the phase of flight as listed below-
 - i. Phase 1 – Taxi from aircraft stand to take-off point
 - ii. Phase 2 – Take-off and climb to en-route ATS route structure
 - iii. Phase 3 – En-route ATS 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.
- (3) that is accurate, free from distortion and clutter, unambiguous, and readable under all normal operating conditions;
 - (4) the colours or tints and type size used are such that the chart can be easily read and interpreted by the pilot in varying conditions of natural and artificial light;
 - (5) in a form which enables the pilot to acquire information in a reasonable time consistent with workload and operating conditions;
 - (6) that permits smooth transition from chart to chart as appropriate to the phase of flight.
- (b) The title of a chart or chart series prepared in accordance with the specifications issued by the Authority, in accordance with Annex 4, and intended to satisfy the function of the chart, shall be that of the relevant chapter heading as modified by application of any provision contained therein, except that such title shall not include ICAO.

22.509 Symbols

- (a) The Symbols used shall conform to those specified by the Authority as shown in Annex 4 – ICAO Chart Symbols, except that where it is desired to show on an aeronautical chart special features or items of importance to civil aviation for which no ICAO symbol is at present provided, any appropriate symbol may be chosen for this purpose, provided that it does not cause confusion with any existing ICAO chart symbol or impair the legibility of the chart.
- (b) To represent ground-based navigation aids, intersections, and waypoints, the same basic symbol shall be used on all charts on which they appear, regardless of chart purpose.
- (c) A symbol used for significant points shall be based on a hierarchy of symbols and selected in the following order: ground-based navigation aid, intersection and waypoint symbol. A waypoint symbol shall be used only when a particular significant point does not already exist as either a ground-based navigation aid or intersection.

22.511 Units of measurement

- (a) Distances shall be derived as geodesic distances.
- (b) Distances shall be expressed in either kilometers or nautical miles or both, provided the units are clearly differentiated.
- (c) Altitudes, elevations and heights shall be expressed in either meters or feet or both, provided the units are clearly differentiated.
- (d) Linear dimensions on aerodromes and short distances shall be expressed in meters.
- (e) The order of resolution of distances, dimensions, elevations and heights shall be that as specified for a particular chart.
- (f) The units of measurement used to express distances, altitudes, elevations and heights shall be conspicuously stated on the face of each chart.
- (g) Conversion scales (kilometers/nautical miles, meters/feet) shall be provided on each chart on which distances, elevations or altitudes are shown. The conversion scales shall be placed on the face of each

chart.

22.513 Scale and projection

- (a) For charts of large areas, the name and basic parameters and scale of the projection shall be indicated.
- (b) For charts of small areas, a linear scale only shall be indicated.

22.515 Date of validity of aeronautical information

- (a) The date of validity of aeronautical information shall be clearly indicated on the face of each chart.

22.517 Spelling of geographical names

- (a) The symbols of the Roman alphabet shall be used for all writing.
- (b) The names of places and of geographical features in countries which officially use varieties of the Roman alphabet shall be accepted in their official spelling, including the accents and diacritical marks used in the respective alphabets.
- (c) Where a geographical term such as "point", "gulf", "river", is abbreviated on any particular chart, that word shall be spelt out in full in English. Punctuation marks shall not be used in abbreviations within the body of a chart.

22.519 Abbreviations

- (a) Abbreviations published by the Authority shall be used on aeronautical charts whenever they are appropriate.
- (b) Where applicable, abbreviations used shall be in accordance with those specified in the Procedures for Air Navigation Services – ICAO Abbreviations and Codes (Doc 8400).

22.521 Political boundaries

- (a) International boundaries shall be shown, but may be interrupted, if data more important to the use of the chart would be obscured.
- (b) Where the territory of other States appears on a chart, the names identifying the countries shall be indicated.

22.523 Colors

- (a) Colors used on charts shall comply with the Color Guide specified by the Authority.

22.525 Relief

- (a) Relief, where shown, shall be portrayed in a manner that will satisfy the chart users need for:
 - (1) orientation and identification;
 - (2) safe terrain clearance;
 - (3) clarity of aeronautical information when shown; and
 - (4) planning.

- (b) Where relief is shown by hypsometric tints, the tints used should be based on those shown in the Hypsometric Tint Guide published by the Authority.
- (c) Where spot elevations are used they shall be shown for selected critical points.

22.527 Prohibited, restricted and danger areas

- (a) When prohibited, restricted, or danger areas are shown, the reference or other identification shall be included, except that the nationality letters may be omitted.

22.529 Air traffic services airspaces

- (a) When ATS airspace is shown on a chart, the class of airspace, the type, name or call sign, the vertical limits and the radio frequency(ies) to be used shall be indicated and the horizontal limits depicted in accordance with the specified ICAO Chart Symbols.
- (b) On charts used for visual flight, those parts of the published ATS Airspace Classifications table applicable to the airspace depicted on the chart shall be on the face or reverse of each chart.

22.531 Magnetic variation

- (a) True North and magnetic variation shall be indicated. The order of resolution of magnetic variation shall be that as specified for a particular chart.
- (b) When magnetic variation is shown on a chart, the values shown shall be those for the year nearest to the date of publication that is divisible by 5, i.e. 1980, 1985, etc. The date and the annual change may be shown.
- (c) For instrument procedure charts, the publication of a magnetic variation change should be completed within a maximum of six AIRAC cycles.
- (d) In large terminal areas with multiple aerodromes, a single rounded value of magnetic variation should be applied so that the procedures that service multiple aerodromes use a single, common variation value.

22.533 Typography

- (a) Typography of a portion of the terrain, where shown, shall be portrayed in a manner that will comply with the technical specifications of the ICAO Aeronautical Chart Manual (Doc 8697).

22.535 Aeronautical data

- (a) The BANSD shall take all necessary measures to introduce a properly organized quality system containing procedures, processes and resources necessary to implement quality management at each function stage.
- (b) The execution of such quality management shall be made demonstrable for each function stage, when required: in addition, the BANSD shall ensure that established procedures exist in order that aeronautical data at any moment is traceable to its origin so to allow any data anomalies or errors, detected during the production/ maintenance phases or in the operational use, to be corrected.
- (c) The BANSD shall ensure that the order of chart resolution of aeronautical data shall be that as specified for a particular chart and as presented in a tabular form.
- (d) The BANSD shall ensure that the integrity of aeronautical data is maintained throughout the data process

from survey/origin to the next intended user, based on the applicable integrity classifications, the validation and verification procedures shall:

- (1) for routine data: avoid corruption throughout the processing of the data;
 - (2) for essential data: assure corruption does not occur at any stage of the entire process and may include additional processes as needed to address potential risks in the overall system architecture to further assure data integrity at this level; and
 - (3) for critical data: assure corruption does not occur at any stage of the entire process and include additional integrity assurance processes to fully mitigate the effects of faults identified through analysis of the overall system architecture as potential data integrity risks.
- (e) Aeronautical data quality requirements related to the integrity and data classification shall be as specified by the Authority.
- (f) Electronic aeronautical data sets shall be protected by the inclusion in the data sets of a 32-bit cyclic redundancy check (CRC) implemented by the application dealing with the data sets.

22.537 Common reference systems

- (a) World Geodetic System – 1984 (WGS-84) shall be used as the horizontal (geodetic) reference system. Published aeronautical geographical coordinates (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum.
- (b) Geographical coordinates which have been transformed into WGS-84 coordinates but whose accuracy of original field work does not meet the requirements specified by the Authority shall be identified by an asterisk.
- (c) The order of chart resolution of geographical coordinates shall be that specified by the Authority for a particular chart series.
- (d) Mean sea level (MSL) datum, which gives the relationship of gravity-related height (elevation) to a surface known as the geoid, shall be used as the vertical reference system.
- (e) In addition to the elevations referenced to MSL, for the specific surveyed ground positions, geoid undulation (referenced to the WGS-84 ellipsoid) for those positions shall also be published as specified for a particular chart.
- (f) The order of chart resolution of elevation and geoid undulation shall be that specified by the Authority for a particular chart series.
- (g) The Gregorian calendar and Coordinated Universal Time (UTC) shall be used as the temporal reference system.

22.539 Chart Templates

- (a) To satisfy the need for uniformity and consistency in the provision of aeronautical charts, the Authority shall publish chart templates as guidance material that can be used for charting design, production and publication.

22.541 Identification and definition

- (a) The BANSD shall publish or cause to be published aeronautical charts in accordance with Annex 4 to the Convention, as applicable to The Bahamas, and the specified requirements published by the Authority.

- (b) With prejudice to the generality of paragraph (1) above, the BANSD shall publish the following charts:
 - (1) En-route Chart-ICAO;
 - (2) Standard Departure Chart – Instrument;
 - (3) Standard Arrival Chart – Instrument;
 - (4) Instrument Approach Chart;
 - (5) Aerodrome Chart;
 - (6) Aerodrome Obstacle Chart; ICAO Type-A;
 - (7) Aircraft Parking and Docking Chart.
- (c) Each chart shall be identified by a name associated with the airspace portrayed.
- (d) Details of culture, topography, magnetic variation and other relevant data shall be in accordance with the specifications published by the Authority.

SUBPART C: SAFETY AND QUALITY MANAGEMENT SYSTEMS

22.543 Safety management system

- (a) In accordance with regulation 22.159, the Aeronautical Charts provider shall establish a safety management system appropriate to the size and complexity of the operation, for the proactive management of safety, that integrates the management of operations and technical systems with financial and human resource management that reflects quality assurance principles.
- (b) The safety management system shall include policy and objectives for continuous improvement to the organizations' overall safety performance.
- (c) The safety management system shall clearly define lines of safety accountability throughout the operator's organization, including a direct accountability for safety on the part of senior management.

22.545 Quality management system

- (a) In accordance with regulation 22.161, the Aeronautical Charts provider shall implement and maintain internal quality assurance procedures that encompass all functions of an aeronautical charts service to ensure compliance with, and the adequacy of, the procedures as prescribed by these regulations.

End of Schedule 22 – Part E