



SEYCHELLES TECHNICAL STANDARDS

STS-AIS/ACS

**Aeronautical Information &
Aeronautical Charts Standards**

Seychelles Technical Standards

STS-AIS/ACS

Aeronautical Information & Aeronautical Charts Standards

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STS-AIS/ACS

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FOREWORD

- 1 STS-AIS/ACS is derived from Annex VI of **Commission Implementing Regulation (EU) 2017/373 of 1st March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight**, of the European Aviation Safety Agency.
- 2 STS-AIS/ACS addresses the Standards and Recommended Practices of ICAO Annexes 4 and 15 as they pertain to the provision of aeronautical charts and information services. It is intended by these set of requirements that both international and domestic provision of aeronautical charts and information services follow a common standard.
- 3 The basic organisation of STS-AIS/ACS (Subparts and rules numbers) follows strict conformance with that adopted for other European standards promulgated by ~~JAA~~ and EASA (~~see JAR-11~~).
- 4 STS-AIS/ACS will only be distributed electronically by the Authority as a complete document and as such, a list of effective pages is not considered necessary. Amendment to the initial issue will be distributed as a complete amending document with deleted text indicated by a strikethrough and new text highlighted in grey, until a subsequent amended issue is published. Each page will also indicate the amendment number and amendment date. For clarity and simplification, all pages of the respective section will have the same amendment status upon amendment of one or more standard. The Amendment Records page will detail each amendment.

AMENDMENT RECORDS

Amendment No.	Subject	Source	Section affected	Entered by (Date)	Effective Date
-	Initial issue				01 July 2017
01	Major restructuring of Annex 15 to facilitate incorporation of AIM requirements and changes to the technical content of Annex 15 to facilitate the transition from AIS to AIM environments; Consequential amendment concerning data quality requirements and performance-based data error detection requirements as a result of the restructuring of Annex 15	ICAO adoption of amendment 40 to Annex 15 and amendment 60 to Annex 4	Sections 1, 2 and 3	Joseph G. Lajoie (19 March 2019)	01 March 2019

SECTION 1 – GENERAL REQUIREMENTS FOR THE PROVISION OF AERONAUTICAL INFORMATION AND AERONAUTICAL CHARTS SERVICES

SUBPART A – APPLICABILITY AND DEFINITION OF TERMS

AIS/ACS.1001 Applicability

- (a) STS-AIS/ACS prescribes specific requirements applicable to the aeronautical information and aeronautical charts services provider, providing such services both for national and international air navigation.

AIS/ACS.1005 Definition of terms

- (a) The following terms shall apply to all Subparts of this STS:
- (1) ~~‘accuracy’ means a degree of conformance between the estimated or measured value and the true value.~~
Note: For measured positional data the accuracy is normally expressed in terms of a distance from a stated position within which there is a defined confidence of the true position falling.
 - (2) **‘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.
 - (3) **‘aerodrome elevation’** means the elevation of the highest point of the landing area.
 - (4) **‘aerodrome mapping data (AMD)’** means data collected for the purpose of compiling aerodrome mapping information.
Note: Aerodrome mapping data are collected for purposes that include the improvement of the user’s situational awareness, surface navigation operations, training, charting and planning.
 - (5) **‘aerodrome mapping database (AMDB)’** means a collection of aerodrome mapping data organized and arranged as a structured data set.
 - (6) **‘aerodrome operating minima’** means the limits of usability of an aerodrome for:
 - (i) take-off, expressed in terms of runway visual range and/or visibility and, if necessary, cloud conditions;
 - (ii) landing in precision approach and landing operations, expressed in terms of visibility and/or runway visual range and decision altitude/height (DA/H) as appropriate to the category of the operation;
 - (iii) landing in approach and landing operations with vertical guidance, expressed in terms of visibility and/or runway visual range and decision altitude/height (DA/H); and
 - (iv) landing in non-precision approach and landing operations, expressed in terms of visibility and/or runway visual range, minimum descent altitude/height (MDA/H) and, if necessary, cloud conditions.
 - (7) **‘aerodrome reference point’** means the designated geographical location of an aerodrome.
 - (8) **‘aeronautical chart’** means a representation of a portion of the earth, its culture and relief, specifically designated to meet the requirements of air navigation.
 - (9) **‘aeronautical data’** means a representation of aeronautical facts, concepts or instructions in a formalized manner suitable for communication, interpretation or processing.
 - (10) **‘aeronautical fixed service (AFS)’** means a telecommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air services.
 - (11) **‘aeronautical information’** means information resulting from the assembly, analysis and formatting of aeronautical data.
 - (12) **‘aeronautical Information Circular’ (AIC)’** means a notice containing information that does not qualify for the origination of a NOTAM or for inclusion in the AIP, but which relates to flight safety, air navigation, technical, administrative or legislative matters.
 - (13) **‘aeronautical Information Management (AIM)’** means the dynamic, integrated management of aeronautical information through the provision and exchange of quality-assured digital aeronautical data in collaboration with all parties.
 - (14) **‘aeronautical information product’** means aeronautical data and aeronautical information provided either as digital data sets or as a standardized presentation in paper or electronic media. Aeronautical information products include: — Aeronautical Information Publication (AIP), including Amendments and Supplements;
 - Aeronautical Information Circulars (AIC);
 - Aeronautical charts;

- NOTAM; and
- Digital data sets.

Note: Aeronautical information products are intended primarily to satisfy international requirements for the exchange of aeronautical information.

- (15) **‘aeronautical Information Publication (AIP)’** means a publication issued by or with the authority of the Seychelles and containing aeronautical information of a lasting character essential to air navigation.
- (16) **‘AIP amendment’** means permanent changes to the information contained in the AIP.
- (17) **‘AIP supplement’** means temporary changes to the information contained in the AIP which are published provided by means of special pages.
- (18) **‘AIRAC’** is an acronym (aeronautical information regulation and control) signifying a system aimed at advance notification, based on common effective dates, of circumstances that necessitate significant changes in operating practices.
- (19) **‘aircraft stand’** means a designated area on an apron intended to be used for parking an aircraft.
- (20) **‘air defence identification zone’** means special designated airspace of defined dimensions within which aircraft are required to comply with special identification and/or reporting procedures additional to those related to the provision of air traffic services.
- (21) **‘air traffic management (ATM)’** means the dynamic, integrated management of air traffic and airspace (including air traffic services, airspace management and air traffic flow management) — safely, economically and efficiently - through the provision of facilities and seamless services in collaboration with all parties and involving airborne and ground-based functions.
- (22) **‘air traffic service’** is a generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control service (area control service, approach control service or aerodrome control service).
- (23) **‘air transit route’** means a defined route for the air transiting of helicopters.
- (24) **‘airway’** means a control area or portion thereof established in the form of a corridor.
- (25) ~~**‘AIS product’** means aeronautical data and aeronautical information provided in the form of the elements of the Integrated Aeronautical Information Package (except NOTAM and PIB), including aeronautical charts, or in the form of suitable electronic media.~~
- (26) **‘altitude’** means the vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL).
- (27) **‘application’** means manipulation and processing of data in support of user requirements (ISO 19104*).
- (28) **‘apron’** means a defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance.
- (29) **‘area minimum altitude (AMA)’** means the minimum altitude to be used under instrument meteorological conditions (IMC), that provides a minimum obstacle clearance within a specified area, normally formed by parallels and meridians.
- (30) **‘area navigation (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.
- Note: Area navigation includes performance-based navigation as well as other operations that do not meet the definition of performance-based navigation.*
- (31) **‘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.
- (32) **‘ASHTAM’** means a special series NOTAM notifying by means of a specific format change in activity of a volcano, a volcanic eruption and/or volcanic ash cloud that is of significance to aircraft operations.
- (33) **‘assemble’** means a process of merging data from multiple sources into a database and establishing a baseline for subsequent processing.
- Note: The assemble phase includes checking the data and ensuring that detected errors and omissions are rectified.*
- (34) **‘ATS route’** means a specified route designed for channelling the flow of traffic as necessary for the provision of air traffic services.

Note 1: The term ATS route is used to mean variously, airway, advisory route, controlled or uncontrolled route, arrival or departure route, etc.

Note 2: An ATS route is defined by route specifications that include an ATS route designator, the track to or from significant points (waypoints), distance between significant points, reporting requirements and, as determined by the appropriate ATS authority, the lowest safe altitude.

- (35) **'ATS surveillance service'** is a term used to indicate a service provided directly by means of an ATS surveillance system.
- (36) **'ATS surveillance system'** is a generic term meaning variously, ADS-B, PSR, SSR or any comparable ground-based system that enables the identification of aircraft.
- Note: A comparable ground-based system is one that has been demonstrated, by comparative assessment or other methodology, to have a level of safety and performance equal to or better than monopulse SSR.*
- (37) **'automatic dependent surveillance-broadcast (ADS-B)'** is a means by which aircraft, aerodrome vehicles and other objects can automatically transmit and/or receive data such as identification, position and additional data, as appropriate, in a broadcast mode via a data link.
- (38) **'automatic dependent surveillance-contract (ADS-C)'** is a means by which the terms of an ADS-C agreement will be exchanged between the ground system and the aircraft, via a data link, specifying under what conditions ADS-C reports would be initiated, and what data would be contained in the reports.
- Note: The abbreviated term "ADS contract" is commonly used to refer to ADS event contract, ADS demand contract, ADS periodic contract or an emergency mode.*
- (39) **'automatic terminal information service (ATIS)'** means the automatic provision of current, routine information to arriving and departing aircraft throughout 24 hours or a specified portion thereof:
- Data link-automatic terminal information service (D-ATIS).* The provision of ATIS via data link;
- Voice-automatic terminal information service (Voice-ATIS).* The provision of ATIS by means of continuous and repetitive voice broadcasts.
- (40) **'bare earth'** means the surface of the Earth including bodies of water and permanent ice and snow, and excluding vegetation and manmade objects.
- (41) **'calendar'** means discrete temporal reference system that provides the basis for defining temporal position to a resolution of one day (ISO 19108*).
- (42) **'canopy'** means bare earth supplemented by vegetation height.
- (43) **'change-over point'** means the point at which an aircraft navigating on an ATS route segment defined by reference to very high frequency omnidirectional radio ranges is expected to transfer its primary navigational reference from the facility behind the aircraft to the next facility ahead of the aircraft.
- Note: Change-over points are established to provide the optimum balance in respect of signal strength and quality between facilities at all levels to be used and to ensure a common source of azimuth guidance for all aircraft operating along the same portion of a route segment.*
- (44) **'confidence level'** means the probability that the true value of a parameter is within a certain interval around the estimate of its value.
- Note: The interval is usually referred to as the accuracy of the estimate.*
- (45) **'controller-pilot data link communications (CPDLC)'** is a means of communication between controller and pilot, using data link for ATC communications.
- (46) **'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.
- (47) **'contour line'** means a line on a map or chart connecting points of equal elevation.
- (48) **'culture'** means all man-made features constructed on the surface of the Earth, such as cities, railways and canals.
- (49) **'cyclic redundancy check (CRC)'** means a mathematical algorithm applied to the digital expression of data that provides a level of assurance against loss or alteration of data.
- (50) **'danger area'** means an airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.
- (51) **'data product'** means data set or data set series that conforms to a data product specification (ISO 19131*).

- (52) **‘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 (ISO 19131*).
- Note: A data product specification provides a description of the universe of discourse and a specification for mapping the universe of discourse to a data set. It may be used for production, sales, end-use or other purpose.*
- (53) **‘data quality’** means a degree or level of confidence that the data provided meet the requirements of the data user in terms of accuracy, resolution and integrity (or equivalent assurance level), traceability, timeliness, completeness and format.
- (54) **‘data Accuracy’** means a degree of conformance between the estimated or measured value and the true value.
- Note: For measured positional data the accuracy is normally expressed in terms of a distance from a stated position within which there is a defined confidence of the true position falling.*
- (55) **‘data completeness’** means the degree of confidence that all of the data needed to support the intended use is provided.
- (56) **‘data format’** means a structure of data elements, records and files arranged to meet standards, specifications or data quality requirements.
- (57) **‘data integrity (aeronautical data assurance level)’** means a degree of assurance that an aeronautical data and its value has not been lost or altered since the data origination or authorized amendment.
- (58) **‘data quality’** means a degree or level of confidence that the data provided meet the requirements of the data user in terms of accuracy, resolution, integrity (or equivalent assurance level), traceability, timeliness, completeness and format.
- (59) **‘data resolution’** means a number of units or digits to which a measured or calculated value is expressed and used.
- (60) **‘data set’** means identifiable collection of data (ISO 19101*).
- (61) **‘data set series’** means collection of data sets sharing the same product specification (ISO 19115*).
- (62) **‘data timeliness’** means the degree of confidence that the data is applicable to the period of its intended use.
- (63) **‘data traceability’** means the degree that a system or a data product can provide a record of the changes made to that product and thereby enable an audit trail to be followed from the end-user to the originator.
- (64) **‘datum’** means any quantity or set of quantities that may serve as a reference or basis for the calculation of other quantities (ISO 19104*).
- (65) **‘digital elevation model (DEM)’** means the representation of terrain surface by continuous elevation values at all intersections of a defined grid, referenced to common datum.
- Note: Digital Terrain Model (DTM) is sometimes referred to as DEM.*
- (66) **‘direct transit arrangements’** means special arrangements approved by the public authorities concerned by which traffic which is pausing briefly in its passage through the Contracting State may remain under their direct control.
- (67) **‘displaced threshold’** means a threshold not located at the extremity of a runway.
- (68) **‘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.
- (69) **‘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.
- (70) **‘ellipsoid height (geodetic height)’** means the height related to the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question.
- (71) **‘feature’** means abstraction of real world phenomena (ISO 19101*).
- (72) **‘feature attribute’** means characteristic of a feature (ISO 19101*).
- Note: A feature attribute has a name, a data type and a value domain associated with it.*
- (73) **‘feature operation’** means operation that every instance of a feature type may perform (ISO 19110*).
- Note: An operation upon the feature type dam is to raise the dam. The result of this operation is to raise the level of water in the reservoir.*

- (74) **'feature relationship'** means relationship that links instances of one feature type with instances of the same or a different feature type (ISO 19101*).
- (75) **'feature type'** means class of real world phenomena with common properties (ISO 19110*).
- Note: In a feature catalogue, the basic level of classification is the feature type.*
- (76) **'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:
- (i) at the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified; or
 - (ii) 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 a landing can be made; or a missed approach procedure is initiated.
- (77) **'final approach and take-off area (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.
- (78) **'final approach fix or point'** means that fix or point of an instrument approach procedure where the final approach segment commences.
- (79) **'final approach segment'** means that segment of an instrument approach procedure in which alignment and descent for landing are accomplished.
- (80) **'flight information region'** means an airspace of defined dimensions within which flight information service and alerting service are provided.
- (81) **'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 such surfaces by specific pressure intervals.
- (82) **'geodesic distance'** means the shortest distance between any two points on a mathematically defined ellipsoidal surface.
- (83) **'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/frame.
- (84) **'geoid'** means the equipotential surface in the gravity field of the Earth which coincides with the undisturbed mean sea level (MSL) extended continuously through the continents.
- Note: The geoid is irregular in shape because of local gravitational disturbances (wind tides, salinity, current, etc.) and the direction of gravity is perpendicular to the geoid at every point.*
- (85) **'geoid undulation'** means the distance of the geoid above (positive) or below (negative) the mathematical reference ellipsoid.
- Note: In respect to the World Geodetic System — 1984 (WGS-84) defined ellipsoid, the difference between the WGS-84 ellipsoidal height and orthometric height represents WGS-84 geoid undulation.*
- (86) **'glide path'** means a descent profile determined for vertical guidance during a final approach.
- (87) **'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 (ISO 19108*).
- Note: In the Gregorian calendar, common years have 365 days and leap years 366 days divided into twelve sequential months.*
- (88) **'height'** means the vertical distance of a level, point or an object considered as a point, measured from a specific datum.
- (89) **'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.
- (90) **'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.
- (91) **'heliport reference point (HRP)'** means the designated location of a heliport or a landing location.
- (92) **'holding procedure'** means a predetermined manoeuvre which keeps an aircraft within a specified airspace while awaiting further clearance.
- (93) **'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/drivers is necessary.

- (94) **‘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.
- (95) **‘hypso metric tints’** means a succession of shades or colour gradations used to depict ranges of elevation.
- (96) **‘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.
- (97) **‘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.
- (98) ~~**‘integrated aeronautical information package’** means a package in paper, or electronic media which consists of the following elements:~~
- ~~— AIP, including amendment service;~~
 - ~~— Supplements to the AIP;~~
 - ~~— NOTAM and PIB;~~
 - ~~— AIC; and~~
 - ~~- checklists and lists of valid NOTAM.~~
- (99) **‘integrity (aeronautical data)’** means a degree of assurance that an aeronautical data and its value has not been lost or altered since the data origination or authorized amendment.
- (100) **‘integrity classification (aeronautical data)’** means classification based upon the potential risk resulting from the use of corrupted data. Aeronautical data are classified as:
- (i) routine data: there is a very low probability when using corrupted routine data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe;
 - (ii) essential data: there is a low probability when using corrupted essential data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe; and
 - (iii) critical data: there is a high probability when using corrupted critical data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe.
- (101) **‘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.
- (102) **‘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.
- (103) **‘international airport’** means any airport designated by the Contracting State in whose territory it is situated as an airport of entry and departure for international air traffic, where the formalities incident to customs, immigration, public health, animal and plant quarantine and similar procedures are carried out.
- (104) **‘international NOTAM office (NOF)’** means an office designated by a State for the exchange of NOTAM internationally.
- (105) **‘isogonal’** means a line on a map or chart on which all points have the same magnetic variation for a specified epoch.
- (106) **‘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.
- (107) **‘landing area’** means that part of a movement area intended for the landing or take-off of aircraft.
- (108) **‘landing direction indicator’** means a device to indicate visually the direction currently designated for landing and for take-off.
- (109) **‘level’** is a generic term relating to the vertical position of an aircraft in flight and meaning variously, height, altitude or flight level.
- (110) **‘logon address’** means a specified code used for data link logon to an air traffic services unit.
- (111) **‘magnetic variation’** means the angular difference between True North and Magnetic North.

Note: The value given indicates whether the angular difference is East or West of True North.

- (112) **‘manoeuvring area’** means that part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.
- (113) **‘marking’** means a symbol or group of symbols displayed on the surface of the movement area in order to convey aeronautical information.
- (114) **‘metadata’** means data about data (ISO 19115*).
- (115) **‘minimum en-route altitude (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.
- (116) **‘minimum obstacle clearance altitude (MOCA)’** means the minimum altitude for a defined segment of flight that provides the required obstacle clearance.
- (117) **‘minimum sector altitude (MSA)’** means the lowest altitude which may be used which will provide a minimum clearance of 300 m (1000 ft) above all objects located in an area contained within a sector of a circle of 46 km (25 NM) radius centred on a significant point, the aerodrome reference point (ARP) or the heliport reference point (HRP).
- (118) **‘missed approach point (MAPt)’** means that point in an instrument approach procedure at or before which the prescribed missed approach procedure must be initiated in order to ensure that the minimum obstacle clearance is not infringed.
- (119) **‘missed approach procedure’** means the procedure to be followed if the approach cannot be continued.
- (120) **‘movement area’** means that part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the apron
- (121) **‘navigation specification’** means a set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace. There are two kinds of navigation specifications:
- *Required Navigation Performance (RNP) specification.* A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH.
 - *Area navigation (RNAV) specification.* A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.
- (122) **‘next intended user’** means the entity that receives the aeronautical data or information from the Aeronautical Information Service.
- (123) **‘NOTAM’** means a notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.
- (124) **‘obstacle’** means all fixed (whether temporary or permanent) and mobile objects, or parts thereof, that:
- (i) are located on an area intended for the surface movement of aircraft; or
 - (ii) extend above a defined surface intended to protect aircraft in flight; or
 - (iii) stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.
- (125) **‘obstacle clearance altitude (OCA) or obstacle clearance height (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.
- (126) **‘obstacle free zone (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.
- (127) **‘obstacle/terrain data collection surface’** means a defined surface intended for the purpose of collecting obstacle/terrain data.
- (128) **‘origination (aeronautical data or aeronautical information)’** means the creation of the value associated with new data or information or the modification of the value of an existing data or information.
- (129) **‘originator (aeronautical data or aeronautical information)’** means an entity that is accountable for data or information origination and/or from which the AIS organization receives aeronautical data and information.
- (130) **‘orthometric height’** means the height of a point related to the geoid, generally presented as an MSL

elevation.

- (131) **'performance-based communication (PBC)'** means communication based on performance specifications applied to the provision of air traffic services.

Note: An RCP specification includes communication performance requirements that are allocated to system components in terms of the communication to be provided and associated transaction time, continuity, availability, integrity, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

- (132) **'performance-based navigation (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.

Note: Performance requirements are expressed in navigation specifications (RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

- (133) **'performance-based surveillance (PBS)'** means surveillance based on performance specifications applied to the provision of air traffic services.

Note: A RSP specification includes surveillance performance requirements that are allocated to system components in terms of the surveillance to be provided and associated data delivery time, continuity, availability, integrity, accuracy of the surveillance data, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

- (134) **'point light'** means a luminous signal appearing without perceptible length.

- (135) **'portrayal'** means presentation of information to humans (ISO 19117*).

- (136) **'position (geographical)'** means a 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.

- (137) **'post spacing'** means angular or linear distance between two adjacent elevation points.

- (138) **'precision'** means the smallest difference that can be reliably distinguished by a measurement process.

Note: In reference to geodetic surveys, precision is a degree of refinement in performance of an operation or a degree of perfection in the instruments and methods used when taking measurements.

- (139) **'precision approach procedure'** means an instrument approach procedure utilizing azimuth and glide path information provided by ILS or PAR.

- (140) **'pre-flight information bulletin (PIB)'** means a presentation of current NOTAM information of operational significance, prepared prior to flight.

- (141) **'procedure altitude/height'** means a specified altitude/height flown operationally at or above the minimum altitude/height and established to accommodate a stabilized descent at a prescribed descent gradient/angle in the intermediate/final approach segment published altitude/height used in defining the vertical profile of a flight procedure, at or above the minimum obstacle clearance altitude/height where established.

- (142) **'procedure turn'** means a 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.

- (143) **'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.

- (144) **'quality'** means degree to which a set of inherent characteristics fulfils requirements (ISO 9000*).

Note 1: The term "quality" can be used with adjectives such as poor, good or excellent.

Note 2: "Inherent", as opposed to "assigned", means existing in something, especially as a permanent characteristic.

- (145) **'quality assurance'** means part of quality management focused on providing confidence that quality requirements will be fulfilled (ISO 9000*).

- (146) **'quality control'** means part of quality management focused on fulfilling quality requirements (ISO 9000*).

- (147) **'quality management'** means coordinated activities to direct and control an organization with regard to quality (ISO 9000*).

- (148) **'radio navigation service'** means a service providing guidance information or position data for the efficient and safe operation of aircraft supported by one or more radio navigation aids.

- (149) **'relief'** means the inequalities in elevation of the surface of the Earth represented on aeronautical charts by contours, hypsometric tints, shading or spot elevations.
- (150) **'reporting point'** means a specified (named) geographical location in relation to which the position of an aircraft can be reported.
- (151) **'required surveillance performance (RSP) specification'** means a set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based surveillance.
- (152) **'requirement'** means a need or expectation that is stated, generally implied or obligatory (ISO 9000*).

Note 1: "Generally implied" means that it is custom or common practice for the organization, its customers and other interested parties, that the need or expectation under consideration is implied.

Note 2: A qualifier can be used to denote a specific type of requirement, e.g. product requirement, quality management requirement, customer requirement.

Note 3: A specified requirement is one which is stated, for example, in a document.

Note 4: Requirements can be generated by different interested parties.

- (153) **'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 certain specified conditions.
- (154) **'reversal procedure'** means a procedure designed to enable aircraft to reverse direction during the initial approach segment of an instrument approach procedure. The sequence may include procedure turns or base turns.
- (155) **'route stage'** means a route or portion of a route flown without an intermediate landing.
- (156) **'runway'** means a defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.
- (157) **runway visual range (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.
- (158) **'runway-holding position'** means a designated position intended to protect a runway, an obstacle limitation surface, or an ILS/MLS critical/sensitive area at which taxiing aircraft and vehicles shall stop and hold, unless otherwise authorized by the aerodrome control tower.
- (159) **'runway strip'** means a defined area including the runway and stopway, if provided, intended to reduce the risk of damage to aircraft running off a runway; and to protect aircraft flying over it during take-off or landing operations.
- (160) **'shoulder'** means an area adjacent to the edge of a pavement so prepared as to provide a transition between the pavement and the adjacent surface.
- (161) **'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.
- (162) **'station declination'** means an alignment variation between the zero degree radial of a VOR and true north, determined at the time the VOR station is calibrated.
- (163) **'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.
- (164) **'taxiing'** means movement of an aircraft on the surface of an aerodrome under its own power, excluding take-off and landing.
- (165) **'taxi-route'** means a defined path established for the movement of helicopters from one part of a heliport to another. A taxi-route includes a helicopter air or ground taxiway which is centred on the taxi-route.
- (166) **'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:
- (i) *Aircraft stand taxilane.* A portion of an apron designated as a taxiway and intended to provide access to aircraft stands only.
 - (ii) *Apron taxiway.* A portion of a taxiway system located on an apron and intended to provide a through taxi route across the apron.

- (iii) *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 minimizing runway occupancy times.
- (167) **‘terminal arrival altitude (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.
- (168) **‘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.
- (169) **‘threshold’** means the beginning of that portion of the runway usable for landing.
- (170) **‘touchdown and lift-off area (TLOF)’** means a load bearing area on which a helicopter may touch down or lift off.
- (171) **‘touchdown zone’** means the portion of a runway, beyond the threshold, where it is intended landing aeroplanes first contact the runway.
- (172) **‘traceability’** means ability to trace the history, application or location of that which is under consideration (ISO 9000*).
- (173) **‘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).
- (174) **‘transition altitude’** means the altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes.
- (175) **‘validation’** means confirmation, through the provision of objective evidence, that the requirements for a specific intended use or application have been fulfilled (ISO 9000*).
- (176) **‘vectoring’** means provision of navigational guidance to aircraft in the form of specific headings, based on the use of an ATS surveillance system.
- (177) **‘verification’** means confirmation, through the provision of objective evidence, that specified requirements have been fulfilled (ISO 9000*).
- (178) **‘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.
- (179) **‘VOLMET’** means meteorological information for aircraft in flight.
- (180) **‘data link-VOLMET (D-VOLMET)’** means provision of current aerodrome routine meteorological reports (METAR) and aerodrome special meteorological reports (SPECI), aerodrome forecasts (TAF), SIGMET, special air-reports not covered by a SIGMET and, where available, AIRMET via data link.
- (181) **‘VOLMET broadcast’** means provision, as appropriate, of current METAR, SPECI, TAF and SIGMET by means of continuous and repetitive voice broadcasts.
- (182) **‘waypoint’** means a specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation. Waypoints are identified as either:
- Fly-by waypoint*. A waypoint which requires turn anticipation to allow tangential interception of the next segment of a route or procedure; or
- Flyover waypoint*. A waypoint at which a turn is initiated in order to join the next segment of a route or procedure.

AIS/ACS.1010 Common reference systems for air navigation

(Refer to ATS.2080 (d) of STS-ATS for specifications governing concerning the determination and reporting (accuracy of field work and data integrity) of WGS-84-related aeronautical coordinates for geographical positions established by air traffic services and Chapter 2 in Vols. I and II of ICAO Annex 14 for aerodrome/heliport-related positions.)

(Refer to Appendix 1 of ICAO Doc 10066 PANS-AIM for specifications concerning the accuracy and integrity classification of WGS-84-related aeronautical data and for specifications concerning the accuracy and integrity classification of elevation and geoid undulation at specific positions at aerodromes/heliports.)

(a) HORIZONTAL REFERENCE SYSTEM

- (1) World Geodetic System - 1984 (WGS-84) shall be used by the aeronautical information and charts services provider as the horizontal (geodetic) reference system for air navigation. Consequently, published aeronautical geographical coordinates (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum.
 - ~~(2) Geographical coordinates that have been transformed into WGS 84 coordinates but whose accuracy of original field work does not meet (a) (1) above and standards of ICAO Annex 14, Volumes I and II, Chapter 2, shall be identified by an asterisk.~~
 - (3) ~~The order of publication resolution of geographical coordinates shall be that specified in Table A5-1 of Appendix 5 to this section while the order of chart resolution of geographical coordinates shall be that specified for a particular chart series in Section 3, Appendix 6, Table 1.~~
- (b) VERTICAL REFERENCE SYSTEM
- (1) Mean sea level (MSL) datum, ~~which gives the relationship of gravity related height (elevation) to a surface known as the geoid,~~ shall be used by the aeronautical information and charts services provider as the vertical reference system for international air navigation.
 - (2) 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 in Appendix 1 and as specified for a particular chart, by the aeronautical information and charts services provider.
 - (3) The Earth Gravitational Model - 1996 (EGM-96), ~~containing long wavelength gravity field data to degree and order 360,~~ shall be used by the aeronautical information and charts services provider as the global gravity model.
 - (4) At those geographical positions where the accuracy of EGM-96 does not meet the accuracy requirements for elevation and geoid undulation ~~specified in Annex 14, Volumes I and II,~~ on the basis of EGM-96 data, regional, national or local geoid models containing high resolution (short wavelength) gravity field data shall be developed and used by the aeronautical information and charts services provider. When a geoid model other than the EGM-96 model is used, a description of the model used, including the parameters required for height transformation between the model and EGM-96, shall be provided in the Seychelles Aeronautical Information Publication (AIP).
 - (5) ~~The order of publication resolution of elevation and geoid undulation shall be that specified in Table A5-2 of Appendix 5 to this section while the order of chart resolution of elevation and geoid undulation shall be that specified for a particular chart series in Section 3, Appendix 6, Table 2.~~
- (c) TEMPORAL REFERENCE SYSTEM
- (1) The Gregorian calendar and Coordinated Universal Time (UTC) shall be used by the aeronautical information and charts services provider as the temporal reference system for international air navigation.
 - (2) When a different temporal reference system is used for some applications, the feature catalogue, or the metadata associated with an application schema or a data set, as appropriate, shall include either a description of that system or a citation for a document that describes that temporal reference system. For charting, this shall be indicated in GEN 2.1.2 of the Seychelles AIP.

AIS/ACS.1015 Miscellaneous specifications

- (a) The aeronautical information and charts services provider shall ensure that:
 - (1) ~~each element of the Integrated Aeronautical Information Package~~ aeronautical information products intended for international distribution include English text for those parts expressed in plain language;
 - (2) place names are spelt in conformity with local usage, transliterated, when necessary, into the ISO-Basic Latin alphabet;
 - (3) units of measurement used in the origination, processing and distribution of aeronautical data and aeronautical information are consistent with the decision taken by the Authority in respect of the use of the tables contained in the Seychelles AIP; and
 - (4) ICAO abbreviations are used ~~in aeronautical information products~~ whenever they are appropriate and their use facilitate distribution of aeronautical data and aeronautical information.

SECTION 2 – TECHNICAL REQUIREMENTS FOR AERONAUTICAL INFORMATION SERVICES

SUBPART A — RESPONSIBILITIES AND FUNCTION

AIS.2001 Service provider responsibilities and functions

- (a) Aeronautical information services shall be provided by the aeronautical information services unit, herein referred to as aeronautical information services provider, which falls under the authority of Air Traffic Management Division of the Seychelles Civil Aviation Authority, under the Seychelles Civil Aviation Authority Act 2005, as amended.
- (b) The aeronautical information services provider shall ensure that the provision of aeronautical data and aeronautical information covers the Seychelles flight information region and it shall remain responsible for the aeronautical data and aeronautical information provided.
- (c) Aeronautical data and aeronautical information provided shall be ~~complete, timely and~~ of required quality in accordance with AIS.2035.
- (d) The aeronautical information services provider shall ensure that:
 - (1) formal arrangements are established between originators of aeronautical data and aeronautical information and itself in relation to the timely and complete provision of aeronautical data and aeronautical information;
 - (2) aeronautical data, aeronautical information and aeronautical charts necessary for the safety, regularity ~~or~~ and efficiency of air navigation are provided in a form suitable for the operational requirements of the air traffic management community, including:
 - (i) those involved in flight operations, including flight crew, flight planning, flight and flight simulators, and
 - (ii) the air traffic services unit responsible for flight information services and the services responsible for pre-flight information.
- (e) The aeronautical information service provider shall receive, collate or assemble, edit, format, publish/store and distribute aeronautical data and aeronautical information concerning the entire territory of the Seychelles. Aeronautical data and aeronautical information shall be provided as ~~an Integrated Aeronautical Information Package~~ aeronautical information products.
- (f) All reasonable measures shall be taken by the aeronautical information service provider to ensure that the information it makes available are adequate and accurate and that they are maintained up to date by an adequate revision service.
- (g) Where 24-hour service is not provided, the services shall be available during the whole period an aircraft is in flight in the Seychelles flight information region, plus a period of at least two hours before and after such a period. Service shall also be available at such other time as may be requested by an appropriate ground organization.
- (h) The aeronautical information service provider shall, in addition, obtain aeronautical data and aeronautical information to enable it to provide pre-flight information service and to meet the need for in-flight information:
 - (1) from the aeronautical information service provider of other States;
 - (2) from other sources that may be available.
- (i) Aeronautical data and aeronautical information obtained under (h) (1) shall, when distributed, be clearly identified as having the authority of the originating State.
- (j) Aeronautical data and aeronautical information obtained under (h) (2) shall, if possible, be verified before distribution and if not verified shall, when distributed, be clearly identified as such.
- (k) The aeronautical information service provider shall promptly make available to the aeronautical information service of other States any aeronautical data and aeronautical information necessary for the safety, regularity or efficiency of air navigation required by them, to enable them to comply with (a).

AIS.2005 Exchange of aeronautical data and aeronautical information

(Refer to ICAO Doc 10066 - PANS AIM and Doc 8126 for specifications and guidance concerning the globally interoperable aeronautical information and data exchange models respectively)

- (a) The aeronautical information services provider shall be the office to which all elements of the ~~Integrated Aeronautical Information Package~~ aeronautical information products ~~originated~~ provided by other States are

addressed. The office shall be qualified to deal with requests for aeronautical data and aeronautical information originated provided by other States.

- (b) The aeronautical information service provider shall arrange, as necessary, to satisfy operational requirements for the issuance and receipt of NOTAM distributed by telecommunication.

- (c) Direct contact between the aeronautical information service provider and aeronautical information service providers of other States shall be established, where practicable, in order to facilitate the international exchange of aeronautical data and aeronautical information.
- (d) One copy of each of the elements of the ~~Integrated Aeronautical Information Package~~ aeronautical information products that have been requested by the aeronautical information service provider of another Contracting State shall be made available by the aeronautical information service provider in mutually-agreed form(s), without charge, even where authority for publication/storage and distribution has been delegated to a non-governmental agency. The exchange of more than one copy of the elements of the ~~Integrated Aeronautical Information Package~~ aeronautical information products and other air navigation documents, including those containing air navigation legislation and regulations, should be subject to bilateral agreement between the Seychelles Civil Aviation Authority and the Civil Aviation Authority of other Contracting States, and entities.
- (e) Where aeronautical information and aeronautical data is provided in the form of digital data sets to be used by the aeronautical information service provider, it shall be provided on the basis of agreement between the Seychelles Civil Aviation Authority and the Civil Aviation Authority of other Contracting States concerned.
- (f) The aeronautical information service provider shall use globally interoperable aeronautical data and information exchange models for the provision of data sets.

AIS.2010 Copyright

- (a) The aeronautical information service provider shall ensure that any aeronautical information product of which it has granted copyright protection ~~by the Seychelles Civil Aviation Authority as the parent authority and~~ which it provides to another State in accordance with AIS.2005, is only made available to a third party on the condition that the third party is made aware that the product is copyright protected and provided that it is appropriately annotated that the product is subject to copyright by the Seychelles Civil Aviation Authority.
- (b) The aeronautical information service provider shall ensure that when aeronautical information and aeronautical data is provided to a State in accordance with AIS.2005 (f), the receiving State shall not provide such digital data sets to any third party without its consent.

AIS.2015 Cost recovery

The aeronautical information service provider's overhead cost of collecting and compiling aeronautical data and aeronautical information shall be included in the cost basis for airport and air navigation services charges, as appropriate, in accordance with the principles contained in ICAO Doc 9082 - Policies on Charges for Airports and Air Navigation Services.

SUBPART B – AERONAUTICAL INFORMATION MANAGEMENT

AIS.2020 Information management requirements

Information management resources and processes established by the aeronautical information service provider shall be adequate to ensure the timely collection, processing, storing, integration, exchange and delivery of quality-assured aeronautical data and aeronautical information within the air traffic management system.

AIS.2025 Aeronautical data and aeronautical information validation and verification

- (a) Material to be issued as part of ~~the Integrated Aeronautical Information Package~~ an aeronautical information product shall be thoroughly checked by aeronautical information service provider, in order to ~~make certain~~ ensure that all necessary information has been included and that it is correct in detail ~~prior to distribution~~.
- (b) The aeronautical information service provider shall establish verification and validation procedures which ensure that upon receipt of aeronautical data and aeronautical information, quality requirements (~~accuracy, resolution, integrity and traceability~~) are met.

AIS.2030 Data quality specifications

(Refer to Appendix 1 of ICAO Doc 10066 - PANS-AIM for specifications concerning the order of accuracy (including confidence level) for, specifications concerning the resolution of and specifications concerning the integrity classification related to aeronautical data)

(a) DATA ACCURACY

The aeronautical information service provider shall be in accordance with its intended use, ~~ensure that the order of accuracy for aeronautical data is as specified in STS-ATS, Section 2 Subpart A and those of aerodrome technical standard. In that respect, three types of positional data shall be identified as follows:~~

- (1) ~~surveyed points (runway thresholds, navigation aid positions, etc.);~~
- (2) ~~calculated points (mathematical calculations from the known surveyed points of points in space/fixes); and~~
- (3) ~~declared points (e.g. flight information region boundary points).~~

(b) DATA RESOLUTION

- (1) The aeronautical information service provider shall ensure that the order of ~~publication~~ resolution of aeronautical data is ~~as specified in Appendix 5 to this section~~ commensurate with the actual data accuracy.
- (2) The resolution of the data features contained in the database should be ~~commensurate with the data accuracy requirements~~ the same or finer than ~~publication resolution~~.

(c) DATA INTEGRITY

- (1) The aeronautical information service provider shall ensure the integrity of ~~classification for~~ aeronautical data is maintained throughout the data process from origination to distribution to the next intended user ~~as specified in Tables A5-1 to A5-5 of Appendix 5.~~
- (2) ~~The integrity of aeronautical data shall be maintained throughout the data process from survey/origin to distribution to the next intended user (the entity that receives the aeronautical information from the aeronautical information service provider).~~ Based on the applicable integrity classification, ~~the validation and verification~~ procedures shall be put in place in order for:
 - (i) ~~for~~ routine data: avoid corruption throughout the processing of the data;
 - (ii) ~~for~~ essential data: assure corruption does not occur at any stage of the entire process and include additional processes as needed to address potential risks in the overall system architecture to further assure data integrity at this level; and
 - (iii) ~~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 by thorough analysis of the overall system architecture as potential data integrity risks.

(d) DATA TRACEABILITY

The aeronautical information service provider shall ensure the traceability of aeronautical data and that the traceability is retained for as long as the data is in use.

(e) DATA TIMELINESS

The aeronautical information service provider shall ensure the timeliness of aeronautical data by including limits on the effective period of the data elements.

(f) DATA COMPLETENESS

The aeronautical information service provider shall ensure the completeness of the aeronautical data in order to support the intended use.

(g) DATA FORMAT

The aeronautical information service provider shall ensure that the format of delivered aeronautical data is adequate to make certain that such data is interpreted in a manner that is consistent with its intended use.

AIS.2035—Metadata

(Ref: ISO Standard 19115)

~~(a) Metadata shall be collected by the aeronautical information service provider for aeronautical data processes and exchange points. This metadata collection shall be applied throughout the aeronautical information data chain, from survey/origin to distribution to the next intended user.~~

~~(b) The metadata to be collected shall include, as a minimum:~~

- ~~(1) the name of the organizations or entities performing any action of originating, transmitting or manipulating the data;~~
- ~~(2) the action performed; and~~
- ~~(3) the date and time the action was performed.~~

AIS.203540 Data error protection

(Refer to ICAO Doc 10066 - PANS AIM for specifications concerning digital data error detection techniques)

~~(a) The aeronautical information service provider shall protect aeronautical data and data sets in accordance with data error detection, security, and authentication techniques use digital data error detection techniques during the transmission and/or storage of aeronautical data and digital data sets.~~

~~(b) 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. This shall apply to the protection of the integrity classification of data sets as specified in AIS.2030 (e). Digital data error detection techniques shall be used in order to maintain the integrity levels as specified in 3.2.3.~~

AIS.20405 Use of automation

(Refer to ICAO Doc 8126)

~~(a) The aeronautical information service provider shall introduce apply automation with the objective of improving in order to ensure the timeliness, quality, efficiency and cost effectiveness of aeronautical information services.~~

~~(b) Where aeronautical data and aeronautical information are provided in multiple formats, processes shall be implemented by the aeronautical information service provider to ensure data and information consistency between formats. Due consideration to the integrity of data and information shall be given when automated processes are implemented and mitigating steps taken where risks are identified.~~

~~(c) In order to meet the data quality requirements, automation shall:~~

- ~~(1) enable digital aeronautical data exchange between the parties involved in the data processing chain; and~~
- ~~(2) use aeronautical information exchange models and data exchange models designed to be globally interoperable.~~

~~(d) Aeronautical information model used by the aeronautical information service provider should encompass the aeronautical data and aeronautical information to be exchanged.~~

~~(e) The aeronautical information model used should:~~

- ~~(1) use the Unified Modelling Language (UML) to describe the aeronautical information features and their properties, associations and data types;~~
- ~~(2) include data value constraints and data verification rules;~~
- ~~(3) include provisions for metadata as specified in AIS.2035 (b); and~~
- ~~(4) include a temporality model to enable capturing the evolution of the properties of an aeronautical information feature during its life cycle.~~

~~(f) The aeronautical data exchange model used should:~~

- ~~(1) apply a commonly used data encoding format;~~

- ~~(2) cover all the classes, attributes, data types and associations of the aeronautical information model detailed in (e); and~~
- ~~(3) provide an extension mechanism by which groups of users can extend the properties of existing features and add new features which do not adversely affect global standardization.~~

AIS.20450 Quality management system

(Refer to ICAO Doc 9839 - Quality Management System Manual for Aeronautical Service and Doc 9991 - Aeronautical Information Management Training Development Manual)

- (a) The aeronautical information service provider shall implement and maintain a quality management system encompassing all functions of its service, as outlined in AIS.2001. The execution of such quality management systems shall be made demonstrable for each function stage.
- (b) The quality management shall be applicable to the whole aeronautical information data chain from data origination to distribution to the next intended user, taking into consideration the intended use of data.
- (c) The quality management system established in accordance with (a) should follow the ISO 9000 series of quality assurance standards, and be certified by an approved organization.
- (d) Within the context of the established quality management system, the aeronautical information service provider shall identify the competencies and the associated knowledge, skills and abilities required for each function and personnel assigned to perform those functions shall be appropriately trained. Processes shall be in place to ensure that personnel possess the competencies required to perform specific assigned functions. Appropriate records shall be maintained so that the qualifications of personnel can be confirmed. Initial and periodic assessments shall be established that require personnel to demonstrate the required competencies. Periodic assessments of personnel shall be used as a means to detect and correct shortfalls.
- (e) The quality management system shall include the necessary policies, processes and procedures, including those for the use of metadata, to ensure and verify that aeronautical data are traceable throughout the aeronautical information data chain so as to allow any data anomalies or errors detected in use to be identified by root cause, corrected and communicated to affected users.
- (f) The established quality management system shall provide users with the necessary assurance and confidence that distributed aeronautical data and aeronautical information satisfy the aeronautical data quality requirements ~~for accuracy, resolution and integrity as specified in AIS.2025 and AIS.2030 and that the data traceability requirements are met through the provision of appropriate metadata as specified in AIS.2035. The system shall also provide assurance of the applicability period of intended use of aeronautical data and aeronautical information as well as that the agreed distribution dates will be met.~~
- (g) All necessary measures shall be taken to monitor compliance with the quality management system in place.
- (h) The aeronautical information service provider shall demonstrate compliance of the quality management system by internal audit and if non-compliances are identified, initiating actions to correct their causes shall be determined and taken without undue delay. All audit observations and remedial actions shall be evidenced and properly documented.

AIS.20505 Human factors considerations

- (a) The aeronautical information service provider shall take into consideration human factors principles which facilitate their optimum utilization in the organization of its service as well as the design, contents, processing and distribution of aeronautical data and aeronautical information.
- (b) Due consideration shall be given to the integrity of information where human interaction is required and mitigating steps taken where risks are identified.

SUBPART C - SCOPE OF AERONAUTICAL DATA AND AERONAUTICAL INFORMATION**AIS.2055 Scope of aeronautical data and aeronautical information**

(Refer to Appendix 1 of ICAO Doc 10066 - PANS-AIM for specifications concerning the accuracy and integrity classification related to aeronautical data)

- (a) The aeronautical data and aeronautical information to be received and managed by the aeronautical information service provider shall include at least the following sub-domains:
- (1) national regulations, rules and procedures;
 - (2) aerodromes and heliports;
 - (3) airspace;
 - (4) ATS routes;
 - (5) instrument flight procedures;
 - (6) radio navigation aids/systems;
 - (7) obstacles;
 - (8) terrain; and
 - (9) geographic information.
- (b) The aeronautical information service provider shall determine and report aeronautical data in accordance with the accuracy and integrity classification required to meet the needs of the end-user of aeronautical data.

AIS.2060 Metadata

(Refer to ICAO Doc 10066 - PANS AIM for detailed specifications concerning metadata)

The aeronautical information service provider shall collect metadata for aeronautical data processes and exchange points. Metadata collection shall be applied throughout the aeronautical information data chain, from origination to distribution to the next intended user.

SUBPART D - AERONAUTICAL INFORMATION PRODUCTS AND SERVICES**AIS.2065 General specifications**

(Refer to ICAO Doc 10066 - PANS AIM for specifications concerning the order of resolution of aeronautical data provided for each aeronautical information product)

- (a) The aeronautical information service provider shall provide aeronautical information in the form of aeronautical information products and associated services.
- (b) Where aeronautical data and aeronautical information are provided in multiple formats, processes shall be implemented to ensure data and information consistency between formats.

AIS.2070 Aeronautical information in a standardised presentation

(Refer to ICAO Doc 10066 - PANS AIM for detailed specifications about AIP, AIP Amendments, AIP Supplements, AICs and NOTAMs)

- (a) The aeronautical information service provider shall provide aeronautical information in a standardised presentation, which shall include the AIP, AIP Amendments, AIP Supplements, AICs, NOTAMs and Aeronautical Charts. These shall be provided on paper and/or as an electronic document.
- (b) The AIP, AIP Amendment, AIP Supplement and AIC provided as an electronic document (eAIP) shall allow for both displaying on electronic devices and printing on paper.

(c) AERONAUTICAL INFORMATION PUBLICATION (AIP)

The aeronautical information service provider shall ensure that the Seychelles AIP, herein referred to as AIP, include:

- (1) a statement of the Authority responsible for the air navigation facilities, services or procedures covered by the AIP;
- (2) the general conditions under which the services or facilities are available for international use;
- (3) a list of significant differences between the national regulations and practices of the Seychelles and the related ICAO Standards, Recommended Practices and Procedures, given in a form that would enable a user to differentiate readily between the requirements of the Seychelles and the related ICAO provisions;
- (4) the choice made by the Seychelles in each significant case where an alternative course of action is provided for in ICAO Standards, Recommended Practices and Procedures.

(d) AIP SUPPLEMENT

The aeronautical information service provider shall regularly provide a checklist of valid AIP Supplements.

(e) AERONAUTICAL INFORMATION CIRCULARS (AIC)

- (1) The aeronautical information service provider shall use an AIC to provide:
 - (i) a long-term forecast of any major change in legislation, regulations, procedures or facilities; or
 - (ii) information of a purely explanatory or advisory nature liable to affect flight safety; or
 - (iii) information or notification of an explanatory or advisory nature concerning technical, legislative or purely administrative matters.
- (2) An AIC shall not be used for information that qualifies for inclusion in AIP or NOTAM.
- (3) The validity of AIC currently in force shall be reviewed at least once a year.
- (4) A checklist of currently valid AIC shall be regularly provided.

(f) AERONAUTICAL CHARTS

(Refer to Section 3 for technical standards including provision requirements for each aeronautical chart type and Appendix 1 of ICAO Doc 10066 - PANS AIM for specifications concerning the chart resolution for aeronautical data)

- (1) The aeronautical information service provider shall ensure that the aeronautical charts listed alphabetically below shall form part of the AIP or be provided separately to recipients of the AIP, for SIA:
 - (i) Aerodrome Chart - ICAO;
 - (ii) Aerodrome Obstacle Chart - ICAO Type A;

- (iii) Aircraft Parking/Docking Chart - ICAO;
 - (iv) Area Chart - ICAO;
 - (v) Instrument Approach Chart - ICAO;
 - (vi) Standard Arrival Chart - Instrument (STAR) - ICAO;
 - (vii) Standard Departure Chart - Instrument (SID) – ICAO.
- (2) The “En-route Chart - ICAO” shall form part of the AIP or be provided separately to recipients of the AIP.
 - (3) Plotting Chart - ICAO chart shall be provided as aeronautical information products.
 - (4) Electronic aeronautical charts should be provided based on digital databases and the use of geographic information systems.
 - (5) The chart resolution of aeronautical data shall be that as specified for a particular chart.

(g) NOTAM

The aeronautical information service provider shall regularly provide a checklist of valid NOTAM.

AIS.2075 Digital data sets

(Refer to ICAO Doc 10066 – PANS AIM for detailed specifications concerning the content of the digital data sets and metadata)

(a) GENERAL

- (1) The aeronautical information service provider shall ensure that digital data are in the form of the following data sets:
 - (i) AIP data set;
 - (ii) terrain data sets;
 - (iii) obstacle data sets;
 - (iv) aerodrome mapping data sets; and
 - (v) instrument flight procedure data sets.
- (2) Each data set shall be provided to the next intended user together with at least the minimum set of metadata that ensures traceability.
- (3) A checklist of valid data sets shall be regularly provided.

(b) AIP DATA SET

- (1) The aeronautical information service provider should provide an AIP data set covering the extent of information as provided in the AIP. When it is not possible to provide a complete AIP data set, data subset(s) that are available should be provided.
- (2) The AIP data set shall contain the digital representation of aeronautical information of lasting character (permanent information and long duration temporary changes) essential to air navigation.

(c) TERRAIN AND OBSTACLE DATA SETS

(Refer to Appendices 1 and 8 of ICAO Doc 10066 - PANS-AIM for numerical requirements for terrain and obstacle data sets and requirements for terrain and obstacle data collection surfaces).

- (1) The aeronautical information service provider shall ensure that the coverage areas for sets of electronic terrain and obstacle data are specified as:
 - (i) Area 1: the entire territory of the Seychelles;
 - (ii) Area 2: within the vicinity of an aerodrome, subdivided as follows;
 - Area 2a: a rectangular area around a runway that comprises the runway strip plus any clearway that exists.
 - Area 2b: an area extending from the ends of Area 2a in the direction of departure, with a length of 10 km and a splay of 15 per cent to each side;
 - Area 2c: an area extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a; and

- Area 2d: an area outside the Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or to an existing terminal control area (TMA) boundary, whichever is nearest; and
- Area 3: the area bordering an aerodrome movement area that extends horizontally from the edge of a runway to 90 m from the runway centre line and 50 m from the edge of all other parts of the aerodrome movement area.

(d) TERRAIN DATA SETS

- (1) The aeronautical information service provider shall ensure that terrain data sets contain the digital representation of the terrain surface in the form of continuous elevation values at all intersections (points) of a defined grid, referenced to common datum.
- (2) Terrain data shall be provided for:
 - (i) Area 1;
 - (ii) Area 2a;
 - (iii) the take-off flight path area; and
 - (iv) an area bounded by the lateral extent of the aerodrome obstacle limitation surfaces.
- (3) For SIA, additional terrain data should be provided within Area 2 as follows:
 - (i) in the area extending to a 10-km radius from the ARP; and
 - (ii) within the area between 10 km and the TMA boundary or a 45-km radius (whichever is smaller), where terrain penetrates a horizontal terrain data collection surface specified as 120 m above the lowest runway elevation.
- (4) Arrangements should be made for coordinating the provision of terrain data for adjacent aerodromes where their respective coverage areas overlap to assure that the data for the same terrain is correct.
- (5) Terrain data should be provided for Area 3.
- (6) Where additional terrain data is collected to meet other aeronautical requirements, the terrain data sets should be expanded to include this additional data.

(e) OBSTACLE DATA SETS

- (1) The aeronautical information service provider shall ensure that obstacle data sets contain the digital representation of the vertical and horizontal extent of obstacles.
- (2) Obstacle data shall not be included in terrain data sets.
- (3) For SIA obstacle data shall be provided for:
 - (i) obstacles in Area 1 for which the height is 100 m or higher above ground.
 - (ii) all obstacles within Area 2 that are assessed as being a hazard to air navigation;
 - (iii) for Area 2a, for those obstacles that penetrate an obstacle data collection surface outlined by a rectangular area around a runway that comprises the runway strip plus any clearway that exists.

The Area 2a obstacle collection surface shall have a height of 3 m above the nearest runway elevation measured along the runway centre line, and for those portions related to a clearway, if one exists, at the elevation of the nearest runway end;
 - (iv) objects in the take-off flight path area which project above a plane surface having a 1.2 per cent slope and having a common origin with the take-off flight path area;
 - (v) penetrations of the aerodrome obstacle limitation surfaces.
 - (vi) Area 2b: an area extending from the ends of Area 2a in the direction of departure, with a length of 10 km and a splay of 15% to each side. The Area 2b obstacle collection surface has a 1.2% slope extending from the ends of Area 2a at the elevation of the runway end in the direction of departure, with a length of 10 km and a splay of 15% to each side;
 - (vii) Area 2c: an area extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a. The Area 2c obstacle collection surface has a 1.2% slope extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a. The initial elevation of Area 2c shall be the elevation of the point of Area 2a at which it commences.

(f) AERODROME MAPPING DATA SETS

The aeronautical information service provider shall make available aerodrome mapping data sets which shall contain the digital representation of aerodrome features.

(g) INSTRUMENT FLIGHT PROCEDURE DATA SETS

The aeronautical information service provider shall make available instrument flight procedure data sets which shall contain the digital representation of instrument flight procedures.

AIS.2080 Distribution services**(a) GENERAL**

(1) The aeronautical information services provider shall distribute aeronautical information products to authorized users who request them. AIP, AIP Amendments, AIP Supplements and AIC shall be made available by the most expeditious means.

(2) Global communication networks such as the Internet should, whenever practicable, be employed for the provision of aeronautical information products.

(b) NOTAM DISTRIBUTION

(Refer to ICAO Doc 8126 - AIS Manual for guidance material relating to the selective distribution lists).

(1) The aeronautical information services provider shall prepare NOTAM in conformity with the relevant provisions of the ICAO communication procedures and distribute such NOTAM on the basis of a request using the Aeronautical Fixed Service (AFS), whenever practicable.

(2) When a NOTAM is sent by means other than the AFS, a six-digit date-time group indicating the date and time of NOTAM origination, and the identification of the originator shall be used, preceding the text.

(3) The aeronautical information service provider shall select the NOTAM that are to be given international distribution.

(4) International exchange of NOTAM shall take place only as mutually agreed between the aeronautical information services provider's NOTAM office and other international NOTAM offices concerned and between the aeronautical information services provider's NOTAM office and multinational NOTAM Processing Units.

(5) The aeronautical information services provider shall upon request grant distribution of NOTAM series other than those distributed internationally and selective distribution lists should be used when practicable.

AIS.2085 Per-flight information service

(a) make available to flight operations personnel, including flight crews and services responsible for pre-flight information, aeronautical information relative to the route stages originating at SIA.

(b) Aeronautical information provided for pre-flight planning purposes shall include information of operational significance from the elements of the aeronautical information products.

AIS.2090 Post-flight information service

(a) The aeronautical information service provider shall make arrangements to receive information concerning the state and operation of air navigation facilities or services noted by aircrews at SIA. The arrangements shall ensure that such information is made available for distribution as the circumstances necessitate.

(b) The aeronautical information service provider shall make arrangements to receive information on the presence of wildlife hazards observed by aircrews. The arrangement shall ensure that such information is made available for distribution as the circumstances necessitate.

SUBPART C — AERONAUTICAL INFORMATION PUBLICATIONS (AIP)**AIS.2060 — Contents**

(Refer to ICAO Doc 8126 — Aeronautical Information Services Manual)

- ~~(a) The aeronautical information service provider shall ensure that the Seychelles AIP, herein referred to as AIP, contain, in three parts, sections and subsections uniformly referenced to allow for standardized electronic data storage and retrieval, current information relating to, and arranged under, those subjects enumerated in Appendix 1 that appear in roman type.~~
- ~~(b) When the AIP, or volume of the AIP, is designed basically to facilitate operational use in flight, the precise format and arrangement may be different from those in (a) provided that an adequate table of contents is included.~~
- ~~(c) The AIP shall, in addition, contain current information relating to those subjects enumerated in Appendix 1 to Section 2 that appear in italic type.~~
- ~~(d) The AIP shall include in Part 1 — General (GEN):~~
 - ~~(1) a statement of the Authority responsible for the air navigation facilities, services or procedures covered by the AIP;~~
 - ~~(2) the general conditions under which the services or facilities are available for international use;~~
 - ~~(3) a list of significant differences between the national regulations and practices of the Seychelles and the related ICAO Standards, Recommended Practices and Procedures, given in a form that would enable a user to differentiate readily between the requirements of the State and the related ICAO provisions;~~
 - ~~(4) the choice made by a State in each significant case where an alternative course of action is provided for in ICAO Standards, Recommended Practices and Procedures.~~
- ~~(e) The aeronautical charts listed alphabetically below shall form part of the AIP, or be distributed separately to recipients of the AIP:~~
 - ~~(1) Aerodrome/Heliport Chart — ICAO;~~
 - ~~(2) Aerodrome Ground Movement Chart — ICAO;~~
 - ~~(3) Aerodrome Obstacle Chart — ICAO Type A;~~
 - ~~(4) Aerodrome Terrain and Obstacle Chart — ICAO (Electronic);~~
 - ~~(5) Aircraft Parking/Docking Chart — ICAO;~~
 - ~~(6) Area Chart — ICAO;~~
 - ~~(7) ATC Surveillance Minimum Altitude Chart — ICAO;~~
 - ~~(8) Instrument Approach Chart — ICAO;~~
 - ~~(9) Precision Approach Terrain Chart — ICAO;~~
 - ~~(10) Standard Arrival Chart — Instrument (STAR) — ICAO;~~
 - ~~(11) Standard Departure Chart — Instrument (SID) — ICAO;~~
 - ~~(12) Visual Approach Chart — ICAO.~~
- ~~(f) The aeronautical information service provider shall use charts, maps or diagrams when appropriate, to complement or as a substitute for the tabulations or text of AIP.~~

AIS.2065 — General specifications

- ~~(a) The aeronautical information service provider shall ensure that the AIP:~~
 - ~~(3) is self contained and include a table of contents;~~
 - ~~(4) does not duplicate information within the itself or from other sources;~~
 - ~~(5) is not published in loose leaf form unless the complete publication is reissued at frequent intervals;~~
 - ~~(6) is dated and in the case of the AIP issued in loose leaf form, each page is dated with the date, consisting of the day, month (by name) and year, being the publication date or the effective date of the information.~~
- ~~(b) A checklist giving the current date of each page in the AIP series shall be reissued frequently to assist the user in maintaining a current publication. The page number/chart title and date of the checklist shall appear on the checklist itself.~~

- ~~(c) The AIP issued as a bound volume and each page of an AIP issued in loose leaf form shall be so annotated as to indicate clearly:
 - ~~(1) the identity of the AIP;~~
 - ~~(2) the territory covered and subdivisions when necessary;~~
 - ~~(3) the Seychelles as the State issuing the AIP and the Seychelles Civil Aviation Authority as the producing authority;~~
 - ~~(4) page numbers/chart titles;~~
 - ~~(5) the degree of reliability if the information is doubtful.~~~~
- ~~(d) The sheet should be no larger than A4 size (210 x297)cm, except that larger sheets may be used provided they are folded to the same size.~~
- ~~(e) All changes to the AIP, or new information on a republished page, shall be identified by a distinctive symbol or annotation.~~
- ~~(f) Operationally significant changes to the AIP shall be published in accordance with Aeronautical Information Regulation and Control (AIRAC) procedures and shall be clearly identified by the acronym AIRAC.~~
- ~~(g) The aeronautical information service provider shall amend or reissue the AIP at such regular intervals as may be necessary to keep it up to date. Recourse to hand amendments or annotations shall be kept to the minimum. The normal method of amendment shall be by means of replacement sheets. The regular interval shall be specified in the AIP, Part 1 – General (GEN).~~

AIS.2070— Specifications for AIP Amendments

(Refer to ICAO Doc 8126—Aeronautical Information Services Manual)

- ~~(a) The aeronautical information service provider shall publish permanent changes to the AIP as AIP Amendments with:
 - ~~(1) each AIP Amendment allocated a serial number, which shall be consecutive; and~~
 - ~~(2) each AIP Amendment page, including the cover sheet, displaying a publication date.~~
 - ~~(3) each AIRAC AIP Amendment page, including the cover sheet, displaying an effective date. When an effective time other than 0000 UTC is used, the effective time shall also be displayed on the cover sheet.~~~~
- ~~(b) When an AIP Amendment is issued, it shall include references to the serial number of those elements, if any, of the Integrated Aeronautical Information Package which have been incorporated into the amendment.~~
- ~~(c) A brief indication of the subjects affected by the amendment shall be given on the AIP Amendment cover sheet.~~
- ~~(d) When an AIP Amendment will not be published at the established interval or publication date, a NIL notification shall be originated and distributed by the monthly plain language list of valid NOTAM required by AIS.2095 (k).~~

AIS.2075— Specifications for AIP Supplements

(Refer to ICAO Doc 8126—Aeronautical Information Services Manual)

- ~~(a) The aeronautical information service provider shall publish as AIP Supplements, temporary changes of long duration (three months or longer) and information of short duration which contains extensive text and/or graphics.~~
- ~~(b) Each AIP Supplement shall be allocated a serial number which shall be consecutive and based on the calendar year.~~
- ~~(c) AIP Supplement pages shall be kept in the AIP as long as all or some of their contents remain valid.~~
- ~~(d) When an error occurs in an AIP Supplement or when the period of validity of an AIP Supplement is changed, a new AIP Supplement shall be published as a replacement.~~
- ~~(e) When an AIP Supplement is sent in replacement of a NOTAM, it shall include a reference to the serial number of the NOTAM.~~
- ~~(f) A checklist of valid AIP Supplements shall be issued at intervals of not more than one month. This information shall be issued through the medium of the monthly plain language list of valid NOTAM required by AIS.2095 (k).~~
- ~~(g) AIP Supplement pages shall be coloured in order to be conspicuous, preferably in yellow and kept as the first item in the AIP parts.~~

~~AIS.2080 — Distribution~~

~~The aeronautical information service provider shall make available by the most expeditious means the AIP, AIP Amendments and AIP Supplements.~~

~~AIS.2085 — Electronic AIP (e-AIP)~~

~~(Refer to ICAO Doc 9855 — Guidelines on the Use of the Public Internet for Aeronautical Applications)~~

- ~~(a) The aeronautical information service provider shall also publish the AIP, AIP Amendments, AIP Supplements and AICs in a format that allows for displaying on a computer screen and printing on paper.~~
- ~~(b) When provided, the information content of the e-AIP and the structure of chapters, sections and sub-sections shall follow the content and structure of the paper AIP. The e-AIP shall include files that allow for printing a paper AIP.~~

SUBPART D—NOTAM**AIS.2090—Origination**

(Refer to ICAO Doc 8126—Aeronautical Information Services Manual)

- ~~(a) The aeronautical information service provider shall originate and issue a NOTAM promptly whenever the information to be distributed is of a temporary nature and of short duration or when operationally significant permanent changes, or temporary changes of long duration are made at short notice, except for extensive text and/or graphics. The NOTAM shall be originated and issued concerning the following information:~~
 - ~~(i) establishment, closure or significant changes in operation of aerodrome(s) or runways;~~
 - ~~(ii) establishment, withdrawal and significant changes in operation of aeronautical services (AGA, AIS, ATS, CNS, MET, SAR, etc.);~~
 - ~~(iii) establishment, withdrawal and significant changes in operational capability of radio navigation and air-ground communication services. This includes: interruption or return to operation, change of frequencies, change in notified hours of service, change of identification, change of orientation (directional aids), change of location, power increase or decrease amounting to 50% or more, change in broadcast schedules or contents, or irregularity or unreliability of operation of any radio navigation and air-ground communication services;~~
 - ~~(iv) establishment, withdrawal or significant changes made to visual aids;~~
 - ~~(v) interruption of or return to operation of major components of aerodrome lighting systems;~~
 - ~~(vi) establishment, withdrawal or significant changes made to procedures for air navigation services;~~
 - ~~(vii) occurrence or correction of major defects or impediments in the manoeuvring area;~~
 - ~~(viii) changes to and limitations on availability of fuel, oil and oxygen;~~
 - ~~(ix) major changes to search and rescue facilities and services available;~~
 - ~~(x) establishment, withdrawal or return to operation of hazard beacons marking obstacles to air navigation;~~
 - ~~(xi) changes in regulations requiring immediate action, e.g. prohibited areas for SAR action;~~
 - ~~(xii) presence of hazards which affect air navigation (including obstacles, military exercises, displays, races and major parachuting events outside promulgated sites);~~
 - ~~(xiii) erecting or removal of, or changes to, obstacles to air navigation in the take off/climb, missed approach, approach areas and runway strip;~~
 - ~~(xiv) establishment or discontinuance (including activation or deactivation) as applicable, or changes in the status of prohibited, restricted or danger areas;~~
 - ~~(xv) establishment or discontinuance of areas or routes or portions thereof where the possibility of interception exists and where the maintenance of guard on the VHF emergency frequency 121.5 MHz is required;~~
 - ~~(xvi) allocation, cancellation or change of location indicators;~~
 - ~~(xvii) significant changes in the level of protection normally available at an aerodrome/heliport for rescue and fire fighting purposes. NOTAM shall be originated only when a change of category is involved and such change of category shall be clearly stated;~~
 - ~~(xviii) presence or removal of, or significant changes in, hazardous conditions due to radioactive material, toxic chemicals or water on the movement area;~~
 - ~~(xix) outbreaks of epidemics necessitating changes in notified requirements for inoculations and quarantine measures;~~
 - ~~(xx) forecasts of solar cosmic radiation, where provided space weather events (that may have an impact on high frequency radio communications, GNSS-based navigation and surveillance, and radiation exposure at flight levels), the date and time of the event, the flight levels where provided, and portions of airspace which could be affected;~~
 - ~~(xxi) release into the atmosphere of radioactive materials or toxic chemicals following chemical incident, the location, date and time of the incident, the flight levels and routes or portions thereof which could be affected and the direction of movement;~~
 - ~~(xxii) establishment of operations of humanitarian relief missions, such as those undertaken under the auspices of the United Nations, together with procedures and/or limitations which affect air navigation; and~~

- (xxiii) ~~implementation of short term contingency measures in cases of disruption, or partial disruption, of air traffic services and related supporting services.~~
- (b) ~~The aeronautical information service provider shall consider the need for origination of a NOTAM in any other circumstance which may affect the operation of aircraft.~~
- (c) ~~The following information shall not be notified by NOTAM:~~
- (i) ~~routine maintenance work on aprons and taxiways which does not affect the safe movement of aircraft;~~
 - (ii) ~~runway marking work, when aircraft operations can safely be conducted on other available runways, or the equipment used can be removed when necessary;~~
 - (iii) ~~temporary obstructions in the vicinity of aerodromes/heliports that do not affect the safe operation of aircraft;~~
 - (iv) ~~partial failure of aerodrome/heliport lighting facilities where such failure does not directly affect aircraft operations;~~
 - (v) ~~partial temporary failure of air ground communications when suitable alternative frequencies are known to be available and are operative;~~
 - (vi) ~~the lack of apron marshalling services and road traffic control;~~
 - (vii) ~~the unserviceability of location, destination or other instruction signs on the aerodrome movement area;~~
 - (viii) ~~parachuting when in uncontrolled airspace under VFR (see AIS.2100, (a) (13)), when controlled, at promulgated sites or within danger or prohibited areas;~~
 - (ix) ~~other information of a similar temporary nature.~~
- (d) ~~The aeronautical information service provider shall give at least seven days' advance notice of the activation of established danger, restricted or prohibited areas and of activities requiring temporary airspace restrictions other than for emergency operations. Notice of any subsequent cancellation of the activities or any reduction of the hours of activity or the dimensions of the airspace should be given as soon as possible.~~
- (e) ~~The aeronautical information service provider shall give an estimate of the period of unserviceability or the time at which restoration of service is expected for NOTAM notifying unserviceability of navigational aids, facilities or communication services.~~
- (f) ~~When an AIP Amendment or an AIP Supplement is published in accordance with AIRAC procedures, the aeronautical information service provider shall originate a NOTAM giving a brief description of the contents, the effective date and time, and the reference number of the amendment or supplement. This NOTAM shall come into force on the same effective date and time as the amendment or supplement and shall remain valid in the pre-flight information bulletin for a period of fourteen days.~~

AIS.2095 — General specifications

(Refer to ICAO Doc 8126 — Aeronautical Information Services Manual and Doc 8400 — Procedures for Air Navigation Services — ICAO Abbreviations and Codes)

- (a) ~~The aeronautical information service provider shall ensure that each NOTAM contain the information in the order shown in the NOTAM Format in Appendix 4, except as otherwise provided in (e).~~
- (b) ~~The text of NOTAM shall be composed of the significations/uniform abbreviated phraseology assigned to the ICAO NOTAM Code complemented by ICAO abbreviations, indicators, identifiers, designators, call signs, frequencies, figures and plain English language.~~
- (c) ~~Information concerning an operationally significant change in volcanic ash cloud shall, when reported by means of an ASHTAM, contain the information in the order shown in the ASHTAM Format in Appendix 3 of this section.~~
- (d) ~~The aeronautical information service provider shall allocate to each NOTAM a series identified by a letter and a four digit number followed by a stroke and a two digit number for the year. The four digit number shall be consecutive and based on the calendar year.~~
- (e) ~~When errors occur in a NOTAM, a NOTAM with a new number to replace the erroneous NOTAM shall be issued or the erroneous NOTAM shall be cancelled and a new NOTAM issued.~~
- (f) ~~When a NOTAM is issued which cancels or replaces a previous NOTAM, the series and number of the previous NOTAM shall be indicated. The series, location indicator and subject of both NOTAM shall be the same. Only one NOTAM shall be cancelled or replaced by a NOTAM.~~
- (g) ~~Each NOTAM shall:~~

- ~~(1) deal with only one subject and one condition of the subject;~~
- ~~(2) be as brief as possible and so compiled that its meaning is clear without the need to refer to another document;~~
- ~~(3) be transmitted as a single telecommunication message.~~
- ~~(h) A NOTAM containing permanent or temporary information of long duration shall carry appropriate AIP or AIP Supplement references.~~
- ~~(i) Location indicators included in the text of a NOTAM shall be those contained in ICAO Doc 7910—Location Indicators and in no case shall a curtailed form of such indicators be used. Where no ICAO location indicator is assigned to the location, its place name spelt in accordance with AIS.1015, (a) (2) shall be entered in plain language.~~
- ~~(j) A checklist of valid NOTAM shall:
 - ~~(1) be issued as a NOTAM over the aeronautical fixed service at intervals of not more than one month using the NOTAM format specified in Appendix 6 of this section. One NOTAM shall be issued for each series;~~
 - ~~(2) refer to the latest AIP Amendments, AIP Supplements and at least the internationally distributed AIC;~~
 - ~~(3) have the same distribution as the actual message series to which they refer and shall be clearly identified as a checklist.~~~~
- ~~(k) A monthly plain language list of valid NOTAM, including indications of the latest AIP Amendments, AIC issued and a checklist of AIP Supplements, shall be prepared by the aeronautical information service provider with a minimum of delay and forwarded by the most expeditious means to recipients of the Integrated Aeronautical Information Package.~~

AIS.2100—Distribution

- ~~(a) The aeronautical information service provider shall distribute NOTAM on the basis of a request.~~
- ~~(b) NOTAM shall be prepared in conformity with the relevant provisions of the ICAO communication procedures.~~
- ~~(c) The aeronautical fixed service shall, whenever practicable, be employed for NOTAM distribution.~~
- ~~(d) When a NOTAM exchanged as specified in (f) is sent by means other than the aeronautical fixed service, a six-digit date-time group indicating the date and time of NOTAM origination, and the identification of the originator shall be used, preceding the text.~~
- ~~(e) The aeronautical information service provider shall select the NOTAM that are to be given international distribution. Selective distribution lists should be used when practicable.~~
- ~~(f) International exchange of NOTAM shall take place only as mutually agreed between the aeronautical information service provider and other international NOTAM offices~~
- ~~(g) The exchange of NOTAM between the aeronautical information service provider and other international NOTAM offices shall, as far as practicable, be limited to the requirements of the receiving NOTAM office concerned by means of separate series providing for at least international and domestic flights.~~
- ~~(h) A predetermined distribution system for NOTAM transmitted on the aeronautical fixed service in accordance with Appendix 3 shall be used whenever possible, subject to the requirements of (f).~~

SUBPART E – AERONAUTICAL INFORMATION REGULATION AND CONTROL (AIRAC) UPDATES**AIS.2095 General specifications**

The aeronautical information service provider shall keep aeronautical data and aeronautical information up to date.

AIS.2100 Aeronautical information regulation and control (AIRAC)

- (a) The aeronautical information service provider shall distribute information concerning the following circumstances under the regulated system (AIRAC), ~~listed in Appendix 2, Part 1~~, i.e. basing establishment, withdrawal or significant changes upon a series of common effective dates at intervals of 28 days:
- (1) limits (horizontal and vertical), regulations and procedures applicable to:
 - (i) the flight information region;
 - (ii) control areas;
 - (iii) the control zones;
 - (iv) advisory areas;
 - (v) air traffic services (ATS) routes;
 - (vi) permanent prohibited and restricted areas (including type and periods of activity when known);
 - (vii) permanent areas or routes or portions thereof where the possibility of interception exists;
 - (2) positions, frequencies, call signs, identifiers, known irregularities and maintenance periods of radio navigation aids, and communication and surveillance facilities;
 - (3) holding and approach procedures, arrival and departure procedures, noise abatement procedures and any other pertinent ATS procedures;
 - (4) transition levels, transition altitudes and minimum sector altitudes;
 - (5) meteorological facilities (including broadcasts) and procedures;
 - (6) runways and stopways;
 - (7) taxiways and aprons;
 - (8) aerodrome ground operating procedures (including low visibility procedures);
 - (9) approach and runway lighting; and
 - (10) aerodrome operating minima if published by the Authority.
- (b) The information notified under the AIRAC system shall not be changed further for at least another 28 days after the effective date, unless the circumstance notified is of a temporary nature and would not persist for the full period.
- (c) The information provided under the AIRAC system shall be made available so as to reach recipients at least 28 days in advance of the effective date. AIRAC information shall be distributed at least 42 days in advance of the AIRAC effective dates with the objective of reaching recipients at least 28 days in advance of the effective date.
- (d) ~~The regulated system (AIRAC) shall also be used for the provision of information relating to the establishment and withdrawal of, and premeditated significant changes in, the circumstances listed in Appendix 2, Part 2 of this section. When information has not been submitted by the AIRAC date, a NIL notification shall be originated and distributed by NOTAM or other suitable means, not later than one cycle before the AIRAC effective date concerned.~~
- (e) Implementation dates other than AIRAC effective dates shall not be used for pre-planned operationally significant changes requiring cartographic work and/or for updating of navigation databases.
- (f) ~~The use of the date in the AIRAC cycle which occurs between 21 December and 17 January inclusive should be avoided as an effective date for the introduction of significant changes under the AIRAC system.~~
The aeronautical information services provider should use the regulated system (AIRAC) for the provision of information relating to the establishment and withdrawal of, and premeditated significant changes in, the circumstances listed below:
- (i) position, height and lighting of navigational obstacles;
 - (ii) hours of service of aerodromes, facilities and services;

- (iii) customs, immigration and health services;
 - (iv) temporary danger, prohibited and restricted areas and navigational hazards, military exercises and mass movements of aircraft; and
 - (v) temporary areas or routes or portions thereof where the possibility of interception exists.
- (g) Whenever major changes are planned and where advance notice is desirable and practicable, information should be made available so as to reach recipients at least 56 days in advance of the effective date. This should be applied to the establishment of, and premeditated major changes in, the circumstances listed below, and other major changes if deemed necessary:
- (3) new aerodromes for international instrument flight rules (IFR) operations;
 - (4) new runways for IFR operations at international aerodromes;
 - (5) design and structure of the ATS route network;
 - (6) design and structure of a set of terminal procedures (including change of procedure bearings due to magnetic variation change);
 - (7) variation change);
 - (8) coordination is required.

AIS.2105 Provision of information in paper copy form Aeronautical information product updates

- ~~(a) The aeronautical information service provider shall distribute information provided under the AIRAC system in paper copy form at least 42 days in advance of the effective date with the objective of reaching recipients at least 28 days in advance of the effective date.~~
- ~~(b) Whenever major changes are planned and where advance notice is desirable and practicable, information provided in paper copy form should be distributed by the aeronautical information service provider at least 56 days in advance of the effective date. This should be applied to the establishment of, and premeditated major changes in, the circumstances listed in Appendix 2, Part 3 of this section, and other major changes if deemed necessary.~~
- (a) AIP UPDATES
- (1) The aeronautical information service provider shall amend or re-issue the AIP at such regular intervals as may be necessary to keep it up to date.
 - (2) Permanent changes to the AIP shall be published as AIP Amendments.
 - (3) Temporary changes of long duration (three months or longer) and information of short duration which contains extensive text and/or graphics shall be published as AIP Supplements.
- (b) NOTAM
- (Refer to ICAO Doc 10066 - PANS-AIM, Doc 10066 for detailed specifications concerning the Trigger NOTAM).*
- (1) The aeronautical information service provider shall originate a Trigger NOTAM when an AIP Amendment or an AIP Supplement is published in accordance with AIRAC procedures.
 - (2) A NOTAM shall be originated and issued promptly whenever the information to be distributed is of a temporary nature and of short duration, or when operationally significant permanent changes or temporary changes of long duration are made at short notice, except for extensive text and/or graphics.
 - (3) The aeronautical information service provider shall originate and issue NOTAM concerning the following information:
 - (i) establishment, closure or significant changes in operation of aerodrome(s) or runways;
 - (ii) establishment, withdrawal and significant changes in operation of aeronautical services (AGA, AIS, ATS, CNS, MET, SAR, etc.);
 - (iii) establishment, withdrawal and significant changes in operational capability of radio navigation and air-ground communication services. This includes: interruption or return to operation, change of frequencies, change in notified hours of service, change of identification, change of orientation (directional aids), change of location, power increase or decrease amounting to 50% or more, change in broadcast schedules or contents, or irregularity or unreliability of operation of any radio navigation and air-ground communication services or limitations of relay stations including operational impact, affected service, frequency and area;
 - (iv) unavailability of back-up and secondary systems, having a direct operational impact;

- (v) establishment, withdrawal or significant changes made to visual aids;
 - (vi) interruption of or return to operation of major components of aerodrome lighting systems;
 - (vii) establishment, withdrawal or significant changes made to procedures for air navigation services;
 - (viii) occurrence or correction of major defects or impediments in the manoeuvring area;
 - (ix) changes to and limitations on availability of fuel, oil and oxygen;
 - (x) major changes to search and rescue facilities and services available;
 - (xi) establishment, withdrawal or return to operation of hazard beacons marking obstacles to air navigation;
 - (xii) changes in regulations requiring immediate action, e.g. prohibited areas for SAR action;
 - (xiii) presence of hazards which affect air navigation (including obstacles, military exercises, displays, races and major parachuting events outside promulgated sites);
 - (xiv) erecting or removal of, or changes to, obstacles to air navigation in the take-off/climb, missed approach, approach areas and runway strip;
 - (xv) establishment or discontinuance (including activation or deactivation) as applicable, or changes in the status of prohibited, restricted or danger areas;
 - (xvi) establishment or discontinuance of areas or routes or portions thereof where the possibility of interception exists and where the maintenance of guard on the VHF emergency frequency 121.5 MHz is required;
 - (xvii) allocation, cancellation or change of location indicators;
 - (xviii) ~~significant changes in the level of protection normally available at an aerodrome/heliport for rescue and fire-fighting purposes category provided. NOTAM shall be originated only when a change of category is involved and such change of category shall be clearly stated;~~
 - (xix) presence or removal of, or significant changes in, hazardous conditions due to radioactive material, toxic chemicals or water on the movement area;
 - (xx) outbreaks of epidemics necessitating changes in notified requirements for inoculations and quarantine measures;
 - (xxi) ~~forecasts of solar cosmic radiation, where provided space weather events (that may have an impact on high frequency radio communications, GNSS based navigation and surveillance, and radiation exposure at flight levels), the date and time of the event, the flight levels where provided, and portions of airspace which could be affected~~ Observations or forecasts of space weather phenomena, the date and time of their occurrence, the flight levels where provided and portions of the airspace which may be affected by the phenomena;
 - (xxii) release into the atmosphere of radioactive materials or toxic chemicals following chemical incident, the location, date and time of the incident, the flight levels and routes or portions thereof which could be affected and the direction of movement;
 - (xxiii) establishment of operations of humanitarian relief missions, such as those undertaken under the auspices of the United Nations, together with procedures and/or limitations which affect air navigation; and
 - (xxiv) implementation of short-term contingency measures in cases of disruption, or partial disruption, of air traffic services and related supporting services.
- ~~(e) The aeronautical information service provider shall consider the need for origination of a NOTAM in any other circumstance which may affect the operation of aircraft.~~
- (4) ~~(e)~~ The following information shall not be notified by NOTAM:
- (i) routine maintenance work on aprons and taxiways which does not affect the safe movement of aircraft;
 - (ii) runway marking work, when aircraft operations can safely be conducted on other available runways, or the equipment used can be removed when necessary;
 - (iii) temporary obstructions in the vicinity of aerodromes/heliports that do not affect the safe operation of aircraft;
 - (iv) partial failure of aerodrome/heliport lighting facilities where such failure does not directly affect aircraft operations;

- (v) partial temporary failure of air-ground communications when suitable alternative frequencies are known to be available and are operative;
- (vi) the lack of apron marshalling services and road traffic control;
- (vii) the unserviceability of location, destination or other instruction signs on the aerodrome movement area;
- (viii) parachuting when in uncontrolled airspace under VFR, when controlled, at promulgated sites or within danger or prohibited areas;
- (ix) training activities by ground units;
- (x) unavailability of back-up and secondary systems if these do not have an operational impact;
- (xi) limitations to airport facilities or general services with no operational impact;
- (xii) national regulations not affecting general aviation;
- (xiii) announcement or warnings about possible/potential limitations, without any operational impact;
- (xiv) general reminders on already published information;
- (xv) availability of equipment for ground units without containing information on the operational impact for airspace and facility users;
- (xvi) information about laser emissions without any operational impact and fireworks below minimum flying heights;
- (xvii) closure of movement area parts in connection with planned work locally coordinated of duration of less than one hour;
- (xviii) closure or unavailability of, or changes in, operation of aerodrome(s)/heliport(s) outside the aerodrome(s)/heliport(s) operational hours; and
- (xix) other non-operational information of a similar temporary nature.

(c) DATA SET UPDATES

- (1) The aeronautical information services provider shall amend or re-issue data sets at such regular intervals as may be necessary to keep them up to date.
- (2) Permanent changes and temporary changes of long duration (three months or longer) made available as digital data shall be issued in the form of a complete data set or a subset that includes only the differences from the previously issued complete data set.
- (3) When made available as a completely reissued data set, the differences from the previously issued complete data set should be indicated.
- (4) When temporary changes of short duration are made available as digital data (digital NOTAM), they should use the same aeronautical information model as the complete data set.
- (5) Updates to AIP and digital data sets shall be synchronized.

AIS.2115— Provision of information as electronic media

- ~~(a) The aeronautical information service provider shall where an aeronautical database is established, ensure that the effective dates of data coincide with the established AIRAC effective dates when updating its contents concerning the circumstances listed in Appendix 2, Part 1 of this section.~~
- ~~(b) Information provided as electronic media, concerning the circumstances listed in Appendix 2, Part 1, shall be distributed/made available by the aeronautical information service provider so as to reach recipients at least 28 days in advance of the AIRAC effective date.~~
- ~~(c) Whenever major changes are planned and where advance notice is desirable and practicable, information provided as electronic media should be distributed/made available at least 56 days in advance of the effective date. This should be applied to the establishment of, and premeditated major changes in, the circumstances listed in Appendix 2, Part 3 of this section, and other major changes if deemed necessary.~~

SUBPART F—AERONAUTICAL INFORMATION CIRCULARS (AIC)**AIS.2120—Origination**

- (a) ~~The aeronautical information service provider shall originate an AIC whenever it is necessary to promulgate aeronautical information which does not qualify:~~
- ~~(1) under the specifications in 4.1 for inclusion in an Aeronautical Information Publication (AIP); or~~
 - ~~(2) under the specifications in 5.1 for the origination of a NOTAM.~~
- (b) ~~An AIC shall be originated whenever it is desirable to promulgate:~~
- ~~(1) a long term forecast of any major change in legislation, regulations, procedures or facilities;~~
 - ~~(2) information of a purely explanatory or advisory nature liable to affect flight safety;~~
 - ~~(3) information or notification of an explanatory or advisory nature concerning technical, legislative or purely administrative matters. This shall include:~~
 - ~~(i) forecasts of important changes in the air navigation procedures, services and facilities provided;~~
 - ~~(ii) forecasts of implementation of new navigation systems;~~
 - ~~(iii) significant information arising from aircraft accident/incident investigation which has a bearing on flight safety;~~
 - ~~(iv) information on regulations relating to the safeguarding of international civil aviation against acts of unlawful interference;~~
 - ~~(v) advice on medical matters of special interest to pilots;~~
 - ~~(vi) warnings to pilots concerning the avoidance of physical hazards;~~
 - ~~(vii) effect of certain weather phenomena on aircraft operations;~~
 - ~~(viii) information on new hazards affecting aircraft handling techniques;~~
 - ~~(ix) regulations relating to the carriage of restricted articles by air;~~
 - ~~(x) reference to the requirements of, and publication of changes in, national legislation;~~
 - ~~(xi) aircrew licensing arrangements;~~
 - ~~(xii) training of aviation personnel;~~
 - ~~(xiii) application of, or exemption from, requirements in national legislation;~~
 - ~~(xiv) advice on the use and maintenance of specific types of equipment;~~
 - ~~(xv) actual or planned availability of new or revised editions of aeronautical charts;~~
 - ~~(xvi) carriage of communication equipment;~~
 - ~~(xvii) explanatory information relating to noise abatement;~~
 - ~~(xviii) selected airworthiness directives;~~
 - ~~(xix) changes in NOTAM series or distribution, new editions of AIP or major changes in their contents, coverage or format;~~
 - ~~(xx) other information of a similar nature.~~

AIS.2125—General specifications

(Refer to ICAO Doc 8126—Aeronautical Information Services Manual)

The aeronautical information service provider shall:

- ~~(a) select the AIC that are to be given international distribution;~~
- ~~(b) allocate a serial number to each AIC which shall be consecutive and based on the calendar year;~~
- ~~(c) separately identify each series of AIC by a letter when AIC are distributed in more than one series;~~
- ~~(d) practice differentiation and identification of AIC topics according to subjects using colour coding where the numbers of AIC in force are sufficient to make identification in this form necessary; and~~
- ~~(e) issue a checklist of AIC currently in force at least once a year, with distribution as for the AIC.~~

AIS.2130—Distribution

The aeronautical information service provider shall give AIC selected for international distribution the same distribution as for the AIP.

SUBPART G — PRE-FLIGHT AND POST-FLIGHT INFORMATION**AIS.2135 — Pre-flight information**

- ~~(a) At the Seychelles International Airport (SIA), the aeronautical information service provider shall make available to flight operations personnel, including flight crews and services responsible for pre-flight information, aeronautical information essential for the safety, regularity and efficiency of air navigation and relative to the route stages originating at SIA.~~
- ~~(b) Aeronautical information provided for pre-flight planning purposes at SIA referred to in (a) shall include relevant:~~
- ~~(1) elements of the Integrated Aeronautical Information Package;~~
 - ~~(2) maps and charts.~~
- ~~(c) Additional current information relating to SIA as the departure aerodrome shall be provided concerning the following:~~
- ~~(1) construction or maintenance work on or immediately adjacent to the manoeuvring area;~~
 - ~~(2) rough portions of any part of the manoeuvring area, whether marked or not, e.g. broken parts of the surface of runways and taxiways;~~
 - ~~(3) presence and depth of water on runways and taxiways, including their effect on surface friction;~~
 - ~~(4) parked aircraft or other objects on or immediately adjacent to taxiways;~~
 - ~~(5) presence of other temporary hazards;~~
 - ~~(6) presence of birds constituting a potential hazard to aircraft operations;~~
 - ~~(7) failure or irregular operation of part or all of the aerodrome lighting system including approach, threshold, runway, taxiway, obstruction and manoeuvring area unserviceability lights and aerodrome power supply;~~
 - ~~(8) failure, irregular operation and changes in the operational status of ADS-C, CPDLC, ATIS, radio navigation services, VHF aeronautical mobile channels and secondary power supply; and~~
 - ~~(9) presence and operation of humanitarian relief missions, such as those undertaken under the auspices of the United Nations, together with any associated procedures and/or limitations applied thereof.~~
- ~~(d) A recapitulation of valid NOTAM of operational significance and other information of urgent character shall be made available to flight crews in the form of plain language pre-flight information bulletins.~~

AIS.2140 — Automated pre-flight information systems

(Refer to ICAO Doc 8126 — Aeronautical Information Services Manual, Doc 8400 — Procedures for Air Navigation Services — ICAO Abbreviations and Codes and Doc 7910 — Location Indicators)

- ~~(a) Automated pre-flight information systems shall be used by the aeronautical information service provider to make aeronautical data and aeronautical information available to operations personnel including flight crew members for self-briefing, flight planning and flight information service purposes. The aeronautical data and aeronautical information made available shall comply with the provisions of AIS.2135, (b) and (d).~~
- ~~(b) Self-briefing facilities of an automated pre-flight information system shall provide access to operations personnel, including flight crew members and other aeronautical personnel concerned, for consultation as necessary with the aeronautical information service provider by telephone or other suitable telecommunications means. The human/machine interface of such facilities shall ensure easy access in a guided manner to all relevant information/data.~~
- ~~(c) Automated pre-flight information systems for the supply of aeronautical data and aeronautical information for self-briefing, flight planning and flight information service shall:~~
- ~~(1) provide for continuous and timely updating of the system database and monitoring of the validity and quality of the aeronautical data stored;~~
 - ~~(2) permit access to the system by operations personnel including flight crew members, aeronautical personnel concerned and other aeronautical users through suitable telecommunications means;~~
 - ~~(3) ensure provision, in paper copy form, of the aeronautical data and aeronautical information accessed, as required;~~

- ~~(4) use access and interrogation procedures based on abbreviated plain English language and ICAO location indicators, as appropriate, or based on a menu driven user interface or other appropriate mechanism as agreed between the aeronautical information service provider and operator concerned; and~~
- ~~(5) provide for rapid response to a user request for information.~~
- ~~(d) Automated pre flight information systems providing a harmonized, common point of access by operations personnel, including flight crew members and other aeronautical personnel concerned, to aeronautical information in accordance with (a) and meteorological information in accordance with STS MET, Subpart G, MET.2190 should be established by an agreement between the Seychelles Civil Aviation Authority and the Seychelles Meteorological Authority.~~
- ~~(e) Where automated pre flight information systems are used to provide the harmonized, common point of access by operations personnel, including flight crew members and other aeronautical personnel concerned, to aeronautical data, aeronautical information and meteorological information, the aeronautical information service provider shall remain responsible for the quality and timeliness of the aeronautical data and aeronautical information provided by means of such a system.~~

AIS.2145— Post flight information

- ~~(a) Arrangements shall be made by the aeronautical information service provider to receive at the SIA, information concerning the state and operation of air navigation facilities or services noted by aircrews for distribution as the circumstances necessitate.~~
- ~~(b) Arrangements shall be made by the aeronautical information service provider to receive at SIA, information concerning the presence of birds observed by aircrews for distribution as the circumstances necessitate.~~

SUBPART H – TELECOMMUNICATION REQUIREMENTS**AIS.2150 – International NOTAM office connection**

(Refer to ICAO Doc 9855 – Guidelines on the Use of the Public Internet for Aeronautical Applications)

- ~~(a) The aeronautical information services unit serving as the International NOTAM office shall be connected to the aeronautical fixed service and the connections shall provide for printed communications.~~
- ~~(b) The international NOTAM office shall be connected, through the aeronautical fixed service, to the following points within the Seychelles flight information region:
 - ~~(1) the area control centre;~~
 - ~~(2) the SIA at which an information service is established in accordance with Subpart G.~~~~
- ~~(c) Subject to availability, satisfactory operation and bilateral/multilateral and/or regional air navigation agreement, the use of the public internet shall be permitted for exchange of non time critical types of aeronautical information.~~

SUBPART I—ELECTRONIC TERRAIN AND OBSTACLE DATA**AIS.2155—Coverage areas and requirements for data provision**

(Refer to ICAO Annex 14, Vol. I, Chapter 3 for runway strip and Appendix 6 to this section)

- ~~(a) The aeronautical information service provider shall ensure that coverage areas for sets of electronic terrain and obstacle data are specified as follows:~~
- ~~(1) Area 1: the entire territory of the Seychelles covered by the flight information region;~~
 - ~~(2) Area 2: within the vicinity of an aerodrome, subdivided as follows:

 - ~~(i) Area 2a: a rectangular area around a runway that comprises the runway strip plus any clearway that exists;~~
 - ~~(ii) Area 2b: an area extending from the ends of Area 2a in the direction of departure, with a length of 10 km and a splay of 15% to each side;~~
 - ~~(iii) Area 2c: an area extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a; and~~
 - ~~(iv) Area 2d: an area outside the Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or to an existing terminal control area boundary, whichever is nearest;~~~~
 - ~~(3) Area 3: the area bordering an aerodrome movement area that extends horizontally from the edge of a runway to 90 m from the runway centre line and 50 m from the edge of all other parts of the aerodrome movement area; and~~
 - ~~(4) Area 4: The area extending 900 m prior to the runway threshold and 60 m each side of the extended runway centre line in the direction of the approach on a precision approach runway, Category II.~~
- ~~(b) Where the terrain at a distance greater than 900 m (3000 ft) from the runway threshold is mountainous or otherwise significant, the length of Area 4 shall be extended to a distance not exceeding 2 000 m (6500 ft) from the runway threshold.~~
- ~~(c) Electronic terrain data shall be provided for Area 1. The obstacle data shall be provided for obstacles in Area 1 higher than 100 m above ground.~~
- ~~(d) At SIA, electronic obstacle data shall be provided for all obstacles within Area 2 that are assessed as being a hazard to air navigation and electronic terrain data shall be provided for:~~
- ~~(1) Area 2a;~~
 - ~~(2) the take-off flight path area; and~~
 - ~~(3) an area bounded by the lateral extent of the aerodrome obstacle limitation surfaces.~~
- ~~(e) At SIA, electronic obstacle data shall be provided for:~~
- ~~(1) Area 2a for those obstacles that penetrate the relevant obstacle data collection surface specified in Appendix 8 to this section;~~
 - ~~(2) objects in the take-off flight path area which project above a plane surface having a 1.2% slope and having a common origin with the take-off flight path area; and~~
 - ~~(3) penetrations of the aerodrome obstacle limitation surfaces.~~
- ~~(f) At SIA, electronic terrain and obstacle data shall be provided for :~~
- ~~(1) Areas 2b, 2c and 2d for obstacles and terrain that penetrate the relevant terrain and obstacle data collection surface specified in Appendix 8 to this section, except that data need not be collected for obstacles less than a height of 3 m above ground in Area 2b and less than a height of 15 m above ground in Area 2c.~~
 - ~~(2) Area 3 for terrain and obstacles that penetrate the relevant obstacle data collection surface specified in Appendix 6, Figure A6-3 to this section.~~
 - ~~(3) Area 4 for terrain and obstacles that penetrate the relevant obstacle data collection surface specified in Appendix 6 to this section, for the runway where precision approach Category II has been established and where detailed terrain information is required by operators to enable them to assess the effect of terrain on decision height determination by use of radio altimeters.~~
- ~~(g) Where additional electronic obstacle or terrain data are collected to meet other aeronautical requirements, the obstacle and terrain data sets should be expanded to include these additional data.~~

- ~~(h) The aeronautical information service provider should make arrangements for the coordination of providing Area 2 electronic terrain and obstacle data for adjacent aerodrome where its respective coverage areas overlap to assure that the data for the same obstacle or terrain are correct.~~

AIS.2160 — Terrain data set – content, numerical specification and structure

- ~~(a) The aeronautical information service provider shall provide terrain data set that contain digital sets of data representing terrain surface in the form of continuous elevation values at all intersections (points) of a defined grid, referenced to common datum. A terrain grid shall be angular or linear and shall be of regular or irregular shape.~~
- ~~(b) The sets of electronic terrain data shall include spatial (position and elevation), thematic and temporal aspects for the surface of the Earth containing naturally occurring features such as mountains, hills, ridges, valleys, bodies of water and excluding obstacles. In practical terms, depending on the acquisition method used, this shall represent the continuous surface that exists at the bare Earth, the top of the canopy or something in between, also known as “first reflective surface”.~~
- ~~(c) In the terrain data set, only one feature type, i.e. terrain, shall be provided. Feature attributes describing terrain shall be those listed in Appendix 6, Table A6-3 to this section. The terrain feature attributes listed in Table A&3-3 represent the minimum set of terrain attributes, and those annotated as mandatory shall be recorded in the terrain data set.~~
- ~~(d) Electronic terrain data for each area shall conform to the applicable numerical requirements in Appendix 6, Table A6-1 to this section.~~

AIS.2165 — Obstacle data set – content, numerical specification and structure

- ~~(a) The aeronautical information service provider shall provide obstacle data which comprise the digital representation of the vertical and horizontal extent of the obstacle. Obstacles shall not be included in terrain data sets. Obstacle data elements are features that shall be represented in the data sets by points, lines or polygons.~~
- ~~(b) In the obstacle data set, all defined obstacle feature types shall be provided and each of them shall be described according to the list of mandatory attributes provided in Appendix 6, Table A6-4 to this section.~~
- ~~(c) The electronic obstacle data for each area shall conform to the applicable numerical requirements in Appendix 6, Table A6-2 to this section.~~

AIS.2170 — Terrain and obstacle data product specifications

(Refer to ISO 19131 for geographic information requirements and outline of data product specifications, ISO 19109 for application schema rules, ISO 19110 for geographic information feature cataloguing methodology, ISO 19117 for definition of a schema and ISO 19115 geographic information metadata requirements)

- ~~(a) The aeronautical information service provider shall use the ISO 19100 series of standards for geographic information as a general data modelling framework to allow and support the interchange and use of sets of electronic terrain and obstacle data among different data providers and data users.~~
- ~~(b) A comprehensive statement of available electronic terrain and obstacle data sets shall be provided in the form of terrain data product specifications as well as obstacle data product specifications on which basis air navigation users will be able to evaluate the products and determine whether they fulfil the requirements for their intended use (application).~~
- ~~(c) Each terrain data product specification shall include an overview, specification scope, data product identification, data content and structure, reference system, data quality, data capture, data maintenance, data portrayal, data product delivery, additional information and metadata.~~
- ~~(d) The overview of terrain data product specifications or obstacle data product specifications shall provide an informal description of the product and shall contain general information about the data product. Specification of terrain data may not be homogenous across the whole data product, but may vary for different parts of the data sets. For each such subset of data, a specification scope shall be identified. Identification information concerning both terrain and obstacle data products shall include the title of the product; a brief narrative summary of the content, purpose, and spatial resolution if appropriate (a general statement about the density of spatial data); the geographic area covered by the data product; and supplemental information.~~
- ~~(e) Content information of feature based terrain data sets or of feature based obstacle data sets shall each be described in terms of an application schema and a feature catalogue. Application schema shall provide a formal description of the data structure and content of data sets while the feature catalogue shall provide the semantics of all feature types together with their attributes and attribute value domains, association types between feature types and feature operations, inheritance relations and constraints. Coverage is considered a subtype of a feature and can be derived from a collection of features that have common attributes. Both terrain~~

and obstacle data product specifications shall identify clearly the coverage and/or imagery they include and shall provide a narrative description of each of them.

- ~~(f) Both terrain and obstacle data product specifications shall include information that identifies the reference system used in the data product. This shall include the spatial reference system and temporal reference system. Additionally, both data product specifications shall identify the data quality requirements for each data product. This shall include a statement on acceptable conformance quality levels and corresponding data quality measures. This statement shall cover all the data quality elements and data quality sub-elements, even if only to state that a specific data quality element or sub-element is not applicable.~~
- ~~(g) Terrain data product specifications shall include a data capture statement which shall be a general description of the sources and of processes applied for the capture of terrain data. The principles and criteria applied in the maintenance of terrain data sets and obstacle data sets shall also be provided with the data specifications, including the frequency with which data products are updated. Of particular importance shall be the maintenance information of obstacle data sets and an indication of the principles, methods and criteria applied for obstacle data maintenance.~~
- ~~(h) Terrain data product specifications shall contain information on how data held with data sets are presented, i.e. as a graphic output, as a plot or as an image. The product specifications for both terrain and obstacles shall also contain data product delivery information which shall include delivery formats and delivery medium information.~~
- ~~(i) The core terrain and obstacle metadata elements shall be included in the data product specifications. Any additional metadata items required to be supplied shall be stated in each product specification together with the format and encoding of the metadata.~~
- ~~(j) The obstacle data product specification, supported by geographical coordinates for each aerodrome included within the dataset, shall describe the following areas:
 - ~~(1) Areas 2a, 2b, 2c, 2d;~~
 - ~~(2) the take-off flight path area; and~~
 - ~~(3) the obstacle limitation surfaces.~~~~

SUBPART J—AERODROME MAPPING DATA**AIS.2175—Aerodrome mapping data—requirements for provision**

(Refer to ICAO Annex 14, Volume I, Appendix 5 for aerodrome mapping data accuracy and integrity requirements, Doc DO-200A—Radio Technical Commission for Aeronautics (RTCA) for electronic terrain and obstacle data and aerodrome mapping data processing and European Organization for Civil Aviation Equipment (EUROCAE) Doc ED-76—Standards for Processing Aeronautical Data)

The aeronautical information service provider should provide electronic terrain and obstacle data for Area 3 to support aerodrome mapping data in order to ensure consistency and quality of all geographical data related to the aerodrome.

AIS.2180—Aerodrome mapping data product specification

- ~~(a) The aeronautical information service provider shall use the ISO 19100 series of standards for geographic information as a reference framework.~~
- ~~(b) Aerodrome mapping data products shall be described by following the ISO 19131 data product specification standard.~~

AIS.2185—Aerodrome mapping database—data set content and structure

(Refer to ISO 19109 for application schema rules, ISO 19110 for geographic information feature cataloguing methodology, RTCA Doc DO-272C for aerodrome mapping data feature definitions, constraints and rules applicable to aerodrome mapping data, RTCA Doc DO-291B for application schema applicable to aerodrome mapping data feature definitions and EUROCAE Doc ED-99C—User Requirements for Aerodrome Mapping and Document DO-291B and EUROCAE Document ED-119B for metadata elements applicable to aerodrome mapping data)

- ~~(a) The aeronautical information service provider shall define the content and structure of aerodrome mapping data sets in terms of an application schema and a feature catalogue.~~
- ~~(b) Aerodrome mapping data sets shall contain aerodrome mapping data consisting of aerodrome features.~~
- ~~(c) Aerodrome mapping metadata shall comply with ISO 19115.~~

SECTION 3 – TECHNICAL REQUIREMENTS FOR AERONAUTICAL CHARTS**SUBPART A – GENERAL SPECIFICATIONS****ACS.3001 Availability**

- (a) Aeronautical charts service shall be provided by the aeronautical information service unit, herein referred to as aeronautical charts services provider, which falls under the authority of the Air Traffic Management Division of the Seychelles Civil Aviation Authority, and some functions, by other competent civil aviation authority or agency as delegated, under the Seychelles Civil Aviation Authority Act 2005, as amended.
- (b) The aeronautical charts service provider shall ensure that all charts coming within the scope of this section conform to the technical standards relevant to the particular chart.
- (c) On request by another aeronautical charts authority, the aeronautical information service provider shall provide all information relating to Seychelles territory that is necessary to enable the technical standards of this section to be met.
- (d) The aeronautical charts service provider shall ensure the availability of charts, hard copy or electronic for a particular chart or single sheet of a chart series.
- (e) All reasonable measures shall be taken to ensure that the information provided and the aeronautical charts made available are adequate and accurate and that they are maintained up to date by an adequate revision service.
- (f) To improve worldwide dissemination of information on new charting techniques and production methods, appropriate charts produced by the aeronautical charts service provider shall be made available without charge to other aeronautical charts service authorities on request on a reciprocal basis.

ACS.3005 Operational requirements for charts

(Refer to ICAO Doc 9683 - Human Factors Training Manual)

- (a) The aeronautical charts service provider shall ensure that:
 - (1) each type of chart provides information relevant to the function of the chart and its design observe human factors principles which facilitate its optimum use;
 - (2) each type of chart provides information appropriate to the phase of flight to ensure the safe and expeditious operation of the aircraft;
 - (3) the presentation of information is accurate, free from distortion and clutter, unambiguous, and is readable under all normal operating conditions;
 - (4) 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) the information is in a form which enables the pilot to acquire it in a reasonable time consistent with workload and operating conditions;
 - (6) the presentation of information provided on each type of chart permit smooth transition from chart to chart as appropriate to the phase of flight;
 - (7) the charts are True North orientated; and
 - (8) the basic sheet size of the charts are 210 x 148 mm (8.27 x 5.82 in) (A5).

ACS.3010 Titles

The aeronautical charts service provider shall ensure that the title of a chart or chart series prepared in accordance with the specifications contained in this section and intended to satisfy the function of the chart is that of the relevant chapter heading as modified by application of any standard contained therein, except that such title does not include “ICAO” unless the chart conforms with all technical standards specified in this Subpart and any specified for the particular chart.

ACS.3015 Miscellaneous information

- (a) The aeronautical charts service provider shall ensure that the marginal note layout is as given in Appendix 1 to this section, except as otherwise specified for a particular chart.
- (b) The following information shall be shown on the face of each chart unless otherwise stated in the specification of the chart concerned:
 - (1) designation or title of the chart series;

- (2) name and reference of the sheet;
- (3) on each margin an indication of the adjoining sheet (when applicable).
- (c) A legend to the symbols and abbreviations used shall be provided. The legend shall be on the face or reverse of each chart except that, where it is impracticable for reasons of space, a legend may be published separately.
- (d) The name and adequate address of the producing agency shall be shown 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 that document.

ACS.3020 Symbols

- (a) The aeronautical charts service provider shall ensure that symbols used conform to those shown in Appendix 2 to this section, except that where it is desired to show on an aeronautical chart special features or items of importance to civil aviation for which no symbol is at present provided in Appendix 2 to this section, any appropriate symbol is 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) The symbol used for significant points shall be based on a hierarchy of symbols and selected in the following order: ground-based navigation aid, intersection, 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.
- (d) The aeronautical charts service provider shall ensure that symbols are shown in the manner specified in (b), (c) and Appendix 2 to this section, symbol number 121.

ACS.3025 Units of measurement

- (a) The aeronautical charts service provider shall ensure that:
 - (1) distances are derived as geodesic distances and expressed in either kilometres or nautical miles or both, provided the units are clearly differentiated.
 - (2) altitudes, elevations and heights are expressed in either metres or feet or both, provided the units are clearly differentiated.
 - (3) linear dimensions on aerodromes and short distances are expressed in metres.
 - (4) the order of resolution of distances, dimensions, elevations and heights are that as specified for a particular chart.
 - (5) the units of measurement used to express distances, altitudes, elevations and heights are conspicuously stated on the face of each chart.
 - (6) conversion scales (kilometres/nautical miles, metres/feet) are provided on each chart on which distances, elevations or altitudes are shown and placed on the face of each chart.

ACS.3030 Scale and projection

The aeronautical charts service provider shall indicate the name and basic parameters and scale of the projection are indicated for charts of large areas, and a linear scale only for charts of small areas.

ACS.3035 Date of validity of aeronautical information

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

ACS.3040 Spelling of geographical names

- (a) The aeronautical charts service provider shall use symbols of the Roman alphabet for all writing.
- (b) Where a geographical term such as “cape”, “point”, “river” is abbreviated on any particular chart, the term shall be spelt out in full in the language used by the publishing agency, in respect of the most important example of each type.
- (c) Punctuation marks shall not be used in abbreviations within the body of a chart.

ACS.3045 Spelling of geographical names

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.

ACS.3046 Abbreviations

The aeronautical charts service provider shall use abbreviations on aeronautical charts whenever they are appropriate and where applicable, abbreviations should be selected from ICAO Doc 8400 *Procedures for Air Navigation Services - ICAO Abbreviations and Codes*.

ACS.3050 Political boundaries

The aeronautical charts service provider shall ensure international boundaries are shown, but may be interrupted if data more important to the use of the chart would be obscured.

ACS.3055 Colours

The aeronautical charts service provider shall ensure that the colours used on charts conform to Appendix 3 of this section.

ACS.3060 Relief

- (a) The aeronautical charts service provider shall ensure that relief, where shown, is 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;
 - (4) planning.
- (b) Where relief is shown by hypsometric tints, the tints used shall be based on those shown in the Hypsometric Tint Guide in Appendix 4 of this section.
- (c) Where spot elevations are used, they shall be shown for selected critical points.
- (d) The value of spot elevations of doubtful accuracy shall be followed by the sign \pm .

ACS.3065 Prohibited, restricted and danger areas

The aeronautical charts service provider shall ensure that the reference or other identification are included when prohibited, restricted or danger areas are shown, except that the nationality letters may be omitted.

ACS.3070 Air traffic services airspaces

- (a) When air traffic services airspace is shown on a chart, the aeronautical charts service provider shall indicate the class of airspace, the type, name or call sign, the vertical limits and the radio frequency(ies) to be used and the horizontal limits depicted in accordance with Appendix 2 to this section.
- (b) On charts used for visual flight, those parts of the air traffic services airspace classes table, Appendix 4 of STS-RoA applicable to the airspace depicted on the chart, should be on the face or reverse of each chart.

ACS.3075 Magnetic variation

- (a) The aeronautical charts service provider shall ensure that true north and magnetic variation is 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 etc. In exceptional cases where the current value would be more than one degree different, after applying the calculation for annual change, an interim date and value shall be quoted.
- (c) For instrument procedure charts, the publication of a magnetic variation change shall be completed within a maximum of six AIRAC cycles.

ACS.3080 Typography

The aeronautical charts service provider shall use the typography included in the ICAO Doc 8697 - Aeronautical Chart Manual.

ACS.3085 Aeronautical data

(Refer to RTCA Doc DO-200A, European Organization for Civil Aviation Equipment (EUROCAE) Document ED-76 - Standards for Processing Aeronautical Data, ICAO Doc 9674 - World Geodetic System — 1984 (WGS-84), RTCA Document DO-201A and European Organization for Civil Aviation Equipment (EUROCAE) Document ED-77 - Industry Requirements for Aeronautical Information supporting material in respect of the provisions of Appendix 5 related to chart resolution and integrity of aeronautical data.

Refer to ICAO Doc10066 PANS AIM for detailed digital data error detection techniques, and Appendix 1 for specifications concerning the chart resolution for aeronautical data and specifications concerning the integrity classification related to aeronautical data.)

- (a) The aeronautical charts service provider 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 as outlined in Section 2, AIS.20450. The execution of such quality management shall be made demonstrable for each function stage, when required. In addition, the aeronautical charts service provider 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.
- (b) The order of chart resolution of aeronautical data shall be that as specified for a particular chart ~~and as presented in a tabular form in Appendix 6 to this section.~~
- (e) The integrity of aeronautical data shall be maintained throughout the data process from ~~survey/origin~~ **origination** to **distribution** to the next intended user. ~~Based on the applicable integrity classification, 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 thorough analysis of the overall system architecture as potential data integrity risks.~~
- (d) ~~Aeronautical data quality requirements related to the integrity and data classification shall be as provided in Tables 1 to 6 in Appendix 6 to this section.~~
- (e) ~~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. This shall apply to the protection of all integrity levels of data sets as specified in (e). Digital data error detection techniques shall be used during the transmission and/or storage of aeronautical data and digital data sets.~~

SUBPART B – AERODROME OBSTACLE CHART - ICAO TYPE A (OPERATING LIMITATIONS)**ACS.3090 Function**

The aeronautical charts service provider shall ensure that this chart, in combination with the relevant information published in the AIP, provides the data necessary to enable an operator to comply with the operating limitations prescribed in the relevant air operations requirements.

ACS.3095 Availability

- (a) The aeronautical charts service provider shall ensure that Aerodrome Obstacle Charts - ICAO Type A (Operating Limitations) are made available in the manner prescribed in ACS.3001 (d) for SIA, except where the Aerodrome Terrain and Obstacle Chart - ICAO (Electronic) is provided in accordance with Subpart C of this section.
- (b) Where a chart is not required because no obstacles exist in the take-off flight path area, a notification to this effect shall be published in the AIP.

ACS.3100 Units of measurement

The aeronautical charts service provider shall ensure that elevations on the chart are shown to the nearest half-metre or to the nearest foot and linear dimensions are shown to the nearest half-metre.

ACS.3105 Coverage and scale

The aeronautical charts service provider shall ensure that:

- (a) the extent of each plan is sufficient to cover all obstacles
- (b) the horizontal scale shall be within the range of 1:10 000 to 1:15 000;
- (c) the vertical scale shall be ten times the horizontal scale and
- (d) horizontal and vertical linear scales showing both metres and feet are included in the charts.

ACS.3110 Format

- (a) The aeronautical charts service provider shall ensure that:
 - (1) the chart depict a plan and profile of each runway, any associated stopway or clearway, the take-off flight path area and obstacles;
 - (2) the profile for each runway, stopway, clearway and the obstacles in the take-off flight path area are shown above the corresponding plan of the chart;
 - (3) the profile of an alternative take-off flight path area on the chart comprises a linear projection of the full take-off flight path and is disposed above its corresponding plan in the manner most suited to the ready interpretation of the information.
 - (4) a profile grid is ruled over the entire profile area exclusive of the runway on the chart;
 - (5) the zero for vertical coordinates on the chart is mean sea level;
 - (6) the zero for horizontal coordinates on the chart are the end of the runway furthest from the take-off flight path area concerned;
 - (7) graduation marks indicating the sub-divisions of intervals are shown along the base of the grid and along the vertical margins on the chart; and
 - (8) the vertical grid has intervals of 30 m (100 ft) and the horizontal grid has intervals of 300 m (1000 ft).
- (b) The aeronautical charts service provider shall ensure that the chart include:
 - (1) a box for recording the operational data specified in ACS.3125 (c);
 - (2) a box for recording amendments and dates thereof.

ACS.3115 Identification

The aeronautical charts service provider shall identify the chart by the name of the State, the name of the aerodrome and the designators of the runways.

ACS.3120 Magnetic variation

The aeronautical charts service provider shall indicate magnetic variation to the nearest degree and date of information on the chart.

ACS.3125 Aeronautical data

(a) OBSTACLES

- (1) The aeronautical charts service provider shall regard objects in the take-off flight path area which project above a plane surface having a 1.2% 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 (2) need not be shown. Mobile objects which may project above the 1.2% plane, shall be considered obstacles, but shall not be considered as being capable of creating a shadow.
- (2) The shadow of an obstacle is considered 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. The plane covers the complete width of the take-off flight path area and extends to the plane defined in (1) or to the next higher obstacle if it occurs first. For the first 300 m (1000 ft) 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%.
- (3) If the obstacle creating a shadow is likely to be removed, objects that would become obstacles by its removal shall be shown.

(b) TAKE-OFF FLIGHT PATH AREA

- (1) The take-off flight path area consists of a quadrilateral area on the surface of the earth lying directly below, and symmetrically disposed about, the take-off flight path. This area has the following characteristics:
 - (i) it commences at the end of the area declared suitable for take-off (i.e. at the end of the runway or clearway as appropriate);
 - (ii) its width at the point of origin is 180 m (600 ft) and this width increases at the rate of 0.25D to a maximum of 1800 m (6000 ft), where D is the distance from the point of origin;
 - (iii) it extends to the point beyond which no obstacles exist or to a distance of 10.0 km (5.4 NM), whichever is the lower.
- (2) 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%, the extent of the take-off flight path area specified in (b) (1) (iii) shall be increased to not less than 12.0 km (6.5 NM) and the slope of the plane surface specified in (1) and (2) shall be reduced to 1% or less. When a 1% survey plane touches no obstacles, this plane may be lowered until it touches the first obstacle.

(c) DECLARED DISTANCES

(Refer to ICAO Annex 14, Vol. I, Attachment A, Section 3)

The aeronautical charts service provider shall enter the following information for each direction of each runway in the space provided on the chart:

- (1) take-off run available;
- (2) accelerate-stop distance available;
- (3) take-off distance available;
- (4) landing distance available.

(d) PLAN AND PROFILE VIEWS

- (1) The aeronautical charts service provider shall show the following on the plan view of the chart:
 - (i) 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;
 - (ii) the outline of the clearways by a broken line, including the length and identification as such;
 - (iii) take-off flight path areas by a dashed line and the centre line by a fine line consisting of short and long dashes;
 - (iv) alternative take-off flight path areas. When alternative take-off flight path areas not centred on the extension of the runway centre line are shown, notes shall be provided explaining the significance of such areas;
 - (v) obstacles, including the exact location of each obstacle together with a symbol indicative of its type, the elevation and identification of each obstacle and the limits of penetration of obstacles of large extent in a distinctive manner identified in the legend. This does not exclude the necessity for indicating critical spot elevations within the take-off flight path area.

- (vi) the nature of the runway and stopway surfaces;
 - (vii) stopways indicated by a broken line and the length of each stopway.
- (2) The profile view shall show:
- (i) the profile of the centre line of the runway by a solid line and the profile of the centre line of any associated stopways and clearways by a broken line;
 - (ii) the elevation of the runway centre line at each end of the runway, at the stopway and at the origin of each take-off flight path area, and at each significant change in slope of runway and stopway;
 - (iii) obstacles, including 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, identification of each obstacle and the limits of penetration of obstacles of large extent in a distinctive manner identified in the legend. An obstacle profile consisting of a line joining the tops of each obstacle and representing the shadow created by successive obstacles may be shown.

ACS.3130 Accuracy

- (a) The aeronautical charts service provider shall show the order of accuracy attained on the chart.
- (b) The horizontal dimensions and the elevations of the runway, stopway and clearway to be printed on the chart shall be determined to the nearest 0.5 m (1 ft).
- (c) The order of accuracy of the field work and the precision of chart production shall be such that measurements in the take-off flight path areas can be taken from the chart within the following maximum deviations:
 - (1) horizontal distances: 5 m (15 ft) at a point of origin increasing at a rate of 1 per 500;
 - (2) vertical distances: 0.5 m (1.5 ft) in the first 300 m (1 000ft) and increasing at a rate of 1 per 1 000.
- (d) Where no accurate datum for vertical reference is available, the elevation of the datum used shall be stated and shall be identified as assumed.

SUBPART C – AERODROME TERRAIN AND OBSTACLE CHART - ICAO (ELECTRONIC)**ACS.3135 Function**

The aeronautical charts service provider shall ensure that electronic charts portray 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 relevant air operations requirements, 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:
 - (1) instrument procedure design (including circling procedure);
 - (2) aerodrome obstacle restriction and removal; and
 - (3) provision of source data for the production of other aeronautical charts.

ACS.3140 Availability

- (a) The aeronautical charts service provider shall make available Aerodrome Terrain and Obstacle Charts - ICAO (Electronic) in the manner prescribed in ACS.3001 (d) for SIA.
- (b) The Aerodrome Terrain and Obstacle Chart - ICAO (Electronic) shall also be made available in hard copy format upon request.
- (c) The ISO 19100 series of standards for geographic information shall be used as a general data modelling framework.

ACS.3145 Identification

The aeronautical charts service provider shall identify the electronic terrain and obstacle chart. by the name of the State and the name of the aerodrome.

ACS.3150 Chart coverage

The aeronautical charts service provider shall ensure that the extent of each chart is sufficient to cover Area 2 as specified in Section 2, AIS.2155 (2).

ACS.3155 Chart content

- (a) GENERAL

(Refer to ISO Standard 19117 for the definition of the schema describing the portrayal mechanism of feature-based geographic information, ISO Standard 19109 for rules for application schema ISO Standard 19107 or Spatial geometry and associated topological relationships)

- (1) When developing computer graphic applications that are used to portray features on the chart, the aeronautical charts service provider shall specify the relationships between features, feature attributes, and the underlying spatial geometry and associated topological relationships by an application schema. Portrayed information shall be provided on the basis of portrayal specifications applied according to defined portrayal rules. Portrayal specifications and portrayal rules shall not be part of the data set. Portrayal rules shall be stored in a portrayal catalogue which shall make reference to separately stored portrayal specifications.
- (2) Symbols used to portray features shall be in accordance with ACS.3020 and Appendix 2 to this section.

- (b) TERRAIN FEATURE

(Refer to Chapter 5 and Appendices 1, 6 and 8 of ICAO Doc 10066 - PANS AIM for specifications concerning terrain data sets and Appendix 6, Table A6-1 for specifications concerning terrain attributes)

- (1) The aeronautical charts service provider shall base the terrain feature, and associated attributes, to be portrayed and database-linked to the chart on the ~~electronic~~ terrain data sets, which satisfy the technical standards of ~~Subpart I and Appendix 6 of Section 2~~ AIS.2160.
- (2) The terrain feature shall be portrayed in a manner that provides an effective general impression of a terrain. This shall be a representation of terrain surface by continuous elevation values at all intersections of the defined grid, also known as the Digital Elevation Model (DEM).
- (3) Representation of terrain surface should be provided as a selectable layer of contour lines in addition to the DEM.

- (4) An ortho-rectified image which matches the features on the DEM with features on the overlying image should be used to enhance the DEM. The image should be provided as a separate selectable layer.

- (5) The portrayed terrain feature shall be linked to the following associated attributes in the database(s):
- (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.
- (6) ~~Other~~ **Additional** terrain attributes ~~specified in Section 2, Appendix 6, Table A8-3, and~~ provided in the database(s) should be linked to the portrayed terrain feature.

(c) OBSTACLE FEATURES

(Refer to Chapter 5 and Appendices 1, 6 and 8 of ICAO Doc 10066 - PANS AIM for specifications concerning obstacle data sets and Appendix 6, Table A6-2 for specifications concerning obstacle attributes)

- (1) The aeronautical charts service provider shall base obstacle features, and associated attributes, portrayed or database-linked to the chart, on ~~electronic~~ obstacle data sets which satisfy the technical standards of ~~Subpart I and Appendix 6 of Section 2 AIS.2165.~~
- (2) Each obstacle shall be portrayed by an appropriate symbol and obstacle identifier.
- (3) The portrayed obstacle feature shall be linked to the following associated attributes in the database(s):
- (i) horizontal position in geographic coordinates and associated elevation;
 - (ii) obstacle type; and
 - (iii) obstacle extent, if appropriate.
- (4) ~~Other~~ **Additional** obstacle attributes ~~specified in Section 2, Appendix 6 Table A6-4, and~~ provided in the database(s) should be linked to the portrayed obstacle feature.

(d) AERODROME FEATURES

(Refer to Chapter 5 and Appendix 1 of ICAO Doc 10066 - PANS AIM for specifications concerning aerodrome features and associated attributes)

- (1) The aeronautical charts service provider shall base aerodrome features, and associated attributes, portrayed and database-linked to the chart on aerodrome data, which satisfy the ~~technical~~ standards of ~~ICAO Annex 14, Volume I, Appendix 5 and Section 2, Appendix 5 Subpart D~~ to this STS.
- (2) The following aerodrome features shall be portrayed by an appropriate symbol:
- (i) aerodrome reference point;
 - (ii) runway(s), with designation numbers, stopway(s) and clearway(s); and
 - (iii) taxiways, aprons, large buildings and other prominent aerodrome features.
- (3) The portrayed aerodrome feature shall be linked to the following associated attributes in the database(s):
- (i) geographical coordinates of the aerodrome reference point;
 - (ii) aerodrome magnetic variation which may be database-linked to the aerodrome reference point, year of information and annual change;
 - (iii) length and width of runway(s), stopway(s) and clearway(s);
 - (iv) type of surface of runway(s) and stopway(s);
 - (v) magnetic bearings of the runway(s) to the nearest degree;
 - (vi) elevations at each end of runway(s), stopway(s) and clearway(s), and at each significant change in slope of runway(s) and stopway(s);
 - (vii) declared distances for each runway direction.

(e) RADIO NAVIGATION AID FEATURES

The aeronautical charts service provider shall portray each radio navigation aid feature located within the chart coverage by an appropriate symbol and the attributes may be linked to the portrayed navigation aid features in the database(s).

ACS.3160 Accuracy and resolution

(Refer to Appendix 1 of ICAO Doc 10066 - PANS AIM for specifications concerning the accuracy of aeronautical, terrain, obstacle data and order of resolution)

SECTION 3

STS-AIS/ACS

- (a) The aeronautical charts service provider shall ensure that the order of accuracy of aeronautical data ~~are~~ is in accordance with its intended use ~~specified in STS-ATS, Appendix 5 and ICAO Annex 14, Volume I, Appendix 5, and Volume II, Appendix 1. The order of accuracy of terrain and obstacle data shall be as specified in Section 2, Appendix 6 of this STS.~~
- (b) The aeronautical, ~~terrain and obstacle~~ data resolution shall be ~~commensurate with the actual data accuracy as specified in Section 2, Appendix 5, while the resolution for terrain and obstacle data shall be as specified in Section 2, Appendix 6.~~

ACS.3165 Electronic functionality

The aeronautical charts service provider shall:

- (a) provide the possibility to vary the scale at which the chart is viewed. Symbols and text size shall vary with chart scale to enhance readability.
- (b) ensure information on the chart is geo-referenced;
- (c) make it be possible to determine cursor position on the chart to at least the nearest second.
- (d) ensure the chart is compatible with widely available desktop computer hardware, software and media;
- (e) provide with the chart, its own “reader” software, if possible;
- (f) ensure it is not be possible to remove information from the chart without an authorized update;
- (g) provide for selectable information layers to allow for the customized 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) provide printing possibility of the chart, in hard copy format according to the content specifications and scale determined by the user.

ACS.3170 Chart data product specifications

(Refer to ISO Standard 19131 for geographic information requirements and outline of data product specifications, ISO Standard 19123 for coverage geometry and functions schema, ISO Standard 19113 geographic information quality principles and ISO Standard 19114 for quality evaluation procedures)

- (a) The aeronautical charts service provider shall provide a comprehensive statement of the data sets comprising the 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 (application).
- (b) The chart data product specifications shall include an overview, a specification scope, a data product identification, data content information, the reference systems used, the data quality requirements, and information on data capture, data maintenance, data portrayal, data product delivery, as well as any additional information available, and metadata.
- (c) The overview of the chart data product specifications shall provide an informal description of the product and shall contain general information about the data product. The specification scope of the chart data product specifications shall contain the spatial (horizontal) extent of the chart coverage. The chart data product identification 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.
- (d) The data content of the chart data product specifications shall clearly identify the type of coverage and/or imagery and shall provide a narrative description of each.
- (e) The chart data product specifications shall include information that defines the reference systems used. This shall include the spatial reference system (horizontal and vertical) and, if appropriate, temporal reference system. The chart data product specifications shall identify the data quality requirements. This shall include a statement on acceptable conformance quality levels and corresponding data quality measures. This statement shall cover all the data quality elements and data quality sub-elements, even if only to state that a specific data quality element or sub-element is not applicable.
- (f) The chart data product specifications shall include a data capture statement which shall be a general description of the sources and of processes applied for the capture of chart data. The principles and criteria applied in the maintenance of the chart shall also be provided in the chart data product specifications, including the frequency with which the chart product is updated. Of particular importance shall be the maintenance information of obstacle data sets included on the chart and an indication of the principles, methods and criteria applied for obstacle data maintenance.
- (g) The chart data product specifications shall contain information on how data are portrayed on the chart, as detailed in ACS.3195 The chart data product specifications shall also contain data product delivery information which shall include delivery formats and delivery medium information.
- (h) The core chart metadata elements shall be included in the chart data product specifications. Any additional metadata items required to be supplied shall be stated in the product specifications together with the format and encoding of the metadata.

SUBPART D – EN-ROUTE CHART - ICAO**ACS.3175 Function**

The aeronautical charts service provider shall the chart shall for the purpose of providing flight crews with information to facilitate navigation along air traffic services routes in compliance with air traffic services procedures.

ACS.3180 Availability

The aeronautical charts service provider shall make available En-route Chart - ICAO in the manner prescribed in ACS.3001 for all areas where the Seychelles flight information region has been established.

ACS.3185 Coverage and scale

- (a) A uniform scale for charts of this type cannot be specified due to the varying degree of congestion of information in certain areas. The aeronautical charts service provider may show a linear scale based on the mean scale of the chart.
- (b) The aeronautical charts service provider shall:
 - (1) determine layout of sheet lines by the density and pattern of the air traffic services route structure for the chart;
 - (2) shall avoid large variations of scale between adjacent charts showing a continuous route structure; and
 - (3) shall provide an adequate overlap of charts to ensure continuity of navigation.

ACS.3190 Projection

- (a) The aeronautical charts service provider shall use a conformal projection on which a straight line approximates a great circle for the chart and show parallels and meridians at suitable intervals.
- (b) The aeronautical charts service provider shall show graduation marks at consistent intervals along selected parallels and meridians on the chart.

ACS.3195 Identification

The aeronautical charts service provider shall identify each sheet of the chart by chart series and number.

ACS.3200 Culture and topography

(Refer to the ICAO PANS OPS, Doc 8168, Volume II, Part I, Section 2, Chapter 1, 1.8, for area minimum altitude determination method)

The aeronautical charts service provider shall show;

- (a) generalized shore lines of all open water areas, large lakes and rivers, except where they conflict with data more applicable to the function of the chart.
- (b) the area minimum altitude within each quadrilateral formed by the parallels and meridians.

ACS.3205 Magnetic variation

The aeronautical charts service provider shall indicate isogonals and the date of the isogonic information given on the chart.

ACS.3210 Bearings, tracks and radials

The aeronautical charts service provider shall ensure that bearings, tracks and radials are magnetic. Where bearings and tracks are additionally provided as true values for RNAV segments, they shall be shown in parentheses to the nearest tenth of a degree, e.g. 290° (294.9°T).

ACS.3215 Aeronautical data

- (a) AERODROMES
The aeronautical charts service provider shall show SIA on the chart, as the airport use by international civil aviation to which an instrument approach can be made.
- (b) PROHIBITED, RESTRICTED AND DANGER AREAS
The aeronautical charts service provider shall depict prohibited, restricted and danger areas relevant to the layer of airspace with their identification and vertical limits on the chart.

(c) AIR TRAFFIC SERVICES SYSTEM

The aeronautical charts service provider shall show the components of the established air traffic services system, where appropriate which include the following:

- (1) 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;
- (2) in respect of DME, additionally the elevation of the transmitting antenna of the DME to the nearest 30 m (100 ft);
- (3) an indication of all designated airspace, including lateral and vertical limits and the appropriate class of airspace;
- (4) 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 specification(s) including any limitations and the direction of traffic flow;
- (5) 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;
- (6) in respect of waypoints defining VOR/DME area navigation routes, additionally, the station identification and radio frequency of the reference VOR/DME and 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/ DME, if the waypoint is not collocated with it;
- (7) an indication of all compulsory and “on-request” reporting points and ATS/MET reporting points;
- (8) the distances to the nearest kilometre or nautical mile between significant points constituting turning points or reporting points;
- (9) 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, except that change-over points established at the mid-point between two navigation aids, or at the intersection of two radials in the case of a route which changes direction between the aids, need not be shown for each route segment if a general statement regarding their existence is made;
- (10) minimum en-route altitudes and minimum obstacle clearance altitudes, on air traffic services routes to the nearest higher 50 metres or 100 feet; and
- (11) communication facilities listed with their channels.

(d) SUPPLEMENTARY INFORMATION

The aeronautical charts service provider shall show details of departure and arrival routes and associated holding patterns in terminal areas unless they are shown on an Area Chart, a Standard Departure Chart - Instrument (SID) - ICAO or a Standard Arrival Chart - Instrument (STAR) – ICAO; and

SUBPART E – AREA CHART - ICAO**ACS.3220 Function**

The aeronautical charts service provider shall make available the chart which provides 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/missed approach and en-route phase of flight; and

ACS.3225 Availability

- (a) The aeronautical charts service provider shall make available the chart in the manner prescribed in ACS.3001 where the air traffic services routes or position reporting requirements are complex and cannot be adequately shown on an En-route Chart - ICAO.
- (b) Where air traffic services routes or position reporting requirements are different for arrivals and for departures, and these cannot be shown with sufficient clarity on one chart, the aeronautical charts service provider shall provide separate charts such as Standard Departure Chart - Instrument (SID) - ICAO and a Standard Arrival Chart - Instrument (STAR) - ICAO.

ACS.3230 Coverage and scale

The aeronautical charts service provider shall:

- (a) extend the coverage of each chart to points that effectively show departure and arrival routes; and
- (b) draw the chart to scale and show a scale-bar.

ACS.3235 Projection

The aeronautical charts service provider shall:

- (a) use a conformal projection on the chart, on which a straight line approximates a great circle;
- (b) show parallels and meridians at suitable intervals on the chart; and
- (c) place graduation marks at consistent intervals along the neat lines, as appropriate, on the chart.

ACS.3240 Identification

The aeronautical charts service provider shall identify the chart by a name associated with the airspace portrayed.

ACS.3245 Culture and topography

The aeronautical charts service provider shall show:

- (a) the shoreline of the open water area except where it conflict with data more applicable to the function of the chart;
- (b) all relief exceeding 300 m (1000 ft) above the elevation of the SIA by smoothed contour lines, contour values and layer tints printed in brown, to improve situational awareness in areas where significant relief exists. Appropriate spot elevations, including the highest elevation within each top contour line, shall be shown printed in black. Obstacles shall also be shown.

ACS.3250 Magnetic variation

The aeronautical charts service provider shall show average magnetic variation of the area covered by the chart to the nearest degree.

ACS.3255 Bearings, tracks and radials

The aeronautical charts service provider shall ensure that bearings, tracks and radials are magnetic.

ACS.3260 Aeronautical data

- (a) AERODROMES

The aeronautical charts service provider shall show aerodromes which affect the terminal routings on the chart. Where appropriate, a runway pattern symbol shall be used.

(b) AREA MINIMUM ALTITUDES

(Refer to the Procedures for Air Navigation - Aircraft Operations (PANS OPS, Doc 8168), Volume II, Part I, Section 2, Chapter 1, 1.8, for method for determination of area minimum altitude)

The aeronautical charts service provider shall show area minimum altitudes within quadrilaterals formed by the parallels and meridians on the chart.

(c) AIR TRAFFIC SERVICES SYSTEM

The aeronautical charts service provider shall show the components of the established relevant air traffic services system. The components shall include the following:

- (1) 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;
- (2) in respect of DME, additionally the elevation of the transmitting antenna of the DME to the nearest 30 m (100 ft);
- (3) terminal radio aids which are required for outbound and inbound traffic and for holding patterns;
- (4) the lateral and vertical limits of all designated airspace and the appropriate class of airspace;
- (5) the designation of the navigation specification(s) including any limitations, where established;
- (6) 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;
- (7) 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;
- (8) an indication of all compulsory and “on-request” reporting points;
- (9) the distances to the nearest kilometre or nautical mile between significant points constituting turning points or reporting points;
- (10) minimum en-route altitudes and minimum obstacle clearance altitudes, on air traffic services routes to the nearest higher 50 metres or 100 feet;
- (11) area speed and level/altitude restrictions where established;
- (12) communication facilities listed with their channels;
- (13) and an indication of “flyover” significant points.

SUBPART F – STANDARD DEPARTURE CHART - INSTRUMENT (SID) - ICAO**ACS.3265 Function and availability**

(Refer to STS-ATS, Appendix 3 for provisions governing the identification of standard departure routes, ICAO Doc 9426 - Air Traffic Services Planning Manual (Doc 9426) for guidance material relating to the establishment of such routes and ICAO Doc 8168 - Procedures for Air Navigation Services - Aircraft Operations, Vol. II, Part II for provisions governing obstacle clearance criteria and details of the minimum information to be published)

- (a) The aeronautical charts service provider shall make available the Standard Departure Charts - Instrument (SID) - ICAO which provides the flight crew with information to enable them to comply with the designated standard departure route - instrument from take-off phase to the en-route phase.
- (b) The chart shall be made available wherever a standard departure route - instrument has been established and cannot be shown with sufficient clarity on the Area Chart - ICAO.

ACS.3270 Coverage and scale

The aeronautical charts service provider shall:

- (a) ensure that the coverage of the chart 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 chart to scale; and
- (c) show a scale-bar on the chart.

ACS.3275 Projection

The aeronautical charts service provider shall:

- (a) use a conformal projection on which a straight line approximates a great circle on the chart;
- (b) show parallels and meridians at suitable intervals on the chart; and
- (c) place graduation marks at consistent intervals along the neat lines on the chart.

ACS.3280 Identification

The aeronautical charts service provider shall identify the chart by the name of the aerodrome and the identification of the standard departure route(s) - instrument as established in accordance with the ICAO Doc 8168 - Procedures for Air Navigation Services Aircraft Operations, Vol. II, Part I, Section 3, Chapter 5

ACS.3285 Culture and topography

The aeronautical charts service provider shall show on the chart:

- (a) the shore lines of open water areas; and
- (b) all relief exceeding 300 m (1000 ft) above the elevation of the SIA by smoothed contour lines, contour values and layer tints printed in brown, to improve situational awareness in areas where significant relief exists to improve situational awareness. Appropriate spot elevations, including the highest elevation within each top contour line, shall be shown printed in black. Obstacles shall also be shown.

ACS.3290 Magnetic variation

The aeronautical charts service provider shall show on the chart, magnetic variation used in determining the magnetic bearings, tracks and radials to the nearest degree.

ACS.3295 Bearings, tracks and radials

The aeronautical charts service provider shall ensure that bearings, tracks and radials on the chart are magnetic.

ACS.3300 Aeronautical data

- (a) AERODROMES
 - (1) The aeronautical charts service provider shall show the aerodrome of departure by the runway pattern on the chart.
 - (2) Aerodromes which affect the designated standard departure route - instrument shall be shown and identified on the chart. Where appropriate, the aerodrome runway patterns shall be shown.

(b) MINIMUM SECTOR ALTITUDE

The aeronautical charts service provider shall show the established minimum sector altitude with a clear indication of the sector to which it applies on the chart.

(c) AIR TRAFFIC SERVICES SYSTEM

The aeronautical charts service provider shall show the components of the established relevant air traffic services system on the chart. The components shall comprise the following:

- (1) a graphic portrayal of each standard departure 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 kilometre 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 50 m or 100 ft and flight level restrictions where established;
- (2) 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;
- (3) applicable holding patterns;
- (4) transition altitude/height to the nearest higher 300 m or 1000 ft;
- (5) the position and height of close-in obstacles which penetrate the obstacle identification surface (OIS). A note shall be included whenever close-in obstacles penetrating the OIS exist, but which were not considered for the published procedure design gradient;
- (6) area speed restrictions;
- (7) the designation of the navigation specifications including any limitations;
- (8) all compulsory and "on-request" reporting points;
- (9) radio communication procedures, including call signs of the air traffic services units and frequencies;
- (10) an indication of "flyover" significant points; and
- (11) a textual description of standard departure routes - instrument (SID) and relevant communication failure procedures.

(d) AERONAUTICAL DATABASE REQUIREMENTS

The aeronautical charts service provider shall publish appropriate data to support navigation database coding in accordance with the ICAO Doc 8168 - Procedures for Air Navigation Services - Aircraft Operations, Vol. II, Part III, Section 5, Chapter 2, 2.1, on the verso of the chart or as a separate, properly referenced sheet.

SUBPART G – STANDARD ARRIVAL CHART - INSTRUMENT (STAR) - ICAO**ACS.3305 Function and availability**

(Refer to STS-ATS, Appendix 3 for provisions governing the identification of standard arrival routes and ICAO Doc 9426 - Air Traffic Services Planning Manual (Doc 9426) for guidance material relating to the establishment of such routes)

- (a) The aeronautical charts service provider shall make available the Standard Arrival Charts - Instrument (STAR) - ICAO shall provide the flight crew with information to enable it to comply with the designated standard arrival route- instrument from the en-route phase to the approach phase.
- (b) The chart shall be made available wherever a standard arrival route - instrument has been established and cannot be shown with sufficient clarity on the Area Chart.

ACS.3310 Coverage and scale

The aeronautical charts service provider shall:

- (a) ensure that the coverage of the chart is sufficient to indicate the points where the en-route phase ends and the approach phase begins;
- (b) draw the chart to scale; and
- (c) show a scale-bar on the chart.

ACS.3315 Projection

The aeronautical charts service provider shall:

- (a) use a conformal projection on which a straight line approximates a great circle on the chart;
- (b) show parallels and meridians at suitable intervals on the chart; and
- (c) place graduation marks at consistent intervals along the neat lines on the chart.

ACS.3320 Identification

The aeronautical charts service provider shall identify the chart by the name of the aerodrome and the identification of the standard arrival route(s) - instrument as established in accordance with the ICAO Doc 8168 - Procedures for Air Navigation Services Aircraft Operations, Vol. II, Part I, Section 4, Chapter 2

ACS.3325 Culture and topography

The aeronautical charts service provider shall show on the chart:

- (a) the shore lines of open water areas; and
- (b) all relief exceeding 300 m (1000 ft) above the elevation of the SIA by smoothed contour lines, contour values and layer tints printed in brown, to improve situational awareness in areas where significant relief exists to improve situational awareness. Appropriate spot elevations, including the highest elevation within each top contour line, shall be shown printed in black. Obstacles shall also be shown.

ACS.3330 Magnetic variation

The aeronautical charts service provider shall show on the chart, magnetic variation used in determining the magnetic bearings, tracks and radials to the nearest degree.

ACS.3335 Bearings, tracks and radials

The aeronautical charts service provider shall ensure that bearings, tracks and radials on the chart are magnetic.

ACS.3340 Aeronautical data

- (a) AERODROMES
 - (1) The aeronautical charts service provider shall show the aerodrome of landing by the runway pattern on the chart.
 - (2) Aerodromes which affect the designated standard arrival route - instrument shall be shown and identified on the chart. Where appropriate, the aerodrome runway patterns shall be shown.

(b) MINIMUM SECTOR ALTITUDE

The aeronautical charts service provider shall show the established minimum sector altitude with a clear indication of the sector to which it applies on the chart.

(c) AIR TRAFFIC SERVICES SYSTEM

The aeronautical charts service provider shall show the components of the established relevant air traffic services system on the chart. The components shall comprise the following:

- (1) 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 kilometre 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 50 m or 100 ft and flight level restrictions where established;
- (2) 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;
- (3) applicable holding patterns;
- (4) transition altitude/height to the nearest higher 300 m or 1000 ft;
- (5) the position and height of close-in obstacles which penetrate the obstacle identification surface (OIS). A note shall be included whenever close-in obstacles penetrating the OIS exist, but which were not considered for the published procedure design gradient;
- (6) area speed restrictions;
- (7) the designation of the navigation specifications including any limitations;
- (8) all compulsory and "on-request" reporting points;
- (9) radio communication procedures, including call signs of the air traffic services units and frequencies;
- (10) an indication of "flyover" significant points; and
- (11) a textual description of standard arrival routes - instrument (STAR) and relevant communication failure procedures.

(d) AERONAUTICAL DATABASE REQUIREMENTS

The aeronautical charts service provider shall publish appropriate data to support navigation database coding in accordance with the ICAO Doc 8168 - Procedures for Air Navigation Services - Aircraft Operations, Vol. II, Part III, Section 5, Chapter 2, 2.1, on the verso of the chart or as a separate, properly referenced sheet.

SUBPART H – INSTRUMENT APPROACH CHART - ICAO**ACS.3345 Function**

(Refer to ICAO Doc 8168 - Procedures for Air Navigation Services - Aircraft Operations for establishment of instrument approach procedures and the resolutions of associated altitudes/heights detailed criteria and Volume II, Part I, Section 4, Chapter 9 for categories of aircraft)

- (a) The aeronautical charts service provider shall make available:
 - (1) Instrument Approach Charts - ICAO chart to provide flight crews with information which will enable them to perform an approved instrument approach procedure to the runway of intended landing including the missed approach procedure and associated holding patterns;
 - (2) Instrument Approach Charts - ICAO chart shall be made available for all aerodromes used by international civil aviation where instrument approach procedures have been established by the Authority;
- (b) The aeronautical charts service provider shall provide:
 - (1) a separate Instrument Approach Chart - ICAO for each precision approach procedure established by the Authority;
 - (2) a separate Instrument Approach Chart - ICAO for each non-precision approach procedure established by the Authority;
except that a single precision or non-precision approach procedure chart may be provided to portray more than one approach procedure when the procedures for the intermediate approach, final approach and missed approach segments are identical.
- (c) When the values for track, time or altitude differ between categories of aircraft on 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, more than one chart shall be provided.
- (d) Instrument Approach Charts - ICAO shall be revised by the aeronautical charts service provider whenever information essential to safe operation becomes out of date.

ACS.3350 Coverage and scale

- (a) The aeronautical charts service provider shall ensure that the coverage of the 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) The scale selected by the aeronautical charts service provider shall ensure optimum legibility consistent with the procedure shown on the chart and sheet size. The scale shall be shown on the chart directly below the profile.
- (c) A distance circle with a radius of 20 km (10 NM) centred on a DME located on or close to the aerodrome, or on the aerodrome reference point where no suitable DME is available, shall be shown with its radius indicated on the circumference.

ACS.3355 Format

The sheet size used by the aeronautical charts service provider for the chart shall be 210 x 148 mm (8.27 x 5.82 in).

ACS.3360 Projection

- (a) The aeronautical charts service provider shall use a conformal projection on which a straight line approximates a great circle for the chart.
- (b) Graduation marks shall be placed at consistent intervals along the neat lines.

ACS.3365 Identification

The aeronautical charts service provider shall identify the chart by the name of the aerodrome and the identification of the instrument approach procedure, as established in accordance with the ICAO Doc 8168 - Procedures for Air Navigation Services Aircraft Operations, Vol. II, Part I, Section 4, Chapter 9.

ACS.3370 Culture and topography

The aeronautical charts service provider shall show:

- (a) culture and topographic information pertinent to the safe execution of the instrument approach procedure, including the missed approach procedure, associated holding procedures and visual manoeuvring (circling)

procedure when established. Topographic information shall be named, only when necessary, to facilitate the understanding of such information, and the minimum shall be a delineation of land masses;

- (b) relief in a manner best suited to the particular elevation characteristics of the area;
- (c) all relief exceeding 150 m (500 ft) above the aerodrome elevation by smoothed contour lines, contour values and layer tints printed in brown where they exceed 600 m (2000 ft) 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,. Appropriate spot elevations, including the highest elevation within each top contour line, shall also be shown printed in black;
- (d) all relief exceeding 150 m (500 ft) above the aerodrome elevation by smoothed contour lines, contour values and layer tints printed in brown in areas where relief is lower than specified in (c). Appropriate spot elevations, including the highest elevation within each top contour line, should also be shown printed in black.

ACS.3375 Magnetic variation

Magnetic variation, when shown on the chart by the aeronautical charts service provider, shall be indicated to the nearest degree and shall agree with that used in determining magnetic bearings, tracks and radials.

ACS.3380 Bearings, tracks and radials

The aeronautical charts service provider shall ensure that bearings, tracks and radials on the chart are magnetic.

ACS.3385 Aeronautical data

(a) AERODROMES

The aeronautical charts service provider shall show:

- (1) the runway pattern at a scale sufficiently large and clear on the chart, for the aerodrome on which the procedure is based;
- (2) the aerodrome elevation to the nearest metre or foot in a prominent position on the chart;
- (3) the threshold elevation to the nearest metre or foot.

(b) OBSTACLES

The aeronautical charts service provider shall show:

- (1) obstacles provided by the procedures design specialist on the plan view of the chart. If one or more obstacles are the determining factor of an obstacle clearance altitude/height, those obstacles shall be identified;
- (2) the elevation of the top of obstacles to the nearest (next higher) metre or foot;
- (3) the heights of obstacles above a datum other than mean sea level in parentheses on the chart. The datum shall be stated in a prominent position on the chart;
- (4) obstacles that penetrate the visual segment surface on the chart in accordance with ICAO Doc 8697 - Aeronautical Chart Manual.

(c) RADIO COMMUNICATION FACILITIES AND NAVIGATION AIDS

The aeronautical charts service provider shall show on the chart:

- (1) radio navigation aids required for the procedures together with their frequencies, identifications and track-defining characteristics, if any;
- (2) the initial approach fix (IAF), the intermediate approach fix (IF), the final approach fix (FAF) or final approach point (FAP) for an ILS approach procedure, the missed approach point (MAPt), where established, and other essential fixes or points comprising the procedure. The final approach fix or final approach point for an ILS approach procedure should be identified with its geographical coordinates in degrees, minutes and seconds;
- (3) radio communication frequencies, including call signs, that are required for the execution of the procedures;
- (4) the distance to the aerodrome from each radio navigation aid concerned with the final approach to the nearest kilometre or nautical mile. When no track-defining aid indicates the bearing of the aerodrome, the bearing shall also be shown to the nearest degree.

(d) MINIMUM SECTOR ALTITUDE OR TERMINAL ARRIVAL ALTITUDE

The aeronautical charts service provider shall show on the chart, the minimum sector altitude or terminal arrival altitude established by the Authority with a clear indication of the sector to which it applies.

(e) PORTRAYAL OF PROCEDURE TRACKS

- (1) The aeronautical charts service provider shall show on the chart, the plan view with 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 (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 circling is prohibited;
 - (vii) where specified, the holding pattern and minimum holding altitude/height associated with the approach and missed approach;
 - (viii) caution notes where required, prominently displayed on the face of the chart;
 - (ix) an indication of “flyover” significant points;
 - (x) the distance to the aerodrome from the radio navigation aid concerned with the final approach.
- (2) The aeronautical charts service provider shall provide on the chart, 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 (ii) and (iii), 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/heights required by the procedures, including transition altitude, procedure altitudes/heights;
 - (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 authorized;
 - (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;
 - (x) heights required by procedures in parentheses, using the height datum selected in accordance with (b) (3).
- (3) On charts depicting non-precision approaches with a final approach fix, the aeronautical charts service provider shall provide in the profile view, minimum altitudes/heights in the intermediate and final approach segments indicated within bounded shaded blocks.

(f) SUPPLEMENTARY INFORMATION

- (1) The aeronautical charts service provider shall show on the chart:
 - (i) the distance to the nearest two-tenths of a kilometre or tenth of a nautical mile and a table showing ground speeds and times from the final approach fix to the missed approach point, when the missed approach point is defined by a distance from the final approach fix or a facility or a fix and the corresponding distance from the final approach fix;
 - (ii) a table showing altitudes/heights for each 2 km or 1 NM, as appropriate, when DME is required for use in the final approach segment. The table shall not include distances which would correspond to altitudes/heights below the OCA/H;
 - (iii) a table showing the altitudes/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;

- (iv) a rate of descent table on the chart;
 - (v) the final approach descent gradient to the nearest one-tenth of a per cent and, in parentheses, descent angle to the nearest one-tenth of a degree for non-precision approach procedures with a final approach fix;
 - (vi) the reference datum height to the nearest half metre or foot and the glide path/elevation/vertical path angle to the nearest one-tenth of a degree for precision approach procedures and approach procedures with vertical guidance.
- (2) When a final approach fix is specified at the final approach point for ILS, a clear indication shall be given by the aeronautical charts service provider on the chart, whether it applies to the ILS, the associated ILS localizer only procedure, or both.
- (3) When the final approach descent gradient/angle for any type of instrument approach procedure exceeds the maximum value specified in the ICAO Doc 8168 - Procedures for Air Navigation Services - Aircraft Operations, Volume II, the aeronautical charts service provider shall include a cautionary note on the chart.

(g) AERONAUTICAL DATABASE REQUIREMENTS

The aeronautical charts service provider shall publish appropriate data to support navigation database coding in accordance with the ICAO Doc 8168 - Procedures for Air Navigation Services - Aircraft Operations, Volume II, Part III, Section 5, Chapter 2, 2.3, for RNAV procedures and Volume II, Part I, Section 4, Chapter 9, 9.4.1.3, for non-RNAV procedures, on the verso of the chart or as a separate, properly referenced sheet.

SUBPART I – AERODROME CHART - ICAO**ACS.3390 Function and availability**

- (a) The aeronautical charts service provider shall make available the Aerodrome Chart – ICAO which provides flight crews with information which will facilitate the ground movement of aircraft from the aircraft stand to the runway and from the runway to the aircraft stand. The chart shall also provide essential operational information at the aerodrome.
- (b) The chart shall be made available in the manner prescribed in ACS.3001 for SIA which is used by international civil aviation.

ACS.3395 Coverage and scale

- (a) The aeronautical charts service provider shall ensure the coverage and scale of the chart is sufficiently large to show clearly all the elements listed in ACS.3405.
- (b) A linear scale shall be shown on the chart.

ACS.3400 Identification

The aeronautical charts service provider shall identify the chart by the name of the State and the name of the aerodrome.

ACS.3405 Magnetic variation

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

ACS.3410 Aerodrome data

The aeronautical charts service provider shall show the following on the chart:

- (a) geographical coordinates in degrees, minutes and seconds for the aerodrome reference point;
- (b) elevations, to the nearest metre or foot, of the aerodrome 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 half-metre or 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. Bearing strengths may be shown in tabular form on the face or verso of the chart;
- (e) all aprons, with aircraft stands, lighting, markings and other visual guidance and control aids, where applicable, including location and type of visual docking guidance systems and bearing strengths or aircraft type restrictions where the bearing strength is less than that of the associated runways. Bearing strengths or aircraft type restrictions may be shown in tabular form on the face or verso of the chart;
- (f) geographical coordinates in degrees, minutes and seconds for thresholds, geometric centre of touchdown and/or thresholds of the final approach and take-off area;
- (g) all taxiways with type of surface, designations, width, lighting, markings including runway-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. Bearing strengths or aircraft type restrictions may be shown in tabular form on the face or verso of the chart;
- (h) where established, hot spot locations with additional information properly annotated. Additional information regarding hot spots may be shown in tabular form on the face or verso of the chart;
- (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) approach and runway lighting;

- (m) location and type of the visual approach slope indicator systems with their nominal approach slope angle(s), minimum eye height(s) over the threshold of the on-slope signal(s), and where the axis of the system is not parallel to the runway centre line, the angle and direction of the displacement, i.e. left or right;
- (n) relevant communication facilities listed with their channels;
- (o) obstacles to taxiing;
- (p) aircraft servicing areas and buildings of operational significance;
- (q) navigation aids and their radio frequencies;
- (r) any part of the depicted movement area permanently unsuitable for aircraft, clearly identified as such.

SUBPART J – AIRCRAFT PARKING/DOCKING CHART - ICAO**ACS.3415 Function and availability**

- (a) The aeronautical charts service provider shall make available the Aircraft Parking/Docking Chart - ICAO supplementary chart which provides flight crews with detailed information to facilitate the ground movement of aircraft between the taxiways and the aircraft stands and the parking/docking of aircraft.
- (b) The chart shall be made available in the manner prescribed in ACS.3001 where, due to the complexity of the terminal facilities, the information cannot be shown with sufficient clarity on the Aerodrome/Heliport Chart - ICAO.

ACS.3420 Coverage and scale

The aeronautical charts service provider shall ensure the coverage and scale is sufficiently large to show clearly all the elements listed in ACS.3430. A linear scale shall be shown on the chart.

ACS.3425 Identification

The aeronautical charts service provider shall identify the chart by the name of the State and the name of the aerodrome.

ACS.3430 Magnetic variation

The aeronautical charts service provider shall show a True North arrow and magnetic variation to the nearest degree with its annual change on the chart. The chart need not be True North orientated.

ACS.3435 Aerodrome data

The aeronautical charts service provider shall show in a similar manner, on the chart, all the information on the Aerodrome Chart - ICAO 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) taxiway entries with designations, including runway-holding positions and, where established, intermediate holding positions, and stop bars;
- (e) where established, hot spot locations with additional information properly annotated. *Additional information regarding hot spots may be shown in tabular form on the face or verso of the chart.*
- (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) any part of the depicted movement area permanently unsuitable for aircraft, clearly identified as such.

SECTION 4 – ACCEPTABLE MEANS OF COMPLIANCE AND INTERPRETATIVE & EXPLANATORY MATERIAL (AMC & IEM)1 *GENERAL*

1.1 This Section contains Acceptable Means of Compliance and Interpretative/Explanatory Material that has been agreed for inclusion in STS-AIS/ACS.

1.2 Where a particular STS paragraph does not have an Acceptable Means of Compliance or any Interpretative/Explanatory Material, it is considered that no supplementary material is required.

2 *PRESENTATION*

2.1 The Acceptable Means of Compliance and Interpretative/Explanatory Material are presented in full page width on loose pages, each page being identified by the date of issue and/or the Amendment number under which it is amended or reissued.

2.2 A numbering system has been used in which the Acceptable Means of Compliance or Interpretative/Explanatory Material uses the same number as the STS paragraph to which it refers. The number is introduced by the letters AMC or IEM to distinguish the material from the STS itself.

2.3 The acronyms AMC and IEM also indicate the nature of the material and for this purpose the two types of material are defined as follows:

Acceptable Means of Compliance (AMC) illustrates a means, or several alternative means, but not necessarily the only possible means by which a requirement can be met. It should however be noted that where a new AMC is developed, any such AMC which may be additional to an existing AMC will be amended into the document following consultation under the NPA procedure.

Interpretative/Explanatory Material (IEM) helps to illustrate the meaning of a requirement.

2.4 Explanatory Notes not forming part of the AMC or IEM text appear in a smaller type face.

2.5 New, amended or corrected text is enclosed within heavy brackets.

ACJ/AMC/IEM A

Reserved

ACJ/AMC/IEM B

Reserved