



RWANDA CIVIL AVIATION REGULATIONS

PART 31: AERONAUTICAL CHARTS

Consolidated to include Special Regulations issued since last amendment of Ministerial Order N°01/CAB.M/019 OF 06/02/2019 Establishing Civil Aviation Regulations.

Part 31

Aeronautical Charts

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SUBPART A: GENERAL**31.001 APPLICABILITY**

- (a) These Regulations may be cited as the Civil Aviation (Aeronautical Charts) Regulations.
- (b) These Regulations shall apply to organization and persons providing an aeronautical cartographic service within designated airspaces and at aerodromes for civil aviation purposes in Rwanda.
- (c) No entity shall provide an aeronautical cartographic service unless such organization has been certificated to do so by the Authority in accordance with Subpart B of these Regulations.
- (d) The Civil Aviation Technical Standards (Aeronautical Charts) published by the Authority are applicable to the provision of aeronautical charts for operations in the airspace of Rwanda.

31.003 SUMMARY OF AMENDMENTS AND REVISION HIGHLIGHTS

- (a) The summary of amendments and revision highlights to this Part are contained in Appendix 1 to 31.003.

New. Internal: Special Regulation RSR/01/2020: Effective 15 November 2020

31.005 DEFINITIONS

- (a) For the purpose of this Part, the following definitions shall apply—
 - Aerodrome.** A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft;
 - Aerodrome elevation.** The elevation of the highest point of the landing area;
 - Aerodrome operating minima.** 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;
 - Aerodrome reference point.** The designated geographical location of an aerodrome;
 - Aeronautical chart.** A representation of a portion of the Earth, its culture and relief, specifically designated to meet the requirements of air navigation;
 - Aircraft stand.** A designated area on an apron intended to be used for parking an aircraft;
 - Air defence identification zone.** 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 (ATS);
 - Air traffic service.** 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);
 - Air transit route.** A defined route for the air transiting of helicopters;
 - Airway.** A control area or portion thereof established in the form of a corridor;
 - Altitude.** The vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL);
 - Application.** manipulation and processing of data in support of user requirements (ISO 19104);

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- Apron.** A defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance.
- Area minimum altitude (AMA).** The minimum altitude to be used under instrument meteorological conditions (IMC), which provides a minimum obstacle clearance within a specified area, normally formed by parallels and meridians;
- Area navigation (RNAV).** A method of navigation which permits aircraft operation on any desired flight path within the coverage of ground- or space-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these;
- Arrival routes.** Routes identified in an instrument approach procedure by which aircraft may proceed from the enroute phase of flight to an initial approach fix;
- ATS route.** A specified route designed for channeling the flow of traffic as necessary for the provision of air traffic services;
- ATS surveillance system.** A generic term meaning variously, ADS-B, PSR, SSR or any comparable ground-based system that enables the identification of aircraft;
- Bare Earth.** surface of the Earth including bodies of water and permanent ice and snow, and excluding vegetation and man-made objects;
- Calendar.** discrete temporal reference system that provides the basis for defining temporal position to a resolution of one day (ISO 19108);
- Canopy.** Bare Earth supplemented by vegetation height;
- Change-over point.** The point at which an aircraft navigating on an ATS route segment defined by reference to very high frequency Omni directional radio ranges is expected to transfer its primary navigational reference from the facility behind the aircraft to the next facility ahead of the aircraft;
- Clearway.** A defined rectangular area on the ground or water under the control of the appropriate authority selected or prepared as a suitable area over which an aeroplane may make a portion of its initial climb to a specified height;
- Contour line.** A line on a map or chart connecting points of equal elevation. Specified times;
- Culture.** All man-made features constructed on the surface of the Earth, such as cities, railways and canals;
- Cyclic redundancy check (CRC).** A mathematical algorithm applied to the digital expression of data that provides a level of assurance against loss or alteration of data;
- Danger area.** An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified time;
- Data product specification.** 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);
- Data quality.** A degree or level of confidence that the data provided meets the requirements of the data user in terms of accuracy, resolution and integrity (or equivalent assurance level), traceability, timeliness, completeness and format;
- Data Resolution.** A number of units or digits to which a measured or calculated value is expressed and used;
- Data set.** Identifiable collection of data (ISO 19101);
- Data set series.** Collection of data sets sharing the same product specification (ISO 19115);
- Datum.** Any quantity or set of quantities that may serve as a reference or basis for the calculation of other quantities (ISO 19104);
- Digital Elevation Model (DEM).** The representation of terrain surface by continuous elevation values at all intersections of a defined grid, referenced to common datum;
- Displaced threshold.** A threshold not located at the extremity of a runway;
- Electronic aeronautical chart display.** An electronic device by which flight crews are enabled to execute, in a convenient and timely manner, route planning, route monitoring and navigation by displaying required information;
- Elevation.** The vertical distance of a point or a level, on or affixed to the surface of the earth,

measured from mean sea level;

Ellipsoid height (Geodetic height). The height related to the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question;

Feature. Abstraction of real world phenomena (ISO 19101);

Feature attribute. Characteristic of a feature (ISO 19101);

Final approach. 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—
- (iii) a landing can be made; or
- (iv) a missed approach procedure is initiated;

Final approach and take-off area (FATO). A defined area over which the final phase of the approach manoeuvre to hover or landing is completed and from which the take-off manoeuvre is commenced. Where the FATO is to be used by performance Class 1 helicopters, the defined area includes the rejected take-off area available;

Final approach fix or point. That fix or point of an instrument approach procedure where the final approach segment commences;

Final approach segment. That segment of an instrument approach procedure in which alignment and descent for landing are accomplished;

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

Flight level. A surface of constant atmospheric pressure which is related to a specific pressure datum, 1013.2 hectopascals (hPa), and is separated from other such surfaces by specific pressure intervals;

Geodesic distance. The shortest distance between any two points on a mathematically defined ellipsoidal surface;

Geodetic datum. A minimum set of parameters required to define location and orientation of the local reference system with respect to the global reference system/frame;

Geoid. The equipotential surface in the gravity field of the Earth which coincides with the undisturbed mean sea level (MSL) extended continuously through the continents;

Geoid undulation. The distance of the geoid above (positive) or below (negative) the mathematical reference ellipsoid;

Glide path. A descent profile determined for vertical guidance during a final approach;

Gregorian calendar. 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);

Height. The vertical distance of a level, point or an object considered as a point, measured from a specific datum;

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

Heliport. An aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters;

Heliport reference point (HRP). The designated location of a heliport or a landing location;

Holding procedure. A predetermined manoeuvre which keeps an aircraft within a specified airspace while awaiting further clearance;

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

Human Factors principles. Principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human

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and other system components by proper consideration to human performance;

Hypsometric tints. A succession of shades or colour gradations used to depict ranges of elevation;

Initial approach segment. That segment of an instrument approach procedure between the initial approach fix and the intermediate approach fix or, where applicable, the final approach fix or point;

Instrument approach procedure. 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 enroute obstacle clearance criteria apply;

Integrity classification (aeronautical data). Classification based upon the potential risk resulting from the use of corrupted data. Aeronautical data is 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;
- (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;

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

Intermediate holding position. A designated position intended for traffic control at which taxiing aircraft and vehicles shall stop and hold until further cleared to proceed, when so instructed by the aerodrome control tower;

Isogonal. A line on a map or chart on which all points have the same magnetic variation for a specified epoch;

Isogriv. A line on a map or chart which joins points of equal angular difference between the North of the navigation grid and Magnetic North;

Landing area. That part of a movement area intended for the landing or take-off of aircraft;

Landing direction indicator. A device to indicate visually the direction currently designated for landing and for take-off;

Level. A generic term relating to the vertical position of an aircraft in flight and meaning variously, height, altitude or flight level;

Logon address. A specified code used for data link logon to an ATS unit;

Magnetic variation. The angular difference between True North and Magnetic North;

Manoeuvring area. That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons;

Marking. A symbol or group of symbols displayed on the surface of the movement area in order to convey aeronautical information;

Metadata. Data about data (ISO 19115);

Minimum enroute altitude (MEA). The altitude for an enroute segment that provides adequate reception of relevant navigation facilities and ATS communications, complies with the airspace structure and provides the required obstacle clearance;

Minimum obstacle clearance altitude (MOCA). The minimum altitude for a defined segment of flight that provides the required obstacle clearance;

Minimum sector altitude (MSA). The lowest altitude which may be used which will provide a minimum clearance of 300 m (1 000 ft) above all objects located in an area contained

within a sector of a circle of 46 km (25 NM) radius centred on significant point, the aerodrome reference point (ARP), or the heliport reference point (HRP);

Missed approach point (MAPt). 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;

Missed approach procedure. The procedure to be followed if the approach cannot be continued;

Movement area. 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(s);

Navigation specification. 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—

- (i) 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;
- (ii) 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;

Obstacle. 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;

Obstacle clearance altitude (OCA) or obstacle clearance height (OCH). The lowest altitude or the lowest height above the elevation of the relevant runway threshold or the aerodrome elevation as applicable, used in establishing compliance with appropriate obstacle clearance criteria;

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

Orthometric height. Height of a point related to the geoid, generally presented as an MSL elevation;

Performance-based navigation (PBN). Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace;

Point light. A luminous signal appearing without perceptible length;

Portrayal. Presentation of information to humans (ISO 19116);

Position (geographical). Set of coordinates (latitude and longitude) referenced to the mathematical reference ellipsoid which define the position of a point on the surface of the Earth;

Precision approach procedure. An instrument approach procedure utilizing azimuth and glide path information provided by ILS or PAR;

Procedure altitude/height. A published altitude/height used in defining the vertical profile of a flight procedure, at or above the minimum obstacle clearance altitude/height where established;

Procedure turn. Manoeuvre in which a turn is made away from a designated track followed by a turn in the opposite direction to permit the aircraft to intercept and proceed along the reciprocal of the designated track;

Prohibited area. An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited;

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- Relief.** The inequalities in elevation of the surface of the Earth represented on aeronautical charts by contours, hypsometric tints, shading or spot elevations;
- Reporting point.** A specified (named) geographical location in relation to which the position of an aircraft can be reported;
- Restricted area.** 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;
- Reversal procedure.** 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;
- Runway.** A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft;
- Runway-holding position.** A designated position intended to protect a runway, an obstacle limitation surface, or an ILS/MLS critical/sensitive area at which taxiing aircraft and vehicles shall stop and hold, unless otherwise authorized by the aerodrome control tower;
- Runway strip.** A defined area including the runway and stopway, if provided, intended—
- (i) to reduce the risk of damage to aircraft running off a runway; and
 - (ii) to protect aircraft flying over it during take-off or landing operations;
- Runway visual range (RVR).** The range over which the pilot of an aircraft on the centre line of a runway can see the runway surface markings or the lights delineating the runway or identifying its centre line;
- Shoulder.** An area adjacent to the edge of a pavement so prepared as to provide a transition between the pavement and the adjacent surface;
- Significant point.** A specified geographical location used in defining an ATS route or the flight path of an aircraft and for other navigation and ATS purposes;
- Stopway.** A defined rectangular area on the ground at the end of take-off run available prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned take-off;
- Taxiing.** movement of an aircraft on the surface of an aerodrome under its own power, excluding take-off and landing;
- Taxi-route.** 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;
- Taxiway.** A defined path on a land aerodrome established for the taxiing of aircraft and intended to provide a link between one part of the aerodrome and another, including—
- (i) Aircraft stand taxiway. 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;
- Terminal arrival altitude (TAA).** The lowest altitude that will provide a minimum clearance of 300 m (1 000 ft) above all objects located in an arc of a circle defined by a 46 km (25 NM) radius centred on the Initial Approach Fix (IAF), or where there is no IAF on the Intermediate approach Fix (IF), delimited by straight lines joining the extremity of the arc to the IF. The combined TAAs associated with an approach procedure shall account for an area of 360 degrees around the IF;
- Terrain.** The surface of the Earth containing naturally occurring features such as mountains, hills, ridges, valleys, bodies of water, permanent ice and snow, and excluding obstacles;
- Threshold.** The beginning of that portion of the runway usable for landing;
- Touchdown and lift-off area (TLOF).** A load bearing area on which a helicopter may touch

down or lift off;

Touchdown zone. The portion of a runway, beyond the threshold, where it is intended landing aeroplanes first contact the runway;

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

Transition altitude. The altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes;

Vectoring. Provision of navigational guidance to aircraft in the form of specific headings, based on the use of an ATS surveillance system;

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

Waypoint. 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—

- (i) Fly-by waypoint. A waypoint which requires turn anticipation to allow tangential interception of the next segment of a route or procedure; or
- (ii) Flyover waypoint. A waypoint at which a turn is initiated in order to join the next segment of a route or procedure.

31.010 ABBREVIATIONS & ACRONYMS

(a) The following acronyms or abbreviations are used in this Part—

AMA = Area Minimum Altitude

APCH = Approach

ATS = Air Traffic Services **DEM**

= Digital Elevation Model **hPa** =

hectopascals ()

IAF = Initial Approach Fix

IF = Intermediate Approach Fix

ILS = Instrument Landing System

IMC = Instrument Meteorological Conditions

ISO = International Organization for Standardization

MAPt = Missed Approach Point

MEA = Minimum Enroute Altitude

MOCA = Minimum Obstacle Clearance Altitude

MSA = Minimum Sector Altitude

MSL = Mean Sea Level

OCA = Obstacle Clearance Altitude

OCH = Obstacle Clearance Height

OFZ = Obstacle Free Zone

FATO = Final Approach and Takeoff Area

PBN = Performance-Based Navigation

PAR = Precision Approach Radar

RCAR = Rwanda Civil Aviation Regulations

RCAA = Rwanda Civil Aviation Authority **RVR**

= Runway Visual Range

RNP = Required navigation performance

RNAV = Area Navigation

TAA = Terminal Arrival Area

TLOF = Touchdown and Lift-off area

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31.015 ISSUE OF RWANDA CIVIL AVIATION TECHNICAL STANDARDS – AERONAUTICAL CHARTS

- (a) The Authority shall issue Rwanda Civil Aviation Technical Standards (Aeronautical Charts) prescribing the standards for these Regulations.

31.020 AVAILABILITY

- (a) The certificated cartographic service provider shall ensure that—
- (1) on the request of another State provide all information relating to its area of jurisdiction.
 - (2) the availability of charts is as provided in these regulations.
 - (3) for any chart or single sheet of a chart series entirely contained within the territory of the state, either—
 - (i) produce the chart or sheet itself; or
 - (ii) arrange for the production of the chart or sheet by another State or by an agency; or
 - (iii) provide another State prepared to accept an obligation to produce the chart or sheet with the data necessary for its production.
 - (4) for any chart or single sheet of a chart series which includes the territory of a Contracting State, in consultation with that state having jurisdiction over the territory concerned determine the manner in which the chart or sheet will be made available.
 - (5) take all reasonable measures to ensure that the information provided and the aeronautical charts made available are adequate and accurate and that aeronautical charts are maintained up to date by an adequate revision service.

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SUBPART B: CERTIFICATION REQUIREMENTS

31.025 REQUIREMENT FOR CERTIFICATE

- (a) No person shall provide an aeronautical cartography service for the Kigali FIR except under the authority of, and in accordance with the provisions of, an aeronautical cartography service certificate issued under these Regulations.

31.030 APPLICATION FOR CERTIFICATE

- (a) An applicant for an aeronautical cartography service certificate shall complete an application, in a form and in the manner prescribed by the Authority, and submit it to the Authority with—
 - (1) The applicant's manual of operations required under Regulation 31.055; and
 - (2) A payment of the appropriate application fee prescribed by the Authority.

31.035 ISSUE OF CERTIFICATE

- (a) The Authority shall issue an aeronautical cartography service certificate to an applicant if the Authority is satisfied that—
 - (1) the applicant meets the requirements of these Regulations and standards prescribed by the Authority; and
 - (2) the granting of the certificate is not contrary to the interests of aviation safety.

31.040 PRIVILEGES OF CERTIFICATE HOLDER

- (a) The aeronautical cartography service certificate shall specify the aeronautical cartography services that the certificate holder is authorised to provide.

31.045 DURATION OF CERTIFICATE

- (a) An aeronautical cartography service certificate shall be granted or renewed for a period of up to 2 years.
- (b) An aeronautical cartography service certificate shall remain in force until it expires or is suspended or revoked.
- (c) The Authority may, by written notice given to the holder of an aeronautical cartography service certificate, suspend or revoke the certificate if there are reasonable grounds for believing that—
 - (1) a condition to which the certificate is subject has been breached; or
 - (2) the holder has failed to comply with these Regulations.
- (d) Before suspending or cancelling an aeronautical cartography service certificate, the Authority shall—
 - (1) give to the holder a show cause notice that—
 - (i) sets out the facts and circumstances that, in the opinion of the Authority, would justify the suspension or cancellation; and
 - (ii) invites the holder to show cause, in writing, within 30 days after the date of the notice, why the certificate should not be suspended or revoked.
 - (2) take into account any written submissions that the holder makes to the Authority within 30 days.
- (e) The holder of an aeronautical cartography service certificate that has been suspended or revoked shall forthwith surrender the certificate to the Authority.

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31.050 RENEWAL OF CERTIFICATE

- (a) An application for the renewal of an aeronautical cartography service certificate shall complete an application, in a form and in the manner prescribed by the Authority, and submit it to the Authority.
- (b) The application for the renewal shall be made not less than 90 days before the expiry date specified on the certificate.

31.055 AERONAUTICAL CARTOGRAPHY SERVICE ORGANIZATION MANUAL OF OPERATIONS

- (a) An applicant for the grant of an aeronautical cartography service certificate shall provide the Authority with a manual of operations that contains—
 - (1) a list of the aeronautical cartography services to be covered by the certificate; and
 - (2) details of the applicant's procedures regarding—
 - (i) the competence of personnel;
 - (ii) the control of documentation;
 - (iii) the collection of data;
 - (iv) the publication of aeronautical charts;
 - (v) the correction of errors in published charts;
 - (vi) the identification, collection, indexing, storage, maintenance, and disposal of records; and
 - (vii) procedures to control, amend and distribute the manual of operations.
 - (3) job description for Aeronautical cartography technical staff.
 - (4) training programme for Aeronautical cartography technical staff.
- (b) The applicant's manual of operations shall be approved by the Authority

31.060 TRAINING PLAN

- (a) The Aeronautical Cartography service provider shall establish and implement the training plan for aeronautical cartography technical staff.
- (b) The Aeronautical Cartography service provider shall maintain individual training records for each of its staff.

31.065 AMENDMENT OF CERTIFICATE & MANUAL OF OPERATIONS

- (a) A holder of an aeronautical cartography service certificate shall ensure that the holder's manual of operations is amended so as to remain a current description of the holder's organisation and services.
- (b) The certificate holder shall ensure that any amendment made to manual of operations meets the applicable requirements of these Regulations, the standards prescribed by the Authority and complies with the amendment procedures contained in the manual of operations.
- (c) The certificate holder shall forward to the Authority for approval and retention a copy of each amendment to manual of operations before incorporating the amendment into the manual of operations.
- (d) If there is any change that requires an amendment to the certificate, the certificate holder shall forward the certificate to the Authority for endorsement of the change as soon as practicable.
- (e) The certificate holder shall make such amendments to the manual of operations as the Authority may consider necessary in the interests of aviation safety.

SUBPART C: GENERAL SPECIFICATIONS**31.070 OPERATIONAL REQUIREMENTS FOR CHARTS**

- (a) The certificated aeronautical cartographic service provider shall ensure that each type of chart provides information —
- (1) relevant to the function of the chart and the design of the chart observes Human Factors principles to facilitate its optimum use;
 - (2) for the safe and expeditious operation of the aircraft appropriate to the phase of flight as listed below—
 - (i) Phase 1: Taxi from aircraft stand to take off
 - (ii) Phase 2: Take off and climb to enroute ATS route structure
 - (iii) Phase 3: Enroute ATS route structure
 - (iv) Phase 4: Descent to approach
 - (v) Phase 5: Approach to land and missed approach
 - (vi) Phase 6: Landing and taxi to aircraft stand.
 - (3) that is accurate, free from distortion and clutter, unambiguous, and readable under all normal operating conditions;
 - (4) and that the colours or tints and type size used are such that the chart can be easily read and interpreted by the pilot in varying conditions of natural and artificial light;
 - (5) in a form which enables the pilot to acquire information in a reasonable time consistent with workload and operating conditions;
 - (6) that permits smooth transition from chart to chart as appropriate to the phase of flight.
- (b) The charts shall be True North orientated.
- (c) The basic sheet size of the charts shall be 210 × 297 mm (8.27 x 11.69 inches) (A4).

31.075 TITLES

- (a) The aeronautical cartographic service provider shall ensure that the title of a chart or chart series prepared in accordance with these regulations intended to satisfy the function of the chart is that of the relevant part heading except that such title shall not include "ICAO" unless the chart conforms with all requirements specified in part III and any other specified for the particular chart.

31.080 MISCELLANEOUS INFORMATION

- (a) The aeronautical cartographic service provider shall ensure that—
- (1) the marginal note layout is as given in RCATS - Aeronautical Charts, Appendix 1, except as otherwise specified for a particular chart.
 - (2) the following information is shown on the face of each chart unless otherwise stated in the specification of the chart concerned—
 - (i) designation or title of the chart series;
 - (ii) name and reference of the sheet;
 - (iii) on each margin an indication of the adjoining sheet where applicable.
 - (3) a legend to the symbols and abbreviations used is provided on the face or reverse of each chart except that, where it is impracticable for reasons of space, a legend may be published separately; and
 - (4) the name and adequate address of the producing agency is shown in the margin of the chart except that, where the chart is published as part of an aeronautical document, this cartographic may be placed in the front of that document.

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31.085 SYMBOLS

- (a) The aeronautical cartographic service provider shall ensure that—
- (1) The symbols used conform to those specified in RCATS -Aeronautical Charts, Appendix 2 of these regulations, except that where it is desired to show on an aeronautical chart special features or items of importance to civil aviation for which no ICAO symbol is at present provided, any appropriate symbol may be chosen for this purpose, provided that it does not cause confusion with any existing ICAO chart symbol or impair the legibility of the chart;
 - (2) The same basic symbol is used on all charts on which it appears, regardless of chart purpose to represent ground-based navigation aids, intersections and waypoints;
 - (3) The symbol used for significant points is based on a hierarchy of symbols and selected in the following order—
 - (i) ground-based navigation aid;
 - (ii) intersection;
 - (iii) waypoint symbol;
 - (4) A waypoint symbol is used only when a particular significant point does not already exist as either a ground-based navigation aid or intersection; and
 - (5) The symbols are shown in the manner specified in RCATS-Aeronautical Charts, Appendix 2, B, C, D.

31.090 UNITS OF MEASUREMENT

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

31.095 SCALE & PROJECTION

- (a) The aeronautical cartographic service provider shall ensure that—
- (1) the name and basic parameters and scale of the projection are indicated for charts of large areas; and
 - (2) for charts of small areas, a linear scale only is indicated.

31.100 DATE OF VALIDITY OF AERONAUTICAL INFORMATION

- (a) The aeronautical cartographic service provider shall clearly indicate on the face of each chart the date of validity of aeronautical information.

31.105 SPELLING OF GEOGRAPHICAL NAMES

- (a) The aeronautical cartographic service provider shall ensure that—
- (1) the symbols of the Roman alphabet are used for all writing;
 - (2) the word where a geographical term is abbreviated on any particular chart are spelt out in full; and
 - (3) the punctuation marks are not used in abbreviations within the body of a chart.

31.110 ABBREVIATIONS

- (a) The aeronautical cartographic service provider shall ensure that abbreviations are—
 - (1) used on aeronautical charts whenever they are appropriate; and
 - (2) selected from the Procedures for Air Navigation Services – ICAO document abbreviations and codes number 8400 where applicable.

31.115 POLITICAL BOUNDARIES

- (a) The aeronautical cartographic service provider shall ensure that the—
 - (1) international boundaries are shown, but may be interrupted if data more important to the use of the chart would be obscured; and
 - (2) names identifying the countries are indicated where the territory of more than one State appears on a chart.

31.120 COLOURS

- (a) The aeronautical cartographic service provider shall ensure that the colours used on charts conform to the Colour Guide in RCATS - Aeronautical Charts, Appendix 6.

31.125 RELIEF

- (a) The cartographic service provider shall ensure that—
 - (1) relief, where shown, is portrayed in a manner that will satisfy the chart users' need for—
 - (i) Orientation and identification;
 - (ii) Safe terrain clearance;
 - (iii) Clarity of aeronautical cartographic when shown;
 - (iv) Planning.
 - (2) the tints used where relief is shown by hypsometric tints, are based on those shown in the Hypsometric Tint Guide in fourth Schedule of the Regulation;
 - (3) the spot elevations are shown for selected critical points where spot elevations are used; and
 - (4) the value of spot elevations of doubtful accuracy is followed by the sign \pm .

31.130 PROHIBITED, RESTRICTED & DANGER AREAS

- (a) The aeronautical cartographic 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.

31.135 AIR TRAFFIC SERVICES AIRSPACES

- (a) The aeronautical cartographic service provider shall ensure that the class of airspace, the type, name or call sign, the vertical limits and the radio frequency to be used is indicated when ATS airspace is shown on a chart, and the horizontal limits specified in accordance to RCATS - Aeronautical Charts, Appendix 2.

31.140 MAGNETIC VARIATION

- (a) The aeronautical cartographic service provider shall ensure that—
 - (1) the True North and magnetic variation are indicated and the order of resolution of magnetic variation is that as specified for a particular chart;
 - (2) when magnetic variation is shown on a chart, the values shown are those for the year nearest to the date of publication that is divisible by 5; and
 - (3) an interim date and value are quoted in exceptional cases where the current value would be more than one degree different, after applying the calculation for annual change.

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31.145 AERONAUTICAL DATA

- (a) The aeronautical cartographic service provider shall ensure that—
- (1) all necessary measures are taken to introduce a properly organized quality system containing procedures, processes and resources necessary to implement quality management at each function stage as specified in Rwanda Civil Aviation Technical Standards – Aeronautical Information Services;
 - (2) the execution of such quality management is made demonstrable for each function stage, when required;
 - (3) the 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 and maintenance phases or in the operational use, to be corrected;
 - (4) chart resolution of aeronautical data is as specified for a particular chart;
 - (5) the integrity of aeronautical data is maintained throughout the data process from origination to distribution to the next intended user; and
 - (6) digital data error detection techniques are used during the transmission and / or storage of aeronautical data and digital data sets.

31.150 HORIZONTAL REFERENCE SYSTEM

- (a) The aeronautical cartographic service provider shall ensure that the—
- (1) World Geodetic System — 1984 is used as the horizontal reference system;
 - (2) Published aeronautical geographical coordinates indicating latitude and longitude are expressed in terms of the WGS-84 geodetic reference datum;
 - (3) Geographical coordinates which have been transformed into WGS-84 coordinates but whose accuracy of original field work does not meet the requirements in Rwanda Civil Aviation Technical Standards - Air Traffic Services and the Civil Aviation (Aerodrome) Regulations are identified by an asterisk; and
 - (4) Chart resolution of geographical coordinates is as specified for a particular chart series.

31.155 VERTICAL REFERENCE SYSTEM

- (a) The aeronautical cartographic service provider shall ensure that the—
- (1) mean sea level datum is used as the vertical reference system;
 - (2) elevations referenced to mean sea level, for the specific surveyed ground positions, geoid undulation for the surveyed positions are published as specified for a particular chart; and
 - (3) Chart resolution of elevation and geoid undulation is as specified for a particular chart series.

31.160 TEMPORAL REFERENCE SYSTEM

- (a) The aeronautical cartographic service provider shall ensure that—
- (1) The Gregorian calendar and Coordinated Universal Time are used as the temporal reference system; and
 - (2) When a different temporal reference system is used for charting, this shall be indicated in the Aeronautical Information Publication (AIP).

31.165 CHARTS TO BE PUBLISHED

- (a) The aeronautical cartographic service provider shall publish the following charts, as applicable and in accordance to the requirements as prescribed by the Authority—
- (1) Aerodrome Obstacle Chart– ICAO Type A
 - (2) Precision Approach Terrain Chart – ICAO
 - (3) Enroute Chart – ICAO
 - (4) Area Chart – ICAO or, alternatively, Standard Departure Chart – Instrument (SID) – ICAO and Standard Arrival Chart – Instrument (STAR) – ICAO
 - (5) Instrument Approach Chart – ICAO

- (6) Visual Approach Chart – ICAO
- (7) Aerodrome/Heliport Chart – ICAO
- (8) Aerodrome Ground Movement Chart – ICAO (only if not provided on the aerodrome/heliport chart)
- (9) Aircraft Parking/Docking Chart – ICAO (only if not provided on the aerodrome/heliport chart)
- (10) World Aeronautical Chart – ICAO 1: 1 000 000 or, alternatively, Aeronautical Chart – ICAO 1: 500 000 or Aeronautical Navigation Chart – ICAO Small Scale
- (11) Plotting Chart – ICAO (only where the Enroute Chart – ICAO is not provided)
- (12) ATC Surveillance Minimum Altitude Chart – ICAO (only where vectoring procedures are established, but minimum vectoring altitudes cannot be shown on the Area Chart, Standard Departure Chart – Instrument (SID) or Standard Arrival Chart-Instrument (STAR)).

31.170 USE OF AUTOMATION IN AERONAUTICAL CHARTING

- (a) An aeronautical cartographic service provider shall ensure that an Aeronautical charting automated systems comply with the following requirements—
 - (1) Provide for continuous and timely updating of the system database and monitoring of the validity;
 - (2) Quality of the aeronautical information stored;
 - (3) Integrate data from a wide variety of sources;
 - (4) Temporally manage information and related products, to make sure that charts are always up to date;
 - (5) Facilitate inspection of the aeronautical chart content, possibly through the synchronization of the graphical elements with the central database content via specific metadata;
 - (6) Provide users with definable rules/templates to facilitate the assembling of the final chart product; and
 - (7) Ensure products and services are equally available to humans and computer systems, through specific digital formats for capturing and processing the information.

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SUBPART D: CHARTS

31.175 AERODROME OBSTACLE CHART – ICAO TYPE A

- (a) The aeronautical cartographic service provider shall ensure that the Aerodrome Obstacle chart – ICAO Type A, provides the data necessary to enable an operator to comply with the operating limitations of the Civil Aviation (Operations of Aircraft) Regulations.

31.180 AERODROME OBSTACLE CHART – ICAO TYPE B

- (a) The aeronautical cartographic service provider shall ensure that the Aerodrome Obstacle Chart – Type B provides information to satisfy the following functions—
- (1) the determination of minimum safe altitudes/heights including those for circling procedures;
 - (2) the determination of procedures for use in the event of an emergency during take-off or landing;
 - (3) the application of obstacle clearing and marking criteria; and
 - (4) the provision of source material for aeronautical charts.

31.185 AERODROME TERRAIN & OBSTACLE CHART – ICAO (ELECTRONIC)

- (a) The aeronautical cartographic service provider shall ensure that the Aerodrome Terrain and Obstacle Chart electronic portrays the terrain and obstacle data in combination with aeronautical data, as appropriate, necessary to—
- (1) enable an operator to comply with the operating limitations of the Civil Aviation (operation of aircraft) Regulations, 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;
 - (2) support the following air navigation applications—
 - (i) instrument procedure design (including circling procedure);
 - (ii) aerodrome obstacle restriction and removal; and
 - (iii) provision of source data for the production of other aeronautical charts.

31.190 PRECISION APPROACH TERRAIN CHART – ICAO

- (a) The aeronautical cartographic service provider shall ensure that the precision approach terrain chart provides detailed terrain profile information within a defined portion of the final approach so as to enable aircraft operating agencies to assess the effect of the terrain on decision height determination by the use of radio altimeters.

31.195 ENROUTE CHART – ICAO

- (a) The aeronautical cartographic service provider shall ensure that the Enroute chart provides flight crews with information to facilitate navigation along Air Traffic Service routes in compliance with air traffic services procedures.

31.200 AREA CHART – ICAO

- (a) The aeronautical cartographic service provider shall ensure that the area chart provides the flight crew with information to facilitate the following phases of instrument flight—
- (1) The transition between the enroute phase and approach to an aerodrome;
 - (2) The transition between take-off/missed approach and enroute phase of flight; and
 - (3) Flights through areas of complex ATS routes or airspace structure.

31.205 STANDARD DEPARTURE CHART – INSTRUMENT (SID) – ICAO

- (a) The aeronautical cartographic service provider shall ensure that the standard departure chart - instrument provides the flight crew with information to enable it to comply with the designated standard departure route instrument from take-off phase to the enroute phase.

31.210 STANDARD ARRIVAL CHART – INSTRUMENT (STAR) – ICAO

- (a) The aeronautical cartographic service provider shall ensure that the chart provides the flight crew with information to enable the flight crew to comply with the designated standard arrival route instrument from the enroute phase to the approach phase.

31.215 INSTRUMENT APPROACH CHART – ICAO

- (a) The aeronautical cartographic service provider shall ensure that the Instrument Approach chart provides flight crews with information which will enable the flight crew to perform an approved instrument approach procedure to the runway of intended landing including the missed approach procedure and, where applicable, associated holding patterns.

31.220 VISUAL APPROACH CHART – ICAO

- (a) The aeronautical cartographic service provider shall ensure that the Visual Approach chart provides flight crews with information which will enable the flight crew to transit from the enroute or descent to approach phases of flight to the runway of intended landing by means of visual reference.

31.225 AERODROME/ HELIPORT CHART – ICAO

- (a) The aeronautical cartographic service provider shall ensure that the—
 - (1) aerodrome or heliport chart provides flight crews with information to facilitate the ground movement of aircraft -
 - (i) from the aircraft stand to the runway; and
 - (ii) from the runway to the aircraft stand.
 - (2) aerodrome or heliport chart provides flight crews with information to facilitate the helicopter movement—
 - (i) from the helicopter stand to the touchdown and lift-off area and to the final approach and take-off area;
 - (ii) from the final approach and take-off area to the touchdown and lift-off area and to the helicopter stand;
 - (iii) along helicopter ground and air taxiways; and
 - (iv) along air transit routes.
 - (3) aerodrome or heliport chart provides essential operational information at the aerodrome or heliport.

31.230 AERODROME GROUND MOVEMENT CHART – ICAO

- (a) The aeronautical cartographic service provider shall ensure that the aerodrome ground movement chart provides flight crews with detailed information to facilitate the ground movement of aircraft to and from the aircraft stands and the parking or docking of aircraft.

31.235 AIRCRAFT PARKING/ DOCKING CHART – ICAO

- (a) The aeronautical cartographic service provider shall ensure that the aircraft parking chart 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.

31.240 WORLD AERONAUTICAL CHART – ICAO 1:1 000 000

- (a) The aeronautical cartographic service provider shall ensure that the World Aeronautical chart – 1:1,000,000 provides information to satisfy the requirements of visual air navigation—
 - (1) as a basic aeronautical chart—
 - (i) when highly specialized charts lacking visual cartographic do not provide essential data;
 - (ii) to provide complete world coverage at a constant scale with a uniform presentation of planimetric data; and
 - (iii) in the production of other charts required by international civil aviation.

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- (2) as a pre-flight planning chart.

31.245 AERONAUTICAL CHART – ICAO 1:500 000

- (a) The aeronautical cartographic service provider shall ensure that the aeronautical chart - 1:500,000 provides information to satisfy the requirements of visual air navigation for low speed, short- or medium- range operations at low and intermediate altitudes.

31.250 AERONAUTICAL NAVIGATION CHART – ICAO SMALL SCALE

- (a) The aeronautical cartographic service provider shall ensure that the aeronautical navigation chart – small scale—
 - (1) serves as an air navigation aid for flight crews of long-range aircraft at high altitudes;
 - (2) provides selective checkpoints over extensive ranges for identification at high altitudes and speeds, which are required for visual confirmation of position;
 - (3) provides for continuous visual reference to the ground during long-range flights over areas lacking radio or other electronic navigation aids, or over areas where visual navigation is preferred or becomes necessary; and
 - (4) provides a general purpose chart series for long-range flight planning and plotting.

31.255 PLOTTING CHART – ICAO

- (a) The Aeronautical cartographic service provider shall ensure that the plotting chart provides a means of maintaining a continuous flight record of the aircraft position by various fixing methods and dead reckoning in order to maintain an intended flight path.

31.260 ELECTRONIC AERONAUTICAL CHART DISPLAY – ICAO

- (a) The Aeronautical cartographic service provider shall ensure that the Electronic Aeronautical Chart Display — ICAO, with adequate back-up arrangements and in compliance with the requirements of Civil Aviation (Operations of aircraft) Regulations for charts, enables flight crews to execute, in a convenient and timely manner, route planning, route monitoring and navigation by displaying the required information.

31.265 ATC SURVEILLANCE MINIMUM ALTITUDE CHART – ICAO

- (a) The aeronautical cartographic service provider shall ensure that—
 - (1) the ATC Surveillance Minimum Altitude chart provides information that will enable flight crews to monitor and cross-check altitudes assigned by a controller using an ATS surveillance system;
 - (2) a note indicating that the chart may only be used for cross-checking of altitudes assigned while the aircraft is identified is prominently displayed on the face of the chart.

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SUBPART E: SAFETY OVERSIGHT OF AERONAUTICAL CARTOGRAPHY SERVICES**31.270 SAFETY OVERSIGHT FUNCTION**

- (a) The Authority shall exercise safety oversight as part of its supervision of requirements applicable to aeronautical cartography services in order to monitor the safe provision of these activities and to verify that the applicable safety regulatory requirements and their implementing arrangements are met.

31.275 VERIFICATION OF COMPLIANCE WITH SAFETY REGULATORY REQUIREMENTS

- (a) The Authority shall establish a process in order to verify compliance with applicable safety regulatory requirements prior to the issue or renewal of a certificate necessary to provide aeronautical cartography services including safety-related conditions attached to it.
- (b) The process referred to in paragraph (a) shall—
 - (1) be based on documented procedures;
 - (2) be supported by documentation specifically intended to provide safety oversight personnel with guidance to perform their functions;
 - (3) provide the organisations concerned with an indication of the results of the safety oversight activity;
 - (4) be based on safety regulatory audits and reviews conducted; and
 - (5) provide competent authorities with the evidence needed to support further action.

31.280 SAFETY REGULATORY AUDITS

- (a) The Authority shall conduct safety regulatory audits of all aeronautical cartography services provider.
- (b) The safety regulatory audits referred to in paragraph (a) shall—
 - (1) provide the Authority with evidence of compliance with applicable safety regulatory requirements and with implementing arrangements by evaluating the need for improvement or corrective action;
 - (2) be independent of internal auditing activities undertaken by the service provider concerned as part of its safety or quality management systems;
 - (3) be conducted by qualified inspectors;
 - (4) apply to complete implementing arrangements or elements thereof, and to processes, products or services;
 - (5) determine whether—
 - (i) implementing arrangements comply with safety regulatory requirements;
 - (ii) actions taken comply with the implementing arrangements;
 - (iii) the results of actions taken match the results expected from the implementing arrangements;
 - (6) lead to the correction of any identified non-conformities.
- (c) Within the inspection programme, the Authority shall establish and update at least annually a programme of safety regulatory audits in order to—
 - (1) cover all the areas of potential safety concern, with a focus on those areas where problems have been identified;
 - (2) cover all the service providers, services;
 - (3) ensure that audits are conducted in a manner commensurate to the level of risk posed by the service providers' activities;
 - (4) ensure that sufficient audits are conducted over a period of 1 year to check the compliance of all these service providers with applicable safety regulatory requirements in all the relevant areas of the functional system; and

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- (5) ensure follow up of the implementation of corrective actions.
- (d) The Authority may decide to modify the scope of pre-planned audits and to include additional audits, wherever that need arises.
- (e) The Authority shall decide which arrangements, elements, services, functions, products, physical locations and activities are to be audited within a specified time frame.
- (f) Audit observations and identified non-conformities shall be documented. The latter shall be supported by evidence, and identified in terms of the applicable safety regulatory requirements and their implementing arrangements against which the audit has been conducted.
- (g) An audit report, including the details of the non-conformities, shall be drawn up.

31.285 CORRECTIVE ACTIONS

- (a) The Authority shall communicate the audit findings to audited service providers and shall simultaneously request corrective actions to address the non-conformities identified without prejudice to any additional action required by the applicable safety regulatory requirements.
- (b) Audited service providers shall determine the corrective actions deemed necessary to correct non-conformities and the time frame for their implementation.
- (c) The Authority shall assess the corrective actions as well as their implementation as determined by audited service providers and accept them if the assessment concludes that they are sufficient to address the non-conformities.
- (d) Audited service providers shall initiate the corrective actions accepted by the Authority. These corrective actions and the subsequent follow-up process shall be completed within the time period accepted by competent authorities.

31.290 SAFETY OVERSIGHT OF CHANGES TO FUNCTIONAL SYSTEMS

- (a) Aeronautical cartography services provider shall only use procedures accepted by the Authority when deciding whether to introduce a safety-related change to their functional systems.
- (b) Aeronautical cartography services provider shall notify the Authority of all planned safety-related changes.

APPENDICES

APPENDIX 1 TO 31.003.- SUMMARY OF AMENDMENTS AND REVISION HIGHLIGHTS

This Appendix contains a summary of all amendments and revision highlights to this Part since the issuance of the original regulation.

Amended Regulation	Amendment Source	Revision	Description of Revision
31.003	Internal	Special Regulation RSR/01/2020 Effective 15 November 2020	Inserted a new summary of Amendments and Highlight of Revisions.
Appendix 1 to 31.003	Internal	Special Regulation RSR/01/2020 Effective 15 November 2020	Added a new Appendix providing details to the summary of Amendments and Highlight of Revisions.

New: Internal: Special Regulation RSR/01/2020: Effective 15 November 2020

END OF RCAR PART 31