MOZAMBIQUE CIVIL AVIATION

TECHNICAL STANDARDS

MOZCATS PART 175

Certification and operation of

Aeronautical Information Management Services

24 February 2014

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LIST OF EFFECTIVE PAGES

The list of effective pages below will be used to assist in keeping track of revisions and updates to the Mozambique Civil Aviation Technical Standards (MOZ-CATS). The list shows the number of the last revision for each page of the Mozambique Civil Aviation Technical Standards . Accordingly, with each revision to the Mozambique Civil Aviation Technical Standards a new list of effective pages will be published and distributed to all Mozambique Civil Aviation Technical Standards holders.

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APPROVAL PAGE

The Instituto de Aviação Civil de Moçambique (IACM) - the Civil Aviation Authority of the Republic of Mozambique. approves this Mozambique Civil Aviation Technical Standard (MOZCATS Part 175) for the use and guidance of the Airspace Users, Air Navigation Service Providers, Aerodrome Operators and Aeronautical Information Management Service Providers to comply with the requirements of MOZCAR Part 175, but also to IACM staff in the performance of their duties.

Comments and suggestions for amendments to this publication should be forwarded to the Director of Air Navigation, IACM:

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Maputo, 24 February 2014

The Chairman of the Board and CEO

Capt João Martins de Abreu

SUBPART I GENERAL

175.01.1 General

Decree 21 of 2001 empowers the CEO of the Civil Aviation IACM of the Republic of Mozambique IACM to issue technical standards for civil aviation on the matters prescribed by regulation. The Civil Aviation Regulation MOZCAR part 175 establishes the regulations applicable for the certification and operation of aeronautical information management service providers.

175.01.2 Applicability

This Part prescribes:

(1) the rules governing the certification and operation of organisations providing an aeronautical information management service for Mozambique on behalf of the IACM; and

(2) the requirements for the Mozambique Aeronautical Information Publications, Aeronautical Information Circulars and NOTAM.

175.01.3 References

Lei de Aviaçao da Republica de Mocambique 21/2009

ICAO Anexo 15 Aeronautical Information Services Version 14/11/2013

ICAO Annex 11

ICAO Annex 14

ICAO Doc 8126 Aeronautical Information Services Manual

ICAO Doc 9859 Safety Management Manual

MOZCAR Parte 71 Organização e Gestão do Espaço aéreo

MOZCAR Parte 175 Certificação e Operação dos serviços de Gestão da Informação Aeronáutica

ISO 9000 (ISO 9001:2008) quality assurance standards

175.01.4 Definitions

(a) For the purpose of Part 175 the following definitions shall apply:

Accuracy. 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.

Aeronautical data. A representation of aeronautical facts, concepts or instructions in a formalized manner suitable for communication, interpretation or processing.

Aeronautical information. Information resulting from the assembly, analysis and formatting of aeronautical data.

Aeronautical Information Circular (AIC). 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.

Aeronautical Information Publication (AIP). A publication issued by or with the IACM of a State and containing aeronautical information of a lasting character essential to air navigation. Aeronautical information service (AIM). A service established within the defined area of coverage responsible for the provision of aeronautical information/data necessary for the safety, regularity and efficiency of air navigation.

AIP Amendment. Permanent changes to the information contained in the AIP.

AIP Supplement. Temporary changes to the information contained in the AIP which are published by means of special pages.

AIRAC. 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.

AIM product. 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. Application. Manipulation and processing of data in support of user requirements (ISO 19104*).

ASHTAM. 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.

Assemble. 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.

ATS surveillance service. Term used to indicate a service provided directly by means of an ATS surveillance system.

ATS surveillance system. 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.

Automatic dependant surveillance - broadcast (ADS-B). 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.

Automatic dependant surveillance - contract (ADS-C). 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.

Automatic terminal information service(ATIS). The automatic provision of current, routine information to arriving and departing aircraft throughout 24 hours or a specific portion thereof. **Data link-automatic terminal 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.

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.

Controller-pilot data link communications (CPDLC). A means of communication between controller and pilot, using data link for ATC communications.

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 times.

Database. One or more files of data so structured that appropriate applications may draw from the files and update them.
Note.- This primarily refers to data stored electronically and accessed by computer rather than in files of physical records.

Data product. Data set or data set series that conforms to a data product specification (ISO 19131*).

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*).
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.

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.

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 (ISO19104*).

Digital Elevation Model (DEM). 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.

Direct transit arrangements. 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.

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*).

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.
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.

Geoid undulation. 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.

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*).
Note.- In the Gregorian calendar, common years have 365 days and leap years 366 days divided into twelve sequential months.

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

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.

Human Factors principles. 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.

Integrated Aeronautical Information Package. A package which consists of the following elements:

a) AIP, including amendment service;
b) Supplements to the AIP;
c) NOTAM and PIB;

d) AIC;
e) checklists and lists of valid NOTAM

Integrity (aeronautical data). A degree of assurance that an aeronautical data and its value has not been lost or altered since the data origination or authorized amendment.

International airport. 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.

International NOTAM office (NOF). An office designated by a State for the exchange of NOTAM internationally.

Logon address. A specified code used for data link logon to an ATS unit. Manoeuvring area. That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.

Metadata. Data about data (ISO 19115*).
Note.- Data that describes and documents data.

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). Minimum en-route altitude (MEA). The altitude for an en-route segment that provides adequate reception of navigation and communication signals and provide the required obstacle clearance.

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

NOTAM. 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.

Obstacle. All fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft or that extend above a defined surface intended to protect aircraft in flight. Obstacle/terrain data collection surface. A defined surface intended for the purpose of collecting obstacle/terrain data. Orthometric height. Height of a point related to the geoid, generally presented as an MSL elevation.

Portrayal. Presentation of information to humans (ISO 19117*).

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.

Post spacing. Angular or linear distance between two adjacent elevation points.

Precision. 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.

Pre-flight information bulletin (PIB). A presentation of current NOTAM information of operational significance, prepared prior to flight.

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.

Quality. Degree to which a set if inherent characteristics fulfils requirements (ISO9000*).
Note - The term "quality" can be used with adjectives such as poor, good or excellent.

Quality assurance. All the planned and systematic activities implemented within the quality system, and demonstrated as needed, to provide adequate confidence that an entity will fulfil requirements for quality (ISO 9000*).

Quality control. The operational techniques and activities that are used to fulfil requirements for quality (ISO 9000*). Quality management. All activities of the overall management function that determine the quality policy, objectives and responsibilities, and implementing them by means such as quality planning, quality control, quality assurance and quality improvement within the quality system (ISO 9000*).

Relief. The inequalities in elevation of the surface of the Earth represented on aeronautical charts by contours, hypsometric tints, shading or spot elevations.

Requirement. Needs 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 specific requirement is one which is stated, for example, in a document.
Note 4 - Requirements can be generated by different interested parties.

Resolution. A number of units or digits to which a measured or calculated value is expressed and used.

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.

Route stage. A route or portion of a route flown without an intermediate landing. Station declination. An alignment variation between the zero degree radial of a VOR and true north, determined at the time the VOR station is calibrated.

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.
Note.- In practical terms, depending on the method of data collection used, terrain represents the continuous surface that exists at the bare Earth, the top of the canopy or something in-between, also known as "first reflective surface".

Traceability. Ability to trace the history, application or location of an entity by means of recorded identifications (ISO 9000*).

Validation. Confirmation, trough the provision of objective evidence, that the particular requirements for a specific intended use are fulfilled (ISO 9000*).

Verification. Confirmation, trough the provision of objective evidence that specified requirements have been fulfilled (ISO 9000*).
Note.- Objective evidence is information which can be proved true, based on facts obtained through observation, measurement, test or other means

VOLMET. Meteorological information for aircraft in flight.

Data link-VOLMET (D-VOLMET). 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.

VOLMET broadcast. Provision as appropriate, of current METAR, SPECI, TAF and SIGMET by means of continuous and repetitive voice broadcasts.

175.01.5 Abbreviations

The following abbreviations are used in Part 175:

ACAS	Airborne Collision Avoidance System
ACC	Area Control Centre;
AFTN	Aeronautical Fixed Telecommunication Network;
AIM	Aeronautical Information Management Services
AIS	Aeronautical Information Services
ALS	Alerting Service
ARO	ATS Reporting Office
ASM	Air Space Management
ATC	Air Traffic Control
ATFM	Air Traffic Flow Management
ATS	Air Traffic Services (ATC+ALS+FIS)
ATIS	Automatic Terminal Information Service;
ATM	Air Traffic Management Services (ATS+ASM+ATFM)
CPDLC	Control Pilot Data Link Communications;
DME	Distance Measuring Equipment;
FIR	Flight Information Region;
FIS	Flight Information Service;
GPS	Global Positioning System;
GPWS	Ground Proximity Warning System;
HF	High Frequency;
IACM	Instituto de Aviação Civil de Moçambique, the Civil Aviation Authority of Mozambique
ICAO	International Civil Aviation Organisation;
ILS	Instrument Landing System;
LLZ	Localiser;

MCTOW Maximum Certified Take-off Weight;

NDB Non-Directional (Radio) Beacon;

PAR Precision Approach Radar ;

SSR Secondary Surveillance Radar;

TCAS Traffic Alert and Collision Avoidance System;

UTC Co-ordinated Universal Time.

VMC Visual Meteorological Conditions

175.01.6 Requirement for certification

a) Except as provided in b), as of 1 May 2014, no person shall provide an aeronautical information service for:

    1. the Mozambique airspace; or

    2. the areas in which Mozambique is responsible for air traffic services - except under the authority of, and in accordance with the provisions of, an aeronautical information service certificate issued under this Part.

b) Each person authorised to provide an aeronautical information service before the entry into force of these regulations, may continue to do so, subject to compliance with the requirements of this Part.

175.01.7 Application for a Certification

The application form for the issue, amendment or renewal of an Aeronautical Information Management Services certificate is contained in Annex A, which shall require the following information:

a) The applicant's name and address for service;

b) The key management positions in the organization;

c) the specific Aeronautical Information Management service or services to be provided;

d) the aerodrome location or airspace designation at, or within which, the service will be provided;

e) The documents and information listed under MOZCAR 175.01.7

175.01.8 Issue of Certificate

An Aeronautical Information Management services provider certificate is issued according to the sample in Annex B.

175.01.9 Privileges of certificate

The aeronautical information service certificate specifies the aeronautical information services that the certificate holder is authorised to provide

175.01.10 Duration of Certificate

An aeronautical information management service certificate may be granted or renewed for a period of up to 5 years.

175.01.11 Amendment, suspension and cancellation of a certificate

a) The IACM may amend any AIM provider certificate if:

1. The IACM determines that aviation safety and the public interest require the amendment; or

   2The AIM provider applies for an amendment.

3. The IACM may amend an AIM certificate, where there is a change in the services provided.

4. If the IACM stipulates in writing that an emergency exists requiring immediate amendment in the public interest with respect to aviation safety, such an amendment is effective without stay on the date the holder of the AIM certificate receives notice

b) Suspension

1. As stated in the regulation the IACM may suspend an aeronautical information management service organisation certificate for a period not exceeding 30 days by letter signed by the CEO.

2. The inspector who has suspended a certificate shall, within one workday of such suspension, deliver a report in writing to the CEO of the IACM, stating the reasons why, in his or her opinion, the suspended certificate should be cancelled.

3. The inspector concerned shall submit a copy of the report referred to in paragraph (b) to the holder of the certificate that has been suspended, and shall furnish proof of such submission for the information of the CEO.

c) Cancellation

The CEO of the IACM may, subject to such conditions that he may determine, confirm, vary or set aside the suspension or cancel the certificate.

175.01.12 Appeal

a) The holder of an certificate who feels aggrieved by the suspension of the certificate may appeal against such suspension to the CEO of the IACM , within 14 days after such holder becomes aware of such suspension.

b) An appellant shall deliver an appeal in writing, stating the reasons why, in the opinion of the appellant, the suspension should be varied or set aside, and the appeal shall include, if applicable, full particulars of any remedial action which may have been taken by the appellant to rectify the circumstances which resulted in such suspension.

c) The CEO of the IACM shall acknowledge receipt of an appeal, which acknowledgement shall reflect the name of the recipient at the CEO's office and the date and time of receipt.

d) As soon as practicable, but within 14 days, after the receipt of an appeal, the CEO of the IACM shall adjudicate the appeal.

e) The CEO of the IACM may

1. adjudicate the appeal on the basis of the documents submitted to him or her; or

2. order the appellant and the inspector concerned to appear before him or her, either in person or through a representative selected by the appellant, at a time and place determined by the CEO of the IACM, to give evidence.

f) The CEO of the IACM shall, if an certificate is suspended and the holder thereof does not appeal against the suspension, adjudicate such suspension within 30 days from the date on which the certificate was suspended.

175.02.13 Renewal of Certificate

a) The application for the renewal of the aeronautical information service certificate shall be in a form and manner prescribed by the IACM

b) The application shall be submitted to the IACM not less than 30 days before the certificate expiry date.

175.01.14 Transition

a) Approved providers of Aeronautical Information Management services on the date Part 175 comes into force may continue to provide Aeronautical Information Management services without an certificate for a period up to twelve months after the date on which Part 175 comes into force.

b) In order to provide any Aeronautical Information Management service from the date twelve months after Part 175 comes into force, a certificate to provide each Aeronautical Information Management service shall be obtained before twelve months after the date on which Part 175 comes into force.

SUBPART II REQUIREMENTS FOR THE CERTIFICATION OF AIM SERVICES

175.02.1 Personnel requirements

a) The applicant for the grant of the aeronautical information service certificate shall engage, employ or contract:

1. An accountable manager, who has the authority within the applicant's organisation to ensure that each aeronautical information service listed in their organisation chart :

   i. can be financed and is provided to meet operational requirements; and

   ii. is provided in accordance with the requirements prescribed by this Part:

2. a senior person or group of senior persons who are responsible for ensuring that the applicant's organisation complies with the requirements of this Part. Such nominated person or persons shall be ultimately responsible to the accountable manager:

3. sufficient personnel to collect, collate, check, coordinate, edit, and publish aeronautical information for the aeronautical information services listed in the applicant's organisation chart .

b) The applicant shall:

1. establish a procedure to initially assess the competence of those personnel authorised by the applicant to check, edit, and publish aeronautical information for the aeronautical information services listed in their organisation chart ; and

2. establish a procedure to maintain the competence of those authorised personnel; and

3. provide those authorised personnel with written evidence of the scope of their authorisation.

175.02.2 Facility Requirements

The applicant for the grant of the aeronautical information service certificate shall establish offices and facilities that:

a) are appropriate for the aeronautical information services listed in their organisation chart ; and

b) meet the applicable requirements of 175.03.3 b) and 175.03.4.

175.02.3 Scope of pre-flight information service

The applicant for the grant of the aeronautical information service certificate for a pre-flight information service shall, for the pre-flight services listed in their organisation chart , specify-

a) the geographic area; and

b) the aerodromes and the air routes originating from those aerodromes.

175.02.4 Documentation

The applicant for the grant of the aeronautical information service certificate shall:

a) document the format and standards for the aeronautical information published under the authority of their certificate; and

b) ensure that the format and standards take into account the circumstances under which the information will be used; and

c) hold copies of relevant reference material, standards, practices and procedures, and any other documentation that is necessary for the aeronautical information services listed in their organisation chart .

d) The applicant shall establish a procedure to control all the documentation required by paragraph (a), to ensure that:

e) the documentation is reviewed and authorised by appropriate personnel before issue; and

f) current issues of relevant documentation are available to staff at all locations where they need access to such documentation for the aeronautical information services listed in their organisation chart ; and

g) all obsolete documentation is promptly removed from all points of issue or use; and

h) changes to documentation are reviewed and approved by appropriate personnel; and

i) the current version of each item of documentation can be identified to preclude the use of out-of-date editions.

175.02.5 Collection of Information

a) The applicant for the grant of the aeronautical information service certificate shall establish procedures to collect and collate the information required for the aeronautical information services listed in their organisation chart .

b) The procedures shall ensure that:

1. applicable information is obtained from organisations that provide services in support of the Mozambique air navigation system; and

2. applicable information is obtained from the aeronautical information services of other States relevant to the requirements of international aircraft operators operating :

   (i) in the areas in which Mozambique is responsible for air traffic management services; and

(ii) on international air routes originating from Mozambique; and

3. arrangements for the timely provision of information are made with the information originators prescribed in paragraph (b)(1) and (2); and

4. information received from the information originators prescribed in paragraph (b)(1) is certified as accurate by a person identified by the originator to be responsible for the accuracy of that information.

c) The procedures for the NOTAM service shall, in addition to paragraph (b), ensure that any originator's request for the issue of a NOTAM does not require the NOTAM to be effective for more than 3 months.

175.02.6 Publication of Aeronautical Information

a) The applicant for the grant of the aeronautical information service certificate shall establish procedures to receive and/or originate, check, co-ordinate, edit, format, publish/store and disseminate aeronautical information for the services listed in their organisation chart .

b) The procedures shall ensure that:

1. the information received is checked against available information to verify its accuracy and integrity as specified in Annex 15, Chapter 3 prior to publication;

2. the information received is edited, accurately published, and disseminated:

i. in the format applicable to the operational significance of the information; and

ii. where applicable, in accordance with Subparts !V, V and VI, and

iii. in a format that takes account of the circumstances under which the information will be used;

iv. aeronautical information shall be published as an Integrated Aeronautical Information Package; and

3. except for paragraph (b)(4), permanent publications and long term temporary publications are clearly identified as being published under the authority of the applicant's aeronautical information service certificate; and

4. when aeronautical information obtained from the aeronautical information services of other States under is disseminated, that information is clearly identified as having the authority of the originating State; and

5. when information that has not been certified as required (b) (4) is disseminated, that information is clearly identified as being unverified; and

6. any permanent change to published information is coordinated with other applicable information originators before the change is published; and

7. temporary information that is published without a defined expiry date is reviewed at an appropriate time to ensure that the originator takes the required action to cancel or reissue the information; and

8. the aeronautical information is published in the English language; and

9. place names are spelt according to local usage; and

10. units of measurement are consistent with those prescribed in MOZCAR 175, Mozambique AIP and as per the tables contained in Annex 15 - Units of Measurement to be used in Air and Ground Operations.

11. abbreviations, consistent with those prescribed in Part 1, are used in the published aeronautical information when -

    i. their use is appropriate; and
    ii. their use will facilitate the dissemination of the information; and

12. any of the aeronautical information published is promptly made available to the aeronautical information services of other States, upon request by those States; and

13. the aeronautical information is made available in a form that is suitable for the operational requirements of:

    i. flight operations personnel, including flight crew members and the services responsible for pre- flight briefing; and
    ii. the air traffic service units responsible for flight information services.

c) The procedures for the Mozambique AIP service shall, in addition to paragraph (b), ensure that:

1. aeronautical charts, and operationally significant information published in Mozambique AIP Amendments and AIP Supplements, are published in accordance with the AIRAC system; and

2. the information published under the AIRAC system is clearly identified with the acronym AIRAC; and

3. the information published under the AIRAC system is distributed so that recipients receive the information at least 28 days before its effective date; and

4. the information published under the AIRAC system is not changed for at least 28 days after the effective date, unless the circumstance notified is of a temporary nature and would not persist for the full period; and

5. where an AIP Supplement is published to replace a NOTAM, the supplement includes a reference to the serial number of the NOTAM; and

6. where an AIP Amendment or AIP Supplement is published under the AIRAC system, a NOTAM is originated giving a brief description of the operationally

significant contents, the effective date and the reference number of each amendment or supplement. The NOTAM shall:

i. come into force on the same effective date as the amendment or supplement; and
ii. remain in force until the next AIRAC date; and

7. when there is no applicable information to be published by the AIRAC date, a NIL notification is issued; and

8. a NOTAM is originated when information to be published as an AIP Amendment or AIP Supplement takes effect prior to the effective date of the amendment or supplement.

175.02.7 Error Correction in Published Information

a) The applicant for the grant of an aeronautical information service certificate shall establish procedures to record, investigate, correct, and report any errors that are detected in the aeronautical information published under the authority of their certificate.

b) The procedures shall ensure that -

1. the error is corrected by the most appropriate means relative to the operational significance of the error; and

2. the correction is clearly identified in the republished information; and

3. the source of the error is identified and, where possible, eliminated; and

4. (4) the Authority is notified of a promulgated information incident in accordance with SAR regulations.

175.02.8 Records

a) The applicant for the grant of the aeronautical information service certificate shall establish procedures to identify, collect, index, store, maintain and dispose of the records that are necessary for the aeronautical information services listed in their organisation chart .

b) The procedures shall ensure that:

1. there are records enabling all incoming and outgoing aeronautical information to be readily identified by serial number and date, and that supplementary information can be similarly verified and, where necessary, authenticated; and

2. there is a record of each person who is authorised by the applicant to check, edit, and publish aeronautical information; and

3. there is a record of each occurrence of error correction under the procedures required by 175.02.8; and

4. there is a record of each internal quality assurance review of the applicant's organisation carried out under the procedures required by 175.02.9; and

5. all records are legible and of a permanent nature; and

6. all records are retained for at least 5 years except NOTAM, AIP Supplements and Aeronautical Information Circulars, which need only be retained for 30 days after cancellation.

175.02.9 Internal Quality Assurance

a) The applicant for the grant of the aeronautical information service certificate shall establish internal quality assurance procedures to ensure compliance with, and the adequacy of, the procedures required by this Part.

b) The quality assurance procedures shall specify:

1. the level of quality that the applicant intends to achieve meets or exceeds that which is specified in ICAO Annex11, Chapter 2 and ICAO Annex 14 Volumes I and II Chapter 2.;

2. that publication and resolution of aeronautical data is as specified in ICAO Annex 15, Appendices 1 and 7;

and

3. the level and frequency of internal reviews; and

4. the person or persons responsible for carrying out the internal reviews; and

5. how the findings of the internal reviews are to be recorded and reported to the accountable manager; and

6. how quality indicators such as error reports, incidents, and complaints are incorporated into the internal quality assurance procedures; and

7. the senior person's responsibilities for analysis and overview of the internal reviews; and

8. the means for rectifying any deficiencies found during an internal review; and

9. the documentation requirements for all aspects of the review.

10. The quality system should be established in conformity with the ISO 9000 series of quality assurance standards and certified by an approved organization.

11. within the context of a quality system, the skills and knowledge required for each function shall be identified and personnel assigned to perform those functions shall appropriately trained. It is necessary to ensure that personnel posses the skills and

competences required to perform specific assigned functions and appropriate records shall be maintained so that qualifications of personnel can be confirmed.

c) The quality assurance procedures shall:

1. ensure that aeronautical data at any moment is traceable to its origin so as to allow any data anomalies or errors, detected during the production/maintenance phases or in an operational use, to be corrected.

2. provide users with the necessary assurance and confidence that distributed aeronautical/data satisfy stated requirements for data quality (accuracy, resolution and integrity) and provide assurance of the applicability period of intended use of aeronautical data as well as that the agreed distribution dates will be met.

3. provide the order of accuracy for aeronautical data, based upon a 95 per cent confidence level, shall be as specified in Annex 11, Chapter 2, and Annex 14, Volumes I and II, Chapter 2. In that respect, three types of positional data shall be identified: surveyed points (runway thresholds, navigation aid positions, etc), calculated points (mathematical calculations from the known surveyed points of points in space/fixes) and declared points (flight information region boundary points).

4. Make sure that the order of publication resolution of aeronautical data shall be that as specified in Annex 15, Appendices 1 and 7.

d) The senior person who has the responsibility for internal quality assurance shall have direct access to the accountable manager on matters affecting the adequacy, accuracy, timeliness, format, and dissemination of the published aeronautical information.

e) Material to issued as part of the integrated Aeronautical Information Package shall be thoroughly checked and coordinated with the responsible services before it is submitted to the aeronautical information service, in order to make certain that all necessary information has been included and that it is correct in detail prior to distribution. Validation and verification procedures shall be established ensuring the quality requirements (accuracy, resolution, integrity) and traceability of aeronautical data are met.

f) Demonstration of compliance of the quality system shall be by audit. If nonconformity is identified, initiating action to correct its cause shall be determined and taken.

175.02.10 Organisation chart

a) The applicant for the grant of the aeronautical information service certificate shall provide the Authority with an organisation chart containing:

1. a statement signed by the accountable manager on behalf of the applicant's organisation confirming that:

i. the organisation chart and any included manuals define the organisation and demonstrate its means and methods for ensuring ongoing compliance with this Part; and

ii. the organisation chart and any included manuals will be complied with at all times; and

2. the titles and names of the senior person or persons required by 175.02.01 (a)(1) and (2); and

3. the duties and responsibilities of the senior persons specified in paragraph (a)(2) including matters for which they have responsibility to deal directly with the Authority on behalf of the organisation; and

4. the organisation chart showing lines of responsibility of the senior persons specified in paragraph (a)(2); and

5. a summary of the applicant's staffing structure for each aeronautical information service listed under paragraph (a)(6); and

6. a list of the aeronautical information services to be covered by the certificate; and

7. for a pre-flight information service, details of the area, aerodromes and air routes required by 175.02.3; and

8. the location and address details of the applicable offices

9. details of the applicant's format and standards required by 175.02.06 (a)(1) for their published aeronautical information; and

10. details of the applicant's procedures required -

i. regarding the competence of personnel; and
ii. regarding the control of documentation; and
iii. regarding the collection of information; and
iv. regarding the publication of aeronautical information; and
v. regarding the correction of errors in published information; and
vi. regarding the identification, collection, indexing, storage, maintenance, and disposal of records; and
vii. regarding internal quality assurance; and

11. procedures to control, amend and distribute the organisation chart .

12. use of human factor principles (See Annex 15, 3.6.7)

b) The applicant's organisation chart must be acceptable to the IACM

SUBPART III OPERATING REQUIREMENTS

175.03.01 Aeronautical Data

The applicant for the grant of an aeronautical information service certificate shall:

a) Take all necessary measures to implement a properly organized quality system containing procedures, processes and resources necessary to implement quality management at each function stage.. The execution of such quality management shall be made demonstrable for each function stage, when required. In addition, the applicant 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) Ensure that the order of chart resolution of aeronautical data to be that as specified for a particular chart, and as presented in a tabular form in Appendices 1 and 7 of Annex 15.

c) Ensure that integrity of aeronautical data is maintained throughout the data process from survey/origin to distribution to the next intended user. Aeronautical data integrity requirements shall be based upon the potential risk resulting from the corruption of data and upon the use to which the data item is put. Consequently, the following classification and data integrity level shall apply:

    1. 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. Integrity level 1 x 10-8: 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;

    2. 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. Integrity level 1 x 10-5: 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

    3. Routine data, avoid corruption throughout the processing of the data. Integrity level 1 x 10-3: 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.

d) Aeronautical data quality requirements related to classification and data integrity shall be as provided in Tables A7-1 to A7-5 of Appendix 7 of ICAO Annex 15.

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 the integrity classification of data sets as specified in 3.3.3.

Note 1.– This requirement does not apply to the communications systems used for the transfer of data sets.

Note 2.– Guidance on the use of a 32-bit CRC algorithm to implement a protection of electronic aeronautical data sets is contained in the Aeronautical Information Services Manual *(Doc 8126).*

f) Ensure that the aeronautical information/data provided relating to its own territory is adequate, of required quality and timely.

i) Ensure that where 24-hour service is not provided, service shall be available during the whole period an aircraft is in flight in the area of an aeronautical information service, plus a period of at least two hours before and after such period.

j) Ensure that the order of accuracy of the field work and determinations and calculations derived therefrom shall be such that the resulting operational navigation data for the phase of flight will be within the maximum deviations, with respect to an appropriate reference frame, as indicated in the tables contained in Appendix 5 of Annex 11.

175.03.02 Continued compliance

The holder of the aeronautical information service management certificate shall:

1. hold at least one complete and current copy of their organisation chart at each office listed in their organisation chart ; and

2. amend or revise the organisation chart , as is necessary, to ensure that the information contained therein is kept up to date;

3. incorporate in the organisation chart any mandatory material as the Authority may require;

4. comply with all procedures and standards detailed in their organisation chart ;

5. make each applicable part of their organisation chart available to personnel who require those parts to carry out their duties; and

6. continue to meet the standards and comply with the requirements of Subpart II prescribed for certification under this Part; and

7. notify the Authority of any change of address for service, telephone number, fax or email within 28 days of the change.

175.03.3 The Mozambique AIP service

a) The holder of the aeronautical information service certificate for the Mozambique AIP service shall publish -

1. the Mozambique AIP in accordance with Subpart IV and

2. AIP Amendments in accordance with 175.04.3; and

3. AIP Supplements in accordance with 175.04.4 for notification of:

   i. temporary changes that are effective for 3 months or longer; and
   ii. information of less than 3 months duration which contains extensive text or graphics; and

4. the AIC in accordance with Subpart VIII

b) The certificate holder shall, in addition to paragraph (a):

1. designate an office as Mozambique's point of contact with the aeronautical information services of other States for the interchange of the lntegrated Aeronautical lnformation Package, except NOTAM; and

2. make the Mozambique AIP, AIP Amendments, AIP Supplements and AIC available to any person upon payment of any charge that may apply to the supply of the publications; and

3. establish a system to disseminate the Mozambique AIP, AIP Amendments, AIP Supplements, aeronautical charts, and AIC in accordance with 15.B.130 (c)(3); and

4. ensure that all aeronautical charts published as part of the Mozambique AIP conform to the applicable standards for the charts; and

5. coordinate the input of all aeronautical information from the originators prescribed in 175.02.5 (b)(1), except:

   i. information which is of immediate operational significance necessitating the immediate issue of a NOTAM; and

   ii. temporary information of a duration of less than three months, that only requires the issue of a NOTAM.

175.03.4 NOTAM service

The holder of the aeronautical information service certificate for the NOTAM service shall -

a) designate a NOF for Mozambique; and

b) operate the NOF on a 24-hour basis;and

c) establish agreements with other international NOTAM offices for the exchange of NOTAM; and

d) ensure that:

   1. the NOF is connected to the AFTN; and

2. the AFTN connection provides for printed communication; and

e) the NOF has appropriate facilities to issue and receive NOTAM distributed by means of telecommunication; and

f) promptly issue a NOTAM that is in accordance with Subpart VII, whenever information received under 175.02.05 requires the issue of a NOTAM; and

g) at intervals of not more than one month, issue a checklist over the AFTN of the NOTAM that are currently in force.

h) one copy of each of the elements of the Integrated Aeronautical Information Package, in paper or electronic form or both have been requested by the aeronautical information service of another state shall be made available in the mutually-agreed forms(s) without charge.

Note 1 - The exchange of more than one copy of the Integrated Aeronautical Information Package or other air navigation documents should be subject of bilateral agreement.

Note 2 - The procurement of aeronautical information/data, including the elements of the Integrated Aeronautical Information Package, and other air navigation documents, including those containing air navigation legislation and regulations, whether in paper or electronic form, by states other than ICAO contracting states, should be subject to separate agreement.

175.03.5 Pre-flight information service

a) Each holder of the aeronautical information service certificate for a pre-flight information service shall make available to flight operations personnel and flight crew members, aeronautical information that:

1. is essential for the safety, regularity and efficiency of air navigation; and

2. relates to the geographic area, aerodromes and air routes listed in their organisation chart .

b) The aeronautical information provided under paragraph (a) shall include, where applicable:

1. a summary of current NOTAM and other information of an urgent character, in a plain text PIB; and

2. relevant elements of the Integrated in the Aeronautical Information Package; and

3. relevant maps and charts; and

4. current information relating to the aerodrome of departure concerning any of the following:

i. construction or maintenance work on or immediately next to the manoeuvring area;

ii. rough portions of any part of the manoeuvring area, whether marked or not, including broken parts of the surface of runways and taxiways;

iii. presence and depth water on runways and taxiways, including their effect on surface friction;

iv. parked aircraft or other objects on or immediately next to taxiways;

v. the presence of other temporary hazards including those created by birds: ;

vi. failure or irregular operation of part or all of the aerodrome lighting system including approach, threshold, runway, taxiway, and obstruction lights, and manoeuvring area unserviceability lights, and aerodrome power supply;

vii. failure, irregular operation or changes in the operational status of air navigation facilities including ILS and markers, PSR, SSR, VOR, NDB, VHF aeromobile channels, RVR observing system, and secondary power supply.

c) The certificate holder shall make provision for flight crew members to report post-flight information at those aerodromes listed in the holder's organisation chart .

d) The certificate holder shall forward any post-flight information reported by flight crew members under paragraph (c) concerning the state and operation of air navigation facilities, to the operator of the navigation facility.

175.03.6 Changes to certificate holder's organisation

a) Each holder of an aeronautical information service certificate shall ensure that their organisation chart is amended so as to remain a current description of the holder's organisation and services.

b) The certificate holder shall ensure that any amendments made to the holder's organisation chart meet the applicable requirements of this Part and comply with the amendment procedures contained in the holder's organisation chart .

c) The certificate holder shall provide the Authority with a copy of each amendment to the holder's organisation chart as soon as practicable after its incorporation into the organisation chart .

d) Where a certificate holder proposes to make a change to any of the following, prior notification to

1. the accountable manager:

2. the listed senior persons:

3. the aeronautical information services provided by the holder:

4. (4) the format and standards for the aeronautical information published under the authority of their certificate.

e) The Authority may prescribe conditions under which a certificate holder may operate during or following any of the changes specified in paragraph (d).

f) A certificate holder shall comply with any conditions prescribed under paragraph (e).

g) Where any of the changes referred to in this rule requires an amendment to the certificate, the certificate holder shall forward the certificate to the Authority as soon as practicable.

h) The certificate holder shall make such amendments to the holder's exposition as the Authority may consider necessary in the interests of aviation safety.

175.03.7 Safety inspections and audits

a) The Authority may in writing require the holder of the aeronautical information service certificate to undergo or carry out such inspections and audits of the holder's offices, facilities, documents, and records as the Authority considers necessary in the interests of civil aviation safety and.

b) The Authority may require the holder of an aeronautical information service certificate to provide such information as the Authority considers relevant to the inspection or audit

SUBPART IV AERONAUTICAL INFORMATION PUBLICATIONS (AIP)

175.04.1 Contents of Mozambique AIP

a) The Mozambique AIP shall contain current information, data and the aeronautical charts relating to:

1. the regulatory and airspace requirements for air navigation in the Mozambique airspace and airspaces delegated to Mozambique for the provision of Air Traffic Management Services

2. the Mozambique services and facilities that support international air navigation to and from Mozambique; and

3. the services and facilities that support air navigation within the Mozambique flight information region; and

4. aerodromes operating under the aerodrome operating certificate issued under Part 14.

b) The Mozambique AIP may contain current information, data, and aeronautical charts relating to aerodromes not operating under the aerodrome operating certificate, where:

1. the aerodrome operator provides the holder of the aeronautical information service certificate for the AIP service with the required data and information relating to the aerodrome; and

2. the aerodrome operator accepts responsibility for the accuracy and currency of that data and information.

c) The Mozambique AIP shall include at an appropriate location:

1. a statement to advise which certificated organisations are responsible for the air navigation facilities, services and procedures covered by the Mozambique AIP; and

2. the general conditions under which those services and facilities are available for use; and

3. a list of the significant differences between the Mozambique regulations and practices and the related ICAO Standards, Recommended Practices and Procedures that the given in a form that enable user to establish the differences. And

4. a summary of any significant standards, practices and procedures followed by Mozambique, where the ICAO Standards, Recommended Practices and Procedures allow alternative courses of action.

d) The Mozambique AIP is divided in three parts:

1. Part 1 - General (GEN),

2. Part 2 - En-route (ENR)

3. Part 3 - Aerodromes (AD)

Note - The contents of these parts are specified in A15, Appendix 1.

e) The aeronautical charts listed alphabetically below shall, when available for designated international aerodromes/heliports, 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 AltitudeChart - ICAO;
8. Instrument Approach Chart - ICAO;
9. Precision Approach Chart - ICAO;
10. Standard Arrival Chart - Instrument (STAR) - ICAO;
11. Standard Departure Chart – Instrument (SID) - ICAO;
12. Visual Approach Chart - ICAO.

f) Charts, maps or diagrams shall be used, when appropriate, to complement or substitute for the tabulation or text to Aeronautical lnformation Publication.

175.04.2 Specifications for Mozambique AIP

a) Each publication that forms part of the Mozambique AIP shall:

1. specify the purpose of the publication, the geographic area covered and that the publication is part of the Mozambique AIP; and
2. be self-contained, include a table of contents with page numbers, and be paginated clearly; and
3. specify that it is published:
    i. by the holder of the aeronautical information service certificate for the AIP service; and

ii. under the authority of their certificate issued by the Civil Aviation Authority of Mozambique; and

4. not duplicate information unnecessarily and if duplication is necessary, there shall be no difference in the duplicated information in respect of the same facility, service or procedure; and

5. be dated, or where the publication is in loose-leaf form, each page shall be dated. The date shall consist of the day, month by name, and the year when the aeronautical information becomes effective; and

6. be kept up-to-date by means of AIP Amendments or by reissue at regular intervals. Recourse to hand amendments or annotation shall be kept the minimum. The normal method of amendment shall by means of replacement sheets.

   Note - The regular interval referred to in (6) is specified in the Mozambique AIP, Part 1 - General (GEN).

7. show clearly the degree of reliability of any unverified information.

b) a publication published in loose-leaf form shall:

1. specify on each page, which publication the page belongs to and that the page is part of the Mozambique AIP; and

2. contain a checklist that:

   (i) gives the current date, and page number or chart title of each page or chart in the publication; and

   (ii) is issued with each AIP Amendment; and

   (iii) specifies which publication it belongs to; and

   (iv) is printed with a page number and the date as prescribed in paragraph (a)(5).

3. the sheet size should be no larger than 210 x 297 mm, except that larger sheet may be used provided they are folded to same size.

c) All changes to the AIP, or new information on reprinted page, shall be identified by a distinctive symbol or annotation.

d) Operationally significant changes to the AIP shall be published in accordance with AIRAC procedures and shall be clearly identified by the acronym - AIRAC.

175.04.3 Specifications for AIP Amendments

Each AIP Amendment shall:

a) Clearly identify, by a distinctive symbol or annotation, all changes to the published information, and all new information on a reprinted page;

b) Be allocated a serial number, which shall be consecutive and based on the calendar year and each page, including the cover sheet, shall display a publication date and an effective date.

c) lnclude references to the serial number of those elements, if any, of the lntegrated Aeronautical lnformation Package which have been incorporated into the amendment.

d) Be given a brief indication of the subjects affected by the amendment shall on the AIP Amendment cover sheet.

e) When an AIP Amendment will not be published at the established interval or publication date, a NIL notification shall be originated and distributed.

f) Permanent changes to the AIP shall be published as AIP Amendments.

g) Each AIRAC AIP Amendment page, including the cover sheet, shall display an effective date.

175.04.4 Specifications for AIP Supplements

a) 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) Each AIP Supplement shall be allocated a serial number which shall be consecutive and based on the calendar year.

c) The AIP Supplement pages shall remain part of the Mozambique AIP while any part of their contents remains valid.

d) When an AIP Supplement is sent in replacement of a NOTAM, it shall include a reference to the serial number of the NOTAM.

e) A checklist of AIP Supplements currently in force shall be issued with each AIP Supplement or at intervals of not more than one month. The checklist shall be given the same distribution as the supplement as stated in Annex 15, 5.2.13.3.

f) AIP Supplement pages should be coloured in order to be conspicuous, preferably in yellow and should be kept as the first item in the AIP parts.

g) AIP Supplements shall be made available by the most expeditious means.

SUBPART V COPYRIGHT

Note. - In order to protect the investment in the products of a Mozambique AIS as well as to ensure better control of their use, AIS Service may wish to apply copyright to those products in accordance with national laws.

Any product of a Mozambique AIS which has been granted copyright protection by the State and provided to another State in accordance with Annex 15, 3.3 shall only be 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 State of Mozambique.

SUBPART VI NOTAM

175.06.1 Origination

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.

Note 1.- Operationally significant changes concerning circumstances listed in Appendix 4. Part I, are issued under the Aeronautical Information Regulation and Control (AIRAC) system specified in Annex 15, Chapter 6.

Note 2.- Information of short duration containing extensive text and /or graphics is published as an AIP Supplement (see Annex 15, Chapter 4, 4.4).

175.06.2 NOTAM Information

A NOTAM shall be originated and issued concerning the following information:

a) establishment, closure or significant changes in operation of aerodrome(s) heliport(s) or runways;

b) establishment, withdrawal and significant changes in operation of aeronautical services (AGA, AIS, ATS, COM, MET, SAR, etc.);

c) establishment or withdrawal of electronic and other aids to air navigation and aerodromes/heliports. 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 per cent or more, change in broadcast schedules or contents, or irregularity or unreliability of operation of any electronic aid to air navigation, and air-ground communication services;

d) establishment, withdrawal or significant changes made to visual aids;

e) interruption of or return to operation of major components of aerodrome lighting systems;

f) establishment, withdrawal or significant changes made to procedures for air navigation services;

g) occurrence or correction of major defects or impediments in the manoeuvring area;

h) changes to and limitations on availability of fuel, oil and oxygen;

i) major changes to search and rescue facilities and services available;

j) establishment, withdrawal or return to operation of hazard beacons marking obstacles to air navigation;

k) changes in regulations requiring immediate action, e.g. prohibited areas for SAR action;

l) presence of hazards which affect air navigation (including obstacles, military exercises, displays, races and major parachuting events outside promulgated sites);

m) erecting or removal of, or changes to, obstacles to air navigation in the take- off climb, missed approach, approach areas and runway strip;

n) establishment or discontinuance (including activation or deactivation) as applicable, or changes in the status of prohibited, restricted or danger areas;

o) 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,

p) allocation, cancellation or change of location indicators;

q) significant changes in the level of protection normally available at an aerodrome or 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 (see ICAO Annex 14, Volume I, Chapter 9, and Attachment A, Section 17);

r) presence or removal of, or significant changes in, hazardous conditions due to snow, slush, ice or water on the movement area;

s) outbreaks of epidemics necessitating changes in notified requirements for inoculations and quarantine measures;

t) forecasts of solar cosmic radiation, where provided;

u) an operationally significant change in volcanic activity, the location, date and time of volcanic eruptions and/or horizontal and vertical extent of volcanic ash cloud, including direction of movement, flight levels and routes or portions of routes which could be affected;

v) release into the atmosphere of radioactive materials or toxic chemicals following a nuclear or 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;

w) establishment of operations of humanitarian relief missions, such as those undertaken under the auspices of United Nations, together with procedures and for limitations which affect air navigation; and

x) implementation of short-term contingency measures in cases of disruption, or partial disruption, of air traffic services and related supporting services.

Note.- See ICAO Annex 11, 2.28 and Attachment D to that Annex.

175.06.3 Other originating circumstances

The need for origination of a NOTAM should be considered in any other circumstance which may affect the operations of aircraft.

1765.06.4 Information not to be notified

The following information shall not be notified by NOTAM:

a) routine maintenance work on aprons and taxiways which does not affect the safe movement of aircraft;

b) runway marking work, when aircraft operations can safely be conducted on other available runways, or the equipment used can be removed when necessary;

c) temporary obstructions in the vicinity of aerodromes/ heliports that do not affect the safe operation of aircraft;

d) partial failure of aerodrome/heliport lighting facilities where such failure does not directly affect aircraft operations;

e) partial temporary failure of air-ground communications when suitable alternative frequencies are known to be available and are operative;

f) the lack of apron marshalling services and road traffic control;

g) the unserviceability of location, destination or other instruction signs on the aerodrome movement area;

h) parachuting when in uncontrolled airspace under VFR, when controlled, at promulgated sites or within danger or prohibited areas;

i) other information of a similar temporary nature.

175.06.5 Advance notice

At least seven days' advance notice shall be given of the activation of established danger, restricted or prohibited areas and of activities requiring temporary airspace restrictions other than for emergency operations.

175.06.6 Cancellation or reduction of services

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.
Note.- Whenever possible, at least 24 hours advance notice is desirable, to permit timely completion of the notification process and to facilitate airspace utilization planning.

175.06.7 Unserviceability of navaids

NOTAM notifying unserviceability of aids to air navigation, facilities or communication services shall give an estimate of the period of unserviceability or the time at which restoration of service is expected.

175.06.8 Description of contents

When an AIP Amendment or an AIP Supplement is published in accordance with AIRAC procedures, NOTAM shall be originated giving a brief description of the contents, the effective date and the reference number to the amendment or supplement. This NOTAM shall come into force on the same effective date as the amendment or supplement and shall remain valid in the pre-flight information bulletin for a period of fourteen days.

Note.- Guidance material for the origination of NOTAM announcing the existence of AIRAC AIP Amendments or AIP Supplements ("Trigger NOTAM') is contained in the Aeronautical Information Services Manual (ICAO Doc 8126).

175.06.9 Format

a) Except as otherwise provided in (d) and (e), each NOTAM shall contain the information in the order shown in the NOTAM Format in Annex 15, Appendix 6.

b) 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 language.

c) When NOTAM is selected for international distribution, English text shall be included for those parts expressed in plain language.
Note.- The ICAO NOTAM Code together with significationsl uniform abbreviated phraseology, and ICAO Abbreviations are those contained in the ICAO PANS-ABC (ICAO Doc 8400).

d) Information concerning snow, slush, ice and standing water on aerodrome/heliport pavements shall, when reported by means of a SNOWTAM, contain formation in the order shown in the SNOWTAM Format in Annex 15, Appendix 2.

e) Information concerning an operationally significant change in volcanic activity, a volcanic eruption and/or volcanic ash cloud shall, when reported by means of an ASHTAM, contain the information in the order shown in the ASHTAM Format in Annex 15, Appendix 3.

f) The NOTAM originator 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.
Note.- Letters A to Z, with the exception of S and T: may be used to identify a NOTAM series.

g) When errors occur in a NOTAM, a NOTAM with a new number to replace the erroneous NOTAM shall be issued.

h) 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.

i) Each NOTAM shall deal with only one subject and one condition of the subject.
Note.- Guidance concerning the combination of a subject and a condition of the subject in accordance with the NOTAM Selection Criteria is contained in the Aeronautical Information Services Manual (ICAO Doc 8126).

j) Each NOTAM shall be as brief as possible and so compiled that its meaning is clear without the need to refer to another document.

k) Each NOTAM shall be transmitted as a single telecommunication message.

l) A NOTAM containing permanent or temporary information of long duration shall carry appropriate AIP or AIP Supplement references.

m) Location indicators included in the text of a NOTAM shall be those contained in Location Indicators (ICAO Doc 7910).

n) In no case shall a curtailed form of such indicators be used.

o) Where no ICAO location indicator is assigned to the location, its place name spelt in accordance with Annex 15, 3.6.2 shall be entered in plain language.

p) A checklist of valid NOTAM shall be issued as a NOTAM over the Aeronautical Fixed Service (AFS) at intervals of not more than one month using the NOTAM Format specified in ICAO Annex 15, Appendix 6. One NOTAM shall be issued for each series.

q) A checklist of NOTAM shall refer to the latest AIP Amendments, AIP Supplements and at least the internationally distributed AIC.

r) A checklist of NOTAM shall have the same distribution as the actual message series to which they refer and shall be clearly identified as checklist.

s) A monthly printed plain-language list of valid NOTAM, including indications of the latest AIP Amendments, AIC issued and a checklist of AIP Supplements, shall be prepared with a minimum of delay and forwarded by the most expeditious means to recipients of the Integrated Aeronautical Information Package.

175.06.10 Distribution

a) NOTAM shall be distributed on the basis of a request.

b) NOTAM shall be prepared in conformity with the relevant provisions of the ICAO communication procedures.

c) The AFS shall, whenever practicable, be employed for NOTAM distribution.

d) When a NOTAM exchanged as specified in Annex 15, 5.3.4 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.

e) The originating State shall select the NOTAM that are to be given international distribution.

f) Selective distribution lists should be used when practicable.
Note.- These lists are intended to obviate superfluous distribution of information. Guidance material relating to this is contained in the Aeronautical Information Services Manual (IeAD Doc 8126).

g) International exchange of NOTAM shall take place only as mutually agreed between the international NOTAM offices concerned. The international exchange of ASHTAM, and NOTAM where AIS Service continue to use NOTAM for distribution of information on volcanic activity, shall include volcanic ash advisory centres, and the centres designated by regional air agreement for the operation of AFS satellite distribution systems (satellite distribution system for information relating to air navigation (SADIS) and international satellite communications system (ICSS), and shall take account of the requirements of long-range operations.

h) These exchanges of NOTAM between international NOTAM offices shall, as far as practicable, be limited to the requirements of the receiving AIS Services concerned by means of separate series providing for at least international and domestic flights.

i) A predetermined distribution system for NOTAM transmitted on the AFS in accordance with Annex 15, Appendix 5 shall be used whenever possible, subject to the requirements of (g).

SUBPART VII

AERONAUTICAL INFORMATION REGULATION AND CONTROL (AIRAC)

175.07.1 General specifications

a) Information concerning the circumstances listed in ICAO Annex 15, Appendix 4, Part 1, shall be distributed under the regulated system (AIRAC), i.e. basing establishment, withdrawal or significant changes upon a series of common effective dates at intervals of 28 days, including 29 January 1998. The information notified therein shall not be changed further for at least another

b) 28 days after the effective date, unless the circumstance notified is of a temporary nature and would not persist for the full period.
Note.- Guidance material on the procedures applicable to the AIRAC system is contained in the Aeronautical Information Services Manual (ICAO Doc 8126).

c) The regulated system (AIRAC) should also be used for the provision of information relating to the establishment and withdrawal of; and premeditated significant changes in, the circumstances listed in Annex 15, Appendix 4, Part 2.

d) 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.

175.07.2 Provision of information in paper copy form

a) In all instances, information provided under the AIRAC system shall be published in paper copy form and shall be distributed by the AIS unit 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 published in paper copy form should be distributed by the AIS unit at least 56 days in advance of the effective date.
Note. - Guidance on what constitutes a major change is included in Doc 8126.

175.07.3 Provision of information in electronic form

a) AIS Service that have established an aeronautical database shall, when updating its contents concerning the circumstances listed in Annex 15, Appendix 4, Part 1, ensure

that the effective dates of data coincide with the established AIRAC effective dates used for the provision of information in paper copy form.

b) Information provided in electronic form, concerning the circumstances listed in ICAO Annex 15, Appendix 4, Part 1, shall be distributed/made available by the AIS unit 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 in electronic form should be distributed/made available at least 56 days in advance of the effective date.
Note. - Guidance on what constitutes a major change is included in Doc 8126.

SUBPART VIII

AERONAUTICAL INFORMATION CIRCULARS (AIC)

175.08.1 Origination

An AIC shall be originated whenever it is necessary to promulgate aeronautical information which does not qualify:

a) under the specifications in Annex 15, 4.1 for inclusion in an AIP; or

b) under the specifications in Annex 15, 5.1 for the origination of a NOTAM.

c) 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.

d) The information in (c) shall include:

1. forecasts of important changes in the air navigation procedures, services and facilities provided;
2. forecasts of implementation of new navigational systems;
3. significant information arising from aircraft accident/ incident investigation which has a bearing on flight safety;
4. information on regulations relating to the safeguarding of international civil aviation against acts of unlawful interference;
5. advice on medical matters of special interest to pilots;
6. warnings to pilots concerning the avoidance of physical hazards;
7. effect of certain weather phenomena on aircraft operations;
8. information on new hazards affecting aircraft handling techniques;
9. regulations relating to the carriage of restricted articles by air;
10. reference to the requirements of, and publication of changes in, national legislation;
11. aircrew licensing arrangements;
12. training of aviation personnel;

13. application of, or exemption from, requirements in national legislation;
14. advice on the use and maintenance of specific types of equipment;
15. actual or planned availability of new or revised editions of aeronautical charts;
16. carriage of radio equipment;
17. explanatory information relating to noise abatement;
18. selected airworthiness directives;
19. changes in NOTAM series or distribution, new editions of AIP or major changes in their contents, coverage or format;
20. advance information on the snow plan (not applicable in Mozambique);
21. other information of a similar nature.

Note.- The publication of an AIC does not remove the obligations set forth in A15, chapters 4 and 5.

175.08.2 General specifications

a) AIC shall be issued in printed form.
Note.- Both text and diagrams may be included.

b) The originating State shall select the AIC that are to be given international distribution.

c) Each AIC shall be allocated a serial number which shall be consecutive and based on the calendar year.

d) When AIC are distributed in more than one series, each series shall be separately identified by a letter.

e) Differentiation and identification of AIC topics according to subjects using colour coding should be practised where the numbers of AIC in force are sufficient to make identification in this form necessary.
Note.- Guidance on colour coding of Ale by subject can be found in the Aeronautical Information Services Manual (lCAO Doc 8126).

f) A checklist of AIC currently in force shall be issued at least once a year, with distribution as for the AIC.

175.08.3 Distribution

AlS Service shall give AIC selected for international distribution the same distribution as for the AIP.

SUBPART IX

PRE-FLIGHT AND POST-FLIGHT INFORMATION DATA

175.09.1 Pre-flight information

a) At any aerodrome/heliport normally used for international air operations, aeronautical information essential for the safety, regularity and efficiency of air navigation and relative to the route stages originating at the aerodrome/heliport shall be made available to flight operations personnel, including flight crews and services responsible for pre-flight information.

b) Aeronautical information provided for pre- flight planning purposes at the aerodromes/heliports referred to in (a) shall include relevant:

1. elements of the Integrated Aeronautical Information Package;

2. maps and charts.

Note.- The documentation listed in a) and b) may be limited to national publications and when practicable, those of immediately adjacent States, provided a complete library of aeronautical information is available at a central location and means of direct communications are available between the aerodrome AIS unit and that library.

c) Additional current information relating to the aerodrome of departure shall be provided concerning the following:

a) construction or maintenance work on or immediately adjacent to the manoeuvring area;

b) rough portions of any part of the manoeuvring area, whether marked or not, e.g. broken parts of the surface of runways and taxiways;

c) presence and depth of snow, ice or water on runways and taxiways, including their effect on surface friction;

d) parked aircraft or other objects on or immediately adjacent to taxiways;

e) presence of other temporary hazards;

f) presence of birds constituting a potential hazard to aircraft operations;

g) 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;

h) failure, irregular operation and changes in the operational status of ILS (including markers), MLS, basic GNSS, SBAS, GBAS, SRE, PAR, DME, SSR, ADS-B, ADS-C, CPDLC, D-ATIS, VOR, NDB, VHF aeromobile channels, RVR observing system, and secondary power supply; and

i) 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 current NOTAM and other information of urgent character shall be made available to flight crews in the form of plain-language pre-flight information bulletins (PIB).
Note.- Guidance on the preparation of PIB is contained in the Aeronautical Information Services Manual (ICAO Doc 8126).

175.09.2 Automated aeronautical information systems

a) Where the civil aviation authority or the agency to which the authority to provide service has been delegated in accordance with Annex 15, 3.1.1 c) uses automated pre-flight information systems to make aeronautical information data available to operations personnel including flight crew members for self-briefing, flight planning and flight information service purposes, the information data made available shall comply with the provisions of 175.09.1 (b) and (c).

b) 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 paragraph (a) and meteorological information in accordance with 9.5.1 of Annex 3 - Meteorological Service for International Air Navigation, should be established by an agreement between the civil aviation authority or the agency to which the authority to provide service has been delegated in accordance with Annex 5, 3.1.1 c) and the relevant meteorological IACM

c) 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 information data and meteorological information, the civil aviation authority or the agency to which the authority to provide service has been delegated in accordance with ICAO Annex 3, 3.1.1 c) shall remain responsible for the quality and timeliness of the aeronautical information/ data provided by means of such a system.
Note.- The meteorological authority concerned remains responsible for the quality of the meteorological information provided by means of such system in accordance with 9.5.1 of Annex 3.

d) Self-briefing facilities of an automated pre- flight information system shall provide for access by operations personnel, including flight crew members and other aeronautical personnel concerned, to consultation as necessary with the aeronautical information service 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.

e) Automated pre-flight information systems for the supply of aeronautical information data for self briefing, flight planning and flight information service should:

1. provide for continuous and timely updating of the system database and monitoring of the valid and quality of the aeronautical information 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 information/data accessed, as required;

4. use access and interrogation procedures based on abbreviated plain language and ICAO location indicators, as appropriate, or based on a menu- driven user interface or other appropriate mechanism as agreed between the civil aviation authority and operator concerned; and

5. provide for rapid response to a user request for information.
Note.- ICAO abbreviations and codes and location indicators are given respectively in the Procedures for Air Navigation Services- ICAO Abbreviations and Codes (PANS-ABC. ICAO Doc 8400) and Location Indicators (ICAO Doc 7910).

175.09.3 Post-flight information

a) AIS Service shall ensure that arrangements are made to receive at aerodromes/heliports information concerning the state and operation of air navigation facilities noted by aircrews and shall ensure that such information is made available to the aeronautical information service for such distribution as the circumstances necessitate.

b) AIS Service shall ensure that arrangements are made to receive at aerodromes/heliports information concerning the presence of birds observed by aircrews and shall ensure that such information is made available to the aeronautical information service for such distribution as the circumstances necessitate.
Note.- See ICAO Annex 14, Volume I, Chapter 9, Section 9.4.

SUBPART X

ELECTRONIC TERRAIN AND OBSTACLE DATA

175.10.1 Function

Sets of electronic terrain and obstacle data used in combination with aeronautical data, as appropriate, shall satisfy user requirements necessary to support the following air navigation applications:

a) ground proximity warning system with forward looking terrain avoidance function and minimum safe altitude warning (MSAW) system;

b) determination of contingency procedures for use in the event of an emergency during a missed approach or take-off;

c) aircraft operating limitations analysis;

d) instrument procedure design (including circling procedure);

e) determination of en-route "drift-down" procedure and en-route emergency landing location;

f) advanced surface movement guidance and control system (A-SMGCS);

g) aeronautical chart production and on- board databases;

h) flight and ATC simulators;

i) synthetic vision; and

j) aerodrome/heliport obstacle restriction and removal.

175.10.2 Coverage, terrain and obstacle data numerical requirements

To satisfy requirements necessary to accommodate air navigation systems or functions specified in Annex 15, 10.1, sets of electronic terrain and obstacle data shall be collected and recorded in databases in accordance with the following coverage areas:

a) Area I: entire territory of Mozambique; Area 1 shall cover the entire territory of Mozambique, including aerodrome/heliports.

b) Area 2: terminal control areas; Area 2 shall be the terminal control areas as published in a Mozambique aeronautical information publication (AIP) or limited to a 45-Km radius from the aerodrome/heliport reference point (whichever is smaller). At IFR aerodromes/heliports where a terminal control area has not been established, Area 2 shall be the area within a 45-Km radius of the aerodrome/heliport reference point.

c) Area 3: aerodrome/heliport areas; at IFR aerodromes/heliports. Area 3 shall cover the area that extends from the edge(s) of the runway(s) to 90 m from the runway centre line

(s) and for all other parts of aerodrome/heliport movement area(s), 50 m from the edge(s) of the defined area(s)

d) Area 4: Category II or III operations area. Area 4 shall be restricted to those runways where precision approach Category II or III operations have been established and where detailed terrain information is required by operators to enable them to assess, by use of radio altimeters, the effect of terrain on decision height determination. The width of the area shall be 60 m on either side of the extended runway centre line while the length shall be 900 m from the runway threshold measured along the extended runway centre line.

Note.- See Annex 15, Appendix 8 for graphical illustrations of the defined coverage areas.

e) According to the air navigation applications listed in 175.10.1 and areas of coverage, sets of electronic terrain data shall satisfy the numerical requirements specified in Annex 15, Appendix 8, Table A8-1 while obstacle data shall satisfy the numerical requirements specified in Appendix 8, Table A8-2.

Note 1. - Numerical terrain and obstacle data requirements for Area 2 provided in A15, Appendix 8, Table A8-I and Table A8-2, respectively, are defined on the basis of the most stringent application requirement (application listed under 175.10.1 a) (2).

Note 2.- It is recognized that some applications listed in 15.14.1 could be adequately accommodated with terrain and obstacle data sets that are of lower requirements than those specified in Annex 15, Appendix 8, Table A8-1 and Table A8-2, respectively. Consequently, careful evaluation of available data sets by data users is necessary in order to determine if the products are fit for their intended use.

175.10.3 Terrain database - content and structure

a) A terrain database shall 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.
Note.- In regions of higher latitudes, latitude grid spacing may be adjusted to maintain a constant linear density of measurement points.

b) 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, permanent ice and snow, 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) Terrain data shall be collected according to the areas specified in 15.J.110, terrain data collection surfaces and criteria specified in Annex 15, Appendix 8, Figure A8-1, and

in accordance with the terrain data numerical requirements provided in Annex 15, Table A8-1 of Appendix 8. In terrain databases, only one feature type, i.e. terrain, shall be recorded. Feature attributes describing terrain shall be those listed in Annex 15, Appendix 8, Table A8.

d) The terrain feature attributes listed in Table A8-3 represent the minimum set of terrain attributes, and those annotated as mandatory shall be recorded in the terrain database.

175.10.4 Obstacle database - content and structure

a) One obstacle database shall contain a digital set of obstacle data and shall include those features having vertical significance in relation to adjacent and surrounding features that are considered hazardous to air navigation. Obstacle data shall comprise the digital representation of the vertical and horizontal extent of man- made objects. Obstacles shall not be included in terrain databases. Obstacle data elements are features that shall be represented in the database by points, lines or polygons.

b) Obstacles, which in accordance with the definition, can be fixed (permanent or temporary) or mobile shall be identified within the areas defined in 15.J.110, on the basis of the obstacle data collection surfaces and criteria specified in Annex 15, Appendix 8, Figure A8-2, and collected in accordance with obstacle data numerical requirements provided in Table A8-2 of Appendix 8. In an obstacle database, all defined obstacle feature types shall be recorded and each of them shall be described according to the list of mandatory attributes provided in Table A8-4 of Appendix 8.

Note.- Specific attributes associated with mobile (feature operations) and temporary types of obstacles are annotated in Appendix 8, Table A8-4, as optional attributes. If these types of obstacles are to be recorded in the database, appropriate attributes describing such obstacles are also required.

175.10.5 Terrain and obstacle data product specifications

a) To allow and support the interchange and use of sets of electronic terrain and obstacle data among different data providers and data users, the IS0 19100 series of standards for geographic information shall be used as a general data modelling framework.

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).
Note.- ISO Standard 19131 specifies the requirements and outline of data product specifications for geographic information.

c) Each terrain data product specification shall include an overview, a 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 specification or obstacle data product specification 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.

Note 1. - ISO Standard 191O9 contains rules for application schema while ISO Standard 1911O describes feature cataloguing methodology for geographic information

Note 2.- ISO Standard 19123 contains schema for coverage geometry and functions.

f) Both terrain data product specifications 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.

Note.- ISO Standard 19113 contains quality principles for geographic information while ISO Standard 19114 covers quality evaluation procedures.

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 is 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.

Note.- ISO Standard 19117 contains a definition of the schema describing the portrayal of geographic information including the methodology for describing symbols and mapping of the schema to an application schema.

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.

Note.- ISO Standard 19115 specifies requirements for geographic information metadata.

175.10.6 Availability

a) The AIS provider shall ensure that electronic terrain and obstacle data related to their entire territory are made available in the manner specified in 175.10.2, 3 and 4 for use by international civil aviation.

b) The AIS provider should ensure that as of 1st January 2016, electronic terrain and obstacle data are made available in accordance with Area 1, Area 2 and Area 3 specifications and terrain data in accordance with Area 4 specifications (See A15, Appendix 8, Table A8-1, A8-2, A8-3 and A8-4).

SUBPART XI

USE OF AUTOMATION

Automation in AIS should be introduced with the objective of improving the speed, accuracy, efficiency and cost-effectiveness of aeronautical information services.

175.11.1 Horizontal reference system

a) World Geodetic System - 1984 (WGS-84) shall be used as the horizontal (geodetic) reference system for international air navigation. Consequently, published aeronautical geographical coordinates (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum, identifying those geographical coordinates which have been transformed into WGS-84 coordinates by mathematical means and whose accuracy of original field work does not meet the requirements in Appendix 5, Table 1 of Annex 11.

   Note I.- Comprehensive guidance material concerning WGS-84 is contained in the World Geodetic System - 1984 (WGS-84) Manual (Doc 9674).

   Note 2.- Specifications governing 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 are given in ICAO Annex 11, Chapter 2, and Appendix 5, Table 1, and for aerodrome/heliport-related positions, in Annex 14, Volumes I and II, Chapter 2, and Table A5-1 and Table 1 of Appendices 5 and 1, respectively.

b) In precise geodetic applications and some air navigation applications, temporal changes in the tectonic plate motion and tidal effects on the Earth's crust should be modelled and estimated. To reflect the temporal effect, an epoch should be included with any set of absolute station coordinates.

Note I.- The epoch of the WGS-84 (G873) reference frame is 1997.0 while the epoch of the latest updated WGS-84 (G1550) reference frame, which includes plate motion model, is 2001.0. (G indicates that the coordinates were obtained through Global Positioning System (GPS) techniques, and the number following G indicates the GPS week when these coordinates were implemented in the United States of America's National Geospatial-Intelligence Agency's (NGA's) precise ephemeris estimation process.)

Note 2.- The set of geodetic coordinates of globally distributed permanent GPS tracking stations for the most recent realization of the WGS-84 reference frame (WGS-84 (GJJSO)) is provided in Doc 9674. For each permanent GPS tracking station, the accuracy of an individually estimated position in WGS-84 (GJJSO) has been in the order of 1cm (I a).

Note 3.- Another precise worldwide terrestrial coordinate system is the International Earth Rotation Service (IERS) Terrestrial Reference System (ITRS), and the realization of ITRS is the IERS Terrestrial Reference Frame (ITRF). Guidance material regarding the ITRS is provided in ICAO Appendix C of Doc. 9674. The most current realization of the WGS-84 (G1150) is referenced to the ITRF 2000 and in practical realization the difference between

these two systems is in the one to two centimetre range worldwide, meaning WGS-84 (G1150) and ITRF 2000 are essentially identical.

c) Geographical coordinates which have been transformed into WGS-84 coordinates but whose accuracy of original field work does not meet the requirements in ICAO Annex 11, Chapter 2, and Annex 14, Volumes I and II, Chapter 2, shall be identified by an asterisk.

d) The order of publication resolution of geographical coordinates shall be that specified in ICAO Annex 15, Appendix 1 and Table A7-1 of Appendix 7 while the order of chart resolution of geographical coordinates shall be that specified in ICAO Annex 4, Appendix 6, Table 1.

175.11.2 Vertical reference system

a) Mean sea level (MSL) datum, which gives the relationship of gravity-related height (elevation) to a surface known as the geoid, shall be used as the vertical reference system for international air navigation.

Note I.- The geoid globally most closely approximates MSL. It is defined as the equipotential surface in the gravity field of the Earth which coincides with the undisturbed MSL extended continuously through the continents.

Note 2.- Gravity-related heights (elevations) are also referred to as orthometric heights while distances of points above the ellipsoid are referred to as ellipsoidal heights.

b) The Earth Gravitational Model - 1996 (EGM-96), containing long wavelength gravity field data to degree and order 360, shall be used by international air navigation as the global gravity model.

Note.- Guidance material concerning EGM-96 is contained in ICAO Doc 9674.

c) 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. 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 Aeronautical Information Publication (AIP).

Note. - Specifications governing determination and reporting (accuracy of field work and data integrity) of elevation and geoid undulation at specific positions at aerodromes/ heliports are given in ICAO Annex 14, Volumes 1 and /I, Chapter 2, and Table A5-2 and Table 2 of Appendices 5 and 1, respectively.

d) In addition to elevation referenced to the MSL (geoid), for the specific surveyed ground positions, geoid undulation (referenced to the WGS-84 ellipsoid) for those positions specified in ICAO Annex 15, Appendix 1 shall also be published.

e) The order of publication resolution of elevation and geoid undulation shall be that specified in ICAO Annex 15, Appendix 1 and Table A7-2 of Appendix 7 while the order of chart resolution of elevation and geoid undulation shall be that specified in ICAO Annex 4, Appendix 6, Table 2.

175.11.3 Temporal reference system

a) For international civil aviation, the Gregorian calendar and Coordinated Universal Time (UTC) shall be used as the temporal reference system.

Note 1 - A value in the time domain is a temporal position measured relative to a temporal reference system.

Note 2 - Coordinate Universal Time (UTC) is a time scale maintained by the Bureau International de l'Heure (BIH) and the IERS and forms the basis of a coordinated dissemination of standard frequencies and time signals.

Note 3 - See Attachment D of Annex 5 for guidance material relating to UTC.

*Note 4 - ISO Standard 8601 specifies the use of the Gregorian calendar and 24-hour local or UTC for information interchange while ISO Standard 19108 prescribes the Gregorian calendar and UTC as a primary t*mporal reference system for use with geographic information.

b) 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.

Note - ISO Standard 19108, Annex D, describes some aspects of calendars that may have to be considered in such a description.

SUBPART XII

TELECOMMUNICATION REQUIREMENTS

a) International NOTAM offices shall be connected to the aeronautical fixed service (AFS).

b) The connections shall provide for printed communications.

c) Each international NOTAM Office shall be connected, through the aeronautical fixed service (AFS), to the following points within the territory for which it provides service:

1. area control centres and flight information centres;

2. aerodromes/heliports at which an information service is established in accordance with Chapter 8.

Annex A

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Maputo, MZ
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Tel 258 (21) 465 416 Fax 258 (21) 465 415

APPLICATION FOR THE ISSUE [ ] AMENDMENT [ ] OR RENEWAL [ ] OF A CERTIFICATE TO PROVIDE AERONAUTICAL INFORMATION MANAGEMENTSERVICES

1	**Company**	
1.1	Director General (CEO)	
1.2	Director Operations	
1.3	Head of Maintenance	
1.4	Compliance Manager	
1.5	Safety and Quality Manager	
1.6	Training Manager	
1.7	Incident Investigation Officer	
2	**Application for**	**Location(s)**
2.1.1	Aeronautical Information Service	
2.1.2	International Notam Office	
2.2.1	Pre-flight Information briefing service	

ANNEX A P.2 APPLICATION FOR THE ISSUE, AMENDMENT, OR RENEWAL OF A CERTIFICATE TO PROVIDE AERONAUTICAL INFORMATION MANAGEMENT SERVICES

3	**Documents attached**		
3.1	Manual of Procedures		
3.2	Proof of financial capacity		
3.3	Proof of liability insurance		
3.4	Organisation of the company		
3.5	Proof of payment of the required fee		
4	Validity		
4.1	Certificate requested as from (date)		
4.2	Renewal requested as from (date)		
4.3	Amendment effective as from (date)		

Date:_____ The responsible Manager: _____

Decision by the IACM				
Service (Nr)	Granted /renewed amended	From (date)	To (date)	Refused (reason)
The responsible officer:				Date:

ANNEX B

Alameda do Aeroporto CP 225
Maputo, MZ
iacm@tvcabo.co.mz
Tel 258 (21) 465 416 Fax 258 (21) 465 415

CERTIFICATE of AERONAUTICAL INFORMATION MANAGEMENT SERVICE PROVIDER

No_____

This is to certify that:

_____ *(Name of the company)*_____
_____*(Address of the company)*_____
_____

fulfills the requirements specified by the Civil Aviation Regulation Part 175 of the Republic of Mozambique (MOZCAR 175) in compliance with the ICAO Standards and Recommended Practices to provide the following Aeronautical Information ManagementServices:

(Type of service)	*(ICAO-Code of the Location(s))*
This certificate expires	*(date)*

Maputo, *(date)*

Instituto de Aviação Civil de Moçambique

Capt João Martins de Abreu

_____

Chairman of the Board and CEO