# SIERRA LEONE CIVIL AVIATION REGULATIONS


## PART 15A – AERONAUTICAL INFORMATION SERVICES

**FEBRUARY 2024**

## PREAMBLE

WHEREAS, The Director-General shall have power to perform such acts, -including the conduct of investigations, to issue and amend orders, rules, regulations and procedures pursuant to and in accordance with the Civil Aviation Act, 2023.

WHEREAS, the Director- General shall have power to publish all reports, orders, decisions, rules, and regulations issued under Civil Aviation Act, 2023 in such form and manner as may be best adapted for public information and use;

NOW THEREBY, The Director General under its powers given by Article 17(1) and 17(2) (a) of the Civil Aviation Act, 2023 issue the following regulations which supersedes previous regulations on Aeronautical Information Services.

**1.** SHORT TITLE

This regulation may be cited as Sierra Leone Civil Aviation Regulation "SLCAR Part 15A- Aeronautical Information Services"

**2.** EFFECTIVE DATE

This Regulation shall come into force as of the 5th day of February 2024.

Ms Musayeroh Barrie
Director General

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## 1. GENERAL

In transposing ICAO Annex 15 to develop these regulations all amendments 1-42 have been considered.

### 1.1 Definitions

When the following terms are used in these regulations for aeronautical information services, they have the following meanings:

a) **Aerodrome.** A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.

b) **Aerodrome mapping data (AMD).** Data collected for the purpose of compiling aerodrome mapping information.

c) **Aerodrome mapping database (AMDB).** A collection of aerodrome mapping data organized and arranged as a structured data set.

d) **Aeronautical chart.** A representation of a portion of the Earth, its culture and relief, specifically designated to meet the requirements of air navigation.

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

f) **Aeronautical fixed service (AFS).** A telecommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air services.

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

h) **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.

i) **Aeronautical information management (AIM).** The dynamic, integrated management of aeronautical information through the provision and exchange of quality-assured digital aeronautical data in collaboration with all parties.

j) **Aeronautical information product.** Aeronautical data and aeronautical information provided either as digital data sets or as a standardized presentation in paper or electronic media. Aeronautical information products include:
   i) Aeronautical Information Publication (AIP), including Amendments and Supplements;
   ii) Aeronautical Information Circulars (AIC);
   iii) aeronautical charts;
   iv) NOTAM; and
   v) Digital data sets.

k) **Aeronautical Information Publication (AIP).** A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation.

l) **Aeronautical information service (AIS).** A service established within the defined area of coverage responsible for the provision of aeronautical data and aeronautical information necessary for the safety, regularity and efficiency of air navigation.

m) **Aeronautical Information Service provider.** The relevant agency/organization designated by the Authority responsible for providing aeronautical information service.

n) **AIP Amendment.** Permanent changes to the information contained in the AIP.

o) **AIP Supplement.** Temporary changes to the information contained in the AIP which are provided by means of special pages.
p) **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.
q) **Air defence identification zone (ADIZ).** Special designated airspace of defined dimensions within which aircraft are required to comply with special identification and/or reporting procedures additional to those related to the provision of air traffic services.
r) **Air traffic management (ATM).** The dynamic, integrated management of air traffic and airspace (including air traffic services, airspace management and air traffic flow management) — safely, economically and efficiently — through the provision of facilities and seamless services in collaboration with all parties and involving airborne and ground-based functions.
s) **Application.** Manipulation and processing of data in support of user requirements.
t) **Area navigation (RNAV).** A method of navigation which permits aircraft operation on any desired flight path within the coverage of ground- or space-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.
u) **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.
v) **Assemble.** A process of merging data from multiple sources into a database and establishing a baseline for subsequent processing.
w) **ATS surveillance service.** Term used to indicate a service provided directly by means of an ATS surveillance system.
x) **ATS surveillance system.** A generic term meaning variously, ADS-B, PSR, SSR or any comparable ground-based system that enables the identification of aircraft.
y) **Authority.** means the Sierra Leone Civil Aviation Authority
z) **Automatic dependent 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.
aa) **Automatic dependent 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.
bb) **Automatic terminal information service (ATIS).** The automatic provision of current, routine information to arriving and departing aircraft throughout 24 hours or a specified portion thereof:
cc) **Data link-automatic terminal information service (D-ATIS).** The provision of ATIS via data link.
dd) **Voice-automatic terminal information service (Voice-ATIS).** The provision of ATIS by means of continuous and repetitive voice broadcasts.
ee) **Bare Earth.** Surface of the Earth including bodies of water and permanent ice and snow, and excluding vegetation and manmade objects.
ff) **Calendar.** Discrete temporal reference system that provides the basis for defining temporal position to a resolution of one day
gg) **Canopy.** Bare Earth supplemented by vegetation height.
hh) **Confidence level.** The probability that the true value of a parameter is within a certain interval around the estimate of its value.

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

jj) **Culture.** All man-made features constructed on the surface of the Earth, such as cities, railways and canals.

kk) **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.

ll) **Danger area.** An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.

mm) **Data accuracy.** A degree of conformance between the estimated or measured value and the true value.

nn) **Data completeness.** The degree of confidence that all of the data needed to support the intended use is provided.

oo) **Data format.** A structure of data elements, records and files arranged to meet standards, specifications or data quality requirements.

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

qq) **Data product.** Data set or data set series that conforms to a data product specification.

rr) **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.

ss) **Data quality.** A degree or level of confidence that the data provided meet the requirements of the data user in terms of accuracy, resolution, integrity (or equivalent assurance level), traceability, timeliness, completeness and format.

tt) **Data resolution.** A number of units or digits to which a measured or calculated value is expressed and used.

uu) **Data set.** Identifiable collection of data.

vv) **Data set series.** Collection of data sets sharing the same product specification.

ww) **Data timeliness.** The degree of confidence that the data is applicable to the period of its intended use.

xx) **Data traceability.** The degree that a system or a data product can provide a record of the changes made to that product and thereby enable an audit trail to be followed from the end-user to the originator.

yy) **Datum.** Any quantity or set of quantities that may serve as a reference or basis for the calculation of other quantities .

zz) **Digital Elevation Model (DEM).** The representation of terrain surface by continuous elevation values at all intersections of a defined grid, referenced to common datum.

aaa) **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.

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

ccc) **Feature.** Abstraction of real world phenomena.

ddd) **Feature attribute.** Characteristic of a feature.

eee) **Feature operation.** Operation that every instance of a feature type may perform.

fff) **Feature relationship.** Relationship that links instances of one feature type with instances of the same or a different feature type.

ggg) **Feature type.** Class of real world phenomena with common properties.

hhh) **Geodesic distance.** The shortest distance between any two points on a mathematically defined ellipsoidal surface.

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

jjj) **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.

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

lll) **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.

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

nnn) **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.

ooo) **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.

ppp) **Integrity classification (aeronautical data).** Classification based upon the potential risk resulting from the use of corrupted data. Aeronautical data is classified as:

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

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

iii) critical data: there is a high probability when using corrupted critical data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe.

qqq) **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.

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

sss) **Logon address.** A specified code used for data link logon to an ATS unit.

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

uuu) **Metadata.** Data about data.

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

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

xxx) **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

yyy) **Navigation specification.** A set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace. There are two kinds of navigation specifications:

i) Required navigation performance (RNP) specification. A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH.

ii) Area navigation (RNAV) specification. A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.

zzz) **Next intended user.** The entity that receives the aeronautical data or information from the aeronautical information service.

aaaa) **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.

bbbb) **Obstacle.** All fixed (whether temporary or permanent) and mobile objects, or parts thereof, that:

i) are located on an area intended for the surface movement of aircraft; or

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

iii) stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

cccc) **Obstacle/terrain data collection surface.** A defined surface intended for the purpose of collecting obstacle/terrain data.

dddd) **Origination (aeronautical data or aeronautical information).** The creation of the value associated with new data or information or the modification of the value of existing data or information.

eeee) **Originator (aeronautical data or aeronautical information).** An entity that is accountable for data or information origination and/or from which the AIS organization receives aeronautical data and aeronautical information.

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

gggg) **Performance-based communication (PBC).** Communication based on performance specifications applied to the provision of air traffic services.

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

iiii) **Performance-based surveillance (PBS).** Surveillance based on performance specifications applied to the provision of air traffic services.

jjjj) **Portrayal.** Presentation of information to humans .

kkkk) **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.

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

mmmm) **Precision.** The smallest difference that can be reliably distinguished by a measurement process.

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

oooo) **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.

pppp) **Quality.** Degree to which a set of inherent characteristics fulfils requirements

qqqq) **Quality assurance.** Part of quality management focused on providing confidence that quality requirements will be fulfilled**.**

rrrr) **Quality control.** Part of quality management focused on fulfilling quality requirements

ssss) **Quality management.** Coordinated activities to direct and control an organization with regard to quality.

tttt) **Radio navigation service.** A service providing guidance information or position data for the efficient and safe operation of aircraft supported by one or more radio navigation aids.

uuuu) **Required communication performance (RCP) specification.** A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based communication.

vvvv) **Required surveillance performance (RSP) specification.** A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based surveillance.

wwww) **Requirement.** Need or expectation that is stated, generally implied or obligatory.

xxxx) **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.

yyyy) **Route stage.** A route or portion of a route flown without an intermediate landing

zzzz) **SNOWTAM.**A special series NOTAM given in a standard format providing a surface condition report notifying the presence or cessation of hazardous conditions due to snow, ice, slush, frost, standing water or water associated with snow, slush, ice or frost on the movement area.

aaaaa) **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.

bbbbb) **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.

ccccc) **Traceability.** Ability to trace the history, application or location of that which is under consideration

ddddd) **Validation.** Confirmation, through the provision of objective evidence, that the requirements for a specific intended use or application have been fulfilled

eeeee) **Verification.** Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled

fffff) **VOLMET.** Meteorological information for aircraft in flight.

ggggg) **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.

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

## 1.2 Common Reference Systems for Air Navigation

1.2.1 Horizontal reference System

The aeronautical information service provider and all parties involved in providing aeronautical data and aeronautical information shall:

a) use the World Geodetic System — 1984 (WGS-84) as the horizontal (geodetic) reference system for international air navigation.

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

1.2.2 Vertical reference system

1.2.2.1 Mean sea level (MSL) datum shall be used as the vertical reference system for international air navigation.

1.2.2.2 The Aeronautical Information Service (AIS) provider shall ensure the Earth Gravitational Model — 1996 (EGM-96) is used as the global gravity model for international air navigation.

1.2.2.3 At those geographical positions where the accuracy of EGM-96 does not meet the accuracy requirements for elevation and geoid undulation 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).

1.2.3 Temporal reference system

1.2.3.1 The Gregorian calendar and Coordinated Universal Time (UTC) shall be used as the temporal reference system for international air navigation.

1.2.3.2 When a different temporal reference system is used for some applications, the feature catalogue, or the metadata associated with an application schema or a data set, as appropriate, shall include either a description of that system or a citation for a document that describes that temporal reference system.

### 1.3 Miscellaneous Specifications

1.3.1 Aeronautical information products intended for international distribution shall include English text for those parts expressed in plain language.

1.3.2 Place names shall be spelt in conformity with local usage, transliterated, when necessary, into the ISO-Basic Latin alphabet.

1.3.3 Units of measurement used in the origination, processing and distribution of aeronautical data and aeronautical information are consistent with the tables contained in Sierra Leone Civil Aviation Regulations (Units of Measurement used in Air and Ground Operations) Part 5.

1.3.4 The aeronautical information service provider shall use ICAO abbreviations in aeronautical information products whenever they are appropriate and their use will facilitate distribution of aeronautical data and aeronautical information

## 2. RESPONSIBILITIES AND FUNCTIONS

### 2.1 Responsibilities of aeronautical information service (AIS) provider

2.1.1 The aeronautical information service provider shall ensure the provision of aeronautical data and aeronautical information necessary for the safety, regularity and efficiency of air navigation

2.1.2 The aeronautical information service provider shall clearly indicate that aeronautical data and aeronautical information provided for and on behalf of Sierra Leone are provided under the authority of Sierra Leone irrespective of the format in which they are provided

2.1.3 The aeronautical information service provider shall ensure that the aeronautical data and aeronautical information provided are complete, timely and of required quality.

2.1.4 The aeronautical information service provider shall establish formal arrangements with originators of aeronautical data and aeronautical information in relation to the timely and complete provision of aeronautical data and aeronautical information.

2.1.5 The aeronautical information service provider shall ensure that aeronautical data and aeronautical information are available for:

a) personnel involved in flight operations, including flight crews, flight planning and flight simulators;

b) the air traffic service provider responsible for flight information service and

c) the services responsible for pre-flight information.

2.1.6 The aeronautical information service provider shall receive, collate or assemble, edit, format, publish/store and distribute aeronautical data and aeronautical information concerning the entire territory of Sierra Leone as well as those areas over the high seas for which Sierra Leone is responsible for the provision of air traffic services. Aeronautical data and aeronautical information shall be provided as aeronautical information products.

2.1.7 The aeronautical information service provider shall provide 24-hour services for NOTAM origination and issuance in its area of responsibility and for pre-flight information needed in relation to route stages originating at the aerodrome/heliport in its area of responsibility.

2.1.8 The aeronautical information service provider shall obtain aeronautical data and aeronautical information to enable it to provide pre-flight information service and to meet the need for in-flight information:

a) from the aeronautical information service of other States; and

b) from other sources that may be available.

2.1.9 The aeronautical information service provider shall ensure that aeronautical data and aeronautical information obtained from other States shall, when distributed, be clearly identified as having the authority of the State of Origin.

2.1.10 The aeronautical information service provider shall ensure that aeronautical data and aeronautical information obtained from other sources are verified before distribution and if not verified, when distributed, be clearly identified as such.

2.1.11 The aeronautical information service provider shall promptly make available to the aeronautical information service of other States, any aeronautical data and aeronautical information necessary for the safety, regularity or efficiency of air navigation required by them.

## 2.2 Exchange of aeronautical data and aeronautical information

2.2.1 The aeronautical information service provider shall designate the office to which all elements of aeronautical information products provided by other States is addressed and that office shall be qualified to deal with requests for aeronautical data and aeronautical information originated by other States.

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

2.2.3 The aeronautical information service provider shall establish direct contact with other providers of aeronautical information services in order to facilitate the international exchange of aeronautical data and aeronautical information where practicable.

2.2.4 The aeronautical information service provider shall make available one copy of each of the elements of the following aeronautical information products, where available, that have been requested by the aeronautical information service of other States without charge:

a) Aeronautical Information Publication (AIP), including Amendments and Supplements;
b) Aeronautical Information Circulars (AIC);
c) NOTAM; and
d) aeronautical charts.

2.2.5 The aeronautical information service provider shall provide aeronautical data and aeronautical information in the form of digital data sets to be used by the aeronautical information service, on the basis of agreement with the State concerned.

2.2.6 The aeronautical information service provider shall ensure that globally interoperable; aeronautical data and information exchange model are used for the provision of data sets

## 2.3 Copyright

2.3.1 The aeronautical information service provider shall only make available to a third party any aeronautical information product which has been granted copyright protection by the originating State on the condition that the third party is made aware that the product is copyright protected and appropriately annotated that the product is subject to copyright by the originating State.

2.3.2 The aeronautical information service provider shall not provide the digital sets of a providing State to any third party without the consent of the providing State that when aeronautical data and aeronautical information are provided to the aeronautical information service

# 3. AERONAUTICAL INFORMATION MANAGEMENT

## 3.1 Information management requirements

The aeronautical information services provider shall establish information management resources and processes that are adequate to ensure the timely collection, processing, storing, integration, exchange and delivery of quality-assured aeronautical data and aeronautical information within the air traffic management (ATM) system.

## 3.2 Data quality specifications

3.2.2 The order of accuracy for aeronautical data shall be in accordance with the intended use,

3.2.3 The order of resolution of aeronautical data shall be commensurate with the actual data accuracy.

### 3.2.4 Data integrity

3.2.4.1 The integrity of aeronautical data shall be maintained throughout the data chain from origination to distribution to the next intended user.

3.2.4.2 Based on the applicable integrity classifications, procedures shall be put in place in order to:

(a) for routine data: avoid corruption throughout the processing of the data;

(b) for essential data: assure corruption does not occur at any stage of the entire process and include additional processes as needed to address potential risks in the overall system architecture to further assure data integrity at this level; and

(c) for critical data: assure corruption does not occur at any stage of the entire process and include additional integrity assurance processes to fully mitigate the effects of faults identified by thorough analysis of the overall system architecture as potential data integrity risks.

3.2.5 The traceability of aeronautical data shall be ensured and retained as long as the data is in use.

3.2.6 The timeliness of aeronautical data shall be ensured by including limits on the effective period of the data elements.

3.2.7 The completeness of aeronautical data shall be ensured in order to support its intended use.

3.2.8 The format of delivered aeronautical data shall be adequate to ensure that the data is interpreted in a manner that is consistent with its intended use.

### 3.3 Aeronautical data and aeronautical information verification and validation

3.3.1 The aeronautical information service provider shall ensure that materials to be issued as part of the aeronautical information products are thoroughly checked before submission in order to ensure that all necessary information has been included and that the information is correct in detail.

3.3.2 The aeronautical information service provider shall establish verification and validation procedures which ensure that the aeronautical data and aeronautical information received meets quality requirements (accuracy, resolution, integrity and traceability) are met.

### 3.4 Data error detection

3.4.1 The aeronautical information service provider shall use digital data error detection techniques during the transmission and/or storage of aeronautical data and digital data sets.

3.4.2 The aeronautical information service provider shall use digital data error detection techniques are in order to maintain the integrity levels as specified in 3.2.4.

### 3.5 Use of automation

3.5.1 The aeronautical information service provider shall apply automation in order to ensure the quality, efficiency and cost-effectiveness of aeronautical information services.

3.5.2 The aeronautical information service provider shall give due consideration to the integrity of data and information when automated processes are implemented and mitigating steps taken where risks are identified.

3.5.3 The aeronautical information service provider shall ensure that in order to meet the data quality requirements, the automation:

(a) enables digital aeronautical data exchange between the parties involved in the data processing chain; and

(b) use aeronautical information exchange models and data exchange models designed to be globally interoperable.

## 3.6 Quality Management System

3.6.1 The aeronautical information service provider shall implement and maintain quality management systems encompassing all functions of an aeronautical information service, as outlined in 2.2.The execution of the quality management systems shall be made demonstrable for each function stage.

3.6.2 The quality management system established shall follow the ISO 9000 series of quality assurance standards and be certified by an accredited certification body.

3.6.3 The aeronautical information service provider within the context of the established quality management system shall:

a) identify the competencies and associated knowledge, skills and abilities required for each function and personnel assigned to perform those functions are appropriately trained.
b) have processes in place to ensure that personnel possess the competencies required to perform specific assigned functions.
c) maintain appropriate records so that the qualifications of personnel can be confirmed.
d) establish initial and periodic assessments that require personnel to demonstrate the required competencies.
e) use periodic assessments of personnel as a means to detect and correct shortfalls in knowledge, skills and abilities.

3.6.4 The aeronautical information service provider shall ensure the quality management system include the necessary policies, processes and procedures, including those for the use of metadata, to ensure and verify that aeronautical data is traceable throughout the aeronautical information data chain so as to allow any data anomalies or errors detected in use to be identified by root cause, corrected and communicated to affected users.

3.6.5 The aeronautical information service provider shall provide users with the necessary assurance and confidence that distributed aeronautical data and aeronautical information satisfy the aeronautical data quality requirements of the established quality management systems.

3.6.6 The aeronautical information service provider shall take all necessary measures to monitor compliance with the quality management system in place.

3.6.7 The aeronautical information service provider shall:

a) conduct audits as a demonstration of compliance of the quality management system applied.
b) initiate action to correct any identified nonconformity without undue delay.
c) evidence and properly document all audit observations and remedial actions.

## 3.7 Human Factors

3.7.1 The aeronautical information service provider shall take into consideration human factors principles in the organization of the aeronautical information service as well as the design, contents, processing and distribution of aeronautical data and aeronautical information to facilitate their optimum utilization.

3.7.2 The aeronautical information service provider shall give due consideration to the integrity of information where human interaction is required and mitigating steps taken where risks are identified.

## 4. SCOPE OF AERONAUTICAL DATA AND AERONAUTICAL INFORMATION

### 4.1 Scope of aeronautical data and aeronautical information

4.1.1 The aeronautical information service provider shall receive and manage at least the following sub-domains of aeronautical data and aeronautical information:

a) national regulations, rules and procedures;
b) aerodromes and heliports;
c) airspace;
d) air traffic services (ATS) routes;
e) instrument flight procedures;
f) radio navigation aids/systems;
g) obstacles;
h) terrain; and
i) geographic information.

4.1.2 The aeronautical information service provider shall ensure that determination and reporting of aeronautical data is in accordance with the accuracy and integrity classification required to meet the needs of the end-user of aeronautical data.

### 4.2 Metadata requirements

4.2.1 The aeronautical information service provider shall collect metadata for aeronautical data processes and exchange points;

4.2.2 The metadata collected shall be applied throughout the aeronautical information data chain, from origination to distribution to the next intended user;

## 5. AERONAUTICAL INFORMATION PRODUCTS AND SERVICES

### 5.1 General

5.1.1 The aeronautical information service provider shall provide aeronautical information in the form of aeronautical information products and associated services.

5.1.2 The aeronautical information service provider shall ensure that processes are implemented for data and information consistency between those formats when aeronautical data and aeronautical information are provided in multiple formats.

### 5.2 Aeronautical information in a standardised presentation

5.2.1 The aeronautical information service provider shall ensure that:

5.2.1 aeronautical information is provided in a standardized presentation and includes the aeronautical information publication (AIP), AIP Amendments, AIP Supplements, AIC, NOTAM and aeronautical charts.

5.2.1.1 the AIP, AIP Amendment, AIP Supplement and AIC are provided on paper and/or as an electronic document.

5.2.1.2 the AIP, AIP Amendment, AIP Supplement and AIC provided as an electronic document (eAIP) allow for both displaying on electronic devices and printing on paper.

## 5.3 Aeronautical Information Publication (AIP)

5.3.1 The AIP shall include:

a) a statement of the competent authority responsible for the air navigation facilities, services or procedures covered by the AIP;
b) the general conditions under which the services or facilities are available for international use;
c) a list of significant differences between the national regulations and practices of the Sierra Leone and the related ICAO Standards and Recommended Practices (SAPRs) and procedures, given in a form that would enable a user to differentiate readily between the requirements of Sierra Leone and the related ICAO provisions; and
d) the choice made by the Sierra Leone in each significant case where an alternative course of action is provided for in the ICAO SARPs and procedures.

### 5.2.3 AIP Supplements

5.2.3.1 The aeronautical information service provider shall:

issue a checklist of valid AIP Supplements at intervals of not more than one month as part of the checklist of NOTAM and with distribution as for the AIP Supplements.

### 5.2.4Aeronautical Information Circulars

5.2.4.1 The aeronautical information service provider shall issue an AIC for any of the following:

a) a long-term forecast of any major change in legislation, regulations, procedures or facilities; or
b) information of a purely explanatory or advisory nature liable to affect flight safety; or
c) information or notification of an explanatory or advisory nature concerning technical, legislative or purely administrative matters.

5.2.4.2The aeronautical information service provider shall:

a) select the AIC that are to be given international distribution.
b) not use an AIC for information that qualifies for inclusion in AIP and NOTAM.
c) review the validity of AIC currently in force at least once a year.
d) allocate each AIC a serial number which is consecutive and based on the calendar year.
e) Issue a checklist of AIC provided internationally in the NOTAM checklist.

### 5.2.5 Aeronautical Charts

5.2.5.1 The aeronautical information service provider shall ensure that the aeronautical charts, where made available, form part of the AIP, or are provided separately to recipients of the AIP:

a) Aerodrome/Heliport Chart — ICAO;
b) Aerodrome Ground Movement Chart — ICAO;
c) Aerodrome Obstacle Chart — ICAO Type A;
d) Aerodrome Obstacle Chart — ICAO Type B (when available);
e) Aerodrome Terrain and Obstacle Chart — ICAO (Electronic);
f) Aircraft Parking/Docking Chart — ICAO;

g) Area Chart — ICAO;
h) ATC Surveillance Minimum Altitude Chart — ICAO;
i) Instrument Approach Chart — ICAO;
j) Precision Approach Terrain Chart — ICAO;
k) Standard Arrival Chart — Instrument (STAR) — ICAO;
l) Standard Departure Chart — Instrument (SID) — ICAO;
m) Visual Approach Chart — ICAO and
n) Enroute Chart

5.2.5.2The aeronautical information service provider shall ensure that the aeronautical charts, when available, are provided as aeronautical information products:

a) World Aeronautical Chart — ICAO 1:1 000 000;
b) Aeronautical Chart — ICAO 1:500 000;
c) Aeronautical Navigation Chart — ICAO Small Scale; and
d) Plotting Chart — ICAO chart.

5.2.5.5The chart resolution of aeronautical data shall be that as specified for a particular chart.

## 5.3 Digital Data Sets

### 5.3.1 General

5.3.1.1 The aeronautical information service provider shall provide digital data in the form of the following data sets:

a) AIP data set;
b) terrain data sets;
c) obstacle data sets;
d) aerodrome mapping data sets; and
e) instrument flight procedure data sets.

5.3.1.2 Each data set shall be provided to the next intended user together with at least the minimum set of metadata that ensures traceability.

5.3.1.3 A checklist of valid data sets shall be regularly provided.

### 5.3.2 AIP Data Set

5.3.2.2 The aeronautical information service provider shall ensure that the AIP data set contain the digital representation of aeronautical information of lasting character (permanent information and long duration temporary changes) essential to air navigation.

### 5.3.3 Terrain and obstacle data sets

5.3.3.1 The coverage areas for terrain and obstacle data sets shall be specified as:

a) Area 1: the entire territory of Sierra Leone;
b) Area 2: within the vicinity of an aerodrome, subdivided as follows:
    i) Area 2a: a rectangular area around a runway that comprises the runway strip plus any clearway that exists;
    ii) Area 2b: an area extending from the ends of Area 2a in the direction of departure, with a length of 10 km and a splay of 15 per cent to each side;

iii) Area 2c: an area extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a; and

iv) Area 2d: an area outside Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or to an existing terminal control area (TMA) boundary, whichever is nearest;

c) Area 3: the area bordering an aerodrome movement area that extends horizontally from the edge of a runway to 90 m from the runway centre line and 50 m from the edge of all other parts of the aerodrome movement area; and

d) Area 4:

i) the area extending 900 m prior to the runway threshold and 60 m each side of the extended runway centre line in the direction of the approach on a precision approach runway, Category II or III.

ii) where the terrain at a distance greater than 900 m (3 000ft) from the runway threshold is mountainous or otherwise significant, the length of Area 4 is extended to a distance not exceeding 2 000 m (6 500ft) from the runway threshold.

5..3.2 Where the terrain at a distance greater than 900 m (3 000 ft) from the runway threshold is mountainous or otherwise significant, the length of Area 4 shall be extended to a distance not exceeding 2 000 m (6 500 ft) from the runway threshold.

**5.3.3.3 Terrain data sets**

5.3.3.3.1 Terrain data sets shall contain the digital representation of the terrain surface in the form of continuous elevation values at all intersections (points) of a defined grid, referenced to common datum.

5.3.3.3.2Terrain data shall be provided for Area 1.

5.3.3.3.3 For aerodromes regularly used by international civil aviation, terrain data shall be provided for:

a) Area 2a;

b) the take-off flight path area; and

c) an area bounded by the lateral extent of the aerodrome obstacle limitation surfaces.

5.3.3.3.4 For aerodromes regularly used by international civil aviation, addition terrain data shall be provided within Area 2 as follows:

a) in the area extending to a 10-km radius from the ARP; and

b) within the area between 10 km and the TMA boundary or a 45-km radius (whichever is smaller), where terrain penetrates a horizontal terrain data collection surface specified as 120 m above the lowest runway elevation.

5.3.3.3.5 For aerodrome regularly used by international civil aviation, terrain data shall be provided for Area 3

5.3.3.3.6 Terrain data shall be provided for Area 4 for all 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 the effect of terrain on decision height determination by use of radio altimeters for aerodromes regularly used by international civil aviation.

**5.3.3.4 Obstacle Data Sets**

5.3.3.4.1 Obstacle data sets shall contain the digital representation of the vertical and horizontal extent of obstacles.

5.3.3.4.2 Obstacle data shall not be included in terrain data sets.

5.3.3.4.3 Obstacle data shall be provided for obstacles in Area 1 whose height is 100 m or higher above ground.

5.3.3.4.4 Obstacle data shall be provided for all obstacles within Area 2 that are assessed as being a hazard to air navigation for aerodromes regularly used by international civil aviation.

5.3.3.4.5 Obstacle data shall be provided, for aerodromes regularly used by international civil aviation for:

a) Area 2a for those obstacles that penetrate an obstacle data collection surface outlined by a rectangular area around a runway that comprises the runway strip plus any clearway that exists. The Area 2a obstacle collection surface shall have a height of 3 m above the nearest runway elevation measured along the runway centre line, and for those portions related to a clearway, if one exists, at the elevation of the nearest runway end;
b) objects in the take-off flight path area which project above a plane surface having a 1.2 per cent slope and having a common origin with the take-off flight path area; and
c) penetrations of the aerodrome obstacle limitation surfaces.

5.3.3.4.6 Obstacle data shall be provided for aerodromes regularly used by international civil aviation for Areas 2b, 2c and 2d for obstacles that penetrate the relevant obstacle data collection surface specified as follows:

a) Area 2b: an area extending from the ends of Area 2a in the direction of departure, with a length of 10 km and a splay of 15 per cent to each side. The Area 2b obstacle collection surface has a 1.2 per cent slope extending from the ends of Area 2a at the elevation of the runway end in the direction of departure, with a length of 10 km and a splay of 15 per cent to each side;
b) Area 2c: an area extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a. The Area 2c obstacle collection surface has a 1.2 per cent slope extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a. The initial elevation of Area 2c has the elevation of the point of Area 2a at which it commences; and
c) Area 2d: an area outside Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or to an existing TMA boundary, whichever is nearest. The Area 2d obstacle collection surface has a height of 100 m above ground; except that data need not be collected for obstacles less than a height of 3 m above ground in Area 2b and less than a height of 15 m above ground in Area 2c.

5.3.4.4.7 For aerodromes regularly used by international civil aviation, obstacle data shall be provided for Area 3 for obstacles that penetrate the relevant obstacle data collection surface extending a half-metre (0.5 m) above the horizontal plane passing through the nearest point on the aerodrome movement area.

5.3.3.4.8 Obstacle data shall be provided for Area 4 for all runways where precision approach Category II or III operations have been established for aerodromes regularly used by international civil aviation.

### 5.3.4 Aerodrome Mapping Data Sets

5.3.4.1 Aerodrome mapping data sets shall contain the digital representation of aerodrome features.

5.3.4.2 Aerodrome mapping data sets shall be made available for aerodromes regularly used by international civil aviation.

### 5.3.5 Instrument flight procedure data sets

5.3.5.1 Instrument flight procedure data sets shall contain the digital representation of instrument flight procedures.

5.3.5.2 Instrument flight procedure data sets shall be made available for aerodromes regularly used by international civil aviation.

## 5.4 Distribution Services

### 5.4.1 General

The aeronautical information service provider shall ensure that:

5.4.1.1aeronautical information products are distributed to authorized users who request them.

5.4.1.2 AIP, AIP Amendments, AIP Supplements and AIC are made available by the most expeditious means.

### 5.4.2 NOTAM Distribution

5.4.2.1 The aeronautical information service provider shall:

a) distribute NOTAM on the basis of a request.
b) prepare NOTAM in conformity with the relevant provisions of the ICAO communication procedures.
c) use aeronautical fixed service (AFS) for NOTAM distribution whenever practicable

5.5.2.2 When a NOTAM is sent by means other than the AFS, a six-digit date-time group indicating the date and time of NOTAM origination, and the identification of the originator shall be used, preceding the text and the originating State shall select the NOTAM that are to be given international distribution.

5.4.2.3 The aeronautical information service provider shall ensure that the international exchange of NOTAM takes place only as mutually agreed between the international NOTAM offices concerned and between the NOTAM offices and multinational NOTAM Processing Units.

5.4.2.4 The aeronautical information service provider shall, upon request, grant distribution of NOTAM series other than those distributed internationally.

## 5.5 Pre-flight information service

5.5.1 The aeronautical information service provider shall make available to flight operations personnel, including flight crews and services responsible for pre-flight information,

aeronautical information relative to the route stages originating at the aerodrome/heliport for any aerodrome/heliport used for international air operations.

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

### 5.6 Post-flight information service

5.6.1 The aeronautical information service provider shall make arrangement to receive information concerning the state and operation of air navigation facilities or services noted by flight crews for any aerodrome/heliport used for international air operations.

5.6.2 The arrangements specified in 5.6.1 shall ensure that such information is made available to the aeronautical information service (AIS) for distribution as the circumstances necessitate.

5.6.3 The aeronautical information service provider shall make arrangements to receive information concerning the presence of wildlife hazards observed by flight crews for any aerodrome/heliport used for international air operations for any aerodrome/heliport used for international air operations.

5.6.4 The information about presence of wildlife hazards shall be made available to the aeronautical information service for distribution as the circumstances necessitate.

## 6. AERONAUTICAL INFORMATION UPDATES

### 6.1 General specifications

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

### 6.2 Aeronautical Information Regulation and Control (AIRAC)

6.2.1 The aeronautical information service provider shall distribute information concerning the following circumstances under the regulated AIRAC system i.e basing, establishment, withdrawal, or significant changes upon series of common effective dates at intervals of 28 days:

a) limits (horizontal and vertical), regulations and procedures applicable to:
   i) flight information regions;
   ii) control areas;
   iii) control zones;
   iv) advisory areas;
   v) air traffic services (ATS) routes;
   vi) permanent danger, prohibited and restricted areas (including type and periods of activity when known) and air defence identification zones (ADIZ);
   vii) permanent areas or routes or portions thereof where the possibility of interception exists;
b) positions, frequencies, call signs, identifiers, known irregularities and maintenance periods of radio navigation aids, and communication and surveillance facilities;
c) holding and approach procedures, arrival and departure procedures, noise abatement procedures and any other pertinent ATS procedures;
d) transition levels, transition altitudes and minimum sector altitudes;
e) meteorological facilities (including broadcasts) and procedures;

f) runways and stopways;
g) taxiways and aprons;
h) aerodrome ground operating procedures (including low visibility procedures);
i) approach and runway lighting; and
j) aerodrome operating minima if published by Sierra Leone.

6.2.2 The information notified under the AIRAC system shall not be changed further for at least another 28 days after the effective date, unless the circumstance notified is of a temporary nature and would not persist for the full period.

6.2.3 Information provided under the AIRAC system shall be made available by the aeronautical information service (AIS) so as to reach recipients at least 28 days in advance of the effective date.

6.2.4 When information has not been submitted by the AIRAC date, a NIL notification shall be distributed not later than one cycle before the AIRAC effective date concerned.

6.2.5 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.

6.2.6 The aeronautical information service provider shall ensure that whenever major changes are planned and where advance notice is desirable and practicable, information is made available by the AIS so as to reach recipients at least 56 days in advance of the effective date. This shall be applied to the establishment of, and premeditated major changes in, the circumstances listed below, and other major changes if deemed necessary:
a) new aerodromes for international instrument flight rules (IFR) operations;
b) new runways for IFR operations at international aerodromes;
c) design and structure of the ATS route network;
d) design and structure of a set of terminal procedures (including change of procedure bearings due to magnetic variation change);
e) circumstances listed in 6.2.1 if the entire State or any significant portion thereof is affected or if cross-border coordination is required.

6.2.7 Whenever major changes are planned information shall be made available by the AIS so as to reach the recipients at least 56 days in advance of the effective date. This shall be applied to the establishment of and premeditated major changes in the circumstances listed below, and other major changes if deemed necessary:
a) new aerodromes for international instrument flight rules (IFR) operations
b) new runways for IFR operations at international aerodromes;
c) design and structure of ATS route network;
d) design and structure of a set of terminal procedures (including change of procedure bearings due to magnetic variation change)

## 6.3. Aeronautical information product updates

### 6.3.1 AIP updates

6.3.1.1 The aeronautical information service provider shall ensure that the AIP is amended or reissued at such regular intervals as may be necessary to keep it up to date.

6.3.1.2 Permanent changes to the AIP shall be published as AIP Amendments.

6.3.1.3 Temporary changes of long duration (three months or longer) and information of short duration which contains extensive text and/or graphics shall be published as AIP Supplements.

**6.3.2NOTAM**

6.3.2.1The aeronautical information service provider shall ensure that when an AIP Amendment or an AIP Supplement is published in accordance with AIRAC procedures, a Trigger NOTAM is originated.

6.3.2.2 The aeronautical information service provider shall ensure that a NOTAM is 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.

6.3.2. 3 A NOTAM shall be originated and issued concerning the following information:

a) establishment, closure or significant changes in operation of aerodrome(s) or heliport(s) or runways;
b) establishment, withdrawal or significant changes in operation of aeronautical services (aerodromes, AIS, ATS, communications, navigation and surveillance (CNS), meteorology (MET), search and rescue (SAR), etc.);
c) establishment, withdrawal or significant changes in operational capability of radio navigation and air-ground communication services. This includes: interruption or return to operation, change of frequencies, change in notified hours of service, change of identification, change of orientation (directional aids), change of location, power increase or decrease amounting to 50 per cent or more, change in broadcast schedules or contents, or irregularity or unreliability of operation of any radio navigation and air-ground communication services or limitations of relay stations including operational impact, affected service, frequency and area;
d) unavailability of back-up and secondary systems, having a direct operational impact;
e) establishment, withdrawal or significant changes to visual aids;
f) interruption of or return to operation of major components of aerodrome lighting systems;
g) establishment, withdrawal or significant changes to procedures for air navigation services;
h) occurrence or correction of major defects or impediments in the manoeuvring area;
i) changes to and limitations on availability of fuel, oil and oxygen;
j) major changes to search and rescue facilities and services available;
k) establishment, withdrawal or return to operation of hazard beacons marking obstacles to air navigation;
l) changes in regulations requiring immediate action, e.g. prohibited areas for SAR action;
m) presence of hazards not otherwise promulgated which affect air navigation (including obstacles, military exercises and operations, intentional and unintentional radio frequency interferences, rocket launches, displays, fireworks, sky lanterns, rocket debris, races and major parachuting events);

n) conflict zones which affect air navigation ( to include information that is as specific as possible regarding the nature and extent of threats that conflicts and its consequences for civil aviation);
o) planned laser emissions, laser displays and search lights if pilots' night vision is likely to be impaired;
p) erecting or removal of, or changes to, obstacles to air navigation in the take-off/climb, missed approach, approach areas and runway strip;
q) establishment or discontinuance (including activation or deactivation) as applicable, or changes in the status of prohibited, restricted or danger areas;
r) 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;
s) allocation, cancellation or change of location indicators;
t) changes in aerodrome/heliport rescue and firefighting category provided
u) presence or removal of, or significant changes in, hazardous conditions due to snow, slush, ice, radioactive material, toxic chemicals, volcanic ash deposition or water on the movement area;
v) outbreaks of epidemics necessitating changes in notified requirements for inoculations and quarantine measures;
w) observations or forecasts of space weather phenomena, the date and time of their occurrence, the flight levels where provided and portions of the airspace which may be affected by the phenomena;
x) 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;
y) 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;
z) establishment of operations of humanitarian relief missions, such as those undertaken under the auspices of the United Nations, together with procedures and/or limitations which affect air navigation; and
aa) implementation of short-term contingency measures in cases of disruption, or partial disruption, of ATS and related supporting services.

6.3.2.4 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 (see 6.3.2.3 m)), when controlled, at promulgated sites or within danger or prohibited areas;
i) training activities by ground units;
j) unavailability of back-up and secondary systems if these do not have an operational impact;
k) limitations to airport facilities or general services with no operational impact;
l) national regulations not affecting general aviation;
m) announcement or warnings about possible/potential limitations, without any operational impact;
n) general reminders on already published information;
o) availability of equipment for ground units without containing information on the operational impact for airspace and facility users;
p) information about laser emissions without any operational impact and fireworks below minimum flying heights;
q) closure of movement area parts in connection with planned work locally coordinated of duration of less than one hour;
r) closure or unavailability of, or changes in, operation of aerodrome(s)/heliport(s) outside the aerodrome(s)/heliport(s) operational hours; and
s) other non-operational information of a similar temporary nature.

### 6.3.3 Data Set Updates

6. 3.3.1 The aeronautical information service provider shall ensure that data sets are amended or reissued at such regular intervals as may be necessary to keep them up to date.

6. 3.3.2 Permanent changes and temporary changes of long duration (three months or longer) made available as digital data shall be issued in the form of a complete data set or a subset that includes only the differences from the previously issued complete data set.

6. 3.3.3 When made available as a completely reissued data set, the differences from the previously issued complete data set shall be indicated.

6.3.3.4 Updates to AIP and digital data sets shall be synchronized.

# 7. AERODROME SURVEY REQUIREMENTS

## 7.1 General

### 7.1.1 Introduction

Aerodrome Operator shall provide accurate survey information of their aerodrome and environs according to the type of operation identified by aerodrome survey classification and survey areas required as prescribed in Table 1 and shall be carried out to measure any changes at the periodic intervals as set out in Table 2.

### 7.1.2 Survey Areas

The Survey Areas required for a particular Aerodrome Survey Classification are prescribed in Table 1.

**Table 1** Aerodrome Survey Classification and Survey Areas Required

| Type of Operation | Aerodrome Survey Classification |
|---|---|
| Aerodrome with no Instrument Flight Procedures (IFP) | 1 |
| Aerodrome with Non-precision IFP | 2 |
| Aerodrome with Precision ILS CAT I or equivalent IFP | 3 |
| Aerodrome with Precision ILS CAT II/III or equivalent IFP | 4 |

| Survey Area | Aerodrome Classification | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| Aerodrome Plan | ✓ | ✓ | ✓ | ✓ |
| AGA | ✓ | ✓ | ✓ | ✓ |
| Non-precision Instrument Approach (*) | × | ✓ | ✓ | ✓ |
| Visual Manoeuvring (Circling) | × | ✓ | ✓ | ✓ |
| Departure (#) | × | ✓ | ✓ | ✓ |
| Aerodrome Obstacle Chart - Type A (~) | × | ✓ | ✓ | ✓ |
| Precision Approach Procedure | × | × | ✓ | ✓ |
| Precision Approach Terrain Chart | × | × | × | ✓ |

(*) Only required for aerodrome classification 3 and 4 if runways have additional Non precision IFP.

(#) Only applicable to runways from which IFR departures take place.

(~) Only required if runways used by Performance A aeroplanes engaged in Public Transport flights.

### 7.1.3 Survey Periodicity

Surveys shall be undertaken for all Survey Areas required to measure any changes at the periodic intervals prescribed in Table 2.

**Table 2** Survey Periodicity

| Survey Type | Aerodrome Classification | Periodicity |
|---|---|---|
| Geodetic Connection | 2, 3 and 4 | 1. Together with an initial full survey.<br>2. When a more accurate reference frame for WGS-84 becomes available. |
| Full Survey | 1, 2, 3 and 4 | 1. Initial survey.<br>2. If a check survey is not carried out annually.<br>3. If any doubt exists as to the validity of a previous survey. |
| Check Survey | 1, 2, 3 and 4 | 1. Five years after a full survey. |

### 7.1.4 Data Management

7.1.4.1 Survey companies shall implement rigorous data handling processes and practices to eliminate erroneous data submission.

7.1.4.2 Each surveyed entity and associated attributes shall be dealt with as a single data record stream.

7.1.4.3 Any change to an existing data record stream identified during a subsequent annual check survey shall necessitate a re-issue of the entire data record with a new unique record number and the deletion of the old record number.

7.1.4.4 If no changes were found to all attributes in an existing record the record shall retain its original record number and survey date.

7.1.4.5 If a later full survey is submitted following an initial full survey, all previous data records shall be declared as obsolete and a new list of survey data records shall be declared with new record numbers and new survey dates.

### 7.1.5 Survey Declaration Form

7.1.5.1 A "Survey Declaration Form" (see IS 7.1.5.1) shall accompany all full and check survey submissions.

7.1.5.2 The Aerodrome Operator shall state the survey areas appropriate to their operational requirements and the type of survey undertaken, i.e. full or annual check survey. The surveyor is required to state the change or no change status for each survey area.

7.1.5.3 Failure to submit an annual check Survey Declaration Form may result in the withdrawal of the relevant published chart.

### 7.1.6 Qualifying Surveying Companies

7.1.6.1 The Aerodrome Operator shall satisfy itself as to the competence of the surveyors it employs for aerodrome surveys. The following criteria shall be met:

(a) accredited to an ISO 9001:2000 standard or operate an equivalent quality control system.

(b) Professionally qualified surveyors and project managers to oversee the survey.

(c) Field survey staff competent in aerodrome surveying techniques and experienced at working in an operational aerodrome environment.

1.10.2 All surveying companies employed in survey work for aerodromes with IFPs shall be approved by the Authority.

### 7.1.7 Accuracy

7.1.7.1 All surveys undertaken shall meet the accuracy and integrity of the data provided as stated in this regulation and ICAO Doc 9674-AN/946 (WGS-84 Manual)

7.1.7.2 Survey methodology shall be clearly demonstrated in the Survey Report.

### 7.1.8 Survey Package

7.1.8.1 The completed survey package for submission to the Authority shall consist of report, plans, data and declaration form

7.1.8.2 The Aerodrome Operator is responsible for ensuring that copies of all survey information and Survey Declaration Form are forwarded within 60 days of the survey date tothe Sierra Leone Civil Aviation Authority

7.1.8.3 Surveys that fail to conform to the requirements stated in this regulation will be rejected and returned to the Aerodrome Operator.

### 7.1.9 Conversion Factors

SLCAR Part 5 shall be used as the standard for the application of all conversion factors.

## 7.2. Survey Procedure

### 7.2.1 General

7.2.1.1 The accuracy and integrity requirements for the geodetic connection and surveyed data shall be as specified in SLCAR Part 15B.

7.2.1.2 Surveyed data that does not meet the accuracy and integrity requirements is unacceptable for IFP design and shall be published in the AIP with an asterisk.

7.2.1.3 Aerodromes without Instrument Flight Procedures do NOT need to undertake surveys to the accuracy and quality assurance requirements stated in this regulation and ICAO Doc 9674-AN/946 (WGS-84 Manual). The Aerodrome Operator shall be responsible for ensuring the accuracy of information required for Aerodrome Plan and AGA survey areas.

### 7.2.2 Horizontal Control

7.2.2.1 Co-ordinates shall be required in WGS-84 format (required format for published data).

7.2.2.2 Survey control points shall conform to the ICAO Doc 9674-AN/946 (WGS-84 Manual).

7.2.2.3 Survey companies undertaking these surveys shall be responsible for the accuracy of the control data and any transformation sets used. An analysis of the accumulated error, evidence

confirming the required accuracies have been met and the transformation parameters used shall be included in the Survey Report.

**7.2.3 Instrumentation**

All survey equipment shall have a current calibration certificate and be able to perform to the accuracy appropriate to the requirements of the surveys.

**7.2.4 Methodology**

7.2.4.1 All permanent controls that are established within the aerodrome boundary shall be documented and traceable.

7.2.4.2 Local scale factor adjustment to ground distances shall be considered, and the effects of curvature and refraction.

7.2.4.3 New obstacle data shall be proved by two independent measurements and their resultant elevations and positions shall satisfy the appropriate survey criteria.

7.2.4.4 Obstacles heighted on previous surveys need only to be checked to confirm their height and position without the rigour afforded to new obstacles. Particular attention shall be paid to structures and trees whose height may change.

**7.3 Survey Reports**

7.3.1 The survey report shall conform to that in ICAO Doc 9674-AN/946 (WGS-84 Manual), Attachment C

7.3.2 For traceability purposes the complete documentation shall be reissued on every occasion that a check survey amends the preceding full or check survey.

7.3.3 Format of the schedules listing changes shall be at the discretion of the surveyor or as agreed with the Aerodrome Operator.

7.3.4 To enable users to track changes where an obstacle has been given a new feature number the old number shall be referenced against it.

**7.4. Quality Assurance**

**7.4.1 Quality Records**

7.4.1.1 All data elements for aerodromes with Instrument Flight Procedures shall be traceable to their source of production by an unbroken audit trail.

7.4.1.2 The surveying company, shall follow the guidance in the ICAO Doc 9674-AN/946 (WGS-84 Manual), chapter 6 (Quality Assurance), to provide information on the source of production in the form of Quality Records.

7.4.1.3 Quality Records shall include:

(a) Surveying organisation

(b) Name of surveyor(s)

(c) Date and purpose of survey

(d) Method of survey and equipment used

(e) Equipment calibration information and method of checking the survey

(f) Evidence that the accuracy requirements have been met including details of the error budget analysis.

### 7.4.2 Methodology

The surveying company shall maintain an effective checking system to ensure that the data collected conforms to the accuracy standard and shall present proof of that conformity within the Survey Report.

## 8. ADMINISTRATIVE REQUIREMENTS

### 8.1 Training and Personnel Requirement

8.1.1 The aeronautical information service provider shall ensure that all its personnel possess the skills and competencies required to perform the assigned functions and tasks.

8.1.2 The aeronautical information service provider shall develop an overall training programme for the organization as well as job description for each of its staff. The training policy and programme shall lay down the training courses that different levels of staff have to undergo to perform his duties, including initial, recurrent and specialized training, where applicable, and supervised on-the-job training (OJT).

8.1.3 The aeronautical information service provider shall conduct a yearly review of the training plan for each staff at the beginning of the year to identify any gaps in competency, changes in training requirement and prioritize the type of training required for the coming year.

8.1.3 The aeronautical information service provider shall maintain individual training records for each of its staff.

### 8.2 Operations Manual

8.2.1 The aeronautical information service provider shall develop an operations manual which shall serve to demonstrate how the aeronautical information service provider will comply with the requirements of this regulation.

8.2.2 The contents of the operations manual shall contain:

a) the information required of the aeronautical information service provider as mentioned in this regulation;

b) an organization chart of the aeronautical information service provider that shows the position of each personnel, qualification, experience, duties and responsibilities of personnel who are responsible for ensuring the compliance of the organization with the requirements in sub-paragraph a);

8.2.3 The designated the aeronautical information service provider shall:

a) keep the operations manual in a readily accessible form;

b) ensure that aeronautical information service personnel have ready access to the operations manual; and

c) amend the operations manual whenever necessary to keep its content up to date.

8.2.4 The operations manual shall be submitted to the Authority for review and approval.

### 8.3 Documentation

8.3.1 The aeronautical information service provider shall maintain all documents which are necessary for the operation and maintenance of the service. Copies of these documents shall also be made available to personnel where needed.

8.3.2 The aeronautical information service provider shall establish a process for the authorization and amendment of these documents to ensure that they are constantly updated. The process shall ensure that:

a) the currency of the documentation can be readily determined;
b) amendments to the documentation are controlled in accordance with established quality management principles; and
c) only current versions of documents are available.

8.3.3 The aeronautical information service provider shall ensure that where documents are held as computer based records and where paper copies of computer based records are made, they are subjected to the same control as paper documents.

### 8.4 Record Keeping

8.4.1 The aeronautical information service provider shall establish a system of record-keeping that allows adequate storage of the records and reliable traceability of all its activities

8.4.2 The format and the retention period of the records referred to in point 8.4.1 shall be specified in the service provider's management system procedures.

8.4.3 Records shall be stored in a manner that ensures protection against damage, alteration and theft.

### 8.5 Facility Requirements

The aeronautical information service provider shall ensure that there are adequate and appropriate facilities and equipment to perform and manage all tasks and activities in accordance with the applicable requirement .

### 8.6 Tools and Software

The aeronautical information service provider shall ensure that tools and software used to support or automate aeronautical data and aeronautical information processes perform their functions without adversely impacting on the quality of aeronautical data and aeronautical information.

### 8.7 Error reporting, error measurement, and corrective actions

8.7.1 The aeronautical information service provider shall ensure that error reporting, error measurement and corrective action mechanisms are established and maintained.

8.7.2 The error reporting, error measurement and corrective mechanisms shall ensure that:

a) problems identified during origination, production, storage, handling and processing, or those reported by users after publication, are recorded;
b) all problems reported in relation to the aeronautical data and aeronautical information are analysed by the AIS provider and the necessary corrective actions are performed;
c) priority is given to resolution of all errors, inconsistencies and anomalies detected in critical and essential aeronautical data;
d) affected users are warned of errors by the most effective means, taking into account the integrity level of the aeronautical data and aeronautical information;
e) error feedback is facilitated and encouraged.

## IMPLEMENTING STANDARDS (IS)

### IS: 7.1.5.1 Survey Declaration Form

| | |
|---|---|
| **Aerodrome** | |
| **Surveying Company** | |

| | | | |
|---|---|---|---|
| Aerodrome Classification | | Initial/Last Full Survey Date | |
| Geodetic Connection Date* | | Annual Check Survey Date* | |

(* If applicable)

| Survey Area Required | | No Change to Previous Survey | Change to Previous Survey |
|---|---|---|---|
| Aerodrome Plan | ☐ | ☐ | ☐ |
| AGA | ☐ | ☐ | ☐ |
| Non-Precision Instrument Approach | ☐ | ☐ | ☐ |
| Visual Manoeuvring (Circling) | ☐ | ☐ | ☐ |
| Departure | ☐ | ☐ | ☐ |
| Aerodrome Obstacle Chart - Type A | ☐ | ☐ | ☐ |
| Precision Approach Procedure | ☐ | ☐ | ☐ |
| Precision Approach Terrain Chart | ☐ | ☐ | ☐ |

(Check box as appropriate)

| **Declaration by Aerodrome Operator's Representative**<br>I certify that information supplied meets the Aerodrome's operational requirements | | | |
|---|---|---|---|
| Name | | | |
| Position | | | |
| Signature | | Date | |

| **Declaration by Surveyor**<br>I certify that information supplied is complete and conforms to SLCAR Part 15A and 15B | | | |
|---|---|---|---|
| Name | | | |
| Signature | | Date | |

Submit form together with all relevant survey information to the
Sierra Leone Civil Aviation Authority