ICAO RBIS QMS PROJECT

AIM QUALITY MANUAL

RBIS/AIM/QMN/XXX

Foreword

This AIM quality manual provides information on policies, processes and procedures of Aeronautical Information Services. The manual is intended to demonstrate Aeronautical Information Services' capability to consistently provide services that meet customer needs and applicable regulatory requirements. The quality system is supposed to ensure increased effectiveness and efficiency with the overall aim of enhancing customer satisfaction through application of ISO 9001:2015 Standards.

The purpose of the Quality Manual is to provide guidance on the implementation of QMS in Aeronautical Information Services to ensure compliance with applicable requirements, controlled processes, minimized risks, and to satisfy customer needs and expectations.

The AIM QMS manual is intended to specify the requirements for a quality management system in Aeronautical Information Services in order to:

a) demonstrate the ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements, and

b) enhance customer satisfaction through the effective application of the system, including processes for improvement of the system and the assurance of conformity to customer and applicable statutory and regulatory requirements.

The manual describes the objectives set by Aeronautical Information Services for reaching the desired level of quality within the organization with an aim of meeting or exceeding the requirements specified by the customers, Authority's requirements and the ISO 9001:2015 Standards.

The contents of this Manual shall be reviewed whenever there are changes in either the ISO Standards and/or the applicable regulatory framework. The head of Aeronautical Information Services is responsible for all the changes to the Manual.

Any errors and omissions identified in the manual shall be reported in writing to the head of Aeronautical Information Management using the following contact details:

Head of AIM

(Contact details)

Formative references

The following is a list of documents that are to be read in conjunction with the QMS manual:

a) ICAO Procedures for Air Navigations Services- Aeronautical Information Management (PANS-AIM) (Doc 10066)
b) ICAO Aeronautical Information Services Manual (Doc 8126)
c) ICAO Aeronautical Charts Manual (Doc 8697)
d) ICAO Abbreviations and Codes (Doc 8400)
e) ICAO Aircraft Type Designators (Doc 8643)
f) PANS – ATM (Air Traffic Management) (Doc 4444)
g) Designators for aircraft Operating Agencies, Aeronautical Authorities and Services (Doc 8585)
h) Location Indicators (Doc 7910)
i) Aeronautical Chart Catalogue (Doc 7101)
j) World Geodetic System-1984 (Doc 9674)
k) Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information (Doc 9881)
l) Performance Based Navigation Manual-Volume I (Doc 9613)
m) Instrument Flight Procedure Construction Manual (Doc 9368)
n) Global Navigation Satellite System(GNSS) Manual (Doc 9849)
o) PANS- Training (Doc 9868)
p) PANS-OPS-Aircraft Operations Volume II (Doc 8168)
q) Quality Assurance Manual for Flight Procedure Design (Doc 9906 Vol.1)
r) Applicable Regulatory framework

Records of Amendments

Edition	Date	Reasons for change	Section/page affected

Distribution List

Serial Number	Issued to	Date

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Definitions

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

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

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 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.

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:

- Aeronautical Information Publications (AIP), including Amendments and Supplements;
- Aeronautical Information Circulars (AIC);
- aeronautical charts;
- NOTAM; and
- Digital data sets.

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.

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.

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

AIP Supplement. Temporary changes to the information contained in the AIP which are provided 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.

Assemble. A process of merging data from multiple sources into a database and establishing a baseline for subsequent processing.

Audit. Systematic, independent and documented process for obtaining objective evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled.

Audit findings. Results of the evaluation of the collected audit evidence against audit criteria.

Auditee. Organization being audited.

Audit team. One or more persons conducting an audit, supported if needed by technical experts.

Competence. Ability to apply knowledge and skills to achieve intended results.

Combined audit. Audit carried out together at a single auditee on two or more management systems.

Continual improvement. Recurring activity to enhance performance.

Confidence level. The probability that the true value of a parameter is within a certain interval around the estimate of its value.

Conformity. Fulfilment of a requirement.

Contract. Binding agreement.

Correction. Action to eliminate a detected nonconformity

Corrective action. Action to eliminate the cause of a nonconformity and to prevent recurrence.

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.

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

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

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

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**.**

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

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.

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.

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

Data set. Identifiable collection of data.

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

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

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.

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

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

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

Efficiency. Relationship between the result achieved and the resources used.

Effectiveness. Extent to which planned activities are realized and planned results are achieved.

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.

Feature attribute. Characteristic of a feature.

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

Feature type. Class of real-world phenomena with common properties.

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

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

Information system. Quality management system network of communication channels used within an organization.

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

a) 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;

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

c) 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.

Joint audit. Audit carried out at a single auditee by two or more auditing organizations.

Management system. Set of interrelated or interacting elements of an organization to establish policies and objectives, and processes to achieve those objectives.

Metadata. Data about data.

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

Nonconformity. Non-fulfilment of a requirement.

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.

Objective. Result to be achieved.

Observer. Person who accompanies the audit team but does not act as an auditor.

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

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

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

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

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

Organization. Person or group of people that has its own functions with responsibilities, authorities and relationships to achieve its objectives.

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.

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 information.

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

Policy. Intentions and direction of an organization as formally expressed by its top management.

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.

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

Preventive action. Action to eliminate the cause of a potential nonconformity or other potential undesirable situation.

Procedure. Specified way to carry out an activity or a process.

Process. Set of interrelated or interacting activities that use inputs to deliver an intended result.

Product. Output of an organization that can be produced without any transaction taking place between the organization and the customer.

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

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

Quality control. Part of quality management focused on fulfilling quality requirements.

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

Quality management system. Part of a management system with regard to quality.

Quality management system consultant. Person who assists the organization on quality management system realization, giving advice or information.

Quality manual. Specification for the quality management system of an organization.

Quality policy. Policy related to quality**.**

Quality requirement. Requirement related to quality.

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

Risk. Effect of uncertainty.

SNOWTAM. A special series NOTAM notifying the presence or removal of hazardous conditions due to snow, ice, slush or standing water associated with snow, slush and ice on the movement area, by means of a specific format.

Stakeholder. Person or organization that can affect, be affected by, or perceive itself to be affected by a decision or activity.

Service. Output of an organization with at least one activity necessarily performed between the organization and the customer.

System. Set of interrelated or interacting elements.

Technical expert. Person who provides specific knowledge or expertise to the audit team.

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

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

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

Abbreviations

AFTN……Aeronautical Fixed Telecommunications Network

AFPP……African Flight Procedure Programme

AIC……Aeronautical Information Circular

AIM……Aeronautical Information Management

AIP……Aeronautical Information Publication

AIRAC……Aeronautical Information Regulation and Control

AIS .....Aeronautical Information Service

ANSP.....Air Navigation Services Provider

ATS.....Air Traffic Services

CAA.....Civil Aviation Authority

CANS .....Chief Air Navigation Services

CASSOA.....Civil Aviation Safety and Security Oversight Agency

EAC.....East African Community

ENRC.....En-route Chart

FIR.....Flight Information Region

ICAO.....International Civil Aviation Organization

IFR.....Instrument Flight Rules

ICT.....Information Communication Technology

KCAA .....Kenya Civil Aviation Authority

KCARs.....Kenya Civil Aviation Regulations

KEBS.....Kenya Bureau of Standards

KPI.....Key Performance Indicators

MAIM.....Manager Aeronautical Information Management

MANS.....Manager Air Navigation Services

MANSOPS .....Manual of Air Navigation Services Operations

MR .....Management Representative

CHAPTER 1: CONTEXT OF AIM

1.1 Understanding AIM and its context

AIM determines, monitors and reviews information about external and internal issues that are relevant to its purpose and the strategic direction that affect its ability to achieve the intended results of Quality Management System through Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis.

Understanding the external issues can be facilitated by considering issues arising from legal, technological, competitiveness, culture, social and economic issues whether international, national, regional or local. Understanding of the internal issues can be facilitated by considering values, culture, knowledge and performance of the organization.

I Strengths:

The following can be identified as strengths within AIM.

a) Existence of regulatory framework.
b) Committed and skilled staff: Quality service delivery, customer confidence due to provision of professional services
c) Implementation of AIM system to achieve full transition from AIS to AIM.
e) Ability to provide specialized professional services
g) Documented policies and procedures in functional areas
h) Internal stakeholder support: Commitment of the management and staff to support AIM functions

i. Weaknesses:

The following can be identified as strengths within AIM.

a) Inadequate budget funding
b) Long procurement processes.
c) Inability to sustain growth activities such as, recruitment and retention of qualified staff due to lack of competitive remuneration especially for technical staff
d) Poor organizational structure

ii. Opportunities:

The following can be identified as strengths within AIM.

a) Growth of the aviation industry: Growing local, regional and global market demand for aviation services, local and international demand for aviation training, rapid growth of local horticulture industry, favorable social trends.

b) Existence of a regional ICAO office to provide technical support,

d) Availability of strategic partners in capacity building such as CASSOA and AFPP.

e) Regional integration: Establishment of Unified Upper Airspace, corroborative agreements.

f) Geographical positioning of the country which makes Nairobi a regional aviation hub.

iii. Threats:

a) Global aviation safety and security threats: cybercrime and malpractices by service providers.

b) High cost of production: cost of managing versatile technological changes.

c) Lack of uniformity in implementation of regulations in a region.

d) Competition from emerging economies, other CAAs and Aviation Training Institutions

1.2 Understanding the needs and expectations of interested parties

AIM determines the interested parties who are relevant to the Quality Management System and their requirements in order to enhance consistent provision of products and services which meet the customer needs and requirements as shown in the table below.

	Interested parties	Requirements	Monitoring & Review mechanism
1	Aeronautical data providers (Internal and external)	1. Data accuracy 2. aeronautical products Subscription management 3. Timelines 4. Online services	• Signed Letters of agreement • Review in Management review meetings • Holding consultative workshops to derive standard input formats • Metadata • AIRAC awareness
2	Oversight	1. Complying with the statutory and regulatory requirements.	• Conducting Internal regulatory audit • Timely and successful resolution of identified findings and observations
3	Aeronautical data packers	1. Quality of products & Services 2. Delivery of products in time 3. Timely response to complaints 4. Effective Communication channel	• Sign Letters of agreement • Workshops to derive standard output formats
4	System suppliers	1. System integrity 2. System updates 3. Customer support	• Provide tools to assist data processing
5	AIS of other States	1. Data accuracy 2. Timelines 3. Online services	• Sign Letters of agreement • Review in Management review meetings
6	ICAO	1. Compliance to Standards and applicable recommended practices 2. Workshop/seminars	• A well-regulated civil aviation system • Awareness

1.3 The scope of the quality management system in AIM

Quality management systems shall be implemented and maintained encompassing all functions of AIM, as outlined above. The execution of such quality management systems shall be made demonstrable for each function stage of originating (or collecting), collating or assembling, editing, formatting, storing, developing and distributing of aeronautical information

Field of Application

AIM guarantees reliability for the processes that are necessary to provide all the services needed by its customers in a consistent and reliable manner within the following areas:

a) Flight plan management
b) NOTAM/SNOWTAM management
c) Publications management
d) Aeronautical Maps and Charts management
e) technical library management
f) Construction of visual and Instrument flight procedures

1.4 Quality management system and its processes

AIM establishes, implements, maintains, and continuously improves its quality management system, including the processes needed and their interactions, in accordance with the requirements of ISO 9001:2015.

1.4.1. Inputs required and outputs expected

Activities that receive inputs and convert them to outputs can be considered to be a process. In many cases, an output from one process will form the input to the next process; for example, data is received from an aerodrome operator, entered into the AIM database, and when combined with other data, is provided as an output for charting or a document.

1.4.1.1. Inputs

Inputs relating to product requirements must be defined and documented to facilitate the development of aeronautical products and provision of services, and include:

a) Functional and performance requirements;
b) Applicable regulatory and legal requirements;
c) Applicable information derived from previous similar designs, and
d) Any other requirements essential for design and/or development of aeronautical products and services.

These inputs must be reviewed for adequacy and any incomplete, ambiguous or conflicting requirements resolved.

1.4.1.2. Outputs

The outputs of the process will be products that meet the specific needs of users for aeronautical data. These users may be human-based or system-based (e.g. a pilot using information derived from an AIP or a flight management system using its integrated geospatial data).

1.4.2. Sequence and interaction of these processes

Processes needed for the quality management system and their application throughout the AIM have to be determined, including;

a) The inputs required, and the outputs expected from these processes;
b) The sequence and interaction of these processes;
c) The criteria and methods (including monitoring, measurements and related performance indicators) needed to ensure the effective operation and control of these processes;
d) The resources needed for these processes and ensure their availability;
e) Assignment of responsibilities and authorities for these processes;
f) The risks and opportunities;
g) Evaluation of processes and implementation of any changes needed to ensure that these processes achieve their intended results;
h) Improvement of the processes and the quality management system.

1.4.3. Interaction of Procedures with Processes

1.4.3.1. Document Control

Documented information required by the quality management system and ISO 9001:2015 standard shall be controlled to ensure:

a) It is available and suitable for use, where and when it is needed;
b) It is adequately protected (e.g. from loss of confidentiality, improper use, or loss of integrity).

For the control of documented information, AIM shall address the following activities, as applicable

a) Distribution, access, retrieval and use;
b) Storage and preservation, including preservation of legibility;
c) Control of changes (e.g. version control);
d) Retention and disposition.

1.4.3.2. Internal Audit

AIM shall conduct internal audits at planned intervals to provide information on whether the quality management system:

a) Conforms to:

1) The AIM requirements for its quality management system;

2) The requirements of ISO 9001:2015.

b) Is effectively implemented and maintained.

AIM shall:

a) plan, establish, implement and maintain an audit programme(s) including the frequency, methods, responsibilities, planning requirements and reporting, which shall take into consideration the importance of the processes concerned, changes affecting the AIS, and results of the previous audits;

b) Define the audit criteria and scope for each audit;

c) Select auditors and conduct audits to ensure objectivity and the impartially of the audit process;

d) Ensure that the results of the audits are reported to relevant management;

e) Take appropriate correction and corrective actions without undue delay;

f) Retain documented information as evidence of the implementation of the audit programme and the audit results.

1.4.4. Control of Non-Conforming Product

When nonconformity occurs, including any arising from complaints, AIS shall:

a) React to the non-conformity and, and as applicable take action to control and correct, deal with the consequences

b) Evaluate the need for action to eliminate the cause(s) of the nonconformity, in order that it does not recur or occur elsewhere by:

1) Reviewing and analyzing the nonconformity;

2) Determining the causes of the non-conformity;

3) Determining if similar non-conformities exist or could potentially occur.

c) Implement any action needed;

d) Review the effectiveness of any corrective action, if necessary;

e) Update risks and opportunities determined during planning, if necessary;

f) Make changes to the quality management system, if necessary.

1.4.5. Corrective and Preventive Action

AIM shall retain documented information as evidence of:
Corrective actions appropriate to the effects of the non-conformities encountered. The effectiveness of the identified corrective action is monitored through customer feedback and also the customers are kept aware of the corrective actions initiated, with each identified corrective action.
a) The nature of the non-conformities and any subsequent actions taken;
b) The results of any corrective actions.

1.4.6. Criteria and methods required to ensure the effective operation and control of these processes

AIM shall maintain documented information to support operation of its processes and retains documented information to have confidence that the processes are being carried out as planned.

1.4.7. Assignment of responsibilities and authorities

AIM shall define and communicate all responsibilities, authorities, functions and relationships within its establishment, to ensure the effective implementation of the QMS.

1.4.8. Risks and opportunities

The management of safety relies on a spectrum of AIM arrangements, methods and processes to manage risk proactively. The major safety risk in AIM is to introduce erroneous data in the data chain that might affect the safety of operations. To ensure that the quality of data produced by AIM satisfies the established requirements for its intended use, AIM mitigate that risk and all the safety activities should concentrate on achieving the objective.
AIM ensures that data are of a quality in accordance with their intended use and their criticality the standard has defined three criticality categories: critical data, essential data and routine data. High-quality data guarantee a high safety standard
Risk management process flow for AIM is described below for effective risk management process.

a) **Risk Identification.** When a risk is uncovered, it must be recognized as such and should then be described in terms of its potential effects techniques are available to identify risks. At this stage it is also logical to capture the details in a Risk Register.
b) **Risk Analysis**. Once risks are identified there is need to determine the likelihood and consequence of each risk. The exact nature of the risk should be understood and how it could affect your quality goals and objectives. This information shall also be captured in the Risk Register.

c) **Risk Evaluation.** Risk evaluation is done by determining the magnitude of the risk, which is a combination of the likelihood of the risk happening and the severity of the risk consequences. Once the risk magnitude has been established, a decision is made about whether the risk is acceptable or not as is. If it is not acceptable, the next step would be to determine what needs to be done in order to mitigate the risk. The risk evaluation is once again captured in the Risk Register.

d) **Risk Treatment.** Risk treatment is also known as Risk Response Planning. This process involves assessing all the risks identified, and then creating and implementing action plans that will mitigate the risks until they are at acceptable levels. While doing this, you need to look not only at minimizing the negative risks, but also at how the opportunities that have been identified can be enhanced. Creating preventive plans, mitigation strategies and contingency plans are all part of this process. Remember to add the risk treatment plans to the Risk Register.

e) **Risk Monitoring and Review.** Once the full detail of the risks and the steps to mitigate them are in the Risk Register, this can be used to regularly monitor, track and review risks.

1.4.9. Evaluation of processes

AIS processes are aimed at defining actions directly related to the measurement of services and processes, analysis of outputs and results obtained and promotion of continual improvement for the whole QMS.

1.4.10.1. Develop process for all AIM functional areas:

a) Flight plan management

b) NOTAM/SNOWTAM management

c) Provision of pre-flight and post-flight information.

d) Management of elements of AIM products

e) Terrain and Obstacle Data

f) Technical Library

g) Management of Aeronautical Maps and Charts

1.5 Aeronautical Data Catalogue

To ensure data quality for the whole data chain, AIM shall fulfil the requirements laid regulatory framework. The Head of AIM shall ensure the implementation of the Aeronautical data catalogue.

1.6 Records related to Aeronautical Information Product

Records associated with Aeronautical Information products shall be kept by designated officers.

Records of Inspection and Checks

A good quality system requires that there are checks at regular intervals and that there are appropriate records of these checks. The audit schedules both internal and external are prepared for each financial year by the Management Representative of ISO implementation.

The head of AIM Unit shall retain the reports of the findings within AIM.

CHAPTER 2: LEADERSHIP

2.1 Leadership and commitment

2.1.1. General

Head of AIM shall demonstrate leadership and commitment with respect to the quality management system by:

a) taking accountability for the effectiveness of the QMS through **quality** policy, provision of resources, improvement of processes among others

b) Ensuring that the quality policy and quality objectives are established for the quality management system and are compatible with the context and strategic direction of KCAA

c) ensuring the integration of the quality management system requirements into KCAA business processes;(ref; strategic plan and functional levels objectives, KPIs and procedures)

d) promoting the use of the process approach and risk-based thinking through implementation of PDCA cycle in the processes, and where applicable by ensuring implementation of risk management policy, conducting monitoring, measurements, and ensuring corrective action on observed non-conformities.

e) Communicating the importance of effective quality management and of conforming to the quality management system requirements in staff meetings.

f) Ensuring that the quality management system achieves its intended results through supervision, verification/audits, corrective actions, and monitoring of customer feedback.

g) supporting other QMS officers in management roles to demonstrate their leadership as it applies to their areas of responsibility by providing a conducive environment for involvement of staff in decision making (e.g. interactive meetings, Performance Contract)

2.1.2. Customer focus

a) Key customers are identified and listed in the documented SOPs manuals.

b) The risks and opportunities that can affect conformity of products and services and the ability to enhance customer satisfaction are determined and addressed through implementation of Opportunity and Risk Analysis (Ref; Strategic plan, Risk Management Framework)

c) The focus on enhancing customer satisfaction is maintained through, meeting customer requirements and exceeding expectations and taking timely corrective action on customer complaints or product non conformity and periodically conducting customer satisfaction surveys**.**

2.1.2.1. Service Charter

As a requirement of QMS the service charter shall be adhered to in the provision of AIS. The charter shall be made available by the head of AIM detailing the kind of service and time frame. It will be displayed at a location where the customer can easily access it.

2.1.2.2. The head of AIM will identify risks and opportunities that may affect conformity of products and services and distribute the same to all functional areas. At defined periods given in the risk policy, the risks and opportunity register will be revised if necessary.

2.1. Policy

2.2.1. AIM quality policy

AIM is committed to providing quality aeronautical information/data that enable customers to effectively plan and safely operate within the National airspace system and beyond. Quality is an integral part of all AIM activities. The quality framework is based on the ISO 9001:2015.

2.2.2. AIM quality policy Communication

Each AIM officer shall have access to this Manual and consequently to the Quality Policy and Quality Objectives. The head of AIM is responsible for making officers aware of the Quality Policy and Quality Objective for the implementation of quality practices in order to achieve these Objectives and to monitor their application. Staff members are informed of these guidelines through training, sensitization, performance agreements, appraisals and competency checks.

2.2 AIM Quality management roles, responsibilities and authorities

The head of AIM will delegate QMS responsibilities to a trained and responsible Officers and where applicable QMS champions in the various stations who will oversight QMS maintenance in AIM.
The designated Officer is expected to maintain a record of the feedback received from assurance officers in the stations.

a) ensuring that the quality management system conforms to the requirements of the ISO 9001:2015;
b) ensuring that the processes are delivering their intended outputs;
c) reporting on the performance of the quality management system and on opportunities for improvement in particular to top management;
d) ensuring the promotion of customer focus throughout the organization;
e) ensuring that the integrity of the quality management system is maintained when changes to the quality management system are planned and implemented.
f) addressing non-conformity arising from internal audits.

CHAPTER 3: PLANNING

The Aeronautical Information Service when planning for the quality management system shall have a set of policies, objectives and strategies which state what the department aims to achieve. The project implementation team must take cognizance of the steps involved while implementing the quality management system.

3.1. Project implementation team

In planning for the implementation of QMS, AIM management shall:

1. Define roles and responsibilities of the project implementation team members.
2. Brief the project implementation team on the goals and purpose of the QMS, the QMS implementation project and the role of ISO
3. Arrange for ISO training of all team members and staff.
4. Assign tasks with specific outcomes and deadlines to the team members

3.2. Managing risks and opportunities

The Aeronautical Information Service department shall, when planning for the implementation of the quality management system, formulate strategic priorities, initiatives and objectives that it considers the risks and opportunities as documented in the AIM Institutional Risk Framework.

3.2.1. The department shall determine external and internal issues that are relevant to its purpose and its strategic direction and that affect its ability to achieve the intended result(s) of its quality management system.

The department shall monitor and review information about these external and internal issues which include:

i). Positive and negative factors or conditions for consideration.

ii). Understanding the external context can be facilitated by considering issues arising from legal, technological, competitive, market, cultural, social and economic environments, whether international, national, regional or local.

iii). Understanding the internal context can be facilitated by considering issues related to values, culture, knowledge and performance of the organization.

3.2.2. Understanding the needs and expectations of interested parties due to their effect or potential effect on the department's ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements, the department shall determine:

a) The interested parties that are relevant to the quality management system;
b) The requirements of these interested parties that are relevant to the quality management system.

AIM department shall monitor and review information about these interested parties and their relevant requirements which shall determine the risks and opportunities that need to be addressed to:

a) Give assurance that the quality management system can achieve its intended result(s);
b) Enhance desirable effects;
c) Prevent, or reduce, undesired effects;
d) Achieve improvement.

3.3. Quality objectives and planning

To achieve this, AIM shall: -

Establishes quality objectives and processes at all levels, which are consistent with the quality policy. The quality objective shall be measurable, will take into account applicable requirements, and be relevant to conformity of products and services and to the enhancement of customer satisfaction. The quality objectives and processes are monitored, communicated and updated whenever need arises. The institution also maintains documented information on quality objectives. When planning to achieve its quality objectives, AIM determines the activities, persons responsible, completion deadlines, monitoring and evaluation methodology and the resources that are required.

3.4. Management of Change

When the AIM department determines the need for changes to the quality management system, the changes shall be carried out in a planned manner. The department shall establish, implement, maintain and continually improve a quality management system, including the processes needed and their interactions, in accordance with the requirements of the International Standard ISO 9001:2015.

3.4.1. The department shall consider:

a) The purpose of the changes and their potential consequences;
b) The integrity of the quality management system;
c) The availability of resources;
d) The allocation or reallocation of responsibilities and authorities

3.4.2. The quality management system application throughout AIM shall:

a) Determine the inputs required and the outputs expected from these processes;

b) Determine the sequence and interaction of these processes;
c) Determine and apply the criteria and methods (including monitoring, measurements and related performance indicators) needed to ensure the effective operation and control of these processes;
d) Determine the resources needed for these processes and ensure their availability;
e) Assign the responsibilities and authorities for these processes;
f) Address the risks and opportunities;
g) Evaluate these processes and implement any changes needed to ensure that these processes achieve their intended results;
h) Improve the processes and the quality management system.

CHAPTER 4: SUPPORT

4.1. Resources

4.1.1. General

AIM department shall determine and provide the resources needed to facilitate the establishment, implementation, maintenance and continual improvement of the quality management system. The resources identified shall be adequate and ideal to support the service delivery within the aeronautical information service activities.

4.1.2. People

The determination of the personnel required to perform various functions within AIM is a function undertaken by the head of AIM. The provision of human resource requirement (personnel) per station is guided by the Organizations career guidelines manual and the approved organizational structure.

For purposes of implementing and monitoring and review of the QMS, the following framework shall apply.

(Insert AIM organizational structure and responsibilities) AIM Officer in charge of Quality Assurance to define the roles and responsibilities of the quality management team members.

4.1.3. Infrastructure

The head of AIM is responsible for the provision and management of facility requirements which include office space, desks, telephone, stationary and other ICT resources key for the execution and delivery of the AIS services.

The AIM Management is also responsible for managing and making automation hardware and software available to aeronautical information officers, who collect, validate, assemble, receive, collate or assemble, edit, format, publish/store and distribute aeronautical data and aeronautical data/information and products. This automation process also ought to cover the flight planning, NOTAM/SNOWTAM, charting and the flight procedure design function.

The management will ensure that infrastructure and work environment is maintained to achieve conformity with product and customer requirements. The Communication, Navigation and Surveillance department is responsible for the maintenance of the infrastructure resources and a work environment necessary to achieve conformity with regulation requirements and guarantee an

uptime (on equipment and ICT related resources) that will facilitate the effective delivery or execution of the AIM function.

Further, a preventive maintenance program is administered through the same department to maintain infrastructure resources.

4.1.4. Environment for the operation of processes

Applicable Labor laws and the Occupational Safety and Health Act require the employer to provide sufficient office facilities and equipment, furniture and other relevant tools for effective service delivery. This additionally requires the provision of a safe work environment. The organization's workstation ought to have emergency response procedures that shall be adhered to by employees when circumstances arise that threaten the work environment.

At each station, security services are provided to ensure security is enhanced and response to any security threat is addressed appropriately.

4.1.5. Monitoring and measuring resources

AIM Management determines and provides the resources needed to ensure valid and reliable results when monitoring or measuring is used to verify the conformity of products and services to the requirements. It also ensures that the resources provided are suitable for the specific type of monitoring and measurement activities being undertaken and are maintained to ensure their continuing fitness for their purpose. The organization shall retain appropriate documented information as evidence of fitness for purpose of the monitoring and measurement resources.

The monitoring and measuring of resources shall be such that the outcomes of the monitoring are documented. The concerned AIM unit shall make an analysis of the outcome and take timely correction of the non-conformances on equipment, services and products. The actions taken shall be in-sync with the published fall-back procedures in the operations manual.

Relating to automated AIM processes, this requires traceability to standards and regulatory requirements since it relies on the Aeronautical Information Officers to monitor and measure conformity to product criteria. The various equipment suppliers should be able to fix identified bugs and undertake to make regular system updates.

4.1.6. Organizational knowledge

Knowledge is determined, which is necessary, for the operation of the Aeronautical Information functions, processes and to achieve conformity of products and services to regulatory requirements. This knowledge is maintained and made available to the extent necessary. When addressing changing needs and trends, the AIM department shall consider its current knowledge, and determines how to acquire or access any necessary additional knowledge and required updates.

Organizational knowledge, that is knowledge used and shared to achieve the department's objectives includes internal sources (e.g. intellectual property, knowledge gained from experience, lessons learned from failed and successful projects, captured and shared undocumented knowledge and experience, the results of improvement in processes, products and services) and external sources (e.g. standards, research, conferences, knowledge from customers or external providers).

Additionally, departmental management meetings are held on a quarterly basis to share relevant information, information obtained through attending specific conferences and/or meetings, review of the previous quarter and work in progress in the upcoming quarter. Employees are further exposed to outreach activities to expand their organizational knowledge.

4.2. Competence

AIM Management determines the necessary competence of person(s) doing work under its control that affects the performance and effectiveness of the Quality Management System and ensures that such persons are competent on the basis of appropriate education, training, or experience. It takes actions, where applicable, to acquire the necessary competence, and evaluates the effectiveness of the actions taken. Actions taken include provision of training to, the mentoring of, or the reassignment of currently employed persons, or the hiring or contracting specific services.

These required competencies are formally enshrined in the human resource career progression guidelines that is reviewed from time to time and must be complied with. Additionally, as part of the process to ensure effective implementation of the quality management system all aeronautical information officers shall be progressively from the date of approval of this manual train in the Implementation of Quality Management Systems based on ISO 9001:2015.

The department shall also regularly retain documented information as evidence of competence.

4.2.1. Training

The competencies required for each position are detailed in the relevant Position Descriptions. From these competencies, and initial and regular assessments of performance, training requirements for individual staff are identified.

4.2.2. Newly Appointed Staff

The newly appointed staff shall be taken through On job training prior to deployment.After deployment the newly appointed staff shall qualify to undertake training applicable to current staff in accordance to the training plan.

4.3. Awareness

Persons doing work under the aeronautical Information services shall be made aware by the department of its quality policy, quality objectives, their contribution to the effectiveness of the QMS (including the benefits of improved performance) and the implications of not conforming with the QMS requirements. Employees shall always be reminded about the connection between safety and quality and the implications when processes are not followed and continually improved.

4.4. Communication

The internal and external communication relevant to the QMS is determined by the AIM Management, including what to communicate, when to communicate, whom to communicate with, how to communicate and who communicates.

4.5. Documented information

4.5.1. General

Documented information needed to collect, validate, assemble, preserve and disseminate aeronautical information/data and products in its area of jurisdiction This should include tasks related to flight planning, charting and flight procedure design etc.

Documented information necessary for the effectiveness of this QMS, and which is a requirement of ISO 9001:2015 standard, include:

a) AIM ISO procedures

b) Applicable regulations.

c) Quality objectives

d) Quality Policy

e) Quality Manual

f) AIM Training Programme

g) Competence Assessment Policy

4.5.2. Structure of QMS documentation

Level I : Organizational Quality Manual

Level I I: AIM Quality Manual

Level III: Quality Management Systems Procedures

Level IV: Work Instructions/Operational Procedures

Level V: Forms, records and checklists

4.5.3. Creating and updating

AIM Management is responsible for defining the process used to create and update documented information. This will include the periodic review and approval of documents to ensure that they continue to be suitable and adequate. This will further require the determination of the necessary documentation required to ensure the effective operation of various processes. The documents shall be reviewed and approved for suitability and adequacy.

4.5.4. Control of documented information

All documented information shall be controlled to ensure it is available and suitable for use, where and when it is needed and that it is adequately protected (e.g. from loss of confidentiality, improper use, or loss of integrity).

For the control of documented information, the AIM Department has considered appropriate mechanisms for distribution, access, retrieval and use. It has also considered how this documented information is stored and preserved (including preservation of legibility), control of changes (e.g. version control) to the documents, retention and disposal methods.

CHAPTER 5: OPERATION

5.1 Operational planning and control

AIM department plans, implements and controls the processes needed to meet the requirements for the provision of products and services. AIM also implements the actions determined during planning. The requirements for the products and services are determined. The criteria for the processes and acceptance of products and services is established. Resources needed to achieve conformity to the products and service requirements are as outlined in the ISO Procedures.

5.2 Requirements for products and services

5.2.1. Customer communication

Communication with customers shall include:

a) providing information relating to products and services;

b) handling enquiries, contracts or orders, including changes;

c) obtaining customer feedback relating to products and services, including customer complaints;

d) establishing specific requirements for contingency actions, when relevant.

5.2.2. Determination of requirements for products and services

5.2.2.1. Assurance and confidence that aeronautical data and aeronautical information satisfy the aeronautical data quality requirements.

5.2.2.2. Data Quality Process

5.2.3. Review of the requirements for products and services

5.2.4. Changes to requirements for products and services

5.3 Design and development of products and services

5.3.1. General

AIM department shall establish, implement and maintain a design and development process that is appropriate to ensure the subsequent provision of products and services.

5.3.2. Design and development planning

In determining the stages and controls for design and development, the organization shall consider:

a) the nature, duration and complexity of the design and development activities;
b) the required process stages, including applicable design and development reviews;
c) the required design and development verification and validation activities;
d) the responsibilities and authorities involved in the design and development process;

e) the internal and external resource needs for the design and development of products and services;
f) the need to control interfaces between persons involved in the design and development process;
g) the need for involvement of customers and users in the design and development process;
h) the requirements for subsequent provision of products and services;
i) the level of control expected for the design and development process by customers and other relevant interested parties;
j) the documented information needed to demonstrate that design and development requirements have been met.

5.3.3. Design and development inputs

5.3.3.1. Collection and validation of Aeronautical Charts data

5.3.3.2. Collection and validation of Flight Procedure Design data

5.3.4. Design and development controls to assure quality of aeronautical data and information

5.3.5. Design and development outputs

5.3.6. Design and development changes

5.4 Control of externally provided processes, products and services

5.4.1. General

5.4.2. Type and extent of control

5.4.3. Information for external providers (Service level agreements, Letters of procedure, Memoranda of understanding)

5.5 Production and service provision

5.5.1. Control of production and service provision

5.5.1.1. Digital data error detection techniques during the transmission and/or storage of aeronautical data and digital data sets.

5.5.1.2. Data integrity, resolution and accuracy verification means from origination to distribution to the next intended user

5.5.1.3. Other controls as applicable

5.5.2. Identification and traceability

5.5.2.1. Policies, Processes and procedures for the use of metadata

5.5.3. Policy on property belonging to customers or external providers

5.5.4. Preservation

5.5.5. Post-delivery activities

5.5.6. Control of changes in production or service provision

5.6 Release of products and services

AIM department shall implement planned arrangements, at appropriate stages, to verify that the product and service requirements have been met.

The release of products and services to the customer shall not proceed until the planned arrangements have been satisfactorily completed, unless otherwise approved by a relevant authority and, as applicable, by the customer.

AIM shall retain documented information on the release of products and services. The documented information shall include:

a) evidence of conformity with the acceptance criteria;

b) traceability to the person(s) authorizing the release.

5.7 Control of nonconforming outputs

AIM shall ensure that outputs that do not conform to the requirements are identified and controlled to prevent their unintended use or delivery.

The department shall take appropriate action based on the nature of the nonconformity and its effect on the conformity of products and services.

CHAPTER 6: PERFORMANCE EVALUATION

6.1 Monitoring, measurement, analysis and evaluation

6.1.1. General

The AIM department has determined:

a) The details in 6.1.3 and strategic plan as important information that needs to be monitored and measured.
b) the methods for monitoring, measurement, analysis and evaluation needed to ensure valid results;
c) when the monitoring and measuring are to be performed;
d) when the results from monitoring and measurement are to be analyzed and evaluated.

6.1.2. Customer satisfaction

The Head of AIM continuously monitors customers' perceptions of the degree to which their needs and expectations have been fulfilled. The organisation also determines the methods for obtaining, monitoring and reviewing this information.

a) customer satisfaction surveys done by the organization
b) stakeholder meetings
c) Using post tracker tool

Note: Examples of monitoring customer perceptions can include customer surveys, customer feedback on delivered products and services, meetings with customers, market-share analysis, compliments, warranty claims and dealer reports.

6.1.3. Analysis and evaluation

The head of AIM analyses and evaluates appropriate data and information arising from monitoring and measurement at a determined frequency and uses the results of the analysis to evaluate:

a) conformity of products and services;
b) the degree of customer satisfaction;
c) the performance and effectiveness of the quality management system;
d) if planning has been implemented effectively;
e) the effectiveness of actions taken to address risks and opportunities;
f) the performance of external providers;
g) the need for improvements to the quality management system.

6.1.4. Internal and External audit

Internal quality audits are conducted at **a determined frequency** to provide information on whether the Quality Management System conforms to the authority's own requirements for its Quality Management System & the requirements of ISO 9001:2015 and is effectively implemented and maintained.

External audits are normally done by the certifying body using their schedule

6.1.5. Management review

6.1.5.1. This is done by the Manager Representative during the directorates coordination meeting.

6.1.5.2. Management review inputs

Review shall be planned and carried out taking into consideration:

a) the status of actions from previous management reviews;
b) changes in external and internal issues that are relevant to the quality management system;
c) information on the performance and effectiveness of the quality management system, including trends in:
    i. customer satisfaction and feedback from relevant interested parties;
    ii. the extent to which quality objectives have been met;
    iii. process performance and conformity of products and services;
    iv. nonconformities and corrective actions;
    v. monitoring and measurement results;
    vi. audit results;
    vii. the performance of external providers;
d) the adequacy of resources;
e) the effectiveness of actions taken to address risks and opportunities;
f) opportunities for improvement.

6.1.5.3. Management review outputs

Review shall include decisions and actions related to:

a) opportunities for improvement;
b) any need for changes to the quality management system;
c) resource needs.

CHAPTER 7: IMPROVEMENT

7.1. General

AIM department shall determine and select opportunities for improvement and implement any necessary actions to meet customer requirements and enhance customer satisfaction.

7.1.1. These shall include:

a) improving products and services to meet requirements as well as to address future needs and expectations;
b) correcting, preventing or reducing undesired effects;
c) improving the performance and effectiveness of the quality management system.

Examples of improvement can include correction, corrective action, continual improvement, breakthrough change, innovation and re-organization.

These shall be achieved through a coordinated approach from the head of department to the operational staff. The head of AIM shall ensure that measurable quality objectives are developed and defined for the department. The AIM quality objectives shall be communicated, notified and displayed in all AIM offices.

The measurement of the quality objectives ensure:

a) Conformity of the product produced
b) Conformity of the QMS to ISO 9001:2015 standards
c) Continual improvement of the effectiveness of the QMS

7.2. Control of non-conformity

(a) All Aeronautical Information Service units must ensure that products that do not conform to requirements are identified and controlled to prevent unintended use or delivery. These activities shall be defined in the standard operating procedures. Non-conforming products must be corrected and subjected to re-verification after correction to demonstrate conformity. When non-conforming products are detected after delivery or use has started, the concerned units shall take appropriate action regarding the consequences of the non-conformity.

(b) In the event of the detection of an error it is prudent to notify customers following detection of the nonconforming product and/or service.

(c) Records will need to be kept of any decision made, approval given by the customer, any rework or repair procedure, and the results on the inspection and testing on any rework or repair.

7.3. Monitoring & Measurement

7.3.1. Customer Satisfaction

AIM monitors information that relates to customer perceptions regarding their ability to meet customer requirements. AIM solicits customer feedback through all applicable ways for continuous improvement.

The agenda for this meeting includes discussing latest development in AIM and stakeholders' obligations. During this meeting AIM also actively solicits feedback from the customers.
This feedback is used by AIM Management to improve on services delivery. Recommendations are prioritized and implemented based on feasibility, necessity and benefit.

7.4. Nonconformity and corrective action

7.4.1 When a nonconformity or customer complaint is received, the department shall:

a) react to the nonconformity and, as applicable:
   i. take action to control and correct it;
   ii. deal with the consequences;
b) evaluate the need for action to eliminate the cause(s) of the nonconformity, in order that it does not recur or occur elsewhere, by:
   i. reviewing and analyzing the nonconformity;
   ii. determining the causes of the nonconformity;
   iii. determining if similar nonconformities exist, or could potentially occur;
c) implement any action needed;
d) review the effectiveness of any corrective action taken;
e) update risks and opportunities determined during planning, if necessary;
f) make changes to the quality management system, if necessary.

Corrective actions shall be appropriate to the effects of the nonconformities encountered.

The organization shall retain documented information as evidence of:

a. the nature of the nonconformities and any subsequent actions taken;
b. the results of any corrective action.

7.5. Continual improvement

AIM department shall continually improve the suitability, adequacy and effectiveness of the quality management system.

The department shall consider the results of analysis and evaluation, and the outputs from management review, to determine if there are needs or opportunities that shall be addressed as part of continual improvement.