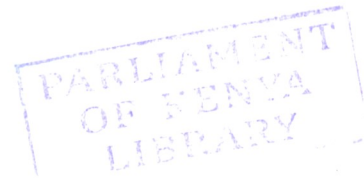


10/9/19



LEGAL NOTICE No. 120

THE CIVIL AVIATION ACT, 2013

(No. 21 of 2013)

THE CIVIL AVIATION (UNITS OF MEASUREMENT TO BE
USED IN AIR AND GROUND OPERATIONS) REGULATIONS,
2018

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STANDARD APPLICATION OF UNITS OF MEASUREMENT

THE CIVIL AVIATION ACT, 2013

(No. 21 of 2013)

IN EXERCISE of the powers conferred by section 82 of the Civil Aviation Act, 2013, the Cabinet Secretary for Transport, Infrastructure, Housing and Urban Development makes the following Regulations —

THE CIVIL AVIATION (UNITS OF MEASUREMENT TO BE USED IN AIR AND GROUND OPERATIONS) REGULATIONS, 2018

PART I—PRELIMINARY

1. These Regulations may be cited as the Civil Aviation (Units of Measurement to be used in Air and Ground Operations), Regulations 2018. Citation.

2. In these Regulations, unless the context otherwise requires — Interpretation

“ampere (A)” means that constant electric current which, if maintained in two straight parallel conductors of infinite length, of negligible circular cross-section, and placed 1 metre apart in a vacuum, would produce between these conductors a force equal to 2×10^{-7} newton per metre of length;

“becquerel (Bq)” means the activity of a radionuclide having one spontaneous nuclear transition per second;

“candela (cd)” means the luminous intensity, in the perpendicular direction, of a surface of 1/600 000 square metre of black body at the temperature of freezing platinum under a pressure of 101 325 newtons per square metre;

“celsius temperature (t°C)” means the Celsius temperature is equal to the difference $t^{\circ}\text{C} = T - T_0$ between two thermodynamic temperatures T and T_0 where T_0 equals 273.15 Kelvin;

“coulomb (C)” means the quantity of electricity transported in 1 second by a current of 1 ampere;

“degree celsius (°C)” means the special name for the unit Kelvin for use in stating values of Celsius temperature;

“farad (F)” means the capacitance of a capacitor between the plates of which there appears a difference of potential of 1 volt when it is charged by a quantity of electricity equal to 1 coulomb;

“foot (ft)” means the length equal to 0.3048 metre exactly;

“gray (Gy)” means the energy imparted by ionizing radiation to a mass of matter corresponding to 1 joule per kilogram;

“henry (H)” means the inductance of a closed circuit in which an electromotive force of 1 volt is produced when the electric current in the circuit varies uniformly at a rate of 1 ampere per second;

“hertz (Hz)” means the frequency of a periodic phenomenon of which the period is 1 second;

upon conviction, be liable to a fine or imprisonment or both, and in the case of a continuing contravention, each day of the contravention shall constitute a separate offence.

(2) Any person who contravenes any provision of these Regulations shall upon conviction be subject to the penalty provisions provided in the Act:

(3) If it is proved that an act or omission of any person, which would otherwise have been a contravention by that person of a provision of these Regulations, orders, notices or proclamations made there under was due to any cause not avoidable by the exercise of reasonable care by that person, the act or omission shall be deemed not to be a contravention by that person of that provision.

28. A person aggrieved by any order made under these Regulations may, within twenty one days of such order being made, appeal against the order to a court of law with competent jurisdiction. Appeal.

Dated the 9th May , 2018.

JAMES MACHARIA,
*Cabinet Secretary for Transport, Infrastructure,
Housing and Urban Development.*

- (b) aeronautical information circular; or
- (c) a daily newspaper with national circulation.

(2) Where application requirements have not been fully complied with, the Authority shall request the applicant in writing, to comply prior to publication or making a decision under sub regulation (3).

(3) If the request is for emergency relief, the Authority shall publish the decision as soon as possible after processing the application.

23. (1) Where the application requirements have been satisfied, the Authority shall conduct an evaluation of the request to include—

Evaluation of the request.

- (a) determination of whether an exemption would be in the public interest;
- (b) a determination, after a technical evaluation of whether the applicant's proposal would provide a level of safety equivalent to that established by the regulation, although where the Authority decides that a technical evaluation of the request would impose a significant burden on the Authority's technical resources, the Authority may deny the exemption on that basis;
- (c) a determination of whether a grant of the exemption would contravene these Regulations; and
- (d) a recommendation based on the preceding elements, of whether the request should be granted or denied, and of any conditions or limitations that should be part of the exemption.

(2) The Authority shall notify the applicant in writing, the decision to grant or deny the request and publish a detailed summary of its evaluation and decision.

(3) The summary referred to in sub-regulation (2) shall specify the duration of the exemption and any conditions or limitations of the exemption.

(4) If the exemption affects a significant population of the aviation community in Kenya, the Authority shall publish the summary in aeronautical information circular.

24. The validity of any exemption issued under these regulations shall be dependent on the air navigation service provider complying with any condition that Authority may specify in the exemption as being necessary in the interests of safety of air navigation.

Validity of an exemption.

25. An air navigation service provider shall comply with any condition specified by the Authority in the exemption.

Compliance with conditions of the exemption.

PART IV—OFFENCES AND PENALTIES

26. A person who contravenes any provision of these Regulations may have his certificate or exemption cancelled or suspended.

Contravention of Regulations.

27. (1) A person who contravenes any provision of these Regulations, orders, notices or proclamations made thereunder shall,

Penalties.

PART III—EXEMPTIONS

21. (1) A person may apply to the Authority for an exemption from any provision of these Regulations.

Requirements for application for exemption.

(2) Unless in case of emergency, a person requiring exemptions from any of these regulations shall make an application to the Authority at least sixty days prior to the proposed effective date, giving the following information—

- (a) name and contact address including electronic mail and fax if any;
- (b) telephone number;
- (c) a citation of the specific requirement from which the applicant seeks exemption;
- (d) justification for the exemption;
- (e) a description of the type of operations to be conducted under the proposed exemption;
- (f) the proposed duration of the exemption;
- (g) an explanation of how the exemption would be in the public interest;
- (h) a detailed description of the alternative means by which the applicant will ensure a level of safety equivalent to that established by the regulation in question;
- (i) a safety risk assessment carried out in respect of the exemption applied for;
- (j) an indication whether the exemption would contravene any provision of the Standards and Recommended Practices of the International Civil Aviation Organization ; and
- (k) any other information that the Authority may require.

(3) Where the applicant seeks emergency processing of an application for exemption, the application shall contain supporting facts and reasons for not filing the application within the time specified in sub regulation (2) and satisfactory reason for deeming the application an emergency.

(4) The Authority may in writing, decline an application made under sub regulation (3), where in the opinion of the Authority, the reasons given for emergency processing are not satisfactory.

(5) The application for exemption shall be accompanied by fee prescribed by the Authority.

22. (1) The Authority shall review the application for exemption made under these regulations for accuracy and compliance and if the application is satisfactory, the Authority shall publish a detailed summary of the application for comments, within a prescribed time, in either—

Review and publication.

- (a) the Kenya Gazette;

(4) The flight validation tools required under this section shall include the use of equipment that—

- (a) has the precision, and accuracy traceable to appropriate standards, that are necessary for the validation being performed;
- (b) has known measurement uncertainties including, but not limited to, the software, firmware and crosswind uncertainties;
- (c) records the actual flight path of the validation aircraft;
- (d) is checked before being released for use, and at intervals not exceeding the calibration intervals recommended by the manufacturer, to establish that the system is capable of verifying the integrity of the instrument flight procedure; and
- (e) is operated in accordance with flight validation system procedures and criteria by persons who are competent and current on the system used.

19. (1) The certificated service provider providing an instrument flight procedure service shall establish procedures for recording, investigating, correcting, and reporting, any identified error, and any identified non-conformance or suspected non-conformance with these Regulations.

Errors in published instrument flight procedures.

(2) The procedure required by sub regulation (1) shall require that—

- (a) an instrument flight procedure is immediately withdrawn from operational use if the error or non-conformance affects, or may affect, the safety of an aircraft operation; and
- (b) the error or non-conformance is corrected, and certified by a senior person who is appropriately authorized by the service provider;
- (c) the correction required by paragraph (b) is clearly identified and promulgated by the most appropriate means relative to the operational significance of the error or non-conformance;
- (d) the source of the error or non-conformance is identified, and—
 - (i) if possible, eliminated to prevent a recurrence; and
 - (ii) preventive action is taken to ensure that the source of the error or non-conformance has not affected the integrity of any other instrument flight procedure; and
 - (iii) the Authority is immediately notified, of a promulgated information incident relating to an error or non-conformance referred to in subparagraph (i) above.

20. (1) The requirements for aerodrome operating minima are as specified in the Civil Aviation (Operation of Aircraft) Regulations.

Aerodrome operating minima.

(2) The procedures for the establishment of the aerodrome operating minima shall be prescribed by the Authority.

- (i) the fly ability of a procedure cannot be determined by other means;
 - (ii) the procedure requires mitigation for deviations from design criteria;
 - (iii) the accuracy or integrity of obstacle and terrain data cannot be determined by other means;
 - (iv) new procedures differ significantly from existing procedures; and
 - (v) for helicopter pins procedures.
15. (1) The certificated service provider shall ensure that a person conducting flight validation including simulator evaluation is a qualified and experienced flight validation pilot. Competency of flight validation pilots.
- (2) The qualifications for Flight Validation Pilot shall include—
- (a) at least a commercial pilot licence with instrument rating;
 - (b) a requirement that the licence held by the Flight Validation Pilot shall be for the aircraft category appropriate for the procedure to be validated; and
 - (c) meet all the experience requirements for the airline transport pilot licence in the relevant category of aircraft as described in personnel licensing regulations except that the Flight Validation Pilot does not have to be the pilot-in-command of the validation flight nor is he required to have the type rating on the aircraft used for the validation flight.
- (3) The instrument flight procedures designer shall provide all data required to conduct a flight validation, flight inspection, and flight simulator evaluation to the entity conducting the exercise.
16. (1) An instrument flight procedure for use by civil aircraft within Kenya shall not be published unless the instrument flight procedure is approved by the Authority. Approval of instrument flight procedures.
- (2) The Authority shall only accept instrument flight procedures for approval, submitted by approved procedure designers.
- (3) For Instrument Flight Procedures designed by approved procedure designers independently outside the certificated organization the submission of approval shall be in line with these regulations.
17. (1) The certificated service provider shall ensure that instrument flight procedures designs or charts, are provided to the aeronautical information service provider for publication in the Aeronautical Information Publication. IFPD publication.
- (2) The IFP shall be accompanied by a narrative, which describes the procedure in textual format.
18. (1) The certificated service provider using an automated flight procedure design tool shall ensure that such tool is validated. Use of automation in procedure design and flight validation.
- (2) Validation of the software shall be in accordance with the requirements prescribed by the Authority.
- (3) The scope of validation shall include compliance with the criteria set out by the Authority.

- (b) published procedures are subject to periodic review at intervals not exceeding five years to ensure that they continue to comply with changing criteria and user requirements;
- (c) designers develop and maintain instrument flight procedures design documentation that includes—
 - (i) information required for publication in the Aeronautical Information Publication;
 - (ii) details and assumptions made by the instrument flight procedure designer, such as—
 - (aa) controlling obstacle for each segment of the procedure;
 - (ab) effect of environmental considerations on the design of the procedure;
 - (ac) infrastructure assessment;
 - (ad) airspace constraints;
 - (ae) for modifications or amendments to existing procedures, the reasons for any changes;
 - (af) for any deviation from existing standards, the reasons for such a deviation and details of the mitigations applied to assure continued safe operations; and
 - (ag) the results of the final verification for accuracy and completeness prior to validation and publication.
- (d) the design records are retained for a period not less than the operational lifetime of the procedure;
- (e) all calculations and results of calculations are presented in a manner that enables the reader to follow and trace the logic and resultant output;
- (f) records of all calculations in paragraph (e) are kept in order to prove compliance to or variation from the standard criteria;
- (g) all documentation undergo a final verification for accuracy and completeness prior to validation and publication;
- (h) all documentation are retained for a period of not be less than the operational lifetime of the procedure to assist in recreating the procedure in the future in the case of incidents and for periodic review and maintenance;
- (i) ground validation is undertaken by a qualified flight procedure designer with appropriate knowledge of validation issues;
- (j) Flight validation is conducted whenever the following conditions exist—

- (i) the documentation is reviewed and authorized by an appropriate person before issue and use;
 - (ii) current versions of relevant documentation are available to personnel;
 - (iii) every obsolete document is promptly removed from every point of use; and
 - (iv) the current version of every item of documentation can be identified to prevent the use of superseded material;
- (f) ensuring that Instrument Flight Procedure designers have access to all necessary data for designing the procedures including—
- (i) accurate and current databases or charts detailing terrain and obstacle information; and
 - (ii) accurate and current navigation aid coordinate data; and
 - (iii) accurate and current aerodrome reference point and threshold data; and
- (g) ensuring that if an aeronautical database and aeronautical data are required for designing instrument flight procedure under its certificate, have, and put into effect, procedures to ensure the integrity of the database and the data.

(2) The certificated service provider shall ensure that if an aeronautical database and aeronautical data are required for designing instrument flight procedure under its certificate, have, and put into effect, procedures to ensure the integrity of the database and the data.

13. The certified service provider shall —

- (a) establish and put into effect, a system for controlling documents and records relating to the instrument flight procedure and visual flight procedure on which the designer carries on design work, including the policies and procedures for making, amending, preserving and disposing of those documents and records; and
- (b) at Authority's request, make the documents and records, or copies of them or extracts from them, available for inspection.

Control of Documents and records.

14. (1) Instrument flight procedures shall be designed in accordance with these Regulations, and Procedures prescribed by the Authority.

Instrument flight procedure design (IFPD).

(2) Coordination with all concerned parties shall continue throughout the procedure design and validation process to ensure that the procedure meets the needs of the user community.

(3) The certificated service provider shall ensure that—

- (a) each new or revised procedure is verified by a qualified procedure designer other than the one who designed the procedure;

10. (1) The certificated service provider shall ensure that the quality characteristics of data acquired for the Flight Procedure Design process are known and adequate, or that, in the case where the data's quality characteristics are unknown or inadequate, that appropriate data verification occurs prior to use.

Procedure design data and information acquisition.

(2) In the obstacle survey for procedure design, the instrument flight procedure designer shall consider that—

- (a) all obstacles be accounted for and items such as trees and heights of tall buildings shall be accounted for either by physical examination of the site or by addition of a suitable margin above terrain contours; and
- (b) the accuracy of the vertical and horizontal data obtained may be adjusted by adding an amount equal to the specified survey error to the height of all measured obstructions and by making a corresponding adjustment for specified horizontal error.

(3) The procedure design data and information acquisition shall be coordinated with all relevant stakeholders and integrated into Kenya's airspace design process, taking into account air traffic flows, separation issues, airspace user requirements, infrastructure and legal environmental considerations.

11. The certificated service provider shall establish and implement a quality assurance process for all instrument flight procedure design functions.

Quality assurance.

12. (1) A certificated service provider shall provide and maintain adequate facilities for carrying on design work on instrument flight procedures under the procedure design certificate, including—

Procedure design facility and resource requirements.

- (a) providing premises and equipment appropriate for the design, design verification, flight validation, and maintenance of applicable types of instrument flight procedures;
- (b) access to relevant and current data including, but not limited to, aeronautical data, land contour data, and obstacle data for the design, design verification, flight validation, and maintenance of the instrument flight procedure;
- (c) the data referred to in paragraph (b) is current, traceable, and meets the required level of accuracy for the design, design verification, flight validation, and maintenance of instrument flight procedures;
- (d) access to copies of relevant documentation comprising technical standards, practices, and instructions, and any other documentation that may be necessary for the design, design verification, flight validation, and maintenance of the types of instrument flight procedure;
- (e) establish a procedure for controlling all documentation required by sub regulation (d) to ensure that—

9. (1) The certificated service provider shall ensure that a person designing or amending a flight instrument procedure demonstrates required competency level for flight procedure design.

Instrument Flight Procedure designer training, experience and approval.

(2) The personnel to be recruited as Instrument Flight Procedure Designer shall have a high level of aviation experience gained from different domains in the aviation industry (Air Traffic Management, Engineers, Aeronautical technicians and pilots or any other equivalent profession).

(3) Instrument Flight Procedure designers shall acquire and maintain this competency level through training and supervised on-the-job training.

(4) The certificated service provider shall ensure that the instrument flight procedure designer is able to demonstrate a basic level of competency through initial and recurrent training at periodic intervals that includes at least the following elements—

- (a) knowledge of information contained in manuals pertaining to the design of instrument flight procedures as prescribed by the Authority;
- (b) enhancement of knowledge and skills in the design of procedures; and
- (c) competency as outlined in the competency framework for flight procedures designers as prescribed by the Authority.

(5) The certificated service provider shall—

- (a) develop and implement training programme and a training plan that is commensurate to the technical competence required by its staff; and
- (b) shall maintain training records for their instrument flight procedure designers.

(6) Only designers approved by the Authority shall undertake the design, review, validation of Instrument Flight Procedures for operational use.

(7) A person seeking approval as required in sub-regulation (6) shall—

- (a) provide proof of successful completion of the International Civil Aviation Organization PANS-OPS training course applicable to the approval being requested based on the International Civil Aviation Organization PANS-OPS criteria;
- (b) demonstrate practical application of theoretical knowledge through the design of two instrument flight procedures under supervision of a qualified designer; and
- (c) demonstrate ability to maintain a documented quality assurance process for procedure design.

(8) An approved procedure designer shall only design Instrument Flight Procedures within the scope of their approval.

6. (1) The certificated Instrument Flight Procedures Design Service Provider shall—
- Instrument Flight Procedure Design Operational requirements.
- (a) maintain an appropriate instrument design office to enable the Instrument Flight Procedure designers to carry on design work in Instrument flight Procedures in accordance with these Regulations;
 - (b) ensure that the designs of instrument flight procedure are in accordance with—
 - (i) requirements in these Regulations;
 - (ii) the criteria prescribed by the Authority; and
 - (c) make provisions for person(s) trained in Instrument Flight Procedure design to check and verify independently the plans of each instrument flight procedure designed.
7. (1) The certificated service provider shall develop and maintain an operations manual which shall serve to demonstrate compliance with the requirements set out in these Regulations.
- Instrument Flight Procedure Design Service Provider Operations Manual.
- (2) The contents of the operations manual shall include but not limited to the following—
- (a) the information required of the certificated Instrument Flight Procedures Design service provider as mentioned in these Regulation; and
 - (b) a description of the instrument flight procedure design Service Provider's office that shows the role, responsibilities and job functions of the Flight Procedure Design office personnel who are responsible for ensuring the compliance of the organization with the requirements in sub-paragraph (a).
- (3) The certificated service provider shall—
- (a) keep the operations manual in a readily accessible form;
 - (b) ensure that the instrument flight procedure designer has ready access to the operations manual; and
 - (c) amend the operations manual whenever necessary to keep its content up to date.
- (4) The certificated service provider shall submit a copy of the most current operations manual to the Authority for approval.
8. The certificated instrument flight procedure design organization shall—
- Employment of personnel.
- (a) employ, contract, or engage sufficient personnel to plan, design, verify, and maintain the instrument flight procedures; and
 - (b) develop job descriptions for its Procedure design technical staff.

“transition altitude” means the altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes;

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

“waypoint” means a specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation identified as either—

- (a) “fly-by waypoint” meaning a waypoint which requires turn anticipation to allow tangential interception of the next segment of a route or procedure, or
- (b) “flyover waypoint” meaning a waypoint at which a turn is initiated in order to join the next segment of a route or procedure.

3. These Regulations shall apply to a person providing Flight Procedure Design Services within certificated airspaces and at aerodromes for civil aviation purposes.

Application.

PART II — REQUIREMENTS

4. A person shall not provide an Instrument Flight Procedure Design Service within Kenya unless—

Requirements for the provision of an Instrument Flight Procedure Design Service.

- (a) that person holds a certificate issued under the Civil Aviation (Certification of Air Navigation Services Provider) Regulations; and
- (b) the services are provided in accordance with—
 - (i) the requirements prescribed in these Regulations or any other publications issued by the Authority; and
 - (ii) the procedures specified in the service providers’ Manual of Air Navigation Service Operations .

5. (1) A person shall not design, maintain, review, amend, adapt or publish flight procedures for use in Kenya unless certificated by the Authority and in accordance with these Regulations.

Designation of Instrument Flight Procedure Design Service Provider.

(2) An Instrument Flight Procedure Design Services Provider certificated by the Authority shall—

- (a) follow an instrument flight procedure process that encompasses acquisition of data, design and promulgation of procedures;
- (b) ensure that the quality and safety of the procedure design product are assured through review, verification, coordination and validation of the procedure at appropriate points in the process; and
- (c) ensure that the units of measurement, as specified in the Civil Aviation (units of measurement to be used in air and ground operations) regulations are used in the design of instrument flight procedure.

“procedure turn” means a manoeuvre in which a turn is made away from a certificated track followed by a turn in the opposite direction to permit the aircraft to intercept and proceed along the reciprocal of the certificated track;

“quality” means a degree to which a set of inherent characteristics fulfils requirements;

“quality assurance” means part of quality management focused on providing confidence that quality requirements will be fulfilled;

“quality control” means part of quality management focused on fulfilling quality requirements;

“quality management” means coordinated activities to direct and control an organization with regard to quality;

“quality system” means the organisational structure, procedures, processes and resources needed to implement quality management;

“reliability” means the probability that the service will perform its function or functions without failure for a specified period;

“resolution” means a number of units or digits to which a measured or calculated value is expressed and used;

“safety management system” means a systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures;

“significant point” means a specified geographical location used in defining an air traffic service route or the flight path of an aircraft and for other navigation and air traffic service purposes;

“state safety programme” means an integrated set of regulations and activities aimed at improving safety;

“terminal arrival altitude” means the lowest altitude that will provide a minimum clearance of 300 m (1 000 ft) above all objects located in an arc of a circle defined by a 46 km (25 NM) radius centred on the initial approach fix, or where there is no initial approach fix on the intermediate approach fix, delimited by straight lines joining the extremity of the arc to the Intermediate Fix. The combined Terminal Arrival Altitudes associated with an approach procedure shall account for an area of 360 degrees around the Intermediate Fix;

“terminal control area” means a control area normally established at the confluence of air traffic services routes in the vicinity of one or more major aerodromes;

“terrain” means the surface of the Earth containing naturally occurring features such as mountains, hills, ridges, valleys, bodies of water, permanent ice and snow, and excluding obstacles;

“touchdown and lift-off area” means a load bearing area on which a helicopter may touch down or lift off;

“touchdown zone” means the portion of a runway, beyond the threshold, where it is intended landing aeroplanes first contact the runway;

operations within a defined airspace and here are two kinds of navigation specifications—

- (a) area Navigation specification — a navigation specification based on area navigation that does not include the requirement for on-board performance monitoring and alerting, certificated by the prefix RNAV; and
- (b) required navigation performance specification — a navigation specification based on area navigation that includes the requirement for on-board performance monitoring and alerting, certificated by the prefix RNP;

“obstacle” means 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;
- (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 clearance altitude or obstacle clearance height” means the lowest altitude or the lowest height above the elevation of the relevant runway threshold or the aerodrome elevation as applicable, used in establishing compliance with appropriate obstacle clearance criteria;

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

“obstacle or terrain data collection surface” means a defined surface intended for the purpose of collecting obstacle or terrain data;

“operator” means a person, organization or enterprise engaged in or offering to engage in an aircraft operation;

“operations manual” means a manual prepared by a service provider or a person applying for approval;

“Performance Based Navigation” means area navigation based on performance requirements for aircraft operating along an air traffic service route, on an instrument approach procedure or in a certificated airspace;

“precision approach procedure” means an instrument approach procedure utilizing azimuth and glide path information provided by an Instrument landing system or precision approach radar;

“procedure altitude or height” means a specified altitude/height flown operationally at or above the minimum altitude/height and established to accommodate a stabilized descent at a prescribed descent gradient/angle in the intermediate or final approach segment;

landing is not completed, to a position at which holding or en-route obstacle clearance criteria apply;

“instrument flight procedure design service” means a service established for the design, documentation, validation, maintenance and periodic review of instrument flight procedures necessary for the safety, regularity and efficiency of air navigation;

“integrated aeronautical information product” means aeronautical data and aeronautical information provided either as digital data sets or as a standardized presentation in paper or electronic media and includes—

- (a) aeronautical information publication, including amendments and supplements;
- (b) aeronautical information circulars;
- (c) aeronautical charts;
- (d) notice to air men; and
- (e) digital data sets;

“integrity (aeronautical data)” means a degree of assurance that an aeronautical data and its value has not been lost nor altered since the data origination or authorized amendment;

“integrity classification (aeronautical data)” means classification based upon the potential risk resulting from the use of corrupted data 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 and 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;

“missed approach point” means that point in an instrument approach procedure at or before which the prescribed missed approach procedure must be initiated in order to ensure that the minimum obstacle clearance is not infringed;

“missed approach procedure” means that procedure to be followed if the approach cannot be continued;

“nautical mile” means the length equal to 1 852 metres exactly;

“navigation specification” means a set of aircraft and flight crew requirements needed to support performance-based navigation

“aeronautical information service means 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;

“aeronautical information publication amendment” means permanent change to information contained in the aeronautical information publication;

“aeronautical information publication supplement” means temporary changes to the information contained in the aeronautical information publication which are published by means of special pages;

“air navigation services” means the following services provided for air navigation—

- (a) air traffic services or air traffic management;
- (b) instrument flight procedure design services;
- (c) aeronautical information services or aeronautical information management;
- (d) aeronautical cartographic services;
- (e) aeronautical telecommunication services; and
- (f) aeronautical search and rescue;

“air navigation services provider” means an independent entity established for the purpose of providing one or more of the air navigation services as defined in these Regulations;

“area navigation” means a method of navigation which permits aircraft operation on any desired flight path within the coverage of ground- or space-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these;

“arrival routes” means routes identified in an instrument approach procedure by which aircraft may proceed from the en-route phase of flight to an initial approach fix;

“air traffic service route” means a specified route designed for channelling the flow of traffic necessary for the provision of air traffic services;

“Authority” means Kenya Civil Aviation Authority;

“certificate” means the certificate for the provision of air navigation services issued by the Authority under Part II of these Regulations;

“flight procedure design” means either Instrument Flight Procedures or Visual Flight Procedures;

“instrument approach procedure” means a series of predetermined manoeuvres by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a

THE CIVIL AVIATION ACT

(No. 21 of 2013)

IN EXERCISE of the powers conferred by section 82 of the Civil Aviation Act, 2013, the Cabinet Secretary for Transport, Infrastructure, Housing and Urban Development makes the following Regulations—

PART I—PRELIMINARY

1. These Regulations may be cited as the Civil Aviation (Construction of Visual and Instrument Flight Procedures) Regulations, 2018. Citation.

2. In these Regulations, unless the context otherwise requires— Interpretation

“Act” means the Civil Aviation Act, 2013;

“aerodrome operating minima” means the limits of usability of an aerodrome for—

- (a) take-off, expressed in terms of runway visual range or visibility and, if necessary, cloud conditions;
- (b) landing in precision approach and landing operations, expressed in terms of visibility or runway visual range and decision altitude or height as appropriate to the category of the operation;
- (c) landing in approach and landing operations with vertical guidance, expressed in terms of visibility and/or runway visual range and decision altitude or height; and
- (d) landing in non-precision approach and landing operations, expressed in terms of visibility and/or runway visual range, minimum descent altitude or height and, if necessary, cloud conditions;

“aerodrome reference point” means the certificated geographical location of an aerodrome;

“aeronautical chart” means a representation of a portion of the earth, its culture and relief, specifically certificated to meet the requirements of air navigation;

“aeronautical data” means a representation of aeronautical facts, concepts or instructions in a formalized manner suitable for communication, interpretation or processing;

“aeronautical information” means information resulting from the assembly, analysis and formatting of aeronautical data;

“Aeronautical Information Circular (AIC)” means a notice containing information that does not qualify for the origination of a Notice To Air Men or for inclusion in the Aeronautical Information Publication, but which relates to flight safety, air navigation, technical, administrative or legislative matters;

“aeronautical information publication” means a publication issued by or with the authority of a state and containing aeronautical information of a lasting character essential to air navigation;

- 23— Evaluation of the request.
- 24— Validity of an exemption.
- 25— Compliance with conditions of the exemption.

PART IV— OFFENCES AND PENALTIES

- 26— Contravention of Regulations.
- 27— Penalties.
- 28— Appeal.

LEGAL NOTICE NO. 121

THE CIVIL AVIATION ACT, 2013

(No. 21 of 2013)

THE CIVIL AVIATION (CONSTRUCTION OF VISUAL AND
INSTRUMENT FLIGHT PROCEDURES) REGULATIONS, 2018

ARRANGEMENT OF REGULATIONS

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- 1— Citation and Commencement.
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PART III—EXEMPTIONS

- 21— Requirements for application for exemption.
- 22— Review and publication.

10. *Nuclear physics and ionizing radiation*

10.1	absorbed dose	Gy
10.2	absorbed dose rate	Gy/s
10.3	activity of radionuclides	Bq
10.4	dose equivalent	Sv
10.5	radiation exposure	C/kg
10.6	exposure rate	C/kg · s

- a) As used in navigation, generally in excess of 4 000 m.
 b) Such as aircraft fuel, hydraulic fluids, water, oil and high pressure oxygen vessels.
 c) Visibility of less than 5 km may be given in m.
 d) Airspeed is sometimes reported in flight operations in terms of the ratio MACH number.
 e) A conversion of 1 kt = 0.5 m/s is used in ICAO Annexes for the representation of wind speed.
 f) The decibel (dB) is a ratio which may be used as a unit for expressing sound pressure level and sound power level. When used, the reference level must be specified.

Dated the 9th May, 2018.

JAMES MACHARIA,
Cabin Secretary for Transport, Infrastructure, Housing and Urban Development.

7. Electricity and magnetism

7.1	capacitance	F
7.2	conductance	S
7.3	conductivity	S/m
7.4	current density	A/m ²
7.5	electric current	A
7.6	electric field strength	C/m ²
7.7	electric potential	V
7.8	electromotive force	V
7.9	magnetic field strength	A/m
7.10	magnetic flux	Wb
7.11	magnetic flux density	T
7.12	power	W
7.13	quantity of electricity	C
7.14	resistance	Ω

8. Light and related electromagnetic radiations

8.1	illuminance	lx
8.2	luminance	cd/m ²
8.3	luminous exitance	lm/m ²
8.4	luminous flux	lm
8.5	luminous intensity	cd
8.6	quantity of light	lm · s
8.7	radiant energy	J
8.8	wavelength	m

9. Acoustics

9.1	frequency	Hz
9.2	mass density	kg/m ³
9.3	noise level	dB ^d
9.4	period, periodic time	s
9.5	sound intensity	W/m ²
9.6	sound power	W
9.7	sound pressure	Pa
9.8	sound level	dB ^h
9.9	static pressure (instantaneous)	Pa
9.10	velocity of sound	m/s
9.11	volume velocity (instantaneous)	m ³ /s
9.12	wavelength	m

5. Flow		
5.1	engine airflow	kg/s
5.2	engine waterflow	kg/h
5.3	fuel consumption (specific)	
	piston engines	kg/(kW · h)
	turbo-shaft engines	kg/(kW · h)
	jet engines	kg/(kN · h)
5.4	fuel flow	kg/h
5.5	fuel tank filling rate (gravimetric)	kg/min
5.6	gas flow	kg/s
5.7	liquid flow (gravimetric)	g/s
5.8	liquid flow (volumetric)	L/s
5.9	mass flow	kg/s
5.10	oil consumption	
	gas turbine	kg/h
	piston engines (specific)	g/(kW · h)
5.11	oil flow	g/s
5.12	pump capacity	L/min
5.13	ventilation airflow	m ³ /min
5.14	viscosity (dynamic)	Pa · s
5.15	viscosity (kinematic)	m ² /s
6. Thermodynamics		
6.1	coefficient of heat transfer	W/(m ² · K)
6.2	heat flow per unit area	J/m ²
6.3	heat flow rate	W
6.4	humidity (absolute)	g/kg
6.5	coefficient of linear expansion	°C ⁻¹
6.6	quantity of heat	J
6.7	temperature	°C

3. Force-related

3.1	air pressure (general)	kPa
3.2	altimeter setting	hPa
3.3	atmospheric pressure	hPa
3.4	bending moment	kN · m
3.5	force	N
3.6	fuel supply pressure	kPa
3.7	hydraulic pressure	kPa
3.8	modulus of elasticity	MPa
3.9	pressure	kPa
3.10	stress	MPa
3.11	surface tension	mN/m
3.12	thrust	kN
3.13	torque	N · m
3.14	vacuum	Pa

4. Mechanics

4.1	airspeed ^{d)}	km/h
4.2	angular acceleration	rad/s ²
4.3	angular velocity	rad/s
4.4	energy or work	J
4.5	equivalent shaft power	kW
4.6	Frequency	Hz
4.7	groundspeed	km/h
4.8	Impact	J/m ²
4.9	kinetic energy absorbed by brakes	MJ
4.10	linear acceleration	m/s ²
4.11	Power	kW
4.12	rate of trim	°/s
4.13	shaft power	kW
4.14	Velocity	m/s
4.15	vertical speed	m/s

1.15	time	s min h d week month year
1.16	visibility ²⁾	km
1.17	volume	m ³
1.18	wind direction (wind directions other than for a landing and take-off shall be expressed in degrees true; for landing and take-off wind directions shall be expressed in degrees magnetic)	°
2. Mass-related		
2.1	air density	kg/m ³
2.2	area density	kg/m ²
2.3	cargo capacity	kg
2.4	cargo density	kg/m ³
2.5	density (mass density)	kg/m ³
2.6	fuel capacity (gravimetric)	kg
2.7	gas density	kg/m ³
2.8	gross mass or payload	kg t
2.9	hoisting provisions	kg
2.10	linear density	kg/m
2.11	liquid density	kg/m ³
2.12	mass	kg
2.13	moment of inertia	kg · m ²
2.14	moment of momentum	kg · m ² /s
2.15	momentum	kg · m/s

Table 3. Non-SI units for temporary use with the SI

<i>Specific quantities in Table 3-4 related to</i>	<i>Unit</i>	<i>Symbol</i>	<i>Definition (in terms of SI units)</i>
distance (long)	nautical mile	NM	1 NM = 1 852 m
distance (vertical) ^{a)}	foot	ft	1 ft = 0.304 8 m
speed	knot	kt	1 kt = 0.514 444 m/s

a) altitude, elevation, height, vertical speed.

Table 4. Standard application of specific units of measurement

<i>Ref. No.</i>	<i>Quantity</i>	<i>Primary unit (symbol)</i>	<i>Non-SI alternative unit (symbol)</i>
<i>1. Direction/Space/Time</i>			
1.1	altitude	m	ft
1.2	area	m ²	
1.3	distance (long) ¹⁾	km	NM
1.4	distance (short)	m	
1.5	elevation	m	ft
1.6	endurance	h and min	
1.7	height	m	ft
1.8	latitude	° ' "	
1.9	length	m	
1.10	longitude	° ' "	
1.11	plane angle (when required, decimal subdivisions of the degree shall be used)	°	
1.12	runway length	m	
1.13	runway visual range	m	
1.14	tank capacities (aircraft) ²⁾	L	

SCHEDULE

Table 1. SI unit prefixes

Multiplication factor	Prefix	Symbol
1 000 000 000 000 000 000 = 10^{18}	exa	E
1 000 000 000 000 000 = 10^{15}	peta	P
1 000 000 000 000 = 10^{12}	tera	T
1 000 000 000 = 10^9	giga	G
1 000 000 = 10^6	mega	M
1 000 = 10^3	kilo	k
100 = 10^2	hecto	h
10 = 10^1	deca	da
0.1 = 10^{-1}	deci	d
0.01 = 10^{-2}	centi	c
0.001 = 10^{-3}	milli	m
0.000 001 = 10^{-6}	micro	μ
0.000 000 001 = 10^{-9}	nano	n
0.000 000 000 001 = 10^{-12}	pico	p
0.000 000 000 000 001 = 10^{-15}	femto	f
0.000 000 000 000 000 001 = 10^{-18}	atto	a

Table 2. Non-SI units for use with the SI

Specific quantities in Table 3-4 related to	Unit	Symbol	Definition (in terms of SI units)
mass	tonne	t	1 t = 10^3 kg
plane angle	degree	$^\circ$	$1^\circ = (\pi/180)$ rad
	minute	'	$1' = (1/60)^\circ = (\pi/10\ 800)$ rad
	second	"	$1'' = (1/60)' = (\pi/648\ 000)$ rad
temperature	degree Celsius	$^\circ\text{C}$	1 unit $^\circ\text{C} = 1$ unit K^{a}
time	minute	min	1 min = 60 s
	hour	h	1 h = 60 min = 3 600 s
	day	d	1 d = 24 h = 86 400 s
	week, month, year	—	—
volume	litre	L	1 L = 1 dm ³ = 10^{-3} m ³

measurement, or the transition between environments using different units, with due consideration to human performance.

8. The use in civil aviation operations of the alternative non-SI units (Knot, Nautical Mile and foot) shall be terminated on the dates to be established by International Civil Aviation.

Use of alternative non-SI units.

9. Any violation to these Regulations shall be subject to the general penalty provisions as provided in section 80 of the Civil Aviation Act.

Offence .

“siemens (S)” means the electric conductance of a conductor in which a current of 1 ampere is produced by an electric potential difference of 1 volt;

“sievert (Sv)” means the unit of radiation dose equivalent corresponding to 1 joule per kilogram;

“steradian (sr)” means the solid angle which, having its vertex in the centre of a sphere, cuts off an area of the surface of the sphere equal to that of a square with sides of length equal to the radius of the sphere;

“tesla (T)” means the magnetic flux density given by a magnetic flux of 1 weber per square metre;

“tonne (t)” means the mass equal to 1 000 kilograms;

“volt (V)” means the unit of electric potential difference and electromotive force which is the difference of electric potential between two points of a conductor carrying a constant current of 1 ampere, when the power dissipated between these points is equal to 1 watt;

“watt (W)” means the power which gives rise to the production of energy at the rate of 1 joule per second;

“weber (Wb)” means the magnetic flux which, linking a circuit of one turn, produces in it an electromotive force of 1 volt as it is reduced to zero at a uniform rate in 1 second.

3. These Regulations shall apply to all aspects of civil aviation air and ground operations. Application.

PART II—STANDARD APPLICATION OF UNITS OF MEASUREMENT

4. (1) The International System of Units developed and maintained by the General Conference of Weights and Measures (CGPM) shall, subject to regulations 5 and 6, be used as the standard system of units of measurement for all aspects of civil aviation air and ground operations. SI units.

(2) The prefixes and symbols listed in Table 1 of the Schedule shall be used to form names and symbols of the decimal multiples and submultiples of SI units.

5. The non-SI units listed in Table 3 of the First Schedule shall be permitted for temporary use as alternative units of measurement but only for those specific quantities listed in Table 4. Non-SI alternative units permitted for temporary use with the SI.

6. (1) The application of units of measurement for certain quantities used in civil aviation air and ground operations shall be in accordance with Table 4 of the first schedule of these regulations. Application of specific units.

(2) In instances where the mole is used, the elementary entities shall be specified and may be atoms, molecules, ions, electrons, other particles or specified groups of such particles.

7. The means and provisions for design, procedures and training shall be established for operations in environments involving the use of standard and non-SI alternatives of specific units of design, procedures and training

“human performance” means human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations;

“joule (J)” means the work done when the point of application of a force of 1 Newton is displaced a distance of 1 metre in the direction of the force;

“kelvin (K)” means a unit of thermodynamic temperature which is the fraction $1/273.16$ of the thermodynamic temperature of the triple point of water;

“kilogram (kg)” means the unit of mass equal to the mass of the international prototype of the kilogram;

“knot (kt)” means the speed equal to 1 nautical mile per hour;

“International System of Units (SI)” means a complete, coherent system which includes three classes of unit’s base units, supplementary units; and derived units;

“litre (L)” means a unit of volume restricted to the measurement of liquids and gases which is equal to 1 cubic decimeter;

“lumen (lm)” means the luminous flux emitted in a solid angle of 1 steradian by a point source having a uniform intensity of 1 candela;

“lux (lx)” means the illuminance produced by a luminous flux of 1 lumen uniformly distributed over a surface of 1 square metre;

“metre (m)” means the distance travelled by light in a vacuum during $1/299\,792\,458$ of a second;

“mole (mol)” means the amount of substance of a system which contains as many elementary entities as there are atoms in 0.012 kilogram of carbon-12;

“nautical mile (NM)” means the length equal to 1,852 metres exactly;

“newton (N)” means the force which when applied to a body having a mass of 1 kilogram gives it an acceleration of 1 metre per second squared;

“Ohm (Ω)” means the electric resistance between two points of a conductor when a constant difference of potential of 1 volt, applied between these two points, produces in this conductor a current of 1 ampere, this conductor not being the source of any electromotive force;

“pascal (Pa)” means the pressure or stress of 1 newton per square metre;

“radian (rad)” means the plane angle between two radii of a circle which cut off on the circumference an arc equal in length to the radius;

“second (s)” means the duration of $9\,192\,631\,770$ periods of the radiation corresponding to the transition between the two hyperfine levels of the ground state of the caesium-133 atom;

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PART IV— OFFENCES AND PENALTIES

- 26— Contravention of Regulations.
- 27— Penalties.
- 28— Appeal.

THE CIVIL AVIATION ACT

(No. 21 of 2013)

IN EXERCISE of the powers conferred by section 82 of the Civil Aviation Act, 2013, the Cabinet Secretary for Transport, Infrastructure, Housing and Urban Development makes the following Regulations—

PART I—PRELIMINARY

1. These Regulations may be cited as the Civil Aviation (Construction of Visual and Instrument Flight Procedures) Regulations, 2018.

Citation.

2. In these Regulations, unless the context otherwise requires—

Interpretation

“Act” means the Civil Aviation Act, 2013;

“aerodrome operating minima” means the limits of usability of an aerodrome for—

- (a) take-off, expressed in terms of runway visual range or visibility and, if necessary, cloud conditions;
- (b) landing in precision approach and landing operations, expressed in terms of visibility or runway visual range and decision altitude or height as appropriate to the category of the operation;
- (c) landing in approach and landing operations with vertical guidance, expressed in terms of visibility and/or runway visual range and decision altitude or height; and
- (d) landing in non-precision approach and landing operations, expressed in terms of visibility and/or runway visual range, minimum descent altitude or height and, if necessary, cloud conditions;

“aerodrome reference point” means the certificated geographical location of an aerodrome;

“aeronautical chart” means a representation of a portion of the earth, its culture and relief, specifically certificated to meet the requirements of air navigation;

“aeronautical data” means a representation of aeronautical facts, concepts or instructions in a formalized manner suitable for communication, interpretation or processing;

“aeronautical information” means information resulting from the assembly, analysis and formatting of aeronautical data;

“Aeronautical Information Circular (AIC)” means a notice containing information that does not qualify for the origination of a Notice To Air Men or for inclusion in the Aeronautical Information Publication, but which relates to flight safety, air navigation, technical, administrative or legislative matters;

“aeronautical information publication means 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 means 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;

“aeronautical information publication amendment” means permanent change to information contained in the aeronautical information publication;

“aeronautical information publication supplement” means temporary changes to the information contained in the aeronautical information publication which are published by means of special pages;

“air navigation services” means the following services provided for air navigation—

- (a) air traffic services or air traffic management;
- (b) instrument flight procedure design services;
- (c) aeronautical information services or aeronautical information management;
- (d) aeronautical cartographic services;
- (e) aeronautical telecommunication services; and
- (f) aeronautical search and rescue;

“air navigation services provider” means an independent entity established for the purpose of providing one or more of the air navigation services as defined in these Regulations;

“area navigation” means a method of navigation which permits aircraft operation on any desired flight path within the coverage of ground- or space-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these;

“arrival routes” means routes identified in an instrument approach procedure by which aircraft may proceed from the en-route phase of flight to an initial approach fix;

“air traffic service route” means a specified route designed for channelling the flow of traffic as necessary for the provision of air traffic services;

“Authority” means Kenya Civil Aviation Authority;

“certificate” means the certificate for the provision of air navigation services issued by the Authority under Part II of these Regulations;

“flight procedure design” means either Instrument Flight Procedures or Visual Flight Procedures;

“instrument approach procedure” means a series of predetermined manoeuvres by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a

landing is not completed, to a position at which holding or en- route obstacle clearance criteria apply;

“instrument flight procedure design service” means a service established for the design, documentation, validation, maintenance and periodic review of instrument flight procedures necessary for the safety, regularity and efficiency of air navigation;

“integrated aeronautical information product” means aeronautical data and aeronautical information provided either as digital data sets or as a standardized presentation in paper or electronic media and includes—

- (a) aeronautical information publication, including amendments and supplements;
- (b) aeronautical information circulars;
- (c) aeronautical charts;
- (d) notice to air men; and
- (e) digital data sets;

“integrity (aeronautical data)” means a degree of assurance that an aeronautical data and its value has not been lost nor altered since the data origination or authorized amendment;

“integrity classification (aeronautical data)” means classification based upon the potential risk resulting from the use of corrupted data 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 and 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;

“missed approach point” means that point in an instrument approach procedure at or before which the prescribed missed approach procedure must be initiated in order to ensure that the minimum obstacle clearance is not infringed;

“missed approach procedure” means that procedure to be followed if the approach cannot be continued;

“nautical mile” means the length equal to 1 852 metres exactly;

“navigation specification” means a set of aircraft and flight crew requirements needed to support performance-based navigation

operations within a defined airspace and here are two kinds of navigation specifications—

- (a) area Navigation specification — a navigation specification based on area navigation that does not include the requirement for on-board performance monitoring and alerting, certificated by the prefix RNAV; and
- (b) required navigation performance specification — a navigation specification based on area navigation that includes the requirement for on-board performance monitoring and alerting, certificated by the prefix RNP;

“obstacle” means 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;
- (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 clearance altitude or obstacle clearance height” means the lowest altitude or the lowest height above the elevation of the relevant runway threshold or the aerodrome elevation as applicable, used in establishing compliance with appropriate obstacle clearance criteria;

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

“obstacle or terrain data collection surface” means a defined surface intended for the purpose of collecting obstacle or terrain data;

“operator” means a person, organization or enterprise engaged in or offering to engage in an aircraft operation;

“operations manual” means a manual prepared by a service provider or a person applying for approval;

“Performance Based Navigation” means area navigation based on performance requirements for aircraft operating along an air traffic service route, on an instrument approach procedure or in a certificated airspace;

“precision approach procedure” means an instrument approach procedure utilizing azimuth and glide path information provided by an Instrument landing system or precision approach radar;

“procedure altitude or height” means a specified altitude/height flown operationally at or above the minimum altitude/height and established to accommodate a stabilized descent at a prescribed descent gradient/angle in the intermediate or final approach segment;

“procedure turn” means a manoeuvre in which a turn is made away from a certificated track followed by a turn in the opposite direction to permit the aircraft to intercept and proceed along the reciprocal of the certificated track;

“quality” means a degree to which a set of inherent characteristics fulfils requirements;

“quality assurance” means part of quality management focused on providing confidence that quality requirements will be fulfilled;

“quality control” means part of quality management focused on fulfilling quality requirements;

“quality management” means coordinated activities to direct and control an organization with regard to quality;

“quality system” means the organisational structure, procedures, processes and resources needed to implement quality management;

“reliability” means the probability that the service will perform its function or functions without failure for a specified period;

“resolution” means a number of units or digits to which a measured or calculated value is expressed and used;

“safety management system” means a systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures;

“significant point” means a specified geographical location used in defining an air traffic service route or the flight path of an aircraft and for other navigation and air traffic service purposes;

“state safety programme” means an integrated set of regulations and activities aimed at improving safety;

“terminal arrival altitude” means the lowest altitude that will provide a minimum clearance of 300 m (1 000 ft) above all objects located in an arc of a circle defined by a 46 km (25 NM) radius centred on the initial approach fix, or where there is no initial approach fix on the intermediate approach fix, delimited by straight lines joining the extremity of the arc to the Intermediate Fix. The combined Terminal Arrival Altitudes associated with an approach procedure shall account for an area of 360 degrees around the Intermediate Fix;

“terminal control area” means a control area normally established at the confluence of air traffic services routes in the vicinity of one or more major aerodromes;

“terrain” means the surface of the Earth containing naturally occurring features such as mountains, hills, ridges, valleys, bodies of water, permanent ice and snow, and excluding obstacles;

“touchdown and lift-off area” means a load bearing area on which a helicopter may touch down or lift off;

“touchdown zone” means the portion of a runway, beyond the threshold, where it is intended landing aeroplanes first contact the runway;

“transition altitude” means the altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes;

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

“waypoint” means a specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation identified as either—

- (a) “fly-by waypoint” meaning a waypoint which requires turn anticipation to allow tangential interception of the next segment of a route or procedure, or
- (b) “flyover waypoint” meaning a waypoint at which a turn is initiated in order to join the next segment of a route or procedure.

3. These Regulations shall apply to a person providing Flight Procedure Design Services within certificated airspaces and at aerodromes for civil aviation purposes.

Application.

PART II — REQUIREMENTS

4. A person shall not provide an Instrument Flight Procedure Design Service within Kenya unless—

Requirements for the provision of an Instrument Flight Procedure Design Service.

- (a) that person holds a certificate issued under the Civil Aviation (Certification of Air Navigation Services Provider) Regulations; and
- (b) the services are provided in accordance with—
 - (i) the requirements prescribed in these Regulations or any other publications issued by the Authority; and
 - (ii) the procedures specified in the service providers’ Manual of Air Navigation Service Operations .

5. (1) A person shall not design, maintain, review, amend, adapt or publish flight procedures for use in Kenya unless certificated by the Authority and in accordance with these Regulations.

Designation of Instrument Flight Procedure Design Service Provider.

(2) An Instrument Flight Procedure Design Services Provider certificated by the Authority shall—

- (a) follow an instrument flight procedure process that encompasses acquisition of data, design and promulgation of procedures;
- (b) ensure that the quality and safety of the procedure design product are assured through review, verification, coordination and validation of the procedure at appropriate points in the process; and
- (c) ensure that the units of measurement, as specified in the Civil Aviation (units of measurement to be used in air and ground operations) regulations are used in the design of instrument flight procedure.

6. (1) The certificated Instrument Flight Procedures Design Service Provider shall—

Instrument Flight Procedure Design Operational requirements.

- (a) maintain an appropriate instrument design office to enable the Instrument Flight Procedure designers to carry on design work in Instrument flight Procedures in accordance with these Regulations;
- (b) ensure that the designs of instrument flight procedure are in accordance with—
 - (i) requirements in these Regulations;
 - (ii) the criteria prescribed by the Authority; and
- (c) make provisions for person(s) trained in Instrument Flight Procedure design to check and verify independently the plans of each instrument flight procedure designed.

7. (1) The certificated service provider shall develop and maintain an operations manual which shall serve to demonstrate compliance with the requirements set out in these Regulations.

Instrument Flight Procedure Design Service Provider Operations Manual.

(2) The contents of the operations manual shall include but not limited to the following—

- (a) the information required of the certificated Instrument Flight Procedures Design service provider as mentioned in these Regulation; and
- (b) a description of the instrument flight procedure design Service Provider's office that shows the role, responsibilities and job functions of the Flight Procedure Design office personnel who are responsible for ensuring the compliance of the organization with the requirements in sub-paragraph (a).

(3) The certificated service provider shall—

- (a) keep the operations manual in a readily accessible form;
- (b) ensure that the instrument flight procedure designer has ready access to the operations manual; and
- (c) amend the operations manual whenever necessary to keep its content up to date.

(4) The certificated service provider shall submit a copy of the most current operations manual to the Authority for approval.

8. The certificated instrument flight procedure design organization shall—

Employment of personnel.

- (a) employ, contract, or engage sufficient personnel to plan, design, verify, and maintain the instrument flight procedures; and
- (b) develop job descriptions for its Procedure design technical staff.

9. (1) The certificated service provider shall ensure that a person designing or amending a flight instrument procedure demonstrates required competency level for flight procedure design.

Instrument Flight Procedure designer training, experience and approval.

(2) The personnel to be recruited as Instrument Flight Procedure Designer shall have a high level of aviation experience gained from different domains in the aviation industry (Air Traffic Management, Engineers, Aeronautical technicians and pilots or any other equivalent profession).

(3) Instrument Flight Procedure designers shall acquire and maintain this competency level through training and supervised on-the-job training.

(4) The certificated service provider shall ensure that the instrument flight procedure designer is able to demonstrate a basic level of competency through initial and recurrent training at periodic intervals that includes at least the following elements—

- (a) knowledge of information contained in manuals pertaining to the design of instrument flight procedures as prescribed by the Authority;
- (b) enhancement of knowledge and skills in the design of procedures; and
- (c) competency as outlined in the competency framework for flight procedures designers as prescribed by the Authority.

(5) The certificated service provider shall—

- (a) develop and implement training programme and a training plan that is commensurate to the technical competence required by its staff; and
- (b) shall maintain training records for their instrument flight procedure designers.

(6) Only designers approved by the Authority shall undertake the design, review, validation of Instrument Flight Procedures for operational use.

(7) A person seeking approval as required in sub-regulation (6) shall—

- (a) provide proof of successful completion of the International Civil Aviation Organization PANS-OPS training course applicable to the approval being requested based on the International Civil Aviation Organization PANS-OPS criteria;
- (b) demonstrate practical application of theoretical knowledge through the design of two instrument flight procedures under supervision of a qualified designer; and
- (c) demonstrate ability to maintain a documented quality assurance process for procedure design.

(8) An approved procedure designer shall only design Instrument Flight Procedures within the scope of their approval.

10. (1) The certificated service provider shall ensure that the quality characteristics of data acquired for the Flight Procedure Design process are known and adequate, or that, in the case where the data's quality characteristics are unknown or inadequate, that appropriate data verification occurs prior to use.

Procedure design data and information acquisition.

(2) In the obstacle survey for procedure design, the instrument flight procedure designer shall consider that—

- (a) all obstacles be accounted for and items such as trees and heights of tall buildings shall be accounted for either by physical examination of the site or by addition of a suitable margin above terrain contours; and
- (b) the accuracy of the vertical and horizontal data obtained may be adjusted by adding an amount equal to the specified survey error to the height of all measured obstructions and by making a corresponding adjustment for specified horizontal error.

(3) The procedure design data and information acquisition shall be coordinated with all relevant stakeholders and integrated into Kenya's airspace design process, taking into account air traffic flows, separation issues, airspace user requirements, infrastructure and legal environmental considerations.

11. The certificated service provider shall establish and implement a quality assurance process for all instrument flight procedure design functions.

Quality assurance.

12. (1) A certificated service provider shall provide and maintain adequate facilities for carrying on design work on instrument flight procedures under the procedure design certificate, including—

Procedure design facility and resource requirements.

- (a) providing premises and equipment appropriate for the design, design verification, flight validation, and maintenance of applicable types of instrument flight procedures;
- (b) access to relevant and current data including, but not limited to, aeronautical data, land contour data, and obstacle data for the design, design verification, flight validation, and maintenance of the instrument flight procedure;
- (c) the data referred to in paragraph (b) is current, traceable, and meets the required level of accuracy for the design, design verification, flight validation, and maintenance of instrument flight procedures;
- (d) access to copies of relevant documentation comprising technical standards, practices, and instructions, and any other documentation that may be necessary for the design, design verification, flight validation, and maintenance of the types of instrument flight procedure;
- (e) establish a procedure for controlling all documentation required by sub regulation (d) to ensure that—

- (i) the documentation is reviewed and authorized by an appropriate person before issue and use;
 - (ii) current versions of relevant documentation are available to personnel;
 - (iii) every obsolete document is promptly removed from every point of use; and
 - (iv) the current version of every item of documentation can be identified to prevent the use of superseded material;
- (f) ensuring that Instrument Flight Procedure designers have access to all necessary data for designing the procedures including—
- (i) accurate and current databases or charts detailing terrain and obstacle information; and
 - (ii) accurate and current navigation aid coordinate data; and
 - (iii) accurate and current aerodrome reference point and threshold data; and
- (g) ensuring that if an aeronautical database and aeronautical data are required for designing instrument flight procedure under its certificate, have, and put into effect, procedures to ensure the integrity of the database and the data.
- (2) The certificated service provider shall ensure that if an aeronautical database and aeronautical data are required for designing instrument flight procedure under its certificate, have, and put into effect, procedures to ensure the integrity of the database and the data.
13. The certified service provider shall —
- (a) establish and put into effect, a system for controlling documents and records relating to the instrument flight procedure and visual flight procedure on which the designer carries on design work, including the policies and procedures for making, amending, preserving and disposing of those documents and records; and
 - (b) at Authority's request, make the documents and records, or copies of them or extracts from them, available for inspection.
14. (1) Instrument flight procedures shall be designed in accordance with these Regulations, and Procedures prescribed by the Authority.
- (2) Coordination with all concerned parties shall continue throughout the procedure design and validation process to ensure that the procedure meets the needs of the user community.
- (3) The certificated service provider shall ensure that—
- (a) each new or revised procedure is verified by a qualified procedure designer other than the one who designed the procedure;

Control of Documents and records.

Instrument flight procedure design (IFPD).

- (b) published procedures are subject to periodic review at intervals not exceeding five years to ensure that they continue to comply with changing criteria and user requirements;
- (c) designers develop and maintain instrument flight procedures design documentation that includes—
 - (i) information required for publication in the Aeronautical Information Publication;
 - (ii) details and assumptions made by the instrument flight procedure designer, such as—
 - (aa) controlling obstacle for each segment of the procedure;
 - (ab) effect of environmental considerations on the design of the procedure;
 - (ac) infrastructure assessment;
 - (ad) airspace constraints;
 - (ae) for modifications or amendments to existing procedures, the reasons for any changes;
 - (af) for any deviation from existing standards, the reasons for such a deviation and details of the mitigations applied to assure continued safe operations; and
 - (ag) the results of the final verification for accuracy and completeness prior to validation and publication.
- (d) the design records are retained for a period not less than the operational lifetime of the procedure;
- (e) all calculations and results of calculations are presented in a manner that enables the reader to follow and trace the logic and resultant output;
- (f) records of all calculations in paragraph (e) are kept in order to prove compliance to or variation from the standard criteria;
- (g) all documentation undergo a final verification for accuracy and completeness prior to validation and publication;
- (h) all documentation are retained for a period of not be less than the operational lifetime of the procedure to assist in recreating the procedure in the future in the case of incidents and for periodic review and maintenance;
- (i) ground validation is undertaken by a qualified flight procedure designer with appropriate knowledge of validation issues;
- (j) Flight validation is conducted whenever the following conditions exist—

- (i) the fly ability of a procedure cannot be determined by other means;
- (ii) the procedure requires mitigation for deviations from design criteria;
- (iii) the accuracy or integrity of obstacle and terrain data cannot be determined by other means;
- (iv) new procedures differ significantly from existing procedures; and
- (v) for helicopter pins procedures.

15. (1) The certificated service provider shall ensure that a person conducting flight validation including simulator evaluation is a qualified and experienced flight validation pilot.

Competency of flight validation pilots.

- (2) The qualifications for Flight Validation Pilot shall include—
 - (a) at least a commercial pilot licence with instrument rating;
 - (b) a requirement that the licence held by the Flight Validation Pilot shall be for the aircraft category appropriate for the procedure to be validated; and
 - (c) meet all the experience requirements for the airline transport pilot licence in the relevant category of aircraft as described in personnel licensing regulations except that the Flight Validation Pilot does not have to be the pilot-in-command of the validation flight nor is he required to have the type rating on the aircraft used for the validation flight.

(3) The instrument flight procedures designer shall provide all data required to conduct a flight validation, flight inspection, and flight simulator evaluation to the entity conducting the exercise.

16. (1) An instrument flight procedure for use by civil aircraft within Kenya shall not be published unless the instrument flight procedure is approved by the Authority.

Approval of instrument flight procedures.

(2) The Authority shall only accept instrument flight procedures for approval, submitted by approved procedure designers.

(3) For Instrument Flight Procedures designed by approved procedure designers independently outside the certificated organization the submission of approval shall be in line with these regulations.

17. (1) The certificated service provider shall ensure that instrument flight procedures designs or charts, are provided to the aeronautical information service provider for publication in the Aeronautical Information Publication.

IFPD publication.

(2) The IFP shall be accompanied by a narrative, which describes the procedure in textual format.

18. (1) The certificated service provider using an automated flight procedure design tool shall ensure that such tool is validated.

Use of automation in procedure design and flight validation.

(2) Validation of the software shall be in accordance with the requirements prescribed by the Authority.

(3) The scope of validation shall include compliance with the criteria set out by the Authority.

(4) The flight validation tools required under this section shall include the use of equipment that—

- (a) has the precision, and accuracy traceable to appropriate standards, that are necessary for the validation being performed;
- (b) has known measurement uncertainties including, but not limited to, the software, firmware and crosswind uncertainties;
- (c) records the actual flight path of the validation aircraft;
- (d) is checked before being released for use, and at intervals not exceeding the calibration intervals recommended by the manufacturer, to establish that the system is capable of verifying the integrity of the instrument flight procedure; and
- (e) is operated in accordance with flight validation system procedures and criteria by persons who are competent and current on the system used.

19. (1) The certificated service provider providing an instrument flight procedure service shall establish procedures for recording, investigating, correcting, and reporting, any identified error, and any identified non-conformance or suspected non-conformance with these Regulations.

Errors in published instrument flight procedures.

(2) The procedure required by sub regulation (1) shall require that—

- (a) an instrument flight procedure is immediately withdrawn from operational use if the error or non-conformance affects, or may affect, the safety of an aircraft operation; and
- (b) the error or non-conformance is corrected, and certified by a senior person who is appropriately authorized by the service provider;
- (c) the correction required by paragraph (b) is clearly identified and promulgated by the most appropriate means relative to the operational significance of the error or non-conformance;
- (d) the source of the error or non-conformance is identified, and—
 - (i) if possible, eliminated to prevent a recurrence; and
 - (ii) preventive action is taken to ensure that the source of the error or non-conformance has not affected the integrity of any other instrument flight procedure; and
 - (iii) the Authority is immediately notified, of a promulgated information incident relating to an error or non-conformance referred to in subparagraph (i) above.

20. (1) The requirements for aerodrome operating minima are as specified in the Civil Aviation (Operation of Aircraft) Regulations.

Aerodrome operating minima.

(2) The procedures for the establishment of the aerodrome operating minima shall be prescribed by the Authority.

PART III—EXEMPTIONS

21. (1) A person may apply to the Authority for an exemption from any provision of these Regulations.

Requirements for application for exemption.

(2) Unless in case of emergency, a person requiring exemptions from any of these regulations shall make an application to the Authority at least sixty days prior to the proposed effective date, giving the following information—

- (a) name and contact address including electronic mail and fax if any;
- (b) telephone number;
- (c) a citation of the specific requirement from which the applicant seeks exemption;
- (d) justification for the exemption;
- (e) a description of the type of operations to be conducted under the proposed exemption;
- (f) the proposed duration of the exemption;
- (g) an explanation of how the exemption would be in the public interest;
- (h) a detailed description of the alternative means by which the applicant will ensure a level of safety equivalent to that established by the regulation in question;
- (i) a safety risk assessment carried out in respect of the exemption applied for;
- (j) an indication whether the exemption would contravene any provision of the Standards and Recommended Practices of the International Civil Aviation Organization ; and
- (k) any other information that the Authority may require.

(3) Where the applicant seeks emergency processing of an application for exemption, the application shall contain supporting facts and reasons for not filing the application within the time specified in sub regulation (2) and satisfactory reason for deeming the application an emergency.

(4) The Authority may in writing, decline an application made under sub regulation (3), where in the opinion of the Authority, the reasons given for emergency processing are not satisfactory.

(5) The application for exemption shall be accompanied by fee prescribed by the Authority.

22. (1) The Authority shall review the application for exemption made under these regulations for accuracy and compliance and if the application is satisfactory, the Authority shall publish a detailed summary of the application for comments, within a prescribed time, in either—

Review and publication.

- (a) the Kenya Gazette;

- (b) aeronautical information circular; or
- (c) a daily newspaper with national circulation.

(2) Where application requirements have not been fully complied with, the Authority shall request the applicant in writing, to comply prior to publication or making a decision under sub regulation (3).

(3) If the request is for emergency relief, the Authority shall publish the decision as soon as possible after processing the application.

23. (1) Where the application requirements have been satisfied, the Authority shall conduct an evaluation of the request to include—

Evaluation of the request.

- (a) determination of whether an exemption would be in the public interest;
- (b) a determination, after a technical evaluation of whether the applicant's proposal would provide a level of safety equivalent to that established by the regulation, although where the Authority decides that a technical evaluation of the request would impose a significant burden on the Authority's technical resources, the Authority may deny the exemption on that basis;
- (c) a determination of whether a grant of the exemption would contravene these Regulations; and
- (d) a recommendation based on the preceding elements, of whether the request should be granted or denied, and of any conditions or limitations that should be part of the exemption.

(2) The Authority shall notify the applicant in writing, the decision to grant or deny the request and publish a detailed summary of its evaluation and decision.

(3) The summary referred to in sub-regulation (2) shall specify the duration of the exemption and any conditions or limitations of the exemption.

(4) If the exemption affects a significant population of the aviation community in Kenya, the Authority shall publish the summary in aeronautical information circular.

24. The validity of any exemption issued under these regulations shall be dependent on the air navigation service provider complying with any condition that Authority may specify in the exemption as being necessary in the interests of safety of air navigation.

Validity of an exemption.

25. An air navigation service provider shall comply with any condition specified by the Authority in the exemption.

Compliance with conditions of the exemption.

PART IV—OFFENCES AND PENALTIES

26. A person who contravenes any provision of these Regulations may have his certificate or exemption cancelled or suspended.

Contravention of Regulations.

27. (1) A person who contravenes any provision of these Regulations, orders, notices or proclamations made thereunder shall,

Penalties.

upon conviction, be liable to a fine or imprisonment or both, and in the case of a continuing contravention, each day of the contravention shall constitute a separate offence.

(2) Any person who contravenes any provision of these Regulations shall upon conviction be subject to the penalty provisions provided in the Act.

(3) If it is proved that an act or omission of any person, which would otherwise have been a contravention by that person of a provision of these Regulations, orders, notices or proclamations made there under was due to any cause not avoidable by the exercise of reasonable care by that person, the act or omission shall be deemed not to be a contravention by that person of that provision.

28. A person aggrieved by any order made under these Regulations may, within twenty one days of such order being made, appeal against the order to a court of law with competent jurisdiction.

Dated the 9th May , 2018.

JAMES MACHARIA,
*Cabinet Secretary for Transport, Infrastructure,
Housing and Urban Development.*