



SCAA

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**SUDAN CIVIL AVIATION REGULATIONS (SUCAR)  
PART 11 - AIR TRAFFIC SERVICES  
Third Edition, August 2021**

Issued and Published under the Authority of the Director General

SUDAN CIVIL AVIATION AUTHORITY  
THE REPUBLIC OF SUDAN

(August 2021)





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SUCAR PART 11 – Air Traffic Services  
Third Edition , August 2021

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THE REPUBLIC OF SUDAN

(August 2021)

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## INTRODUCTION – AUTHORITY TO PUBLISH

SUCAR Part 11 – *Air Traffic Services* has been promulgated pursuant to Article 22 of the Sudan Civil Aviation Act, 2018 and issued by the Board of Directors of Civil Aviation. The SUCAR has been published under my Authority on the advice of the Board of Directors of Civil Aviation as is required by the Sudan Civil Aviation Act.

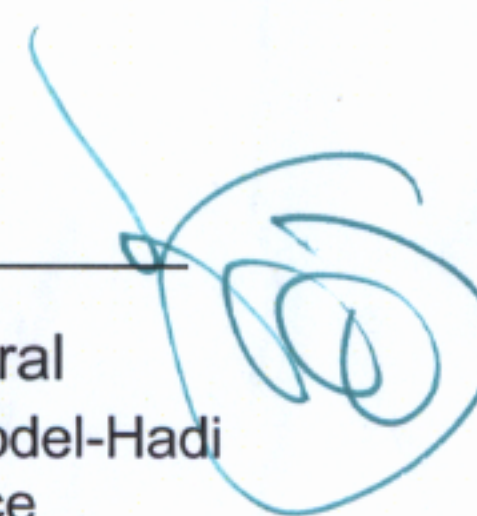
The Standards contained in this document including the associated Advisory Circulars, Directives, Operational Policies, Orders, or Sudan Civil Aviation Safety Publications, fully comply with the Standards and Recommended Practices (SARPs) contained in Annex 11 – *Air Traffic Services* to the *Convention on International Civil Aviation*, signed in Chicago on 7 December 1944 (Chicago Convention) and related air traffic services documents and guidance material issued by ICAO.

This Third Edition of SUCAR Part 11 – *Air Traffic Services* is designed to contain comprehensive requirements for the management of air traffic services, flight information services and alerting services in the Republic of Sudan and supersedes all previous editions of SUCAR Part 11 and Air Navigation Regulations.

The Director General of the SCAA has been delegated to issue, revise and amend the Advisory Circulars, Directives, Operational Policies, Orders, or Sudan Civil Aviation Safety Publications, referred to in this SUCAR, although they contain semi-regulatory requirements that are highly essential and enforceable under the Act. The Director General of the SCAA shall inform the Board of Directors of Civil Aviation on the Advisory Circulars, Directives, Operational Policies, Orders, or Sudan Civil Aviation Safety Publications he has issued, revised or amended.

SUCAR Part 11 is part of the overall regulatory framework of civil aviation in Sudan and is supported by other related SUCARs such as Part 2 – *Rules of the Air*, Part 3 – *Meteorological Services for International Air Navigation*, Part 4 – *Aeronautical Charts*, Part 5 – *Units of Measurement*, Part 10 – *Aeronautical Telecommunications*, Part 12 – *Search & Rescue*, Part 14 – *Aerodromes*, Part 15 – *Aeronautical Information Services* and Part 19 – *Safety Management*, just to mention few of the SUCARs that are closely related.

Any amendments of this SUCAR is an integral part thereof

  
Lieutenant General  
Yassin Ibrahim Yassin Abdel-Hadi  
Minister of Defence





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## ABBREVIATIONS

AFTN	Aeronautical fixed telecommunication network
AIS	Aeronautical Information service
AMS	Aeronautical Mobile Service
ANRD	Air Navigation Regulatory Directorate
ANS	Air Navigation services
ANNEX	Annex to the Convention on International Civil Aviation
ATM	Air Traffic Management
ATOS	Aeronautical Telecommunication Operations Services
ATS	Air Traffic services
COM	Communication
CNS	Communication, Navigation & Surveillance
DGCA	Director General of Civil Aviation
FRMS	FATIGUE RISK MANAGEMENT SYSTEM
ICAO	International Civil Aviation Organization
MET	Meteorology
NSP	National Safety Programme
PANS-ATM	Procedure for Air Navigation Services – Air Traffic Management
PANS-OPS	Procedure for Air Navigation services - Operations
SCAA	Sudan Civil Aviation
SARPS	Standards & Recommended Practices
SAR	Search & Rescue
SMS	Safety Management System
SSP	State Safety Programme
SUCAR	Sudan Civil Aviation Regulation



## FOREWORD

### 1. Legal background

- 1.1 Pursuant to Article 22 of the Civil Aviation Act, 2018 regarding the empowerment of the Board of Directors of Civil Aviation to issue and amend Sudan Civil Aviation Regulations (SUCAR) for acceptance and consent by the Competent Minister, SUCARs are issued to ensure full compliance with the Annexes to the Convention on International Civil Aviation, signed in Chicago on 7 December 1944 (Chicago Convention) to which the Republic of Sudan is a Party. The Chicago Convention, through its Annexes, establishes the minimum Standards and Recommended Practices (SARPs) to ensure the safety and security of global air navigation activities and environmental protection. Sudan Civil Aviation Regulations provide an appropriate and comprehensive framework for the definition and implementation of common technical requirements and administrative procedures in the field of civil aviation. Where not covered by the specific SUCAR, ICAO Annex SARPs, technical instruction in related technical publications and guidance material form a complimentary regulatory material for implementation in Sudan, as may be applicable, and thus are considered enforceable regulatory requirements in the areas that they address although they may not be contained in the relevant SUCAR, Operational Directive or Safety Notice. Technical instructions considered essential for implementation shall be included in the relevant SUCAR as soon as practicable and in any case during the next amendment of the SUCAR.
- 1.2 An aircraft, other than an aircraft registered in the Republic of Sudan, shall not fly over or land in the territories of the Republic of Sudan except under an authorization granted by the Sudan Civil Aviation Authority (SCAA) on behalf of the Government of the Republic of Sudan.
- 1.3 An aircraft other than an aircraft registered in the Republic of Sudan shall not take on-board or discharge any passengers or cargo at any location within the territories of the Republic of Sudan, being passengers or cargo carried or to be carried for hire or reward, without the permission of the SCAA granted for the aircraft in accordance with any conditions and limitations to which such permission may be subjected.
- 1.4 An aircraft shall not fly over or land in the territory of the Republic of Sudan unless it is registered in:
  - a) The Republic of Sudan; or
  - b) An ICAO Contracting State; or
  - c) Any other State where there is an agreement/arrangement between the Republic of Sudan and that State making provisions for over-flight or landing in the territory of the Republic of Sudan.
- 1.5 In accordance with the provisions of SUCAR Part 7 – Aircraft Nationality and Registration, an aircraft registered in the Republic of Sudan shall comply with all applicable regulations contained in the Sudan Civil Aviation Regulations.
- 1.6 An aircraft registered outside the Republic of Sudan shall comply with all applicable regulations contained in the Sudan Civil Aviation Regulations while operating to/from or within the territories of the Republic of Sudan.
- 1.7 An aircraft registered in the Republic of Sudan shall comply with the regulations of other ICAO contracting States where it may be operating or overflying.
- 1.8 The Sudan Civil Aviation Authority (SCAA) recognizes the codes of the Type Certification Authority of the State of Manufacturer and/or Design, for the purpose of



issuing or Revalidation of Airworthiness Certificates, Airworthiness Directives (ADs), Minimum Equipment List (MEL), and all other related issues in that respect. The SCAA may impose additional requirements.

- 1.9 Any difference that may exist between SUCAR requirements and corresponding ICAO Annex SARPs shall be reported to ICAO in line with the requirements of Article 38 of the Convention. Significant differences shall be published in the National Aeronautical Information Publications (AIP). The procedure for amending the SUCARs and filing of differences with ICAO are contained in the Rule making Manual, Fourth Edition, 2018 and is summarized in paragraph 4 below.
- 1.10 An effort has been made for SUCAR requirements to be fully compliant with corresponding ICAO Annex provisions; however, where an aviation activity for which a SUCAR regulation has not been promulgated is undertaken in the Sudan, the relevant ICAO Annex provisions shall be applicable (see also paragraph 1.1 above).

No.	SUCAR Part No.	Title/Name	Edition/Year
1.	SUCAR Part 1	Personnel Licensing	2 <sup>nd</sup> Edition/2017
2.	SUCAR Part 2	Rules of the Air	2 <sup>nd</sup> Edition/2021
3.	SUCAR Part 3	Meteorological Services	1 <sup>st</sup> Edition/2011
4.	SUCAR Part 4	Aeronautical Charts	1 <sup>st</sup> Edition/2011
5.	SUCAR Part 5	Units of Measurement	1 <sup>st</sup> Edition/2011
6.	SUCAR Part 6 – Subpart I	Operations of Aircraft – Commercial Air Transport, aero planes	3 <sup>rd</sup> Edition/2017
7.	SUCAR Part 6 – Subpart II	Operations of Aircraft – General Aviation	Under Development
8.	SUCAR Part 6 – Subpart III	Operations of Aircraft – Commercial Helicopter Operations	1 <sup>st</sup> Edition/2017
9.	SUCAR Part 6 – Subpart IV	Aerial Work	Under Development
10.	SUCAR Part 7	Aircraft Nationality and Registration Marks	2 <sup>nd</sup> Edition/2017
11.	SUCAR Part 8	Airworthiness of Aircraft	2 <sup>nd</sup> Edition/2017
12.	SUCAR Part 9	Facilitation	1 <sup>st</sup> Edition/2017
13.	SUCAR Part 10	Aeronautical Telecommunications	1 <sup>st</sup> Edition/2017
14.	SUCAR Part 11	Air Traffic Services	1 <sup>st</sup> Edition/2017
15.	SUCAR Part 12	Search and Rescue	1 <sup>st</sup> Edition/2017
16.	SUCAR Part 13	Aircraft Accident and Incident Investigations	1 <sup>st</sup> Edition/2011
17.	SUCAR Part 14 – Subpart I	Aerodromes – Aerodrome Design and Operations	3 <sup>rd</sup> Edition/2016
18.	SUCAR Part 14 – Subpart II	Heliports	3 <sup>rd</sup> Edition/2016
19.	SUCAR Part 15	Aeronautical Information Services	1 <sup>st</sup> Edition/2011
20.	SUCAR Part 16 – Subpart I	Environmental Protection – Aircraft Noise	Under Development
21.	SUCAR Part 16 – Subpart II	Environmental Protection – Aircraft Engine Emissions	Under Development

22.	SUCAR Part 17	Aviation Security	2 <sup>nd</sup> Edition/2021
23.	SUCAR Part 18	The Safe Transport of Dangerous Goods	1 <sup>st</sup> Edition/2011
24.	SUCAR Part 19	Aviation Safety Management	2 <sup>nd</sup> Edition/2018

1.11 Provisions promulgated in the SUCARs shall be applicable within six months after the date that they have been signed by the Competent Minister and published following promulgation by the Board of Directors.

## 2. Layout of the SUCAR document

### 2.1 Sudan Civil Aviation Regulations (SUCARs)

2.1.1. The Republic of Sudan has promulgated or is in the process of promulgating operating regulations that are fully compliant with corresponding Standards contained in the Annexes to the *Convention on International Civil Aviation*. List of SUCARs promulgated in Sudan is contained in the Table below. The list shall be amended periodically to reflect the status of SUCAR implementation.

2.1.2. SUCARs, as may be applicable, are supported by various Guidance Materials, Procedures Manuals and Inspectors Handbooks designed to enable the SCAA to effectively and efficiently meet its safety oversight obligations as well as to provide the Inspectorate staff with a complete set of regulatory and supporting material.

2.1.3. Together, the SUCARs and relevant guidance materials, procedures and handbooks form the means by which the SCAA regulates and supervises civil aviation activity in Sudan and of Sudanese registered aircraft wherever they may be operating.

2.1.4. List of Sudan Civil Aviation Regulations is presented in the Table below which shall be amended as required from time-to-time to ensure its currency. Each SUCAR, except when it is found to be necessary shall be composed of:

- a) Consent by the Minister;
- b) Foreword;
- c) Definitions;
- d) Regulatory Standards;
- e) Notes;
- f) Tables and figures;
- g) Appendices; and
- h) Attachments.

## 3. Rules of Construction

3.1. In the Parts of these Regulations, unless the context requires otherwise:

- a) Words importing the singular include the plural
- b) Words importing the plural include the singular, and
- c) Words importing the masculine gender include the feminine.
- d) "Shall" is used in an imperative sense.
- e) "May/should" is used in a permissive sense to state authority or permission to do the act prescribed, and the words "no person may...." Or "a person may not ....." means that no person is required, authorized or permitted to do the act prescribed.
- f) The word "Includes" means includes but is not limited to.
- g) The word "Show" and its derivatives in these regulations have the exact intent as shown in the dictionary.

#### 4. **Amendment Rationale and Procedures**

The Sudan Civil Aviation Regulations will from time-to-time be amended to reflect the latest updates of ICAO Standards and Recommended Practices (SARPs); it will also be amended to reflect the latest up-to-date aviation safety related matters detected by the Civil Aviation Authority, the aviation industry service providers or operators, and individuals and authorization holders. Amendment may also be generated to ensure safety standardization and to accommodate new initiatives or technologies. Information on the rule making process is contained in the “Rule Making Manual”, Fourth Edition, 2018.

#### 5. **Article 83bis**

Sudan has ratified Article 83bis of the Convention on International Civil Aviation respecting the delegation of responsibilities in instances where aeroplane are leased, chartered, or interchanged in particular without crew, between ICAO contracting States that have ratified the Article.

#### 6. **Requirements**

Services providers shall provide Air traffic services in Sudan in accordance with the provisions of this SUCAR, and acceptable level to the Authority.

#### 7. **Status of SUCAR components**

A SUCAR is normally made up of the following component parts, not all of which however may not be found in every SUCAR:

##### **Standard**

Any specification or physical characteristics, configuration, material, performance, personnel or procedure, the uniform application of which is recognized as necessary for the safety or regularity of international air navigation and to which the holder of an Air Operator Certificate issued by the Sudan Civil Aviation Authority shall conform to.

##### **Appendices and Attachments**

Text comprising material grouped separately for convenience but forming part of the Standards.

##### **Definition**

Definition of terms used in the SUCAR which are not self-explanatory in that they do have accepted dictionary meanings. A definition does not have independent status but is an essential part of each Standard in which the term is used, since a change in the meaning of the term would affect the specification.

##### **Table and Figures**

Elements which add to or illustrate a regulatory requirement referred to in the SUCAR and form part of the associated regulatory requirement and have the same status.

##### **References**

Text based on ICAO Standards and Recommended Practices and its guidance materials included in the SUCAR to enhance implementation.

#### 8. **Acceptable means of compliance (AMC)**

Guidance and guidance material provided for in this Part constitutes acceptable means of compliance, or part thereof, with the concerned regulatory provision(s).



Alternative means of compliance may be established by the service provider. Such alternative means shall only become acceptable after submission to the Authority for review and if satisfactory, accepted by the Authority. Additional AMC and guidance are published by the Authority as separate documents such as Advisory Circulars.

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## APPLICABILITY

SUCAR Part 11 sets out:

- a) processes and procedures for air traffic services in the Republic of Sudan; and
- b) procedures and practices for the management of air traffic services.

The Standards in this SUCAR-Part 11, together with the Standards in SUCAR-Part 2, govern the application of the Procedures for Air Navigation Services — Air Traffic Management (ICAO Doc 4444, PANS-ATM) and the Regional Supplementary Procedures — Rules of the Air and Air Traffic Services, contained in Doc 7030, in which latter document will be found subsidiary procedures of regional application.

SUCAR-Part 11 pertains to the establishment of airspace, units and services necessary to promote a safe, orderly and expeditious flow of air traffic. A clear distinction is made between air traffic control service, flight information service and alerting service. Its purpose, together with SUCAR-Part 2, is to ensure that flying on air routes is carried out under uniform conditions designed to improve the safety and efficiency of air operation.

The Standards in SUCAR-Part 11 apply in those parts of the airspace under the jurisdiction of Sudan wherein air traffic services are provided and also wherever Sudan accepts the responsibility of providing air traffic services over the high seas or airspace delegated to Sudan.

This regulation applies to air traffic services established and provided in the Republic of Sudan.



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## CHAPTER 1 – DEFINITIONS

### 1.1. DEFINITIONS

When the following terms are used in this Sudan Civil Aviation Regulation (SUCAR), they have the following meanings:

**Accepting unit. Air traffic control unit next to take control of an aircraft.**

**Accident. An occurrence associated with the operation of an aircraft which**

takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time it comes to rest at the end of the flight and the primary propulsion system is shut down, in which:-

- a) a person is fatally or seriously injured as a result of:
- being in the aircraft, or
  - direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or
  - direct exposure to jet blast, except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew

*except* when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or

- b) the aircraft sustains damage or structural failure which:
- adversely affects the structural strength, performance or flight characteristics of the aircraft, and
  - would normally require major repair or replacement of the affected component,

*except* for engine failure or damage, when the damage is limited to the engine, its cowlings or accessories; or for damage limited to propellers, wing tips, antennas, tires, brakes, fairings, small dents or puncture holes in the aircraft skin; or

- c) the aircraft is missing or is completely inaccessible.

**Accuracy.** A degree of conformance between the estimated or measured value and the true value.

**ADS-C agreement.** A reporting plan which establishes the conditions of ADS-C data reporting (i.e. data required by the air traffic services unit and frequency of ADS-C reports which have to be agreed to prior to using ADS-C in the provision of air traffic services).

**Advisory airspace.** An airspace of defined dimensions, or designated route, within which air traffic advisory service is available.

**Advisory Circular (AC).** A document issued and published under the Authority of the Director General to provide guidance for compliance with Sudan standards. It defines acceptable means, but not the only means, of accomplishing or showing compliance with Sudan Standards.

**Advisory route.** A designated route along which air traffic advisory service is available.

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

**Aerodrome control service.** Air traffic control service for aerodrome traffic.

**Aerodrome control tower.** A unit established to provide air traffic control service to aerodrome traffic.

**Aerodrome traffic.** All traffic on the maneuvering area of an aerodrome and all aircraft flying in the vicinity of an aerodrome.

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

**Aeronautical Information Circular (AIC).** A notice containing information that does not qualify for the origination of a NOTAM (notices to airmen) or for inclusion in the AIP (aeronautical information publication) but that relates to flight safety, air navigation, or technical, administrative, or legislative matters.

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

**Aeronautical mobile service (RR S1.32).** A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate emergency position-indicating radio beacon stations may also participate in this service on designated distress and emergency frequencies.

**Aeronautical station (RR S1.81).** A land station in the aeronautical mobile service. In certain instances, an aeronautical station may be located, for example, on board ship or on a platform at sea.

**Aeronautical telecommunication station.** A station in the aeronautical telecommunication service.

**Airborne collision avoidance system (ACAS).** An aircraft system based on secondary surveillance radar (SSR) transponder signals which operates independently of ground-based equipment to provide advice to the pilot on potential conflicting aircraft that are equipped with SSR transponders.

**Aircraft.** Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

**Air-ground communication.** Two-way communication between aircraft and stations or locations on the surface of the earth.

**AIRMET information.** Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of low-level aircraft operations and which was not already included in the forecast issued for low-level flights in the flight information region concerned or sub-area thereof.

**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.

**Air Navigation services.** Air traffic services, aeronautical information services, instrument flight procedures design, meteorological services, communication, navigation and surveillance.

**Air Navigation facility.** Any facility used, available for use, or designed for use in aid of navigation of aircraft, including airports, landing fields, any structures, mechanisms, lights, beacons, marks, communicating systems, or other instruments or devices used or useful as an aid to the safe taking off, navigation, and landing of aircraft and any combination of such facilities.





**Air navigation services provider.** An entity established for the purpose of operating and managing air navigation services.

**Air-taxiing.** Movement of a helicopter/VTOL above the surface of an aerodrome, normally in ground effect and at a ground speed normally less than 37 km/h (20 kt).

**Air traffic.** All aircraft in flight or operating on the maneuvering area of an aerodrome.

**Air traffic advisory service.** A service provided within advisory airspace to ensure separation, in so far as practical, between aircraft which are operating on IFR flight plans.

**Air Traffic Services Certificate.** The certificate for the provision of Air Traffic Services issued by the Authority under this SUCAR.

**Air Traffic Services Provider.** An entity established for the purpose of operating and managing air traffic services.

**Air traffic control clearance.** Authorization for an aircraft to proceed under conditions specified by an air traffic control unit.

**Air traffic control service.** A service provided for the purpose of:

- a) preventing collisions:
  - 1) between aircraft, and
  - 2) on the maneuvering area between aircraft and obstructions; and
- b) expediting and maintaining an orderly flow of air traffic.

**Air traffic control unit.** A generic term meaning variously, area control center, approach control unit or aerodrome control tower.

**Air traffic flow management (ATFM).** A service established with the objective of contributing to a safe, orderly and expeditious flow of air traffic by ensuring that ATC capacity is utilized to the maximum extent possible and that the traffic volume is compatible with the capacities declared by the appropriate ATS authority.

**Air traffic service.** A generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control service (area control service, approach control service or aerodrome control service).

**Air traffic services airspaces.** Airspaces of defined dimensions, alphabetically designated, within which specific types of flights may operate and for which air traffic services and rules of operation are specified.

**Air traffic services reporting office.** A unit established for the purpose of receiving reports concerning air traffic services and flight plans submitted before departure.

**Air traffic services unit.** A generic term meaning variously, air traffic control unit, flight information center or air traffic services reporting office.

**Airway.** A control area or portion thereof established in the form of a corridor.

**ALERFA.** The code word used to designate an alert phase.

**Alerting service.** A service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organizations as required.

**Alert phase.** A situation wherein apprehension exists as to the safety of an aircraft and its occupants.

**Allocation, allocate.** Distribution of frequencies, SSR Codes, etc. to a State, unit or service. Distribution of 24-bit aircraft addresses to a State or common mark registering authority.

**Alternate aerodrome.** An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing. Alternate aerodromes include the following:



- a) Take-off alternate. An alternate aerodrome at which an aircraft can land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.
- b) En-route alternate. An aerodrome at which an aircraft would be able to land after experiencing an abnormal or emergency condition while en route.
- c) ETOPS en-route alternate. A suitable and appropriate alternate aerodrome at which an aeroplane would be able to land after experiencing an engine shut-down or other abnormal or emergency condition while en route in an ETOPS operation.
- d) Destination alternate. An alternate aerodrome to which an aircraft may proceed should it become either impossible or inadvisable to land at the aerodrome of intended landing.

**Altitude.** The vertical distance of a level, a point or an object considered as a point, measured from mean sea level.

**Approach control service.** Air traffic control service for arriving or departing controlled flights.

**Approach control unit.** A unit established to provide air traffic control service to controlled flights arriving at, or departing from, one or more aerodromes.

**Appropriate ATS authority.** The relevant authority designated by the State responsible for providing air traffic services in the airspace concerned.

**Apron.** A defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance.

**Apron management service.** A service provided to regulate the activities and the movement of aircraft and vehicles on an apron.

**Area control center.** A unit established to provide air traffic control service to controlled flights in control areas under its jurisdiction.

**Area control service.** Air traffic control service for controlled flights in control areas.

**Area navigation (RNAV).** A method of navigation which permits aircraft operation on any desired flight path within the coverage of station-referenced navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

**Area navigation route.** An ATS route established for the use of aircraft capable of employing area navigation.

**ATS route.** A specified route designed for channeling the flow of traffic as necessary for the provision of air traffic services.

**Authority.** Sudan Civil Aviation Authority

**Automatic dependent surveillance (ADS).** A surveillance technique in which aircraft automatically provide, via a data link, data derived from on-board navigation and position fixing systems, including aircraft identification, four-dimensional position and additional data as appropriate.

**Automatic dependent surveillance — broadcast (ADS-B).** A means by which aircraft, aerodrome vehicles and other objects can automatically transmit and/or receive data such as identification, position and additional data, as appropriate, in a broadcast mode via a data link.

**Automatic dependent surveillance — contract (ADS-C).** A means by which the terms of an ADS-C agreement will be exchanged between the ground system and the aircraft, via a data link, specifying under what conditions ADS-C reports would be initiated, and what data would be contained in the reports.

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

- a) Data link-automatic terminal information service (D-ATIS).



- b) The provision of ATIS via data link.
- c) Voice-automatic terminal information service (Voice-ATIS).
- d) The provision of ATIS by means of continuous and repetitive voice broadcasts.
- e) Base turn. A turn executed by the aircraft during the initial approach between the end of the outbound track and the beginning of the intermediate or final approach track. The tracks are not reciprocal.

**Blind transmission.** A transmission from one station to another station in circumstances where two-way communication cannot be established but where it is believed that the called station is able to receive the transmission.

**Board of Directors.** The Board of Directors of Sudan Civil Aviation Authority established by the Civil Aviation Act

**Broadcast.** A transmission of information relating to air navigation that is not addressed to a specific station or stations.

**Calendar.** Discrete temporal reference system that provides the basis for defining temporal position to a resolution of one day (ISO 19108).

**Ceiling.** The height above the ground or water of the base of the lowest layer of cloud below 6 000 m (20 000 ft) covering more than half the sky.

**Change-over point.** The point at which an aircraft navigating on an ATS route segment defined by reference to very high frequency omnidirectional radio ranges is expected to transfer its primary navigational reference from the facility behind the aircraft to the next facility ahead of the aircraft.

**Circling approach.** An extension of an instrument approach procedure which provides for visual circling of the aerodrome prior to landing.

**Code (SSR).** The number assigned to a particular multiple pulse reply signal transmitted by a transponder in Mode A or Mode C.

**Collision risk.** The expected number of mid-air aircraft accidents in a prescribed volume of airspace for a specific number of flight hours due to loss of planned separation.

**Cruise climb.** An aeroplane cruising technique resulting in a net increase in altitude as the aeroplane mass decreases.

**Civil Aviation Act.** The Sudan Civil Aviation Act 2018

**Clearance limit.** The point to which an aircraft is granted an air traffic control clearance.

**Competent Minister.** The Minister designated by the President of the State to be in charge of civil aviation.

**Conference communications.** Communication facilities whereby direct speech conversation may be conducted between three or more locations simultaneously.

**Control area.** A controlled airspace extending upwards from a specified limit above the earth.

**Controlled aerodrome.** An aerodrome at which air traffic control service is provided to aerodrome traffic.

**Controlled airspace.** An airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification.

**Controlled flight.** Any flight which is subject to an air traffic control clearance.

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

**Control zone.** A controlled airspace extending upwards from the surface of the earth to a specified upper limit.

**Convention.** The Convention on International Civil Aviation, signed at Chicago on 7 December 1944, as amended, and its annexes.

**Cruising level.** A level maintained during a significant portion of a flight.

**Cyclic redundancy check (CRC).** A mathematical algorithm applied to the digital expression of data that provides a level of assurance against loss or alteration of data.

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

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

**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 link communications.** A form of communication intended for the exchange of messages via a data link.

**Data processing .** A systematic sequence of operations performed on data.

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

**Datum.** Any quantity or set of quantities that may serve as a reference or basis for the calculation of other quantities (ISO 19104).

**Decision altitude (DA) or decision height (DH).** A specified altitude or height in the precision approach or approach with vertical guidance at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

**Declared capacity.** A measure of the ability of the ATC system or any of its subsystems or operating positions to provide service to aircraft during normal activities. It is expressed as the number of aircraft entering a specified portion of airspace in a given period of time, taking due account of weather, ATC unit configuration, staff and equipment available, and any other factors that may affect the workload of the controller responsible for the airspace.

**Dependent parallel approaches.** Simultaneous approaches to parallel or near-parallel instrument runways where radar separation minima between aircraft on adjacent extended runway center lines are prescribed.

**DETRESFA.** The code word used to designate a distress phase.

**Directive.** A document issued and published under the authority of the Director General to govern the implementation of a Standard

**Director General.** The Director General of the Sudan Civil Aviation Authority

**Discrete code.** A four-digit SSR Code with the last two digits not being “00”.

**Distress.** A condition of being threatened by grave and imminent danger or of requiring immediate assistance.

**Distress phase.** A situation wherein there is reasonable certainty that an aircraft and its occupants are threatened by grave and imminent danger or require immediate assistance.

**Downstream clearance.** A clearance issued to an aircraft by an air traffic control unit that is not the current controlling authority of that aircraft.

**Duty.** Any task that an air traffic controller is required by an air traffic services provider to perform. These tasks include those performed during time-in-position, administrative work and training.

**Duty period.** A period which starts when an air traffic controller is required by an air traffic services provider to report for or to commence a duty and ends when that person is free from all duties.

**Emergency phase.** A generic term meaning, as the case may be, uncertainty phase, alert phase or distress phase.

**Fatigue.** A physiological state of reduced mental or physical performance capability resulting from sleep loss, extended wakefulness, circadian phase, and/or workload (mental and/or physical activity) that can impair a person's alertness and ability to perform safety-related operational duties.

**Fatigue risk management system (FRMS).** A data-driven means of continuously monitoring and managing fatigue-related safety risks, based upon scientific principles, knowledge and operational experience that aims to ensure relevant personnel are performing at adequate levels of alertness.

**Elevation.** The vertical distance of a point or a level, on or affixed to the surface of the earth, measured from mean sea level.

**Emergency phase.** A generic term meaning, as the case may be, uncertainty phase, alert phase or distress phase.

**Essential local traffic.** Any aircraft, vehicle or personnel on or near the maneuvering area or traffic operating in the vicinity of the aerodrome, which may constitute a hazard to the aircraft concerned.

**Essential traffic.** That controlled traffic to which the provision of separation by air traffic control is applicable but which, in relation to a particular controlled flight, is not separated there from by the specified minimum.

**Estimated elapsed time.** The estimated time required to proceed from one significant point to another.

**Estimated off-block time.** The estimated time at which the aircraft will commence movement associated with departure.

**Estimated time of arrival.** For IFR flights, the time at which it is estimated the aircraft will arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the aerodrome, the time at which the aircraft will arrive over the aerodrome. For VFR flights, the time at which it is estimated the aircraft will arrive over the aerodrome.

**Exact reporting point.** A reporting point which is either:

- a) overhead a VOR.
- b) overhead a NDB.
- c) the intersection of two OR radials or of a VOR radial and a DME arc when such intersection has been published as a reporting point in the AIP.
- d) an ILS marker beacon when traversing the minor axis on a published course

**Expected approach time.** The time at which ATC expects that an arriving aircraft, following a delay, will leave the holding point to complete its approach for a landing.

**Filed flight plan (FPL).** The flight plan as filed with an ATSU by the pilot or a designated representative, without any subsequent changes.

**Final approach.** That part of an instrument approach procedure which commences at the specified final approach fix or point, or where such a fix or point is not specified,

- a) at the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified; or
- b) at the point of interception of the last track specified in the approach procedure; and ends at a point in the vicinity of an aerodrome from which:
  - 1) a landing can be made; or
  - 2) a missed approach procedure is initiated.

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

**Flight crew member.** A licensed crew member charged with duties essential to the operation

of an aircraft during a flight duty period.

**Flight information center.** A unit established to provide flight information service and alerting service.

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

**Flight information service.** A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

**Flight level.** A surface of constant atmospheric pressure which is related to a specific pressure datum, 1 013.2 hectopascals (hPa), and is separated from other such surfaces by specific pressure intervals.

**Flight plan.** Specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft.

**Flight status.** An indication of whether a given aircraft requires special handling by air traffic services units or not

**Flight technical error (FTE).** The difference between the altitude indicated by the altimeter display being used to control the aircraft and the assigned altitude/flight level

**Flight visibility.** The visibility forward from the cockpit of an aircraft in flight.

**Flow control.** Measures designed to adjust the flow of traffic into a given airspace, along a given route, or bound for a given aerodrome, so as to ensure the most effective utilization of the airspace.

**Forecast.** A statement of expected meteorological conditions for a specified time or period, and for a specified area or portion of airspace.

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

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

**Gregorian calendar.** Calendar in general use; first introduced in 1582 to define a year that more closely approximates the tropical year than the Julian calendar (ISO 19108).

**Ground effect.** A condition of improved performance (lift) due to the interference of the surface with the airflow pattern of the rotor system when a helicopter or other VTOL aircraft is operating near the ground.

**Ground speed.** The speed of an aircraft relative to the surface of the earth.

**Ground-to-air communication.** One-way communication from stations or locations on the surface of the earth to aircraft

**Ground visibility.** The visibility at an aerodrome, as reported by an accredited observer or by automatic systems.

**Guidance Material.** A document issued and published under the authority of the Director General to guide SCAA technical staff members and relevant industry players to implement the requirements contained in the SUCARs, Advisory Circulars, Directives, Operational Policies, Orders, or Sudan Civil Aviation Safety Publications.

**Handbook.** A document issued and published under the authority of the Director General containing one or more procedures.

**Heading.** The direction in which the longitudinal axis of an aircraft is pointed, usually expressed in degrees from North (true, magnetic, compass or grid).

**Height-keeping capability.** The aircraft height-keeping performance that can be expected under nominal environmental operating conditions with proper aircraft operating practices and maintenance Height. The vertical distance of a level, a point or an object considered as a point, measured from a specified datum.

**Height-keeping performance.** The observed performance of an aircraft with respect to adherence to cleared flight level.

- Holding fix.** A geographical location that serves as a reference for a holding procedure.
- Holding point.** A specified location, identified by visual or other means, in the vicinity of which the position of an aircraft in flight is, maintained in accordance with air traffic control clearances.
- Holding procedure.** A predetermined maneuver which keeps an aircraft within a specified airspace while awaiting further clearance.
- Human Factors principles.** Principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance.
- Human performance.** Human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.
- IFR.** The symbol used to designate the instrument flight rules.
- IFR flight.** A flight conducted in accordance with the instrument flight rules.
- IMC.** The symbol used to designate instrument meteorological conditions.
- INCERFA.** The code word used to designate an uncertainty phase.
- Incident.** An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.
- Independent parallel approaches.** Simultaneous approaches to parallel or near-parallel instrument runways where radar separation minima between aircraft on adjacent extended runway center lines are not prescribed.
- Independent parallel departures.** Simultaneous departures from parallel or near-parallel instrument runways.
- Initial approach segment.** That segment of an instrument approach procedure between the initial approach fix and the intermediate approach fix or, where applicable, the final approach fix or point.
- Instrument approach procedure (IAP).** A series of predetermined maneuvers 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.** 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.
- Instrument meteorological conditions (IMC).** Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, less than the minima specified for visual meteorological conditions.
- Integrity (aeronautical data).** 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).** Classification based upon the potential risk resulting from the use of corrupted data. Aeronautical data is classified as:
- 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;
  - 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
  - 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.

**International NOTAM office.** An office designated by Sudan or another State for the exchange of NOTAM internationally.

**ISO.** Refer to the International Standards Organization a nonprofit organization that develops and publishes standards in a wide range of areas. ISO standards included in this SUCAR are 19104, Geographic Information – Terminology, and 19108, Geographic Information – Temporal Schema

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

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

**Level change.** In the application of longitudinal separation, level change is that portion of the climb or descent of one aircraft during which no vertical separation exists with respect to another aircraft.

**Location indicator.** A four-letter code group formulated in accordance with rules prescribed by ICAO and assigned to the location of an aeronautical fixed station.

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

**Meteorological information.** Meteorological report, analysis, forecast, and any other statement relating to existing or expected meteorological conditions.

**Meteorological office.** An office designated to provide meteorological service for international air navigation.

**Meteorological report.** A statement of observed meteorological conditions related to a specified time and location.

**Minimum crossing altitude.** The lowest altitude at certain fixes at which an aircraft must cross when proceeding in the direction of a higher minimum en route IFR altitude (MEA).

**Minimum descent altitude.** The lowest altitude, expressed in feet above mean sea level, to which descent is authorized on final approach or during circle-to-land maneuvering in execution of a standard instrument approach procedure where no electronic glide slope is provided.

**Minimum en route IFR altitude (MEA).** The lowest published altitude between radio fixes which assures acceptable navigational signal coverage and meets obstacle clearance requirements between those fixes. The MEA prescribed for an Airway or segment thereof, area navigation low or high route, or other direct route applies to the entire width of the airway, segment, or route between the radio fixes defining the airway, segment, or route

**Minimum fuel.** The term used to describe a situation in which an aircraft's fuel supply has reached a state where little or no delay can be accepted.

**Minimum holding altitude.** The lowest altitude prescribed for a holding pattern which assures navigational signal coverage, communications, and meets obstacle clearance requirements

**Minimum obstruction clearance altitude.** The lowest published altitude in effect between radio fixes on VOR airways, off airway routes, or route segments which meets obstacle clearance requirements for the entire route segment and which assures acceptable navigational signal coverage only within 22 nautical miles of a VOR

**Minimum safe altitude warning (MSAW).** A function of the ATC radar data processing system. The objective of the MSAW function is to assist in the prevention of controlled flight into terrain. The controller is provided, in a timely manner, a warning (acoustic or visual) when the level of an aircraft is below or is predicted by the computer to go below a predetermined safe altitude.

**Minimum sector altitude.** The lowest altitude which may be used which will provide a



minimum clearance of 300 m (1 000 ft) above all objects located in an area contained within a sector of a circle of 46 km (25 NM) radius centered on a radio aid to navigation.

**Minimum vectoring Altitude.** The lowest MSL altitude at which an IFR aircraft will be vectored by a radar controller, except as otherwise authorized for radar approaches, departures and missed approaches. The altitude meets IFR obstacle clearance criteria. It may be lower than the published MEA along an airway or route. It may be utilized for radar vectoring only upon the controller's determination that adequate radar return is being received from the aircraft being controlled.

**Missed approach point.** 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 height is not infringed.

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

**Mode (SSR).** The conventional identifier related to specific functions of the interrogation signals transmitted by an SSR interrogator. There are four modes specified in Annex 10: A, C, S and inter-mode.

**Movement area.** That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the maneuvering area and the apron(s).

**National Safety Programme.** The procedures adopted to ensure the safety, regularity and efficiency of aviation in Sudan

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

- a) Required navigation performance (RNP) specification. A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH.
- b) Area navigation (RNAV) specification. A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.

**Non-compliant aircraft.** An aircraft configured to comply with the requirements of RVSM MASPS which, through height monitoring, is found to have a total vertical error (TVE) or an assigned altitude deviation (AAD) of 90 m (300 ft) or greater or an altimetry system error (ASE) of 75 m (245 ft) or more.

**Non-precision approach (NPA) procedure.** An instrument approach procedure which utilizes lateral guidance but does not utilize vertical guidance.

**Non-radar separation.** The separation used when aircraft position information is derived from sources other than radar

**Normal operating zone (NOZ).** Airspace of defined dimensions extending to either side of an ILS localizer course and/or MLS final approach track. Only the inner half of the normal operating zone is considered in independent parallel approaches.

**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. A person, organization or enterprise engaged in or offering to engage in an aircraft operation.

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

**On track.** Aircraft are deemed to be on track when flying towards or away from a point over which they will pass or have already passed.

**Operational control.** The exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of the safety of the aircraft and the regularity and efficiency of the flight.

**Operational error.** Any occurrence attributable to an element of the air traffic system in which:

- a) less than the applicable separation minima between 2 or more aircraft, or between an aircraft and terrain or obstacles (ex. operations below minimum vectoring altitude (MVA)); equipment/personnel on runways) as required by the ATSP,
- b) an aircraft lands or departs on a runway closed to aircraft operations after receiving air traffic authorization an aircraft lands or departs on a runway closed to aircraft operations at an uncontrolled airport, and it was determined that a NOTAM regarding the runway closure was not issued to the pilot as required.

**Operational Policy.** A document issued and published under the authority of the Director General to provide to the SCAA technical staff or the relevant industry players detailed technical or regulatory guidance on the implementation of the requirements contained in the SUCARs.

**Operator.** A person, organization or enterprise engaged in or offering to engage in an aircraft operation.

**Order.** A document issued and published under the authority of the Director General to provide detailed instructions on the implementation of the requirements contained in the SUCARs.

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

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

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

**Pilot-in-command.** The pilot designated by the operator, or in the case of general aviation, the owner, as being in command and charged with the safe conduct of a flight.

**Precision approach (PA) procedure.** An instrument approach procedure using precision lateral and vertical guidance with minima as determined by the category of operation.

**Precision approach radar (PAR).** Primary radar equipment used to determine the position of an aircraft during final approach, in terms of lateral and vertical deviations relative to a nominal approach path, and in range relative to touchdown.

**Primary radar.** A radar system which uses reflected radio signals.

**Primary surveillance radar (PSR).** A surveillance radar system which uses reflected radio signals.

**Printed communications.** Communications which automatically provide a permanent printed record at each terminal of a circuit of all messages which pass over such circuit.

**Procedure.** A document issued and published under the authority of the Director General to provide guidance to the SCAA technical staff on how to process or evaluate an application or a document required under a SUCAR, Advisory Circular, Directive,

Operational Policy, Order, or Sudan Civil Aviation Safety Publication.

**Procedural separation.** The separation used when aircraft position information is derived from sources other than radar.

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

**Profile.** The orthogonal projection of a flight path or portion thereof on the vertical surface containing the nominal track.

**PSR blip.** The visual indication, in non-symbolic form, on a radar display of the position of an aircraft obtained by primary radar.

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

**Racetrack procedure.** A procedure designed to enable aircraft to reduce altitude during the initial approach segment and/or establish the aircraft inbound when entry into a reversal procedure is not practical

**Radar approach.** An approach in which the final approach phase is executed under the direction of a radar controller.

**Radar clutter.** The visual indication on a radar display of unwanted signals.

**Radar contact.** The situation which exists when the radar position of a particular aircraft is seen and identified on a radar display.

**Radar control.** Term used to indicate that radar-derived information is employed directly in the provision of air traffic control service.

**Radar controller.** A qualified air traffic controller holding a radar rating appropriate to the functions to which he is assigned.

**Radar display.** An electronic display of radar-derived information depicting the position and movement of aircraft.

**Radar identification.** The situation which exists when the radar position of a particular aircraft is seen on a radar display and positively identified by the air traffic controller.

**Radar map.** Information superimposed on a radar display to provide ready indication of selected features.

**Radar monitoring.** The use of radar for the purpose of providing aircraft with information and advice relative to significant deviations from nominal flight path, including deviations from the terms of their air traffic control clearances.

**Radar position indication (RPI).** The visual indication, in non-symbolic and/or symbolic form, on a radar display of the position of an aircraft obtained by primary and/or secondary surveillance radar.

**Radar position symbol (RPS).** The visual indication, in symbolic form, on a radar display, of the position of an aircraft obtained after automatic processing of positional data derived from primary and/or secondary surveillance radar.

**Radar separation.** The separation used when aircraft position information is derived from radar sources.

**Radar service.** Term used to indicate a service provided directly by means of radar.

**Radar track position.** An extrapolation of aircraft position by the computer based upon radar information and used by the computer for tracking purposes.

**Radar unit.** That element of an air traffic services unit which uses radar equipment to provide one or more services.

**Radar vectoring.** Provision of navigational guidance to aircraft in the form of specific headings, based on the use of radar.

**Radio navigation service.** A service providing guidance information or position data for

the efficient and safe operation of aircraft supported by one or more radio navigation aids.

**Radiotelephony.** A form of radio communication primarily intended for the exchange of information in the form of speech.

**Rated air traffic controller.** A controller holding a license and valid ratings appropriate to the privileges exercised by him.

**Rating.** An authorization entered on or associated with a license and forming part thereof, stating special conditions, privileges or limitations pertaining to such license.

**Reduced vertical separation minimum (RVSM).** A vertical separation minimum of 300 m (1 000 ft) which is applied between FL 290 and FL 410 inclusive, on the basis of regional air navigation agreements and in accordance with conditions specified therein.

**Regional air navigation agreement.** An agreement approved by the Council of ICAO normally on the advice of Regional Air Navigation Meetings

**Repetitive flight plan (RPL).** A flight plan related to a series of frequently recurring, regularly operated individual flights with identical basic features, submitted by an operator for retention and repetitive use by ATSUs.

**Reporting point.** A specified geographical location in relation to which the position of an aircraft can be reported.

**Required communication performance (RCP) specification.** A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based communication. It includes communication performance requirements that are allocated to system components in terms of the communication to be provided and associated transaction time, continuity, availability, integrity, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

**Required Navigation performance (RNP).** A statement of the navigation performance necessary for operation within a defined airspace.

**Required surveillance performance (RSP) specification.** A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based surveillance. It includes surveillance performance requirements that are allocated to system components in terms of the surveillance to be provided and associated data delivery time, continuity, availability, integrity, accuracy of the surveillance data, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

**Rescue coordination center.** A unit responsible for promoting efficient organization of search and rescue services and for coordinating the conduct of search and rescue operations within a search and rescue region.

**Reversal procedure.** A procedure designed to enable aircraft to reverse direction during the initial approach segment of an instrument approach procedure. The sequence may include procedure or base turns.

**Restricted area.** An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions.

**Runway.** A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.

**Runway-holding position.** A designated position intended to protect a runway, an obstacle limitation surface, or an ILS/MLS critical/sensitive area at which taxiing aircraft and vehicles shall stop and hold, unless otherwise authorized by the aerodrome control TWR.

**Runway incursion.** Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

**Runway visual range (RVR).** The range over which the pilot of an aircraft on the center line of a runway can see the runway surface markings or the lights delineating the runway or identifying its center line.

**RVSM approval.** The term used to describe the successful completion of airworthiness approval and operational approval (if required).

**Safety Act.** The Sudan Civil Aviation Safety Act of 2010

**Safety management system (SMS).** A systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures.

**SCAA.** Sudan Civil Aviation Authority

**Secondary radar.** A radar system wherein a radio signal transmitted from the radar station initiates the transmission of a radio signal from another station.

**Secondary surveillance radar (SSR).** A surveillance radar system which uses transmitters/receivers (interrogators) and transponders.

**Segregated parallel operations.** Simultaneous operations on parallel or near-parallel instrument runways in which one runway is used exclusively for approaches and the other runway is used exclusively for departures.

**Significant point.** A specified geographical location used in defining an ATS route or the flight path of an aircraft and for other navigation and ATS purposes.

**SIGMET information.** Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations.

**Special VFR flight.** A VFR flight cleared by air traffic control to operate within a control zone in meteorological conditions below VMC.

**Specifications.** Standards and operational procedures provided in a SUCAR, Directive, Operational Policy, Order, or Sudan Civil Aviation Safety Publication.

**SSR response.** The visual indication, in non-symbolic form, on a radar display, of a response from an SSR transponder in reply to an interrogation.

**Standard.** Any specification for physical characteristics, configuration, material, performance, personnel or procedure recognized by the Authority as necessary for the safety or regularity of air navigation.

**Standard instrument arrival (STAR).** A designated instrument flight rule (IFR) arrival route linking a significant point, normally on an ATS route, with a point from which a published instrument approach procedure can be commenced.

**Standard instrument departure (SID).** A designated instrument flight rule (IFR) departure route linking the aerodrome or a specified runway of the aerodrome with a specified significant point, normally on a designated ATS route, at which the en-route phase of a flight commences.

**State.** The Republic of the Sudan

**State aircraft.** For the purposes of RVSM, only aircraft used in military, customs, humanitarian or police services shall qualify as State aircraft.

**State Safety Program.** See National Safety Programme.

**Stopway.** A defined rectangular area on the ground at the end of take-off run available prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned take-off.

**Station declination.** An alignment variation between the zero-degree radial of a VOR and true north, determined at the time the VOR station is calibrated.

**Strayed aircraft.** An aircraft which has deviated significantly from its intended track or which reports that it is lost.

**SUCAR.** A Sudan Civil Aviation Regulation, containing Standards for civil aviation-related operation throughout Sudan, issued and published under the authority of the SCAA Board of Directors with the consent of the Competent Minister.

**Sudan Aeronautical Information Services.** A unit mandated by the Director General for the provision of aeronautical data and aeronautical information necessary for the safety, regularity and efficiency of air navigation.

**Sudan Civil Aviation Safety Publication.** A document issued and published under the authority of the Director General containing material of factual information, references or supplementary to a SUCAR

**Target level of safety (TLS).** A generic term representing the level of risk which is considered acceptable in particular circumstances.

**Taxiing.** Movement of an aircraft on the surface of an aerodrome under its own power, excluding take-off and landing.

**Taxiway.** A defined path on a land aerodrome established for the taxiing of aircraft and intended to provide a link between one part of the aerodrome and another, including:

- a) Aircraft stand taxilane. A portion of an apron designated as a taxiway and intended to provide access to aircraft stands only.
- b) Apron taxiway. A portion of a taxiway system located on an apron and intended to provide a through taxi route across the apron.
- c) Rapid exit taxiway. A taxiway connected to a runway at an acute angle and designed to allow landing aeroplanes to turn off at higher speeds than are achieved on other exit taxiways thereby minimizing runway occupancy times.

**Terminal control area (TMA).** A control area normally established at the confluence of ATS routes in the vicinity of one or more major aerodromes.

**Threshold.** The beginning of that portion of the runway usable for landing.

**Total estimated elapsed time.** For IFR flights, the estimated time required from take-off to arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the destination aerodrome, to arrive over the destination aerodrome. For VFR flights, the estimated time required from take-off to arrive over the destination aerodrome.

**Touchdown.** The point where the nominal glide path intercepts the runway.

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

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

**Transition layer.** The airspace between the transition altitude and the transition level.

**Transition level.** The lowest flight level available for use above the transition altitude.

**Traffic avoidance advice.** Advice provided by an air traffic services unit specifying maneuvers to assist a pilot to avoid a collision.

**Traffic information.** Information issued by an air traffic services unit to alert a pilot to other known or observed air traffic which may be in proximity to the position or intended route of flight and to help the pilot avoid a collision.

**Transfer of control point.** A defined point located along the flight path of an aircraft, at which the responsibility for providing air traffic control service to the aircraft is transferred from one control unit or control position to the next.



**Transferring unit.** Air traffic control unit in the process of transferring the responsibility for providing air traffic control service to an aircraft to the next air traffic control unit along the route of flight.

**Uncertainty phase.** A situation wherein uncertainty exists as to the safety of an aircraft and its occupants.

**Unidentified aircraft.** An aircraft which has been observed or reported to be operating in a given area but whose identity has not been established.

**Unmanned free balloon.** A non-power-driven, unmanned, lighter-than-air aircraft in free flight.

**Urgency.** A condition concerning the safety of an aircraft or other vehicle, or of some person on board or within sight, which does not require immediate assistance.

**VFR.** The symbol used to designate the visual flight rules.

**VFR flight.** A flight conducted in accordance with the visual flight rules.

**Vicinity of the aerodrome.** An aircraft is in the vicinity of the aerodrome when it is within the published aerodrome traffic zone or within 5 NM of the center of the aerodrome.

**Visibility.** Visibility for aeronautical purposes is the greater of:

- a) the greatest distance at which a black object of suitable dimensions, situated near the ground, can be seen and recognized when observed against a bright background;
- b) the greatest distance at which lights in the vicinity of 1,000 candelas can be seen and identified against an unlit background.

**Visual approach.** An approach by an IFR flight when either part or all of an instrument approach procedure is not completed and the approach is executed in visual reference to terrain.

**Visual maneuvering area.** The area in which obstacle clearance should be taken into consideration for aircraft carrying out a circling approach.

**Visual meteorological conditions (VMC).** Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, equal to or better than specified minima.

**VMC.** The symbol used to designate visual meteorological conditions.

**Waypoint.** A specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation. Waypoints are identified as either:

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

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## CHAPTER 2 – GENERAL PROVISIONS

### ESTABLISHMENT OF AUTHORITY

- 2.1** The Authority shall designate, for the territories over which Sudan has jurisdiction, the portions of the airspace or particular aerodromes for the provisions of air traffic services and publish such designation in the relevant aeronautical publications.
- 2.1.1** Those portions of the airspace over the high seas or in airspace of undetermined sovereignty where air traffic services will be provided shall be determined on the basis of regional air navigation agreements. By mutual agreement, the Authority may accept a delegation from another State the responsibility for establishing and providing air traffic services in flight information regions, control areas or control zones extending over the territories of such State.
- 2.1.1.1** If Sudan accepts the responsibility to provide air traffic services over the high seas or in airspace of undetermined sovereignty, the Authority shall designate the ANSP responsible for providing the services in accordance with the provisions of this SUCAR.
- 2.1.1.2** If Sudan accepts the responsibility to provide air traffic services by delegation from another State, the Authority shall designate the ANSP responsible for providing such services in accordance with the requirements of the delegating State which is expected to establish air navigation facilities for the use of the designated ANSP as are jointly agreed to be necessary.
- 2.1.2** When it has been determined that air traffic services will be provided, the Authority shall designate the ANSP responsible for providing such services.
- 2.1.2.1** An ANSP shall not provide air traffic services unless it is holder of an Air Traffic Services Certificate issued by the Sudan Civil Aviation Authority (SCAA) in accordance to the terms contained in this SUCAR and other related documents (Advisory Circular, Directive, Operational Policy, Order, or Sudan Civil Aviation Safety Publication).
- 2.1.2.2** An application for an Air Traffic Services Certificate shall be made to the Director General of SCAA in the form prescribed by the Authority and shall be accompanied by the appropriate fee, as specified by applicable law.
- 2.1.2.3** In considering an application referred to in 2.1.3.2, the Director General of SCAA shall conduct the investigation he deems necessary to accept the application.
- 2.1.2.4** The application may be accepted and the process for the issuance of the Air Traffic Services Certificate commenced if the Director General is satisfied that:
- a) the documentation specified in Appendix 6 to this SUCAR has been provided; and
- 2.1.2.5** the information is complete and detailed enough to permit a thorough evaluation of the ANSP's document.
- 2.1.2.6** When the Director General is not satisfied, he shall notify the applicant of his dissatisfaction, stating the reasons, and grant the applicant the opportunity to rectify or supplement a defect, within the period determined by the Director General, after which period the Director General shall determine whether the process for the issuance of an Air Traffic Services Certificate would commence or refuse the application concerned.
- 2.1.2.7** An Air Traffic Services Certificate shall be issued at the completion of the certification process prescribed in Appendix 6 to this SUCAR, under the conditions which the Director General may determine.
- 2.1.2.8** The applicant for the issuance of an Air Traffic Services Certificate shall permit an officer, inspector or any person authorized by the Authority to carry out safety inspections or audit as may be required to verify the validity of an application for an Air Traffic Services certificate.
- 2.1.2.9** The holder of an Air Traffic Services Certificate shall permit an officer, inspector or any person authorized by the Authority to carry out such safety inspections and audits as





may be required to determine compliance with the appropriate requirements specified in this SUCAR and in SUCAR Part 19 – Safety Management.

- 2.1.2.10 An applicant for an Air Traffic Services Certificate shall meet the following requirements:
- a) the personnel of the applicant are adequate in number and have the necessary competency to provide the service;
  - b) the Manual of Air Traffic Services operations (MATSOPS) prepared for the applicant's air traffic services and submitted with the application shall contain:
    - b.1. all the relevant information as required in Attachment 1 to Appendix 6 to this SUCAR,
    - b.2. air traffic services operating procedures that make satisfactory provision for the safety of aircraft; and
    - b.3. a safety management system for the supervision and control of the operations and maintenance of the air traffic services, compliant with the appropriate requirements specified in this SUCAR and in SUCAR Part 19 – *Safety Management*;
  - c) the applicant's key personnel shall conform to the requirements under Attachment 2 to Appendix 6 to this SUCAR;
  - d) the facilities, services and equipment are established in accordance with this SUCAR for the types of airspace and services to be provided.
- 2.1.2.11 An Air Traffic Services Certificate shall be valid for two years from the date of issuance unless it is surrendered by the Air Traffic Services Operator, or is suspended, or cancelled by the Director General.
- 2.1.2.12 An Air Traffic Services Certificate may be suspended, varied, or cancelled following the process prescribed in Appendix 6 to this SUCAR.
- 2.1.2.13 An applicant for an Air Traffic Services Certificate shall submit to the Authority a Manual of Air Traffic Services Operations (MATSOPS) which includes all pertinent information on the air traffic services facilities, services, equipment, operating procedures, organization and management including a safety management system.
- 2.1.2.14 The structure and content of the MATSOPS shall be as specified in Attachment 1 to Appendix 6 to this SUCAR.
- 2.1.2.15 A holder of an Air Traffic Services Certificate shall amend its MATSOPS following the procedure prescribed in Attachment 1 to Appendix 6 to this SUCAR.
- 21.3.16. A holder of an Air Traffic Services Certificate shall:
- a) Ensure that operations and maintenance personnel can understand the language used in those sections of the MATSOPS which pertains to their duties;
  - b) Ensure that all its air traffic services activities are conducted in accordance with the applicable provisions of the MATSOPS;
  - c) Make the MATSOPS available for the use and guidance of the operations and maintenance personnel;
  - d) Keep the MATSOPS up-to-date; and
  - e) Keep the MATSOPS in a safe place.
- 2.1.3 Where air traffic services are established, information shall be published in the Sudan Aeronautical Information Publication (AIP).

## 2.2 OBJECTIVES OF THE AIR TRAFFIC SERVICES

The objectives of the air traffic services shall be to:

- a) prevent collisions between aircraft;
- b) prevent collisions between aircraft on the maneuvering area and obstructions on that area;



- c) expedite and maintain an orderly flow of air traffic;
- d) provide advice and information useful for the safe and efficient conduct of flights;
- e) notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organizations as required.

## 2.3 DIVISION OF THE AIR TRAFFIC SERVICES

The air traffic services shall comprise three services identified as follows.

2.3.1 The *air traffic control service*, to accomplish objectives a), b) and c) of 2.2, this service being divided in three parts as follows:

- a) *Area control service*: the provision of air traffic control service for controlled flights, except for those parts of such flights described in 2.3.1 b) and c), in order to accomplish objectives a) and c) of 2.2;
- b) *Approach control service*: the provision of air traffic control service for those parts of controlled flights associated with arrival or departure, in order to accomplish objectives a) and c) of 2.2;
- c) *Aerodrome control service*: the provision of air traffic control service for aerodrome traffic, except for those parts of flights described in 2.3.1 b), in order to accomplish objectives a), b) and c) of 2.2.

2.3.2 The *flight information service*, to accomplish objective d) of 2.2.

2.3.3 The *alerting service*, to accomplish objective e) of 2.2.

2.3.4 The carriage of airborne collision avoidance systems (ACAS) by aircraft in a given area shall not be a factor in determining the need for air traffic services in that area.

## 2.4 DESIGNATION OF THE PORTIONS OF THE AIRSPACE AND CONTROLLED AERODROMES WHERE AIR TRAFFIC SERVICES WILL BE PROVIDED

## 2.5 DETERMINATION OF THE NEED FOR AIR TRAFFIC SERVICES

2.5.1 The Authority shall determine the need for the provision of air traffic services by consideration of the following:

- a) the types of air traffic involved;
- b) the density of air traffic;
- c) the meteorological conditions;
- d) such other factors as may be relevant.



### 2.5.1.1 Control areas and control zones

- a) Those portions of the airspace where it is determined that air traffic control service will be provided to IFR flights shall be designated as control areas or control zones.
- b) Those portions of controlled airspace wherein it is determined that air traffic control service will also be provided to VFR flights shall be designated as Classes B, C, or D airspace.
- c) Where designated within a flight information region, control areas and control zones shall form part of that flight information region.
- d) *Controlled aerodromes.* Those aerodromes where it is determined that air traffic control service will be provided to aerodrome traffic shall be designated as controlled aerodromes.
  - ii. When the Authority has determined that air traffic services will be provided in particular portions of the airspace or at particular aerodromes, the Authority shall designate those
  - iii. portions of the airspace or those aerodromes in relation to the air traffic services that are to be provided.
  - iv. The designation of the particular portions of the airspace or the particular aerodromes shall be as follows:
    1. *Flight information regions.* Those portions of the airspace where it is determined that flight information service and alerting service will be provided shall be designated as flight information regions.

## 2.6 CLASSIFICATION OF AIRSPACES

2.6.1 ATS airspaces shall be classified and designated in accordance with the following:

**Class A.** IFR flights only are permitted, all flights are provided with air traffic control service and are separated from each other.

**Class B.** IFR and VFR flights are permitted; all flights are provided with air traffic control service and are separated from each other.

**Class C.** IFR and VFR flights are permitted, all flights are provided with air traffic control service and IFR flights are separated from other IFR flights and from VFR flights. VFR flights are separated from IFR flights and receive traffic information in respect of other VFR flights.

**Class D.** IFR and VFR flights are permitted and all flights are provided with air traffic control service, IFR flights are separated from other IFR flights and receive traffic information in respect of VFR flights, VFR flights receive traffic information in respect of all other flights.

**Class E.** IFR and VFR flights are permitted; IFR flights are provided with air traffic control service and are separated from other IFR flights. All flights receive traffic information as far as is practical. Class E shall not be used for control zones.

**Class F.** IFR and VFR flights are permitted, all participating IFR flights receive an air traffic advisory service and all flights receive flight information service if requested.

**Class G.** IFR and VFR flights are permitted and receive flight information service if requested.

2.6.2 The ATS provider shall include in the MATSOPS the class of each airspace within which it provides or proposes to provide air traffic services.

2.6.3 The requirements for flights within each class of airspace shall be as shown in the table in Appendix 4 to this SUCAR.

## 2.7 PERFORMANCE-BASED NAVIGATION (PBN) OPERATIONS

2.7.1 In applying performance-based navigation, navigation specifications shall be prescribed by the Authority. When applicable, the navigation specification(s) for designated areas, tracks or ATS routes shall be prescribed on the basis of regional air



navigation agreements. In designating a navigation specification, limitations may apply as a result of navigation infrastructure constraints or specific navigation functionality requirements.

2.7.2 ATS providers shall implement PBN as soon as practical

2.7.3 The prescribed navigation specification shall be appropriate to the level of communications, navigation and air traffic services provided in the airspace concerned.

2.7.3.1 The implementation of PBN shall be in accordance with ICAO PBN Manual (Doc 9613).

## **2.8 PERFORMANCE-BASED COMMUNICATION (PBC) OPERATIONS**

2.8.1 In applying performance-based communication (PBC), RCP specifications shall be prescribed by the Authority., taking into considerations limitation that may apply as a result of communication infrastructure constraints or specific communication functionality requirements. When applicable, the RCP type(s) specification(s) shall be prescribed on the basis of regional air navigation agreements.

2.8.2 The prescribed RCP specification shall be appropriate to the air traffic services provided.

## **2.9 PERFORMANCE-BASED SURVEILLANCE (PBS) OPERATIONS**

2.9.1 In applying performance-based surveillance (PBS), RSP specifications shall be prescribed by the Authority., taking into consideration limitations that may apply as a result of surveillance infrastructure constraints or specific surveillance functionality requirements. When applicable, the RSP specification(s) shall be prescribed on the basis of regional air navigation agreements.

2.9.2 The prescribed RSP specification shall be appropriate to the air traffic services provided.

2.9.3 Where the Authority has prescribed RSP specification for performance-based surveillance, ATS units shall be provided with equipment capable of performance consistent with the prescribed RSP specification(s).

2.9.3.1 The implementation of performance-based communication and surveillance (PBCS) shall be in accordance with the ICAO PBCS Manual (Doc 9869)

## **2.10 ESTABLISHMENT AND DESIGNATION OF THE UNITS PROVIDING AIR TRAFFIC SERVICES**

The air traffic services shall be provided by units established and designated as follows:

2.10.1 Flight information centres shall be established to provide flight information service and alerting service within flight information regions, unless the responsibility of providing such services within a flight information region is assigned to an air traffic control unit having adequate facilities for the discharge of such responsibility.

2.10.2 Air Traffic control units shall be established to provide air traffic control service, flight information service and alerting service within control areas, control zones and at controlled aerodromes.

2.10.3 The ATS provider shall document in the MATSOPS the unit from where the service is provided, or proposed to be provided.

## 2.11 SPECIFICATIONS FOR FLIGHT INFORMATION REGIONS, CONTROL AREAS AND CONTROL ZONES

### 2.11.1 RESERVED

#### 2.11.2 Flight information regions

2.11.2.1 Flight information regions shall be delineated to cover the whole of the air route structure to be served by such regions.

2.11.2.2 A flight information region shall include all airspace within its lateral limits, except as limited by an upper flight information region.

2.11.2.3 Where a flight information region is limited by an upper flight information region, the lower limit specified for the upper flight information region shall constitute the upper vertical limit of the flight information region and shall coincide with a VFR cruising level of the tables in Appendix 3 to SUCAR Part 2.

#### 2.11.3 Control areas

2.11.3.1 Control areas including, *inter alia*, airways and terminal control areas shall be delineated so as to encompass sufficient airspace to contain the flight paths of those IFR flights or portions thereof to which it is desired to provide the applicable parts of the air traffic control service, considering the capabilities of the navigation aids normally used in that area.

2.11.3.2 A lower limit of a control area shall be established at a height above the ground or water of not less than 200 m (700 ft.).

2.11.3.2.1 The lower limit of a control area shall, when practicable and desirable in order to allow freedom of action for VFR flights below the control area, be established at a greater height than the minimum specified in 2.11.3.2.

2.11.3.2.2 When the lower limit of a control area is above 900 m (3 000 ft.) MSL it shall coincide with a VFR cruising level of the tables in Appendix 3 to SUCAR Part 2.

2.11.3.3 An upper limit of a control area shall be established when either:

- a) air traffic control service will not be provided above such upper limit; or
- b) the control area is situated below an upper control area, in which case the upper limit shall coincide with the lower limit of the upper control area.

When established, such upper limit shall coincide with a VFR cruising level of the tables in Appendix 3 to SUCAR Part 2.

#### 2.11.4 Flight information regions or control areas in the upper airspace

Where it is desirable to limit the number of flight information regions or control areas through which high flying aircraft would otherwise have to operate, a flight information region or control area, as appropriate, shall be delineated to include the upper airspace within the lateral limits of a number of lower flight information regions or control areas.

2.11.4.1 Where it is desirable to limit the number of flight information regions or control areas through which high flying aircraft would otherwise have to operate, a flight information region or control area, as appropriate, shall be delineated to include the upper airspace within the lateral limits of a number of lower flight information regions or control areas.

#### 2.11.5 Control zones

2.11.5.1 The lateral limits of control zones shall encompass at least those portions of the airspace, which are not within control areas, containing the paths of IFR flights arriving



at and departing from aerodromes to be used under instrument meteorological conditions.

- 2.11.5.2 The lateral limits of a control zone shall extend to at least 9.3 km (5 NM) from the centre of the aerodrome or aerodromes concerned in the directions from which approaches may be made.
- 2.11.5.3 If a control zone is located within the lateral limits of a control area, it shall extend upwards from the surface of the earth to at least the lower limit of the control area.
- 2.11.5.4 If a control zone is located outside of the lateral limits of a control area, an upper limit shall be established.
- 2.11.5.5 If it is desired to establish the upper limit of a control zone at a level higher than the lower limit of the control area established above it, or if the control zone is located outside of the lateral limits of a control area, its upper limit shall be established at a level which can easily be identified by pilots. When this limit is above 900 m (3 000 ft) MSL it shall coincide with a VFR cruising level of the tables in Appendix 3 to SUCAR Part 2.

## **2.12 IDENTIFICATION OF AIR TRAFFIC SERVICES UNITS AND AIRSPACES**

- 2.12.1 An area control centre or flight information centre shall be identified by the name of a nearby town or city or geographic feature.
- 2.12.2 An aerodrome control tower or approach control unit shall be identified by the name of the aerodrome at which it is located.
- 2.12.3 A control zone, control area or flight information region shall be identified by the name of the unit having jurisdiction over such airspace.

## **2.13 ESTABLISHMENT AND IDENTIFICATION OF ATS ROUTES**

- 2.13.1 When ATS routes are established, a protected airspace along each ATS route and a safe spacing between adjacent ATS routes shall be provided.
- 2.13.2 RESERVED
- 2.13.3 ATS routes shall be identified by designators.
- 2.13.4 Designators for ATS routes other than standard departure and arrival routes shall be selected in accordance with the principles set forth in Appendix 1 to this SUCAR.
- 2.13.5 Standard departure and arrival routes and associated procedures shall be identified in accordance with the principles set forth in Appendix 3 to this SUCAR.

## **2.14 ESTABLISHMENT OF CHANGE-OVER POINTS**

- 2.14.1 Change-over points shall be established on ATS route segments defined by reference to very high frequency omnidirectional radio ranges where this will assist accurate



navigation along the route segments. The establishment of change-over points shall be limited to route segments of 110 km (60 NM) or more, except where the complexity of ATS routes, the density of navigation aids or other technical and operational reasons warrant the establishment of change-over points on shorter route segments.

- 2.14.2 Unless otherwise established in relation to the performance of the navigation aids or frequency protection criteria, the change-over point on a route segment shall be the mid-point between the facilities in the case of a straight route segment or the
- 2.14.3 intersection of radials in the case of a route segment which changes direction between the facilities.

## **2.15 ESTABLISHMENT AND IDENTIFICATION OF SIGNIFICANT POINTS**

- 2.15.1 Significant points shall be established for the purpose of defining an ATS route or instrument approach procedure and/or in relation to the requirements of air traffic services for information regarding the progress of aircraft in flight.
- 2.15.2 Significant points shall be identified by designators.
- 2.15.3 Significant points shall be established and identified in accordance with the principles set forth in Appendix 2 to this SUCAR.

## **2.16 ESTABLISHMENT AND IDENTIFICATION OF STANDARD ROUTES FOR TAXIING AIRCRAFT**

- 2.16.1 Where necessary, standard routes for taxiing aircraft shall be established on an aerodrome between runways, aprons and maintenance areas. Such routes shall be direct, simple and where practicable, designed to avoid traffic conflicts.
- 2.16.2 Standard routes for taxiing aircraft shall be identified by designators distinctively different from those of the runways and ATS routes.

## **2.17 COORDINATION BETWEEN THE OPERATOR AND AIR TRAFFIC SERVICES**

- 2.17.1 ANSPs, in carrying out their objectives, shall have due regard for the requirements of the operators consequent on their obligations as specified in SUCAR 6, and, if so required by the operators, shall make available to them or their designated representatives such information as may be available to enable them or their designated representatives to carry out their responsibilities.
- 2.17.2 When so requested by an operator, messages (including position reports) received by air traffic services units and relating to the operation of the aircraft for which operational control service is provided by that operator shall, so far as practicable, be made available immediately to the operator or a designated representative in accordance with locally agreed procedures.

## **2.18 COORDINATION BETWEEN MILITARY AUTHORITIES AND AIR TRAFFIC SERVICES**

- 2.18.1 ANSPs shall establish and maintain close cooperation with military authorities responsible for activities that may affect flights of civil aircraft.
- 2.18.2 Coordination of activities potentially hazardous to civil aircraft shall be effected in accordance with 2.19.
- 2.18.3 Arrangements shall be made to permit information relevant to the safe and expeditious conduct of flights of civil aircraft to be promptly exchanged between air traffic services units and appropriate military units.
  - 2.18.3.1 ANSPs shall, either routinely or on request, in accordance with locally agreed procedures, provide appropriate military units with pertinent flight plan and other data concerning flights of civil aircraft. In order to eliminate or reduce the need for interceptions, air traffic services authorities shall designate any areas or routes where the requirements of SUCAR Part 2 (Rules of the Air) concerning flight plans, two-way communications and position reporting apply to all flights to ensure that all



pertinent data is available in appropriate air traffic services units specifically for the purpose of facilitating identification of civil aircraft.

2.18.3.2 Special procedures shall be established in order to ensure that:

- a) air traffic services units are notified if a military unit observes that an aircraft which is, or might be, a civil aircraft is approaching, or has entered, any area in which interception might become necessary;
- b) all possible efforts are made to confirm the identity of the aircraft and to provide it with the navigational guidance necessary to avoid the need for interception.

## **2.19 COORDINATION OF ACTIVITIES POTENTIALLY HAZARDOUS TO CIVIL AIRCRAFT**

2.19.1 The arrangements for activities potentially hazardous to civil aircraft, whether over the territory of Sudan or over the high seas, shall be coordinated with the ANSPs. The coordination shall be effected early enough to permit timely promulgation of information regarding the activities in accordance with the provisions of SUCAR Part 15 (Aeronautical Information Services).

2.19.2 The objective of the coordination shall be to achieve the best arrangements which will avoid hazards to civil aircraft and minimize interference with the normal operations of such aircraft.

2.19.2.1 In determining these arrangements the following shall be applied:

- a) the locations or areas, times and durations for the activities shall be selected to avoid closure or realignment of established ATS routes, blocking of the most economic flight levels, or delays of scheduled aircraft operations, unless no other options exist;
- b) the size of the airspace designated for the conduct of the activities shall be kept as small as possible;
- c) direct communication between the ATS Provider or air traffic services unit and the organization or unit conducting the activities shall be provided for use in the event that civil aircraft emergencies or other unforeseen circumstances require discontinuation of the activities.

2.19.3 The ANSPs shall ensure that a safety risk assessment is conducted, as soon as practicable, for activities potentially hazardous to civil aircraft and that appropriate risk mitigation measures are implemented.

2.19.3.1 The ANSPs shall establish procedures to enable the organization or unit conducting or identifying activities potentially hazardous to civil aircraft to contribute to the safety risk assessment in order to facilitate consideration of all relevant safety significant factors.

2.19.3.2 Guidance on collaborative decision-making (CDM) processes for safety risk assessment and promulgation through NOTAM that could involve military authorities can be found in the Manual Concerning Safety Measures Relating to Military Activities Potentially Hazardous to Civil Aircraft Operations (Doc 9554).

2.19.4 The ANSPs shall be responsible for initiating the promulgation of information regarding the activities with the approval of the Authority.

2.19.5 If activities potentially hazardous to civil aircraft take place on a regular or continuing basis, special committees shall be established as required to ensure that the requirements of all parties concerned are adequately coordinated.

2.19.6 The ANSP shall take adequate steps to prevent emission of laser beams from adversely affecting flight operations, in coordination with the aerodrome operators, where applicable.

2.19.6.1 Guidance material regarding the hazardous effects of laser emitters on flight operations is contained in the Manual on Laser Emitters and Flight Safety (Doc 9815).

2.19.7 In order to provide added airspace capacity and to improve efficiency and flexibility of aircraft operations, States shall establish procedures providing for a flexible use of





airspace reserved for military or other special activities. The procedures shall permit all airspace users to have safe access to such reserved airspace.

## **2.20 AERONAUTICAL DATA**

- 2.20.1 Determination and reporting of air traffic services-related aeronautical data shall be in accordance with the accuracy and integrity classification required to meet the needs of the end-user of aeronautical data
- 2.20.1.1 Specifications concerning the accuracy and integrity classification of air traffic services-related aeronautical data are contained in ICAO PANS-AIM (Doc 10066), Appendix 1.
- 2.20.2 Digital data error detection techniques shall be used during the transmission and/or storage of aeronautical data and digital data sets.
- 2.20.2.1 Detailed specifications concerning digital data error detection techniques are contained in ICAO PANS-AIM (Doc 10066).

## **2.21 COORDINATION BETWEEN METEOROLOGICAL AND AIR TRAFFIC SERVICES AUTHORITIES**

- 2.21.1 To ensure that aircraft receive the most up-to-date meteorological information for aircraft operations, the ANSP shall make arrangements with the meteorological services for air traffic services personnel:
- a) in addition to using indicating instruments, to report, if observed by air traffic services personnel or communicated by aircraft, such other meteorological elements as may be agreed upon;
  - b) to report as soon as possible to the associated meteorological office meteorological phenomena of operational significance, if observed by air traffic services personnel or communicated by aircraft, which have not been included in the aerodrome meteorological report;
  - c) to report as soon as possible to the associated meteorological office pertinent information concerning pre-eruption volcanic activity, volcanic eruptions and information concerning volcanic ash cloud. In addition, area control centres and flight information centres shall report the information to the associated meteorological watch office and volcanic ash advisory centres (VAACs).
- 2.21.2 Close coordination shall be maintained between area control centres, flight information centres and associated meteorological watch offices to ensure that information on volcanic ash included in NOTAM and SIGMET messages is consistent.

## **2.22 COORDINATION BETWEEN AERONAUTICAL INFORMATION SERVICES AND AIR TRAFFIC SERVICES UNITS**

- 2.22.1 To ensure that aeronautical information services units obtain information to enable them to provide up-to-date pre-flight information and to meet the need for in-flight information, the ANSP shall make arrangements with aeronautical information services to report to the responsible aeronautical information services unit, with a minimum of delay:
- a) information on aerodrome conditions;
  - b) the operational status of associated facilities, services and navigation aids within their area of responsibility;
  - c) the occurrence of volcanic activity observed by air traffic services personnel or reported by aircraft; and
  - d) any other information considered to be of operational significance.
- 2.22.2 Before introducing changes to the air navigation system, due account shall be taken by the ANSP of the time needed by the aeronautical information service for the preparation, production and issuance of relevant material for promulgation. To ensure



timely provision of the information to the aeronautical information service, close coordination between those services concerned is therefore required.

- 2.22.3 Of particular importance are changes to aeronautical information that affect charts and/or computer-based navigation systems which qualify to be notified by the Aeronautical Information Regulation and Control (AIRAC) system, as specified in SUCAR Part 15, Chapter 6. The predetermined, internationally agreed AIRAC effective dates shall be observed by the responsible air traffic services when submitting the raw information/data to aeronautical information services.
- 2.22.3.1 Detailed specifications concerning the AIRAC system are contained in ICAO PANS-AIM (Doc 10066), Chapter 6.
- 2.22.4 The ATS provider responsible for the provision of raw aeronautical information/data to the aeronautical information services shall do so while considering accuracy and integrity requirements necessary to meet the needs of the end-user of aeronautical data.
- 2.22.4.1 Specifications concerning the accuracy and integrity classification of air traffic services-related aeronautical data are contained in PANS-AIM (Doc 10066), Appendix 1.
- 2.22.4.2 Specifications for the issue of a NOTAM, SNOWTAM and ASHTAM are contained in SUCAR Part 15, Chapter 6.
- 2.22.4.3 Reports of volcanic activity comprise the information detailed in SUCAR Part 3, Chapter 4.
- 2.22.4.4 AIRAC information shall be distributed by the aeronautical information service at least 42 days in advance of the AIRAC effective dates with the objective of reaching recipients at least 28 days in advance of the effective date.
- 2.22.4.5 The schedule of the predetermined, internationally agreed AIRAC common effective dates at intervals of 28 days and guidance for the AIRAC use are contained in the ICAO Aeronautical Information Services Manual (Doc 8126) Chapter 2, 2.6.

## **2.23 MINIMUM FLIGHT ALTITUDES**

- 2.23.1 The ATS provider shall establish and publish minimum flight altitudes approved by the Authority, for each ATS route and control area over in the airspace covered by its ATS provider Certificate. The minimum flight altitudes determined shall provide a minimum clearance above the controlling obstacle located within the areas concerned.
- 2.23.1.1 The requirements for publication of minimum flight altitudes and of the criteria used to determine them are contained in ICAO PANS-AIM (Doc 10066), Appendix 2. Detailed obstacle clearance criteria are contained in PANS-OPS (Doc 8168) Volume II.

## **2.24 SERVICE TO AIRCRAFT IN THE EVENT OF AN EMERGENCY**

- 2.24.1 An aircraft known or believed to be in a state of emergency, including being subjected to unlawful interference, shall be given maximum consideration, assistance and priority over other aircraft as may be necessitated by the circumstances.
- 2.24.1.1 In communications between ATS units and aircraft in the event of an emergency, Human Factors principles shall be observed.
- 2.24.1.2 Guidance material on Human Factors principles can be found in the Human Factors Training Manual (Doc 9683).
- 2.24.2 When an occurrence of unlawful interference with an aircraft takes place or is suspected, ATS units shall attend promptly to requests by the aircraft. Information pertinent to the safe conduct of the flight shall continue to be transmitted and necessary action shall be taken to expedite the conduct of all phases of the flight, especially the safe landing of the aircraft.
- 2.24.3 When an occurrence of unlawful interference with an aircraft takes place or is suspected, ATS units shall, in accordance with locally agreed procedures, immediately



inform the appropriate authority designated by the State and exchange necessary information with the operator or its designated representative.

## 2.25 IN-FLIGHT CONTINGENCIES

### 2.25.1 Strayed or unidentified aircraft

2.25.1.1 As soon as an air traffic services unit becomes aware of a strayed aircraft it shall take all necessary steps as outlined in 2.24.1.1.a, and 2.24.1.1.b, to assist the aircraft and to safeguard its flight.

2.25.1.1.1 If the aircraft's position is not known, the air traffic services unit shall:

- a) attempt to establish two-way communication with the aircraft, unless such communication already exists;
- b) use all available means to determine its position;
- c) inform other ATS units into whose area the aircraft may have strayed or may stray, taking into account all the factors which may have affected the navigation of the aircraft in the circumstances;
- d) inform, in accordance with locally agreed procedures, appropriate military units and provide them with pertinent flight plan and other data concerning strayed aircraft;
- e) request from the units referred to in c) and d) and from other aircraft in flight every assistance in establishing communication with the aircraft and determining its position.

2.25.1.1.2 When the aircraft's position is established, the air traffic services unit shall:

- a) advise the aircraft of its position and corrective action to be taken; and
- b) provide, as necessary, other ATS units and appropriate military units with relevant information concerning the strayed aircraft and any advice given to that aircraft.

2.25.1.2 As soon as an air traffic services unit becomes aware of an unidentified aircraft in its area, it shall endeavour to establish the identity of the aircraft whenever this is necessary for the provision of air traffic services or required by the appropriate military authorities in accordance with locally agreed procedures. To this end, the air traffic services unit shall take such of the following steps as are appropriate in the circumstances:

- a) attempt to establish two-way communication with the aircraft;
- b) inquire of other air traffic services units within the flight information region about the flight and request their assistance in establishing two-way communication with the aircraft;
- c) inquire of air traffic services units serving the adjacent flight information regions about the flight and request their assistance in establishing two-way communication with the aircraft;
- d) attempt to obtain information from other aircraft in the area.

2.25.1.2.1 The air traffic services unit shall, as necessary, inform the appropriate military unit as soon as the identity of the aircraft has been established.

2.25.1.3 Should the ATS unit consider that a strayed or unidentified aircraft may be the subject of unlawful interference, the Authority shall immediately be informed, in accordance with locally agreed procedures.



## 2.25.2 Interception of civil aircraft

2.25.2.1 As soon as an air traffic services unit learns that an aircraft is being intercepted in its area of responsibility, it shall take such of the following steps as are appropriate in the circumstances:

- a) attempt to establish two-way communication with the intercepted aircraft via any means available, including the emergency radio frequency 121.5 MHz, unless such communication already exists;
- b) inform the pilot of the intercepted aircraft of the interception;
- c) establish contact with the intercept control unit maintaining two-way communication with the intercepting aircraft and provide it with available information concerning the aircraft;
- d) relay messages between the intercepting aircraft or the intercept control unit and the intercepted aircraft, as necessary;
- e) in close coordination with the intercept control unit take all necessary steps to ensure the safety of the intercepted aircraft;
- f) inform ATS units serving adjacent flight information regions if it appears that the aircraft has strayed from such adjacent flight information regions.

2.25.2.2 As soon as an air traffic services unit learns that an aircraft is being intercepted outside its area of responsibility, it shall take such of the following steps as are appropriate in the circumstances:

- a) inform the ATS unit serving the airspace in which the interception is taking place, providing this unit with available information that will assist in identifying the aircraft and requesting it to take action in accordance with 2.24.2.1;
- b) relay messages between the intercepted aircraft and the appropriate ATS unit, the intercept control unit or the intercepting aircraft.

## 2.26 TIME IN AIR TRAFFIC SERVICES

2.26.1 Air traffic services units shall use Coordinated Universal Time (UTC) and shall express the time in hours and minutes and, when required, seconds of the 24-hour day beginning at midnight.

2.26.2 Air traffic services units shall be equipped with clocks indicating the time in hours, minutes and seconds, clearly visible from each operating position in the unit concerned.

2.26.3 Air traffic services unit clocks and other time-recording devices shall be checked as necessary to ensure correct time to within plus or minus 30 seconds of UTC. Wherever data link communications are utilized by an air traffic services unit, clocks and other time-recording devices shall be checked as necessary to ensure correct time to within 1 second of UTC.

2.26.4 The correct time shall be obtained from a standard time station or, if not possible, from another unit which has obtained the correct time from such station.

2.26.5 Aerodrome control towers shall, prior to an aircraft taxiing for take-off, provide the pilot with the correct time, unless arrangements have been made for the pilot to obtain it from other sources. Air traffic services units shall, in addition, provide aircraft with the correct time on request. Time checks shall be given to the nearest half minute.

## 2.27 ESTABLISHMENT OF REQUIREMENTS FOR CARRIAGE AND OPERATION OF PRESSURE-ALTITUDE REPORTING TRANSPONDERS

2.27.1 The Authority shall establish requirements for carriage and operation of pressure-altitude reporting transponders within defined portions of airspace.



## **2.28 FATIGUE RISK MANAGEMENT**

- 2.28.1 ATS Provider shall establish and implement a policy, programme and necessary procedures to effectively manage fatigue risk, in order to ensure that air traffic controllers perform at an adequate level of alertness.
- 2.28.2 The programme in 2.28.1 shall be established in accordance with the requirements in Appendix 5
- 2.28.3 An ATS provider shall not implement any changes to the fatigue management programme accepted by the Authority, unless such changes are adequately justified, supported by a sound safety case, include mitigations where applicable, and are acceptable to the Authority .
- 2.28.4 An ATS provider may, as an alternative to the provisions of in 2.28.1, establish and implement a fatigue risk management system (FRMS) acceptable to the Authority, in accordance with the requirements set forth in Appendix 6.
- 2.28.5 Where an ATS provider implements an FRMS to manage fatigue-related safety risks in the provision of part or all of its air traffic control services, the ATS provider shall—
- a) submit to the Authority, documented FRMS process, that provides a level of safety acceptable to the Authority for approval; and
  - b) implement a processes to integrate FRMS functions with its other safety management functions

## **2.29 SAFETY MANAGEMENT**

- 2.29.1 Any significant safety-related change to the ATS system, including the implementation of a reduced separation minimum or a new procedure, shall only be effected after a safety assessment has demonstrated that an acceptable level of safety will be met and users have been consulted .
- 2.29.2 The procedure for conducting safety assessment shall be included in the ANSP's safety management system in accordance with SUCAR Part19 - Safety Management, and documented in the MATSOPS.
- 2.29.3 When appropriate, the responsible authority shall ensure that adequate provision is made for post-implementation monitoring to verify that the defined level of safety continues to be met.
- 2.29.4 When, due to the nature of the change, the acceptable level of safety cannot be expressed in quantitative terms, the safety assessment may rely on operational judgement.

## **2.30 COMMON REFERENCE SYSTEMS**

- 2.30.1 Horizontal reference system: The World Geodetic System — 1984 (WGS-84) shall be used as the horizontal (geodetic) reference system. Reported aeronautical geographical coordinates (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum.
- 2.30.2 Vertical reference system: Mean Sea level (MSL) datum, which gives the relationship of gravity-related height (elevation) to a surface known as the geoid, shall be used as the vertical reference system for air navigation.
- 2.30.3 Temporal System: The Gregorian calendar and Coordinated Universal Time (UTC) shall be used as the temporal reference system for air navigation.



### **2.31 LANGUAGE PROFICIENCY**

- 2.31.1 An air traffic services provider shall ensure that air traffic controllers speak and understand the language(s) used for radiotelephony communications as specified in SUCAR Part 1.
- 2.31.2 Except when communications between air traffic control units are conducted in a mutually agreed language, the English language shall be used for such communications.

### **2.32 CONTINGENCY ARRANGEMENTS**

Air traffic services providers shall develop and promulgate contingency plans for implementation in the event of disruption, or potential disruption, of air traffic services and related supporting services in the airspace for which they are responsible for the provision of such services. Such contingency plans shall be developed with the assistance of ICAO as necessary, in close coordination with the air traffic services providers responsible for the provision of services in adjacent portions of airspace and with airspace users concerned.

### **2.33 IDENTIFICATION AND DELINEATION OF PROHIBITED, RESTRICTED AND DANGER AREAS**

- 2.33.1 Each prohibited area, restricted area, or danger area established the Authority shall, upon initial establishment, be given an identification and full details shall be promulgated in accordance with ICAO PANS-AIM (Doc 10066), Appendix 2, ENR 5.1
- 2.33.2 The identification so assigned shall be used to identify the area in all subsequent notifications pertaining to that area, and a registry maintained by the Authority.
- 2.33.3 The identification shall be composed of a group of letters and figures as follows:
- a) nationality letters for location indicators assigned to Sudan;
  - b) a letter P for prohibited area, R for restricted area and D for danger area as appropriate; and
  - c) a number, unduplicated within Sudan.
- 2.33.4 To avoid confusion, identification numbers shall not be reused for a period of at least one year after cancellation of the area to which they refer.
- 2.33.5 When a prohibited, restricted or danger area is established, the area shall be as small as practicable and be contained within simple geometrical limits, so as to permit ease of reference by all concerned.

### **2.34 INSTRUMENT FLIGHT PROCEDURE DESIGN SERVICE**

- 2.34.1 The Authority shall ensure that an instrument flight procedure design service is in place in accordance with Appendix 7.
- 2.34.2 The Authority shall approve and remain responsible for all instrument flight procedures for aerodromes and airspace under the authority of Sudan
- 2.34.3 Instrument flight procedures shall be designed in accordance with design criteria approved by the Authority.
- 2.34.4 The Authority shall ensure that an instrument flight procedure design service provider intending to design an instrument flight procedure for aerodromes or airspace under the authority of Sudan meets the requirements established by the regulatory framework established by the Authority.
- 2.34.5 An instrument flight procedure design service provider shall utilize a quality management system at each stage of the instrument flight procedure design process.
- 2.34.6 Instrument flight procedures for aerodromes and airspace under the authority of Sudan shall be maintained and reviewed periodically and, at least every five years.

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## CHAPTER 3 – AIR TRAFFIC CONTROL SERVICE

### 3.1 APPLICATION

Air traffic control service shall be provided:

- a) to all IFR flights in airspace Classes A, B, C, D and E;
- b) to all VFR flights in airspace Classes B, C and D;
- c) to all special VFR flights;
- d) to all aerodrome traffic at controlled aerodromes.

### 3.2 PROVISION OF AIR TRAFFIC CONTROL SERVICE

The parts of air traffic control service described in 2.3.1 shall be provided by the various units as follows:

#### 3.2.1 *Area control service:*

- a) by an area control centre; or
- b) by the unit providing approach control service in a control zone or in a control area of limited extent which is designated primarily for the provision of approach control service and where no area control centre is established.

#### 3.2.2 *Approach control service:*

- a) by an aerodrome control tower or area control centre when it is necessary or desirable to combine under the responsibility of one unit the functions of the approach control service with those of the aerodrome control service or the area control service;
- b) by an approach control unit when it is necessary or desirable to establish a separate unit.

#### 3.2.3 *Aerodrome control service:* by an aerodrome control tower.

### 3.3 OPERATION OF AIR TRAFFIC CONTROL SERVICE

#### 3.3.1 In order to provide air traffic control service, an air traffic control unit shall:

- a) be provided with information on the intended movement of each aircraft, or variations therefrom, and with current information on the actual progress of each aircraft;
- b) determine from the information received, the relative positions of known aircraft to each other;
- c) issue clearances and information for the purpose of preventing collision between aircraft under its control and of expediting and maintaining an orderly flow of traffic;
- d) coordinate clearances as necessary with other units:
  - 1) whenever an aircraft might otherwise conflict with traffic operated under the control of such other units;
  - 2) before transferring control of an aircraft to such other units.

#### 3.3.2 Information on aircraft movements, together with a record of air traffic control clearances issued to such aircraft, shall be so displayed as to permit ready analysis in order to maintain an efficient flow of air traffic with adequate separation between aircraft.

#### 3.3.3 RESERVED

#### 3.3.4 Clearances issued by air traffic control units shall provide separation:

- a) between all flights in airspace Classes A and B;
- b) between IFR flights in airspace Classes C, D and E;
- c) between IFR flights and VFR flights in airspace Class C;



- d) between IFR flights and special VFR flights;
- e) between special VFR flights when so prescribed by the appropriate ATS authority, except that, when requested by an aircraft and if so prescribed by the appropriate ATS authority for the cases listed under b) above in airspace Classes D and E, a flight may be cleared without separation being so provided in respect of a specific portion of the flight conducted in visual meteorological conditions.

3.3.5 Separation by an air traffic control unit shall be obtained by at least one of the following:

- a) vertical separation, obtained by assigning different levels selected from:
  - 1) the appropriate table of cruising levels in Appendix 3 of SUCAR 2, or
  - 2) a modified table of cruising levels, when so prescribed in accordance with Appendix 3 of SUCAR 2 for flight above FL 410,

except that the correlation of levels to track as prescribed therein shall not apply whenever otherwise indicated in appropriate aeronautical information publications or air traffic control clearances;

- b) horizontal separation, obtained by providing:
  - 1) longitudinal separation, by maintaining an interval between aircraft operating along the same, converging or reciprocal tracks, expressed in time or distance; or
  - 2) lateral separation, by maintaining aircraft on different routes or in different geographical areas;
- c) composite separation, consisting of a combination of vertical separation and one of the other forms of separation contained in b) above, using minima for each which may be lower than, but not less than half of, those used for each of the combined elements when applied individually. Composite separation shall only be applied on the basis of regional air navigation agreements.

3.3.5.1 For all airspace where a reduced vertical separation minimum of 300 m (1 000 ft) is applied between FL 290 and FL 410 inclusive, a programme shall be instituted, on a regional basis, for monitoring the height-keeping performance of aircraft operating at these levels, in order to ensure that the continued application of this vertical separation minimum meets the safety objectives. The scope of regional monitoring programmes shall be adequate to conduct analyses of aircraft group performance and evaluate the stability of altimetry system error.

3.3.5.1.1 Guidance material relating to vertical separation and monitoring of height-keeping performance is contained in the ICAO Manual on Implementation of a 300 m (1 000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive (Doc 9574).

3.3.5.2 Where RCP/RSP specifications are applied, programmes shall be instituted for monitoring the performance of the infrastructure and the participating aircraft against the appropriate RCP and/or RSP specifications, to ensure that operations in the applicable airspace continue to meet safety objectives. The scope of monitoring programmes shall be adequate to evaluate communication and/or surveillance performance, as applicable.

3.3.5.2.1 Guidance material relating to RCP and RSP specifications and monitoring of communication and surveillance performance is contained in ICAO PBCS Manual (Doc 9869).

3.3.5.3 The authority shall ensure that arrangements are established, through interregional agreement, for the sharing between regions of data and/or information from monitoring programmes.





### 3.54 SEPARATION MINIMA

3.2.1 The selection of separation minima for application within a given portion of airspace shall be as follows:

- a) the separation minima shall be selected from those prescribed by the provisions of the PANS-ATM (ICAO Document 4444) and the *Regional Supplementary Procedures* (ICAO Document 7030) as applicable under the prevailing circumstances except that, where types of aids are used or circumstances prevail which are not covered by current ICAO provisions, other separation minima shall be established as necessary by:
  - 1) the authority, following consultation with operators, for routes or portions of routes contained within the sovereign airspace of Sudan;
  - 2) regional air navigation agreements for routes or portions of routes contained within airspace over the high seas or over areas of undetermined sovereignty.
- b) the selection of separation minima shall be made in consultation between the appropriate ATS authorities responsible for the provision of air traffic services in neighbouring airspace when:
  - 1) traffic will pass from one into the other of the neighbouring airspaces;
  - 2) routes are closer to the common boundary of the neighbouring airspaces than the separation minima applicable in the circumstances.

3.2.2 Details of the selected separation minima and of their areas of application shall be notified:

- a) to the ATS units concerned; and
- b) to pilots and operators through the Sudan aeronautical information publications, where separation is based on the use by aircraft of specified navigation aids or specified navigation techniques.

### 3.3 RESPONSIBILITY FOR CONTROL

3.3.1 Responsibility for control of individual flights: A controlled flight shall be under the control of only one air traffic control unit at any given time.

3.3.2 Responsibility for control within a given block of airspace: Responsibility for the control of all aircraft operating within a given block of airspace shall be vested in a single air traffic control unit. However, control of an aircraft or groups of aircraft may be delegated to other air traffic control units provided that coordination between all air traffic control units concerned is assured.

### 3.4 TRANSFER OF RESPONSIBILITY FOR CONTROL

3.4.1 Place or time of transfer

The responsibility for the control of an aircraft shall be transferred from one air traffic control unit to another as follows:

3.4.1.1 *Between two units providing area control service.* The responsibility for the control of an aircraft shall be transferred from a unit providing area control service in a control area to the unit providing area control service in an adjacent control area at the time of crossing the common control area boundary as estimated by the area control centre having control of the aircraft or at such other point or time as has been agreed between the two units.

3.4.1.2 *Between a unit providing area control service and a unit providing approach control service.* The responsibility for the control of an aircraft shall be transferred from a unit



providing area control service to a unit providing approach control service, and vice versa, at a point or time agreed between the two units.

#### 3.4.1.3 *Between a unit providing approach control service and an aerodrome control tower*

3.6.1.3.1 *Arriving aircraft.* The responsibility for the control of an arriving aircraft shall be transferred from the unit providing approach control service to the aerodrome control tower, when the aircraft:

- a) is in the vicinity of the aerodrome, and:
  - 1) it is considered that approach and landing will be completed in visual reference to the ground, or
  - 2) it has reached uninterrupted visual meteorological conditions, or
- b) is at a prescribed point or level, as specified in letters of agreement or ATS unit instructions; or
- c) has landed.

3.6.1.3.2 *Departing aircraft.* The responsibility for control of a departing aircraft shall be transferred from the aerodrome control tower to the unit providing approach control service:

- a) when visual meteorological conditions prevail in the vicinity of the aerodrome:
  - 1) prior to the time the aircraft leaves the vicinity of the aerodrome, or
  - 2) prior to the aircraft entering instrument meteorological conditions, or
  - 3) at a prescribed point or level,as specified in letters of agreement or ATS unit instructions;

- b) when instrument meteorological conditions prevail at the aerodrome:
  - 1) immediately after the aircraft is airborne, or
  - 2) at a prescribed point or level,as specified in letters of agreement or ATS unit instructions.

#### 3.4.1.4 *Between control sectors/positions within the same air traffic control unit*

The responsibility for control of an aircraft shall be transferred from one control sector/position to another control sector/position within the same air traffic control unit at a point, level or time, as specified in ATS unit instructions.

#### 3.4.2 Coordination of transfer

3.4.2.1 Responsibility for control of an aircraft shall not be transferred from one air traffic control unit to another without the consent of the accepting control unit, which shall be obtained in accordance with 3.6.2.2, 3.6.2.2.a, 3.6.2.2.b and 3.6.2.3.

3.4.2.2 The transferring control unit shall communicate to the accepting control unit the appropriate parts of the current flight plan and any control information pertinent to the transfer requested.

- a) Where transfer of control is to be effected using radar or ADS-B data, the control information pertinent to the transfer shall include information regarding the position



and, if required, the track and speed of the aircraft, as observed by radar or ADS-B immediately prior to the transfer.

- b) Where transfer of control is to be effected using ADS-C data, the control information pertinent to the transfer shall include the four-dimensional position and other information as necessary.

#### 3.4.2.3 The accepting control unit shall:

- a) indicate its ability to accept control of the aircraft on the terms specified by the transferring control unit, unless by prior agreement between the two units concerned, the absence of any such indication is understood to signify acceptance of the terms specified, or indicate any necessary changes thereto; and
- b) specify any other information or clearance for a subsequent portion of the flight, which it requires the aircraft to have at the time of transfer.

#### 3.4.2.4 The accepting control unit shall notify the transferring control unit when it has established two-way voice and/or data link communications with and assumed control of the aircraft concerned, unless otherwise specified by agreement between the two control units concerned.

#### 3.4.2.5 Applicable coordination procedures, including transfer of control points, shall be specified in letters of agreement and ATS unit instructions as appropriate.

### 3.5 AIR TRAFFIC CONTROL CLEARANCES

Air traffic control clearances shall be based solely on the requirements for providing air traffic control service

#### 3.5.1 Contents of clearances

##### 3.5.1.1 An air traffic control clearance shall indicate:

- a) aircraft identification as shown in the flight plan;
- b) clearance limit;
- c) route of flight;
- d) level(s) of flight for the entire route or part thereof and changes of levels if required;
- e) any necessary instructions or information on other matters such as approach or departure manoeuvres, communications and the time of expiry of the clearance.

##### 3.5.1.2 Standard departure and arrival routes and associated procedures shall be established when necessary to facilitate:

- a) the safe, orderly and expeditious flow of air traffic;
- b) the description of the route and procedure in air traffic control clearances.



- 3.5.1.3 Material relating to the establishment of standard departure and arrival routes and associated procedures is contained in the Air Traffic Services Planning Manual (Doc 9426). The design criteria are contained in PANS-OPS (Doc 8168), Volume II.
- 3.5.2 Clearances for transonic flight
- 3.5.2.1 The air traffic control clearance relating to the transonic acceleration phase of a supersonic flight shall extend at least to the end of that phase.
- 3.5.2.2 The air traffic control clearance relating to the deceleration and descent of an aircraft from supersonic cruise to subsonic flight shall provide for uninterrupted descent, at least during the transonic phase.
- 3.5.3 Read-back of clearances and safety-related information
- 3.5.3.1 The flight crew shall read back to the air traffic controller safety-related parts of ATC clearances and instructions which are transmitted by voice. The following items shall always be read back:
- ATC route clearances;
  - clearances and instructions to enter, land on, take off from, hold short of, cross and backtrack on any runway; and
  - runway-in-use, altimeter settings, SSR codes, level instructions, heading and speed instructions and, whether issued by the controller or contained in ATIS broadcasts, transition levels.
- 3.7.3.1.1 Other clearances or instructions, including conditional clearances, shall be read back or acknowledged in a manner to clearly indicate that they have been understood and will be complied with.
- 3.7.3.1.2 The controller shall listen to the read-back to ascertain that the clearance or instruction has been correctly acknowledged by the flight crew and shall take immediate action to correct any discrepancies revealed by the read-back.
- 3.5.3.2 Unless specified by the appropriate ATS authority, voice read-back of CPDLC messages shall not be required.
- 3.5.3.3 Vehicle drivers operating or intending to operate on the manoeuvring area shall read back to the air traffic controller safety-related parts of instructions which are transmitted by voice, e.g. instructions to enter, hold short of, cross and operate on any operational runway or taxiway.
- 3.5.3.4 The controller shall listen to the read-back to ascertain that the instruction has been correctly acknowledged by the vehicle driver and shall take immediate action to correct any discrepancies revealed by the read-back.
- 3.5.4 Coordination of clearances
- An air traffic control clearance shall be coordinated between air traffic control units to cover the entire route of an aircraft or a specified portion thereof as follows.
- 3.5.4.1 An aircraft shall be cleared for the entire route to the aerodrome of first intended landing:
- when it has been possible, prior to departure, to coordinate the clearance between all the units under whose control the aircraft will come; or
  - when there is reasonable assurance that prior coordination will be effected between those units under whose control the aircraft will subsequently come.
- 3.5.4.2 When coordination as in 3.7.4.1 has not been achieved or is not anticipated, the aircraft shall be cleared only to that point where coordination is reasonably assured; prior to

reaching such point, or at such point, the aircraft shall receive further clearance, holding instructions being issued as appropriate.

- 3.5.4.2.1 When prescribed by the appropriate ATS unit, aircraft shall contact a downstream air traffic control unit, for the purpose of receiving a downstream clearance prior to the transfer of control point.
- 3.5.4.2.2 Aircraft shall maintain the necessary two-way communication with the current air traffic control unit whilst obtaining a downstream clearance.
- 3.5.4.2.3 A clearance issued as a downstream clearance shall be clearly identifiable as such to the pilot.
- 3.5.4.2.4 Unless coordinated, downstream clearances shall not affect the aircraft's original flight profile in any airspace, other than that of the air traffic control unit responsible for the delivery of the downstream clearance.
- 3.5.4.3 When an aircraft intends to depart from an aerodrome within a control area to enter another control area within a period of thirty minutes, or such other specific period of time as has been agreed between the area control centres concerned, coordination with the subsequent area control centre shall be effected prior to issuance of the departure clearance.
- 3.5.4.4 When an aircraft intends to leave a control area for flight outside controlled airspace, and will subsequently reenter the same or another control area, a clearance from point of departure to the aerodrome of first intended landing may be issued. Such clearance or revisions thereto shall apply only to those portions of the flight conducted within controlled airspace.
- 3.5.5 Air traffic flow management
- 3.5.5.1 Air traffic flow management (ATFM) shall be implemented for airspace where air traffic demand at times exceeds, or is expected to exceed, the declared capacity of the air traffic control services concerned.
- 3.5.5.2 RESERVED
- 3.5.5.3 When it becomes apparent to an ATC unit that traffic additional to that already accepted cannot be accommodated within a given period of time at a particular location or in a particular area, or can only be accommodated at a given rate, that unit shall so advise the ATFM unit, when such is established, as well as, when appropriate, ATS units concerned. Flight crews of aircraft destined to the location or area in question and operators concerned shall also be advised of the delays expected or the restrictions that will be applied.

### **3.6 CONTROL OF PERSONS AND VEHICLES AT AERODROMES**

- 3.6.1 The movement of persons or vehicles including towed aircraft on the manoeuvring area of an aerodrome shall be controlled by the aerodrome control tower as necessary to avoid hazard to them or to aircraft landing, taxiing or taking off.
- 3.6.2 In conditions where low visibility procedures are in operation:
- a) persons and vehicles operating on the manoeuvring area of an aerodrome shall be restricted to the essential minimum, and particular regard shall be given to the requirements to protect the ILS/MLS sensitive area(s) when Category II or Category III precision instrument operations are in progress;
  - b) subject to the provisions in 3.8.3, the minimum separation between vehicles and taxiing aircraft shall be as prescribed by the appropriate ATS authority taking into account the aids available;
  - c) when mixed ILS and MLS Category II or Category III precision instrument operations are taking place to the same runway continuously, the more restrictive ILS or MLS critical and sensitive areas shall be protected.



- 3.6.3 Emergency vehicles proceeding to the assistance of an aircraft in distress shall be afforded priority over all other surface movement traffic.
- 3.6.4 Subject to the provisions in 3.8.3, vehicles on the manoeuvring area shall be required to comply with the following rules:
- vehicles and vehicles towing aircraft shall give way to aircraft which are landing, taking off or taxiing;
  - vehicles shall give way to other vehicles towing aircraft;
  - vehicles shall give way to other vehicles in accordance with ATS unit instructions;
  - notwithstanding the provisions of a), b) and c), vehicles and vehicles towing aircraft shall comply with instructions issued by the aerodrome control tower.

### 3.7 PROVISION OF RADAR AND ADS-B

Where provided, Radar and ADS-B ground systems shall provide for the display of safety-related alerts and warnings, including conflict alert, conflict prediction, minimum safe altitude warning and unintentionally duplicated SSR codes.

### 3.8 USE OF SURFACE MOVEMENT RADAR (SMR)

RESERVED

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## CHAPTER 4 – FLIGHT INFORMATION SERVICE

### 4.1 APPLICATION

- 4.1.1 Flight information service shall be provided to all aircraft which are likely to be affected by the information and which are:
- provided with air traffic control service; or
  - otherwise known to the relevant air traffic services units.
- 4.1.2 Where air traffic services units provide both flight information service and air traffic control service, the provision of air traffic control service shall have precedence over the provision of flight information service whenever the provision of air traffic control service so requires.

### 4.2 SCOPE OF FLIGHT INFORMATION SERVICE

- 4.2.1 Flight information service shall include the provision of pertinent:
- SIGMET and AIRMET information;
  - information concerning pre-eruption volcanic activity, volcanic eruptions and volcanic ash clouds;
  - information concerning the release into the atmosphere of radioactive materials or toxic chemicals;
  - information on changes in the availability of radio navigation services;
  - information on changes in condition of aerodromes and associated facilities, including information on the state of the aerodrome movement areas when they are affected by sand or significant depth of water;
  - information on unmanned free balloons; and of any other information likely to affect safety.
- 4.2.2 Flight information service provided to flights shall include, in addition to that outlined in 4.2.1, the provision of information concerning:
- weather conditions reported or forecast at departure, destination and alternate aerodromes;
  - collision hazards, to aircraft operating in airspace Classes C, D, E, F and G;
  - for flight over water areas, in so far as practicable and when requested by a pilot, any available information such as radio call sign, position, true track, speed, etc., of surface vessels in the area.
- 4.2.3 RESERVED
- 4.2.4 Flight information service provided to VFR flights shall include, in addition to that outlined in 4.2.1, the provision of available information concerning traffic and weather conditions along the route of flight that are likely to make operation under the visual flight rules impracticable.



### 4.3 OPERATIONAL FLIGHT INFORMATION SERVICE BROADCASTS

#### 4.3.1 Application

4.3.1.1 The meteorological information and operational information concerning radio navigation services and aerodromes included in the flight information service shall, whenever available, be provided in an operationally integrated form.

4.3.1.2 RESERVED

4.3.1.3 RESERVED

4.3.1.4 *Use of the OFIS messages in directed request/reply transmissions* When requested by the pilot, the applicable OFIS message(s) shall be transmitted by the appropriate ATS unit.

4.3.2 HF operational flight information service (OFIS) broadcasts  
RESERVED

4.3.3 VHF operational flight information service (OFIS) broadcasts  
RESERVED

4.3.4 Voice-automatic terminal information service (Voice-ATIS) broadcasts

4.3.4.1 Voice-automatic terminal information service (Voice-ATIS) broadcasts shall be provided at aerodromes where there is a requirement to reduce the communication load on the ATS VHF air-ground communication channels. When provided, they shall comprise:

- a) one broadcast serving arriving aircraft; or
- b) one broadcast serving departing aircraft; or
- c) one broadcast serving both arriving and departing aircraft; or
- d) two broadcasts serving arriving and departing aircraft respectively at those aerodromes where the length of a broadcast serving both arriving and departing aircraft would be excessively long.

4.3.4.2 A discrete VHF frequency shall, whenever practicable, be used for Voice-ATIS broadcasts. If a discrete frequency is not available, the transmission may be made on the voice channel(s) of the most appropriate terminal navigation aid(s), preferably a VOR provided the range and readability are adequate and the identification of the navigation aid is sequenced with the broadcast so that the latter is not obliterated.

4.3.4.3 Voice-ATIS broadcasts shall not be transmitted on the voice channel of an ILS.

4.3.4.4 Whenever Voice-ATIS is provided, the broadcast shall be continuous and repetitive.

4.3.4.5 The information contained in the current broadcast shall immediately be made known to the ATS unit(s) concerned with the provision to aircraft of information relating to approach, landing and takeoff, whenever the message has not been prepared by that (those) unit(s).

4.3.4.6 Voice-ATIS broadcasts provided at designated aerodromes for use by international air services shall be available in the English language as a minimum.

4.3.4.7 RESERVED

4.3.4.8 RESERVED

4.3.5 Data link-automatic terminal information service (D-ATIS)

4.3.5.1 Where a D-ATIS supplements the existing availability of Voice-ATIS, the information shall be identical in both content and format to the applicable Voice-ATIS broadcast.

- a) Where real-time meteorological information is included but the data remains within the parameters of the significant change criteria, the



content, for the purpose of maintaining the same designator, shall be considered identical.

4.3.5.2 Where a D-ATIS supplements the existing availability of Voice-ATIS and the ATIS requires updating, Voice-ATIS and D-ATIS shall be updated simultaneously.

4.3.6 Automatic terminal information service (voice and/or data link)

4.3.6.1 Whenever Voice-ATIS and/or D-ATIS is provided:

- a) the information communicated shall relate to a single aerodrome;
- b) the information communicated shall be updated immediately a significant change occurs;
- c) the preparation and dissemination of the ATIS message shall be the responsibility of the air traffic services;
- d) individual ATIS messages shall be identified by a designator in the form of a letter of the ICAO spelling alphabet.
- e) Designators assigned to consecutive ATIS messages shall be in alphabetical order;
- f) aircraft shall acknowledge receipt of the information upon establishing communication with the ATS unit providing approach control service or the aerodrome control tower, as appropriate;
- g) the appropriate ATS unit shall, when replying to the message in e) above or, in the case of arriving aircraft, at such other time as may be prescribed by the appropriate ATS authority, provide the aircraft with the current altimeter setting; and
- h) the meteorological information shall be extracted from the local meteorological routine or special report.

4.3.6.2 When rapidly changing meteorological conditions make it inadvisable to include a weather report in the ATIS, the ATIS messages shall indicate that the relevant weather information will be given on initial contact with the appropriate ATS unit.

4.3.6.3 Information contained in a current ATIS, the receipt of which has been acknowledged by the aircraft concerned, need not be included in a directed transmission to the aircraft, with the exception of the altimeter setting, which shall be provided in accordance with 4.3.6.1 f).

4.3.6.4 If an aircraft acknowledges receipt of an ATIS that is no longer current, any element of information that needs updating shall be transmitted to the aircraft without delay.

4.3.6.5 Contents of ATIS shall be kept as brief as possible. Information additional to that specified in 4.3.7 to 4.3.9, for example information already available in aeronautical information publications (AIPs) and NOTAM, shall only be included when justified in exceptional circumstances.

4.3.7 ATIS for arriving and departing aircraft ATIS messages containing both arrival and departure information shall contain the following elements of information in the order listed:

- a) name of aerodrome;
- b) arrival and/or departure indicator;
- c) contract type, if communication is via D-ATIS;
- d) designator;
- e) time of observation, if appropriate;
- f) type of approach(es) to be expected;



- g) the runway(s) in use; status of arresting system constituting a potential hazard, if any;
- h) significant runway surface conditions and, if appropriate, braking action;
- i) holding delay, if appropriate;
- j) transition level, if applicable;
- k) other essential operational information;
- l) surface wind direction (in degrees magnetic) and speed, including significant variations and, if surface wind sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;
- m) visibility and, when applicable, RVR and, if visibility/RVR sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;
- n) present weather;
- o) cloud below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available;
- p) air temperature;
- q) dew point temperature;
- r) altimeter setting(s);
- s) any available information on significant meteorological phenomena in the approach and climb out areas including wind shear, and information on recent weather of operational significance;
- t) trend forecast, when available; and
- u) specific ATIS instructions.

#### 4.3.8 ATIS for arriving aircraft

ATIS messages containing arrival information only shall contain the following elements of information in the order listed:

- a) name of aerodrome;
- b) arrival indicator;
- c) contract type, if communication is via D-ATIS;
- d) designator;
- e) time of observation, if appropriate;
- f) type of approach(es) to be expected;
- g) main landing runway(s); status of arresting system constituting a potential hazard, if any;
- h) significant runway surface conditions and, if appropriate, braking action;
- i) holding delay, if appropriate;
- j) transition level, if applicable;
- k) other essential operational information;
- l) surface wind direction (in degrees magnetic) and speed, including significant variations and, if surface wind sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;
- m) visibility and, when applicable, RVR and, if visibility/RVR sensors related specifically to the sections of runway(s) in use are available and the information



- is required by operators, the indication of the runway and the section of the runway to which the information refers;
- n) present weather;
  - o) cloud below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available;
  - p) air temperature;
  - q) dew point temperature;
  - r) altimeter setting(s);
  - s) any available information on significant meteorological phenomena in the approach area including wind shear, and information on recent weather of operational significance;
  - t) trend forecast, when available; and
  - u) specific ATIS instructions.

#### 4.3.9 ATIS for departing aircraft

ATIS messages containing departure information only shall contain the following elements of information in the order listed:

- a) name of aerodrome;
- b) departure indicator;
- c) contract type, if communication is via D-ATIS;
- d) designator;
- e) time of observation, if appropriate;
- f) runway(s) to be used for takeoff; status of arresting system constituting a potential hazard, if any;
- g) significant surface conditions of runway(s) to be used for takeoff and, if appropriate, braking action;
- h) departure delay, if appropriate;
- i) transition level, if applicable;
- j) other essential operational information;
- k) surface wind direction (in degrees magnetic) and speed, including significant variations and, if surface wind sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;
- l) visibility and, when applicable, RVR and, if visibility/RVR sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;
- m) present weather;
- n) cloud below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available;
- o) air temperature;
- p) dew point temperature;
- q) altimeter setting(s);
- r) any available information on significant meteorological phenomena in the climb out area including wind shear;
- s) trend forecast, when available; and
- t) specific ATIS instructions.

#### 4.4 VOLMET BROADCASTS AND D-VOLMET SERVICE RESERVED

## CHAPTER 5 – ALERTING SERVICE

### 5.1 APPLICATION

5.1.1 Alerting service shall be provided:

- a) for all aircraft provided with air traffic control service;
- b) in so far as practicable, to all other aircraft having filed a flight plan or otherwise known to the air traffic services; and
- c) to any aircraft known or believed to be the subject of unlawful interference.

5.1.2 Flight information centres or area control centres shall serve as the central point for collecting all information relevant to a state of emergency of an aircraft operating within the flight information region or control area concerned and for forwarding such information to the appropriate rescue coordination centre.

5.1.3 In the event of a state of emergency arising to an aircraft while it is under the control of an aerodrome control tower or approach control unit, such unit shall notify immediately the flight information centre or area control centre responsible which shall in turn notify the rescue coordination centre, except that notification of the area control centre, flight information centre, or rescue coordination centre shall not be required when the nature of the emergency is such that the notification would be superfluous.

5.1.3.1 Nevertheless, whenever the urgency of the situation so requires, the aerodrome control tower or approach control unit responsible shall first alert and take other necessary steps to set in motion all appropriate local rescue and emergency organizations which can give the immediate assistance required.

### 5.2 NOTIFICATION OF RESCUE COORDINATION CENTRES

5.2.1 Without prejudice to any other circumstances that may render such notification advisable, air traffic services units shall, except as prescribed in 5.5.1, notify rescue coordination centres immediately an aircraft is considered to be in a state of emergency in accordance with the following:

- a) **Uncertainty phase** when:
  - 1) no communication has been received from an aircraft within a period of thirty minutes after the time a communication should have been received, or from the time an unsuccessful attempt to establish communication with such aircraft was first made, whichever is the earlier, or when
  - 2) an aircraft fails to arrive within thirty minutes of the estimated time of arrival last notified to or estimated by air traffic services units, whichever is the later, except when no doubt exists as to the safety of the aircraft and its occupants.
- b) **Alert phase** when:
  - 1) following the uncertainty phase, subsequent attempts to establish communication with the aircraft or inquiries to other relevant sources have failed to reveal any news of the aircraft, or when
  - 2) an aircraft has been cleared to land and fails to land within five minutes of the estimated time of landing and communication has not been re-established with the aircraft, or when
  - 3) information has been received which indicates that the operating efficiency of the aircraft has been impaired, but not to the extent that a forced landing is likely, except when evidence exists that would allay apprehension as to the safety of the aircraft and its occupants, or when
  - 4) an aircraft is known or believed to be the subject of unlawful interference.

- c) **Distress phase** when:
- 1) following the alert phase, further unsuccessful attempts to establish communication with the aircraft and more widespread unsuccessful inquiries point to the probability that the aircraft is in distress, or when
  - 2) the fuel on board is considered to be exhausted, or to be insufficient to enable the aircraft to reach safety, or when
  - 3) information is received which indicates that the operating efficiency of the aircraft has been impaired to the extent that a forced landing is likely, or when
  - 4) information is received or it is reasonably certain that the aircraft is about to make or has made a forced landing, except when there is reasonable certainty that the aircraft and its occupants are not threatened by grave and imminent danger and do not require immediate assistance.

5.2.2 The notification shall contain such of the following information as is available in the order listed:

- a) INCERFA, ALERFA or DETRESFA, as appropriate to the phase of the emergency;
- b) agency and person calling;
- c) nature of the emergency;
- d) significant information from the flight plan;
- e) unit which made last contact, time and means used;
- f) last position report and how determined;
- g) colour and distinctive marks of aircraft;
- h) dangerous goods carried as cargo;
- i) any action taken by reporting office; and
- j) other pertinent remarks.

5.2.2.1 Such part of the information specified in 5.2.2, which is not available at the time notification is made to a rescue coordination centre, shall be sought by an air traffic services unit prior to the declaration of a distress phase, if there is reasonable certainty that this phase will eventuate.

5.2.3 Further to the notification in 5.2.1, the rescue coordination centre shall, without delay, be furnished with:

- a) any useful additional information, especially on the development of the state of emergency through subsequent phases; or
- b) information that the emergency situation no longer exists.

### 5.3 USE OF COMMUNICATION FACILITIES

Air traffic services units shall, as necessary, use all available communication facilities to endeavour to establish and maintain communication with an aircraft in a state of emergency, and to request news of the aircraft.

### 5.4 PLOTTING AIRCRAFT IN A STATE OF EMERGENCY

When a state of emergency is considered to exist, the flight of the aircraft involved shall be plotted on a chart in order to determine the probable future position of the aircraft and its maximum range of action from its last known position. The flights of other aircraft known to be operating in the vicinity of the aircraft involved shall also be plotted in order to determine their probable future positions and maximum endurance.



## **5.5 INFORMATION TO THE OPERATOR**

- 5.5.1 When an area control or a flight information centre decides that an aircraft is in the uncertainty or the alert phase, it shall, when practicable, advise the operator prior to notifying the rescue coordination centre.
- 5.5.2 All information notified to the rescue coordination centre by an area control or flight information centre shall, whenever practicable, also be communicated, without delay, to the operator.

## **5.6 INFORMATION TO AIRCRAFT OPERATING IN THE VICINITY OF AN AIRCRAFT IN A STATE OF EMERGENCY**

- 5.6.1 When it has been established by an air traffic services unit that an aircraft is in a state of emergency, other aircraft known to be in the vicinity of the aircraft involved shall, except as provided in 5.6.2, be informed of the nature of the emergency as soon as practicable.
- 5.6.2 When an air traffic services unit knows or believes that an aircraft is being subjected to unlawful interference, no reference shall be made in ATS air-ground communications to the nature of the emergency unless it has first been referred to in communications from the aircraft involved and it is certain that such reference will not aggravate the situation.

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## CHAPTER 6 – AIR TRAFFIC SERVICES REQUIREMENTS FOR COMMUNICATIONS

- 6.1 AERONAUTICAL MOBILE SERVICE (AIR-GROUND COMMUNICATIONS)**
- 6.1.1 General
- 6.1.1.1 Radiotelephony and/or data link shall be used in air-ground communications for air traffic services purposes.
- 6.1.1.2 In airspace where an RCP specification types have been prescribed by the Authority for performance based communications, ATS units shall, in addition to the requirements specified in 6.1.1.1, be provided with communication equipment which will enable them to provide ATS in accordance with the prescribed RCP specification.
- 6.1.1.2.1 Guidance on the implementation of PBCS is contained in the ICAO PBCS Manual (Doc 9869).
- 6.1.1.3 When direct pilot-controller two-way radiotelephony or data link communications are used for the provision of air traffic control service, recording facilities shall be provided on all such air-ground communication channels.
- 6.1.1.4 Recordings of communications channels as required in paragraph 6.1.1.3 shall be retained for a period of at least thirty days.
- 6.1.2 For flight information service
- 6.1.2.1 Air-ground communication facilities shall enable two-way communications to take place between a unit providing flight information service and appropriately equipped aircraft flying anywhere within the flight information region.
- 6.1.3 For area control service
- 6.1.3.1 Air-ground communication facilities shall enable two-way communications to take place between a unit providing area control service and appropriately equipped aircraft flying anywhere within the control area(s).
- 6.1.3.2 RESERVED
- 6.1.3.3 RESERVED
- 6.1.4 For approach control service
- 6.1.4.1 Air-ground communication facilities shall enable direct, rapid, continuous and static-free two-way communications to take place between the unit providing approach control service and appropriately equipped aircraft under its control.
- 6.1.4.2 Where the unit providing approach control service functions as a separate unit, air-ground communications shall be conducted over communication channels provided for its exclusive use.
- 6.1.5 For aerodrome control service
- 6.1.5.1 Air-ground communication facilities shall enable direct, rapid, continuous and static-free two-way communications to take place between an aerodrome control tower and appropriately equipped aircraft operating at any distance within 45 km (25 NM) of the aerodrome concerned.
- 6.1.5.2 RESERVED

## **6.2 AERONAUTICAL FIXED SERVICE (GROUND-GROUND COMMUNICATIONS)**

### **6.2.1 General**

6.2.1.1 Direct-speech and/or data link communications shall be used in ground-ground communications for air traffic services purposes.

### **6.2.2 Communications within a flight information region**

#### **6.2.2.1 *Communications between air traffic services units***

6.2.2.1.1 A flight information centre shall have facilities for communications with the following units providing a service within its area of responsibility:

- a) the area control centre, unless collocated;
- b) approach control units;
- c) aerodrome control towers.

6.2.2.1.2 An area control centre, in addition to being connected to the flight information centre as prescribed in 6.2.2.1.1, shall have facilities for communications with the following units providing a service within its area of responsibility:

- a) approach control units;
- b) aerodrome control towers;
- c) air traffic services reporting offices, when separately established.

6.2.2.1.3 An approach control unit, in addition to being connected to the flight information centre and the area control centre as prescribed in 6.2.2.1.1 and 6.2.2.1.2, shall have facilities for communications with the associated aerodrome control tower(s) and, when separately established, the associated air traffic services reporting office(s).

6.2.2.1.4 An aerodrome control tower, in addition to being connected to the flight information centre, the area control centre and the approach control unit as prescribed in 6.2.2.1.1, 6.2.2.1.2 and 6.2.2.1.3, shall have facilities for communications with the associated air traffic services reporting office, when separately established.

#### **6.2.2.2 *Communications between air traffic services units and other units***

6.2.2.2.1 A flight information centre and an area control centre shall have facilities for communications with the following units providing a service within their respective area of responsibility:

- a) appropriate military units;
- b) the meteorological office serving the centre;
- c) the aeronautical telecommunications station serving the centre;
- d) appropriate operator's offices;
- e) the rescue coordination centre or, in the absence of such centre, any other appropriate emergency service;
- f) the international NOTAM office serving the centre.

6.2.2.2.2 An approach control unit and an aerodrome control tower shall have facilities for communications with the following units providing a service within their respective area of responsibility:

- a) appropriate military units;
- b) rescue and emergency services (including ambulance, fire, etc.);
- c) the meteorological office serving the unit concerned;
- d) the aeronautical telecommunications station serving the unit concerned;
- e) the unit providing apron management service, when separately established.

6.2.2.2.3 The communication facilities required under 6.2.2.2.1 a) and 6.2.2.2.2 a) shall include provisions for rapid and reliable communications between the air traffic services unit concerned and the military unit(s) responsible for control



of interception operations within the area of responsibility of the air traffic services unit.

6.2.2.3 *Description of communication facilities*

6.2.2.3.1 The communication facilities required under 6.2.2.1, 6.2.2.2.1 a) and 6.2.2.2.2 a), b) and c) shall include provisions for:

- a) communications by direct speech alone, or in combination with data link communications, whereby for the purpose of transfer of control using radar or ADS-B, the communications can be established instantaneously and for other purposes the communications can normally be established within fifteen seconds; and
- b) printed communications, when a written record is required; the message transit time for such communications being no longer than five minutes.

6.2.2.3.2 RESERVED

6.2.2.3.3 In all cases where automatic transfer of data to and/or from air traffic services computers is required, suitable facilities for automatic recording shall be provided.

6.2.2.3.4 RESERVED

6.2.2.3.5 The communication facilities required under 6.2.2.2.2 a), b) and c) shall include provisions for communications by direct speech arranged for conference communications.

6.2.2.3.6 RESERVED

6.2.2.3.7 All facilities for direct-speech or data link communications between air traffic services units and between air traffic services units and other units described under 6.2.2.2.1 and 6.2.2.2.2 shall be provided with automatic recording.

6.2.2.3.8 Recordings of data and communications as required in 6.2.2.3.3 and 6.2.2.3.7 shall be retained for a period of at least thirty days.

6.2.3 Communications between flight information regions

6.2.3.1 Flight information centres and area control centres shall have facilities for communications with all adjacent flight information centres and area control centres.

6.2.3.1.1 These communication facilities shall in all cases include provisions for messages in a form suitable for retention as a permanent record, and delivery in accordance with transit times specified by regional air navigation agreements.

6.2.3.1.2 Unless otherwise prescribed on the basis of regional air navigation agreements, facilities for communications between area control centres serving contiguous control areas shall, in addition, include provisions for direct speech and, where applicable, data link communications, with automatic recording, whereby for the purpose of transfer of control using radar, ADS-B or ADS-C data, the communications can be established instantaneously and for other purposes the communications can normally be established within fifteen seconds.

6.2.3.1.3 When so required by agreement between the States concerned in order to eliminate or reduce the need for interceptions in the event of deviations from assigned track, facilities for communications between adjacent flight information centres or area control centres other than those mentioned in 6.2.3.1.2 shall include provisions for direct speech alone, or in combination



with data link communications. The communication facilities shall be provided with automatic recording.

6.2.2.3.6 RESERVED

6.2.2.3.7 RESERVED

6.2.2.4 RESERVED

6.2.2.5 RESERVED

6.2.2.6 In all cases where automatic exchange of data between air traffic services computers is required, suitable facilities for automatic recording shall be provided.

6.2.2.7 Recordings of data and communications as required in 6.2.3.5 shall be retained for a period of at least thirty days.

6.2.3 Procedures for direct-speech communications

Appropriate procedures for direct speech communications shall be developed to permit immediate connections to be made for very urgent calls concerning the safety of aircraft, and the interruption, if necessary, of less urgent calls in progress at the time.

### **6.3 SURFACE MOVEMENT CONTROL SERVICE**

6.3.1 Communications for the control of vehicles other than aircraft on manoeuvring areas at controlled aerodromes.

6.3.1.1 Two-way radiotelephony communication facilities shall be provided for aerodrome control service for the control of vehicles on the manoeuvring area, except where communication by a system of visual signals is deemed to be adequate.

6.3.1.2. Where conditions warrant, separate communication channels shall be provided for the control of vehicles on the manoeuvring area. Automatic recording facilities shall be provided on all such channels.

6.3.1.3. Recordings of communications as required in 6.3.1.2 shall be retained for a period of at least thirty days.

### **6.4. AERONAUTICAL RADIO NAVIGATION SERVICE**

6.4.1. Automatic recording of surveillance data

6.4.1.2. Surveillance data from primary and secondary radar equipment or other systems (e.g. ADS-B, ADS-C), used as an aid to air traffic services, shall be automatically recorded for use in accident and incident investigations, search and rescue, air traffic control and surveillance systems evaluation and training.

6.4.1.3. Automatic recordings shall be retained for a period of at least thirty days. When the recordings are pertinent to accident and incident investigations, they shall be retained for longer periods until it is evident that they will no longer be required.

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## CHAPTER 7 – AIR TRAFFIC SERVICES REQUIREMENTS FOR INFORMATION

### 7.1 METEOROLOGICAL INFORMATION

#### 7.1.1 General

7.1.1.1 Air traffic services units shall be supplied with up-to-date information on existing and forecast meteorological conditions as necessary for the performance of their respective functions. The information shall be supplied in such a form as to require a minimum of interpretation on the part of air traffic services personnel and with a frequency which satisfies the requirements of the air traffic services units concerned.

7.1.1.2 RESERVED

7.1.1.3 RESERVED

#### 7.1.2 Flight information centres and area control centres

7.1.2.1 Flight information centres and area control centres shall be supplied with meteorological information as described in SUCAR 3, Appendix 9, 1.3, particular emphasis being given to the occurrence or expected occurrence of weather deterioration as soon as this can be determined. These reports and forecasts shall cover the flight information region or control area and such other areas as may be determined on the basis of regional air navigation agreements.

7.1.2.2 Flight information centres and area control centres shall be provided, at suitable intervals, with current pressure data for setting altimeters, for locations specified by the flight information centre or area control centre concerned.

#### 7.1.3 Units providing approach control service

7.1.3.1 Units providing approach control service shall be supplied with meteorological information as described in SUCAR 3, Appendix 9, 1.2 for the airspace and the aerodromes with which they are concerned. Special reports and amendments to forecasts shall be communicated to the units providing approach control service as soon as they are necessary in accordance with established criteria, without waiting for the next routine report or forecast. Where multiple anemometers are used, the indicators to which they are related shall be clearly marked to identify the runway and section of the runway monitored by each anemometer.

7.1.3.2 Units providing approach control service shall be provided with current pressure data for setting altimeters, for locations specified by the unit providing approach control service.

7.1.3.3 Units providing approach control service for final approach, landing and take-off shall be equipped with surface wind display(s). The display(s) shall be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding display(s) in the aerodrome control tower and in the meteorological station, where such a station exists.

7.1.3.4 Units providing approach control service for final approach, landing and take-off at aerodromes where runway visual range values are assessed by instrumental means shall be equipped with display(s) permitting read-out of the current runway visual range value(s). The display(s) shall be related to the same location(s) of observation and be fed from the same sensor(s) as the

corresponding displays in the aerodrome control tower and in the meteorological station, where such a station exists.

7.1.3.5 RESERVED

7.1.3.6 Units providing approach control service for final approach, landing and take-off shall be supplied with information on wind shear which could adversely affect aircraft on the approach or take-off paths or during circling approach.

7.1.4 Aerodrome control towers

7.1.4.1 Aerodrome control towers shall be supplied with meteorological information as described in SUCAR 3, Appendix 9, 1.1 for the aerodrome with which they are concerned. Special reports and amendments to forecasts shall be communicated to the aerodrome control towers as soon as they are necessary in accordance with established criteria, without waiting for the next routine report or forecast.

7.1.4.2 Aerodrome control towers shall be provided with current pressure data for setting altimeters for the aerodrome concerned.

7.1.4.3 Aerodrome control towers shall be equipped with surface wind display(s). The display(s) shall be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding display(s) in the meteorological station, where such a station exists. Where multiple sensor(s) are used, the displays to which they are related shall be clearly marked to identify the runway and section of the runway monitored by each sensor.

7.1.4.4 Aerodrome control towers at aerodromes where runway visual range values are measured by instrumental means shall be equipped with display(s) permitting read-out of the current runway visual range value(s). The display(s) shall be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding display(s) in the meteorological station, where such a station exists.

7.1.4.5 RESERVED

7.1.4.6 Aerodrome control towers shall be supplied with information on wind shear which could adversely affect aircraft on the approach or take-off paths or during circling approach and aircraft on the runway during the landing roll or take-off run.

7.1.4.7 RESERVED

7.1.5 Communication stations

Where necessary for flight information purposes, current meteorological reports and forecasts shall be supplied to communication stations. A copy of such information shall be forwarded to the flight information centre or the area control centre.

**7.2 INFORMATION ON AERODROME CONDITIONS AND THE OPERATIONAL STATUS OF ASSOCIATED FACILITIES**

Aerodrome control towers and units providing approach control service shall be kept currently informed of the operationally significant conditions of the movement area, including the existence of temporary hazards, and the operational status of any associated facilities at the aerodrome(s) with which they are concerned.

**7.3 INFORMATION ON THE OPERATIONAL STATUS OF NAVIGATION SERVICES**

7.3.1 ATS units shall be kept currently informed of the operational status of radio navigation services and visual aids essential for take-off, departure, approach



and landing procedures within their area of responsibility and those radio navigation services and visual aids essential for surface movement.

7.3.2 RESERVED

**7.4 INFORMATION ON UNMANNED FREE BALLOONS**

8 Operators of unmanned free balloons shall keep the appropriate air traffic services units informed of details of flights of unmanned free balloons in accordance with the provisions contained in SUCAR 2.

**7.5 INFORMATION CONCERNING VOLCANIC ACTIVITY**

7.5.1 ATS units shall be informed, in accordance with local agreement, of pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud which could affect airspace used by flights within their area of responsibility.

7.5.2 Area control centres and flight information centres shall be provided with volcanic ash advisory information issued by the associated VAAC designated in the regional air navigation agreements.

**7.6 INFORMATION CONCERNING RADIOACTIVE MATERIALS AND TOXIC CHEMICAL “CLOUDS”**

8 ATS units shall be informed, in accordance with local agreement, of the release into the atmosphere of radioactive materials or toxic chemicals which could affect airspace used by flights within their area of responsibility.

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## **APPENDIX 1 - PRINCIPLES GOVERNING THE IDENTIFICATION OF NAVIGATION SPECIFICATIONS AND THE IDENTIFICATION OF ATS ROUTES OTHER THAN STANDARD DEPARTURE AND ARRIVAL ROUTES**

### **1. DESIGNATORS FOR ATS ROUTES**

- 1.1. The purpose of a system of route designators and navigation specification(s) applicable to specified ATS route segment(s), route(s) or area is to allow both pilots and ATS, taking into account automation requirements:
- to make unambiguous reference to any ATS route without the need to resort to the use of geographical coordinates or other means in order to describe it;
  - to relate an ATS route to a specific vertical structure of the airspace, as applicable;
  - to indicate a required level of navigation performance accuracy, when operating along an ATS route or within a specified area; and
  - to indicate that a route is used primarily or exclusively by certain types of aircraft.
- 1.1.1. Specifications concerning the publication of navigation specifications are provided in SUCAR Part 4 and PANS-AIM (Doc 10066), Appendix 2.
- 1.2. In order to meet this purpose, the designation system shall:
- permit the identification of any ATS route in a simple and unique manner;
  - avoid redundancy;
  - be usable by both ground and airborne automation systems;
  - permit utmost brevity in operational use; and
  - provide sufficient possibility of extension to cater for any future requirements without the need for fundamental changes.
- 1.3. Controlled, advisory and uncontrolled ATS routes, with the exception of standard arrival and departure routes, shall therefore be identified as specified hereafter.

### **2. COMPOSITION OF DESIGNATOR**

- 2.1. The ATS route designator shall consist of a basic designator supplemented, if necessary, by:
- one prefix as prescribed in 2.3; and
  - one additional letter as prescribed in 2.4.
- 2.1.1. The number of characters required to compose the designator shall not exceed six characters.
- 2.1.2. The number of characters required to compose the designator shall, whenever possible, be kept to a maximum of five characters.
- 2.2. The basic designator shall consist of one letter of the alphabet followed by a number from 1 to 999.
- 2.2.1. Selection of the letter shall be made from those listed hereunder:
- A, B, G, R for routes which form part of the regional networks of ATS routes and are not area navigation routes;
  - L, M, N, P for area navigation routes which form part of the regional networks of ATS routes;
  - H, J, V, W for routes which do not form part of the regional networks of ATS routes and are not area navigation routes;
  - Q, T, Y, Z for area navigation routes which do not form part of the regional networks of ATS routes.



- 2.3. Where applicable, one supplementary letter shall be added as a prefix to the basic designator in accordance with the following:
- a) K to indicate a low-level route established for use primarily by helicopters;
  - b) U to indicate that the route or portion thereof is established in the upper airspace;
  - c) S to indicate a route established exclusively for use by supersonic aircraft during acceleration, deceleration and while in supersonic flight.
- 2.4. When prescribed by the Authority or on the basis of regional air navigation agreements, a supplementary letter may be added after the basic designator of the ATS route in question in order to indicate the type of service provided in accordance with the following:
- a) the letter F to indicate that on the route or portion thereof advisory service only is provided;
  - b) the letter G to indicate that on the route or portion thereof flight information service only is provided.

### **3. ASSIGNMENT OF BASIC DESIGNATORS**

- 3.1. Basic ATS route designators shall be assigned in accordance with the following principles.
- 3.1.1. The same basic designator shall be assigned to a main trunk route throughout its entire length, irrespective of terminal control areas, States or regions traversed.
  - 3.1.2. Where two or more trunk routes have a common segment, the segment in question shall be assigned each of the designators of the routes concerned, except where this would present difficulties in the provision of air traffic service, in which case, by common agreement, one designator only shall be assigned.
  - 3.1.3. A basic designator assigned to one route shall not be assigned to any other route.
  - 3.1.4. The Authority shall notify the Sudan requirements for designators to the Regional Offices of ICAO for coordination.

### **4. USE OF DESIGNATORS IN COMMUNICATIONS**

- 4.1. In printed communications, the designator shall be expressed at all times by not less than two and not more than six characters.
- 4.2. In voice communications, the basic letter of a designator shall be spoken in accordance with the ICAO spelling alphabet.
- 4.3. Where the prefixes K, U or S specified in 2.3 are used, they shall, in voice communications, be spoken as follows:
- K — KOPTER
  - U — UPPER
  - S — SUPERSONIC
- The word “kopter” shall be pronounced as in the word “helicopter” and the words “upper” and “supersonic” as in the English language.
- 4.4. Where the letters “F” or “G” specified in 2.4 are used, the flight crew shall not be required to use them in voice communications.

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## APPENDIX 2 – PRINCIPLES GOVERNING THE ESTABLISHMENT AND IDENTIFICATION OF SIGNIFICANT POINTS

### 1. ESTABLISHMENT OF SIGNIFICANT POINTS

- 1.1. Significant points shall, whenever possible, be established with reference to ground-based or space-based radio navigation aids, preferably VHF or higher frequency aids.
- 1.2. Where such ground-based or space-based radio navigation aids do not exist, significant points shall be established at locations which can be determined by self-contained airborne navigation aids, or, where navigation by visual reference to the ground is to be effected, by visual observation. Specific points may be designated as “transfer of control” points by agreement between adjacent air traffic control units or control positions concerned.

### 2. DESIGNATORS FOR SIGNIFICANT POINTS MARKED BY THE SITE OF A RADIO NAVIGATION AID

- 2.1. Plain language name for significant points marked by the site of a radio navigation aid.
  - 2.1.1. Whenever practicable, significant points shall be named with reference to an identifiable and preferably prominent geographical location.
  - 2.1.2. In selecting a name for the significant point, care shall be taken to ensure that the following conditions are met:
    - a) the name shall not create difficulties in pronunciation for pilots or ATS personnel when speaking in the language used in ATS communications. Where the name of a geographical location in the national language selected for designating a significant point gives rise to difficulties in pronunciation, an abbreviated or contracted version of this name, which retains as much of its geographical significance as possible, shall be selected;  

*Example: FUERSTENFELDBRUCK = FURSTY*
    - b) the name shall be easily recognizable in voice communications and shall be free of ambiguity with those of other significant points in the same general area. In addition, the name shall not create confusion with respect to other communications exchanged between air traffic services and pilots;
    - c) the name shall, if possible, consist of at least six letters and form two syllables and preferably not more than three;
    - d) the selected name shall be the same for both the significant point and the radio navigation aid marking it.
- 2.2. Composition of coded designators for significant points marked by the site of a radio navigation aid
  - 2.2.1. The coded designator shall be the same as the radio identification of the radio navigation aid. It shall be so composed, if possible, as to facilitate association with the name of the point in plain language.
  - 2.2.2. Coded designators shall not be duplicated within 1 100 km (600 NM) of the location of the radio navigation aid concerned, except as noted hereunder.
- 2.3. The Authority shall notify the Sudan requirements for coded designators to the Regional Offices of ICAO for coordination.





### **3. DESIGNATORS FOR SIGNIFICANT POINTS NOT MARKED BY THE SITE OF A RADIO NAVIGATION AID**

- 3.1. Where a significant point is required at a position not marked by the site of a radio navigation aid, and is used for ATC purposes, it shall be designated by a unique five-letter pronounceable “name-code” This name-code designator then serves as the name as well as the coded designator of the significant point.
- 3.2. The name-code designator shall be selected so as to avoid any difficulties in pronunciation by pilots or ATS personnel when speaking in the language used in ATS communications.

*Examples: ADOLA, KODAP*

- 3.3. The name-code designator shall be easily recognizable in voice communications and shall be free of ambiguity with those used for other significant points in the same general area.
- 3.4. The unique five-letter pronounceable name-code designator assigned to a significant point shall not be assigned to any other significant point. When there is a need to relocate a significant point, a new name-code designator shall be chosen. In cases when a State wishes to keep the allocation of specific name-codes for reuse at a different location, such name-codes shall not be used until after a period of at least six months.
- 3.5. The Authority shall notify the Sudan requirements for unique five-letter pronounceable name-code designators to the Regional Offices of ICAO for coordination.
- 3.6. In areas where no system of fixed routes is established or where the routes followed by aircraft vary depending on operational considerations, significant points shall be determined and reported in terms of World Geodetic System — 1984 (WGS-84) geographical coordinates, except that permanently established significant points serving as exit and/or entry points into such areas shall be designated in accordance with the applicable provisions in 2 or 3.

### **4. USE OF DESIGNATORS IN COMMUNICATIONS**

- 4.1. Normally the name selected in accordance with 2 or 3 shall be used to refer to the significant point in voice communications. If the plain language name for a significant point marked by the site of a radio navigation aid selected in accordance with 2.1 is not used, it shall be replaced by the coded designator which, in voice communications, shall be spoken in accordance with the ICAO spelling alphabet.
- 4.2. In printed and coded communications, only the coded designator or the selected name-code shall be used to refer to a significant point.

### **5. SIGNIFICANT POINTS USED FOR REPORTING PURPOSES**

- 5.1. In order to permit ATS to obtain information regarding the progress of aircraft in flight, selected significant points may need to be designated as reporting points.
- 5.2. In establishing such points, consideration shall be given to the following factors:
- a) the type of air traffic services provided;



- b) the amount of traffic normally encountered;
  - c) the accuracy with which aircraft are capable of adhering to the current flight plan;
  - d) the speed of the aircraft;
  - e) the separation minima applied;
  - f) the complexity of the airspace structure;
  - g) the control method(s) employed;
  - h) the start or end of significant phases of a flight (climb, descent, change of direction, etc.);
  - i) transfer of control procedures;
  - j) safety and search and rescue aspects;
  - k) the cockpit and air-ground communication workload.
- 5.1 Reporting points shall be established either as “compulsory” or as “on-request”.
- 5.2 In establishing “compulsory” reporting points the following principles shall apply:
- a) compulsory reporting points shall be limited to the minimum necessary for the routine provision of information to air traffic services units on the progress of aircraft in flight, bearing in mind the need to keep cockpit and controller workload and air-ground communications load to a minimum;
  - b) the availability of a radio navigation aid at a location shall not necessarily determine its designation as a compulsory reporting point;
  - c) compulsory reporting points shall not necessarily be established at flight information region or control area boundaries.
- 5.3 “On-request” reporting points may be established in relation to the requirements of air traffic services for additional position reports when traffic conditions so demand.
- 5.4 The designation of compulsory and on-request reporting points shall be reviewed regularly with a view to keeping the requirements for routine position reporting to the minimum necessary to ensure efficient air traffic services.
- 5.5 Routine reporting over compulsory reporting points shall not systematically be made mandatory for all flights in all circumstances. In applying this principle, particular attention shall be given to the following:
- a) high-speed, high-flying aircraft shall not be required to make routine position reports over all reporting points established as compulsory for low-speed, low-flying aircraft;
  - b) aircraft transiting through a terminal control area shall not be required to make routine position reports as frequently as arriving and departing aircraft.
- 5.6 In areas where the above principles regarding the establishment of reporting points would not be practicable, a reporting system with reference to meridians of longitude or parallels of latitude expressed in whole degrees may be established.

## APPENDIX 3 – PRINCIPLES GOVERNING THE IDENTIFICATION OF STANDARD DEPARTURE AND ARRIVAL ROUTES AND ASSOCIATED PROCEDURES

### 1. DESIGNATORS FOR STANDARD DEPARTURE AND ARRIVAL ROUTES AND ASSOCIATED PROCEDURES

- 1.1. The system of designators shall:
- a) permit the identification of each route in a simple and unambiguous manner;
  - b) make a clear distinction between:
    - departure routes and arrival routes;
    - departure or arrival routes and other ATS routes;
    - routes requiring navigation by reference to ground-based radio aids or self-contained airborne aids, and routes requiring navigation by visual reference to the ground;
  - c) be compatible with ATS and aircraft data processing and display requirements;
  - d) be of utmost brevity in its operational application;
  - e) avoid redundancy;
  - f) provide sufficient possibility for extension to cater for any future requirements without the need for fundamental changes.
- 1.2. Each route shall be identified by a plain language designator and a corresponding coded designator.
- 1.3. The designators shall, in voice communications, be easily recognizable as relating to a standard departure or arrival route and shall not create any difficulties in pronunciation for pilots and ATS personnel.

### 2. COMPOSITION OF DESIGNATORS

#### 2.1. Plain language designator

- 2.1.1. The plain language designator of a standard departure or arrival route shall consist of:
- a) a basic indicator; followed by
  - b) a validity indicator; followed by
  - c) a route indicator, where required; followed by
  - d) the word “departure” or “arrival”; followed by
  - e) the word “visual”, if the route has been established for use by aircraft operating in accordance with the visual flight rules (VFR).
- 2.1.2. The basic indicator shall be the name or name-code of the significant point where a standard departure route terminates or a standard arrival route begins.
- 2.1.3. The validity indicator shall be a number from 1 to 9.
- 2.1.4. The route indicator shall be one letter of the alphabet. The letters “I” and “O” shall not be used.

#### 2.2. Coded designator

- 2.3. The coded designator of a standard departure or arrival route, instrument or visual, shall consist of:
- a) the coded designator or name-code of the significant point described in 2.1.1 a); followed by
  - b) the validity indicator in 2.1.1 b); followed by
  - c) the route indicator in 2.1.1 c), where required.

### 3. ASSIGNMENT OF DESIGNATORS

- 3.1. Each route shall be assigned a separate designator.
- 3.2. To distinguish between two or more routes which relate to the same significant point (and therefore are assigned the same basic indicator), a separate route indicator as described in 2.1.4 shall be assigned to each route.



#### 4. ASSIGNMENT OF VALIDITY INDICATORS

- 4.1. A validity indicator shall be assigned to each route to identify the route which is currently in effect.
- 4.2. The first validity indicator to be assigned shall be the number “1”.
- 4.3. Whenever a route is amended, a new validity indicator, consisting of the next higher number, shall be assigned. The number “9” shall be followed by the number “1”.

#### 5. EXAMPLES OF PLAIN LANGUAGE AND CODED DESIGNATORS

- 5.1. *Example 1:* Standard departure route — instrument:

- a) Plain language designator BRECON ONE DEPARTURE
- b) Coded designator: BCN 1

- 5.1.1. *Meaning:* The designator identifies a standard instrument departure route which terminates at the significant point BRECON (basic indicator). BRECON is a radio navigation facility with the identification BCN (basic indicator of the coded designator). The validity indicator ONE (1 in the coded designator) signifies either that the original version of the route is still in effect or that a change has been made from the previous version NINE (9) to the now effective version ONE (1) (see 4.3). The absence of a route indicator (see 2.1.4 and 3.2) signifies that only one route, in this case a departure route, has been established with reference to BRECON.

- 5.2. *Example 2:* Standard arrival route — instrument:

- a) Plain language designator: KODAP TWO ALPHA ARRIVAL
- b) Coded designator: KODAP 2 A

- 5.2.1. *Meaning:* This designator identifies a standard instrument arrival route which begins at the significant point KODAP (basic indicator). KODAP is a significant point not marked by the site of a radio navigation facility and therefore assigned a five-letter name-code in accordance with Appendix 2. The validity indicator TWO (2) signifies that change has been made from the previous version ONE (1) to the now effective version TWO (2). The route indicator ALPHA (A) identifies one of several routes established with reference to KODAP and is a specific character assigned to this route.

- 5.3. *Example 3:* Standard departure route — visual:

- a) Plain language designator: ADOLA FIVE BRAVO DEPARTURE VISUAL
- b) Coded designator: ADOLA 5 B

- 5.3.1. *Meaning:* This designator identifies a standard departure route for controlled VFR flights which terminates at ADOLA, a significant point not marked by the site of a radio navigation facility. The validity indicator FIVE (5) signifies that a change has been made from the previous version FOUR (4) to the now effective version FIVE (5). The route indicator BRAVO (B) identifies one of several routes established with reference to ADOLA.

#### 6. COMPOSITION OF DESIGNATORS FOR MLS/RNAV APPROACH PROCEDURES

- 6.1. Plain language designator

- 6.1.1. The plain language designator of an MLS/RNAV approach procedure shall consist of:
  - a) “MLS”; followed by
  - b) a basic indicator; followed by
  - c) a validity indicator; followed by
  - d) a route indicator; followed by
  - e) the word “approach”; followed by



- f) the designator of the runway for which the procedure is designed.
- 6.1.2. The basic indicator shall be the name or name-code of the significant point where the approach procedure begins.
- 6.1.3.** The validity indicator shall be a number from 1 to 9.
- 6.1.4. The route indicator shall be one letter of the alphabet. The letters “I” and “O” shall not be used.
- 6.1.5. The designator of the runway shall be in accordance with SUCAR 14, Subpart 1, 5.2.2.
- 6.2. Coded designator
- 6.2.1. The coded designator of an MLS/RNAV approach procedure shall consist of:
- “MLS”; followed by
  - the coded designator or name-code of the significant point described in 6.1.1 b); followed by
  - the validity indicator in 6.1.1 c); followed by
  - the route indicator in 6.1.1 d); followed by
  - the runway designator in 6.1.1 f).
- 6.3. Assignment of designators
- 6.3.1. The assignment of designators for MLS/RNAV approach procedures shall be in accordance with paragraph 3. Procedures having identical tracks but different flight profiles shall be assigned separate route indicators.
- 6.3.2. The route indicator letter for MLS/RNAV approach procedures shall be assigned uniquely to all approaches at an airport until all the letters have been used. Only then shall the route indicator letter be repeated. The use of the same route indicator for two routes using the same MLS ground facility shall not be permitted.
- 6.3.3. The assignment of validity indicator for approach procedures shall be in accordance with paragraph 4.
- 6.4. Example of plain language and coded designators
- 6.4.1. *Example:*
- Plain language designator: MLS HAPPY ONE ALPHA APPROACH RUNWAY ONE EIGHT LEFT
  - Coded designator: MLS HAPPY 1 A 18L
- 6.4.2. *Meaning:* The designator identifies an MLS/RNAV approach procedure which begins at the significant point HAPPY (basic indicator). HAPPY is a significant point not marked by the site of a radio navigation facility and therefore assigned a five-letter name-code in accordance with Appendix 2. The validity indicator ONE (1) signifies that either the original version of the route is still in effect or a change has been made from the previous version NINE (9) to the now effective version ONE (1). The route indicator ALPHA (A) identifies one of several routes established with reference to HAPPY and is a specific character assigned to this route.

## 7. USE OF DESIGNATORS IN COMMUNICATIONS

- 7.1. In voice communications, only the plain language designator shall be used.
- 7.2. In printed or coded communications, only the coded designator shall be used.

## 8. DISPLAY OF ROUTES AND PROCEDURES TO AIR TRAFFIC CONTROL

- 8.1. A detailed description of each currently effective standard departure and/or arrival route/approach procedure, including the plain language designator and the coded designator, shall be displayed at the working positions at which the



routes/procedures are assigned to aircraft as part of an ATC clearance, or are otherwise of relevance in the provision of air traffic control services.

- 8.2. Whenever possible, a graphic portrayal of the routes/procedures shall also be displayed.

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### APPENDIX 4 – ATS AIRSPACE CLASSES — SERVICES PROVIDED AND FLIGHT REQUIREMENTS

Class	Type of flight	Separation provided	Service provided	Speed limitations*	Radio Communication requirements	Subject to an ATC clearance
<b>A</b>	IFR only	All aircraft	Air traffic control service	Not applicable	Continuous two-way	Yes
<b>B</b>	IFR	All aircraft	Air traffic control service	Not applicable	Continuous two-way	Yes
	VFR	All aircraft	Air traffic control service	Not applicable	Continuous two-way	Yes
<b>C</b>	IFR	IFR from IFR IFR from VFR	Air traffic control service	Not applicable	Continuous two-way	Yes
	VFR	VFR from IFR	1) Air traffic control service for separation from IFR 2) VFR / VFR traffic information (and traffic avoidance advice on request)	250kt IAS below 3 050 m (10 000ft) AMSL	Continuous two-way	Yes
<b>D</b>	IFR	IFR from IFR	Air traffic control service, traffic information about VFR flights (and traffic avoidance advice on request)	250kt IAS below 3 050 m (10 000ft) AMSL	Continuous two-way	Yes
	VFR	Nil	IFR/VFR and VFR / VFR traffic information (and traffic avoidance advice on request)	250kt IAS below 3 050 m (10 000ft) AMSL	Continuous two-way	Yes
<b>E</b>	IFR	IFR from IFR	Air traffic control service and, as far as practical, traffic information about VFR flights	250kt IAS below 3050 m (10 000ft) AMSL	Continuous two-way	Yes
	VFR	Nil	Traffic information as far as practical	250kt IAS below 3050 m (10 000ft) AMSL	No	No
<b>F</b>	IFR	IFR from IFR as far as practical	Air traffic advisory service; flight information service	250kt IAS below 3050 m (10 000ft) AMSL	Continuous two-way	No
	VFR	Nil	Flight information service	250kt IAS below 3050 m (10 000ft) AMSL	No	No
<b>G</b>	IFR	Nil	Flight information service	250kt IAS below 3050 m (10 000ft) AMSL	Continuous two-way	No



	VFR	Nil	Flight information service	250kt IAS below 3050 m (10 000ft ) AMSL	No	No
* When the height of the transition altitude is lower than 3050 m (10 000 ft AMSL, FL 100 should be used in lieu of 10 000 ft						

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## APPENDIX 5 – REQUIREMENTS FOR FATIGUE MANAGEMENT PROGRAMME

Where an ATS provider implements a Fatigue Management Programme to manage fatigue-related safety risks in the provision of its air traffic control services, the ATS provider shall: -

1. include determination, based upon scientific principles, knowledge and operational experience, and/or international best practice complemented by , knowledge and operational experience, of—
  - a) The maximum:
    - i. Number of hours in any duty period;
    - ii. Number of consecutive work days;
    - iii. Number of hours worked in a defined period; and
    - iv. Time-in-position;
  - b) The minimum:
    - i. Duration of non-duty periods;
    - ii. Number of non-duty days required in a defined period; and
    - iii. Duration of breaks between periods of time-in-position in a duty period.
2. include a process for assigning unscheduled duties that allows air traffic controllers to avoid extended periods of being awake.
3. include the familiarization of personnel with the principles of fatigue management and its policies with regard to fatigue management
4. be acceptable to the Authority

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## APPENDIX 6 –

## FATIGUE RISK MANAGEMENT SYSTEM (FRMS) REQUIREMENTS

**Note.** — *Guidance on the development and implementation of FRMS is contained in the Manual for the Oversight of Fatigue Management Approaches (Doc 9966). A fatigue risk management system (FRMS) established in terms of 2.28.4 shall include, at a minimum:*

## 5. FRMS policy and documentation

### 5.1 FRMS policy

5.1.1 The air traffic services provider shall define its FRMS policy, with all elements of the FRMS clearly identified.

5.1.2 The policy shall:

- c) Define the scope of FRMS operations;
- d) Reflect the shared responsibility of management, air traffic controllers, and other involved personnel;
- e) Clearly state the safety objectives of the FRMS;
- f) Be signed by the accountable executive of the organization;
- g) Be communicated, with visible endorsement, to all the relevant areas and levels of the organization;
- h) Declare management commitment to effective safety reporting;
- i) Declare management commitment to the provision of adequate resources for the FRMS;
- j) Declare management commitment to continuous improvement of the FRMS;
- k) Require that clear lines of accountability for management, air traffic controllers, and all other involved personnel are identified; and
- l) Require periodic reviews to ensure it remains relevant and appropriate.

### 5.2 FRMS documentation

An air traffic services provider shall develop and keep current FRMS documentation that describes and records: -

- a) FRMS policy and objectives;
- b) FRMS processes and procedures;
- c) Accountabilities, responsibilities and authorities for these processes and procedures;
- d) Mechanisms for ongoing involvement of management, air traffic controllers, and all other involved personnel;
- e) FRMS training programmes, training requirements and attendance records;
- f) Scheduled and actual duty and non-duty periods and break periods between periods of time-in-position in a duty period with significant deviations and reasons for deviations noted; and

**Note.** — *Significant deviations are described in the Manual for the Oversight of Fatigue Management Approaches (Doc 9966).*

- g) FRMS outputs including findings from collected data, recommendations, and actions taken.

## 6. Fatigue risk management processes

### 6.1 Identification of fatigue-related hazards

An air traffic services provider shall develop and maintain three fundamental and documented processes for fatigue hazard identification: -

6.1.1 Predictive. The predictive process shall identify fatigue hazards by examining air traffic controller scheduling and considering factors known to affect sleep and fatigue and their effects on performance. Methods of examination may include, but are not limited to:

- a) air traffic services or industry operational experience and data collected on similar types of operations or from other industries with shift work or 24-hour operations;
- b) evidence-based scheduling practices; and
- c) bio-mathematical models.

6.1.2 Proactive. The proactive process shall identify fatigue hazards within current air traffic services operations. Methods of examination may include, but are not limited to:

- a) self-reporting of fatigue risks;
- b) fatigue surveys;
- c) relevant air traffic controller performance data;
- d) available safety databases and scientific studies;
- e) tracking and analysis of differences in planned and actual worked times; and
- f) observations during normal operations or special evaluations.

6.1.3 Reactive. The reactive process shall identify the contribution of fatigue hazards to reports and events associated with potential negative safety consequences in order to determine how the impact of fatigue could have been minimized. At a minimum, the process may be triggered by any of the following:

- a) fatigue reports;
- b) confidential reports;
- c) audit reports; and
- d) incidents.

### 6.2 Fatigue-related risk assessment

6.2.1 An air traffic services provider shall develop and implement risk assessment procedures that determine when the associated risks require mitigation.

6.2.2 The risk assessment procedures shall review identified fatigue hazards and link them to:

- a) operational processes;
- b) their probability;
- c) possible consequences; and
- d) the effectiveness of existing preventive controls and recovery measures.

### 6.3 Risk mitigation

An air traffic services provider shall develop and implement fatigue risk mitigation procedures that:

- a) select the appropriate mitigation strategies;
- b) implement the mitigation strategies; and
- c) monitor the strategies' implementation and effectiveness.

## 7. FRMS safety assurance processes

The air traffic services provider shall develop and maintain FRMS safety assurance processes to:



- a) Provide for continuous FRMS performance monitoring, analysis of trends, and measurement to validate the effectiveness of the fatigue safety risk controls. The sources of data may include, but are not limited to:
  - 1. hazard reporting and investigations;
  - 2. audits and surveys; and
  - 3. reviews and fatigue studies (both internal and external);
- b) Provide a formal process for the management of change. This shall include, but is not limited to:
  - 1. Identification of changes in the operational environment that may affect the FRMS;
  - 2. Identification of changes within the organization that may affect the FRMS; and
  - 3. Consideration of available tools which could be used to maintain or improve FRMS performance prior to implementing changes; and
- c) Provide for the continuous improvement of the FRMS. This shall include, but is not limited to:
  - 1. The elimination and/or modification of preventive controls and recovery measures that have had unintended consequences or that are no longer needed due to changes in the operational or organizational environment;
  - 2. Routine evaluations of facilities, equipment, documentation and procedures; and
  - 3. The determination of the need to introduce new processes and procedures to mitigate emerging fatigue-related risks.

## 8. FRMS promotion processes

FRMS promotion processes support the ongoing development of the FRMS, the continuous improvement of its overall performance, and attainment of optimum safety levels. The following shall be established and implemented by the air traffic service provider as part of its FRMS:

- a) training programmes to ensure competency commensurate with the roles and responsibilities of management, air traffic controllers, and all other involved personnel under the planned FRMS; and
- b) an effective FRMS communication plan that:
- c) explains FRMS policies, procedures and responsibilities to all relevant stakeholders; and
- d) describes communication channels used to gather and disseminate FRMS-related *information*.

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## APPENDIX 7 –

### REQUIREMENTS FOR INSTRUMENT FLIGHT PROCEDURE DESIGN SERVICE

1. It is prohibited for any person to provide instrument flight procedure design service for aerodromes in Sudan or airspace over its territory, without the approval of the Authority.
2. The provision of instrument flight procedure design (IFPD) service for aerodromes in Sudan and the airspace over its territory shall be conducted:
  - a) by an instrument flight procedure design service provider established in Sudan; and/or
  - b) through a joint service arrangement established between Sudan and one or more ICAO Contracting State(s) to provide a joint service; and/or
  - c) by delegating the provision of the service to external agency(ies).
3. The Authority shall—
  - a) consider applications for issue an IFPD service provider Certificate and issue such Certificate to applicants eligible applicants who meet the minimum requirements for the Certificate
  - b) make arrangement to effectively discharge the safety oversight obligations of Sudan with regard to IFPD services jointly established with other State(s); and
  - c) establish mechanisms for effective safety oversight in the provision of IFPD services that are delegated to external agency (ies).
4. IFPD service providers shall, in designing instrument flight procedures, apply a design criterion approved by the Authority, and no other
5. An applicant for the issue of an IFPD service provider shall meet the service provider requirements set forth in SUCAR Part XX.
- 5.1 Guidance on quality assurance methodology is provided in ICAO PANS-OPS (Doc 8168), Volume II, Part I, Section 2, Chapter 4 — Quality Assurance. Guidance for implementing such a methodology is contained in The Quality Assurance Manual for Flight Procedure Design (Doc 9906).
6. An applicant for the issue of an IFPD service provider Certificate shall establish and implement a quality management system for application at each stage of the instrument flight procedure design process.
- 6.1 Guidance on maintenance and periodic review is contained in the ICAO Quality Assurance Manual for Flight Procedure Design (Doc 9906).
7. A holder for the issue of an IFPD service provider Certificate shall carry out the maintenance and periodic review at an interval of five years or such other lesser time as the Authority may prescribe, of all instrument flight procedures for which it is responsible under its service provider Certificate.

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## APPENDIX 8 –

## AERONAUTICAL DATA QUALITY REQUIREMENTS

Table 1. Latitude and longitude

<i>Latitude and longitude</i>	<i>Accuracy data type</i>	<i>Integrity classification</i>
Flight information region boundary points	<b>2 km declared</b>	<b>routine</b>
P, R, D area boundary points (outside CTA / CTR boundaries)	<b>2 km declared</b>	<b>routine</b>
P, R, D area boundary points (inside CTA / CTR boundaries)	<b>100 m calculated</b>	<b>essential</b>
CTA / CTR boundaries	<b>100 m calculated</b>	<b>essential</b>
En-route nav aids and fixes, holding, STAR/SID points	<b>100 m surveyed /calculated</b>	<b>essential</b>
Obstacles in Area 1 (the entire Sudan)	<b>50 m surveyed</b>	<b>routine</b>
Obstacles in Area 2 (the part outside the aerodrome / heliport boundary)	<b>5 m surveyed</b>	<b>essential</b>
Final approach fixes / points and other essential fixes / points comprising the instrument approach procedure	<b>3 m surveyed /calculated</b>	<b>essential</b>

**Table 2. Elevation / altitude/height**

<i>Elevation/altitude/height</i>	<i>Accuracy data type</i>	<i>Integrity classification</i>
Threshold crossing height (Reference datum height), precision approaches	<b>0.5m declared</b>	<b>critical</b>
Obstacles clearance altitude / height (OCA/H)	<b>As specified in PANS-OPS</b>	<b>essential</b>
Obstacles in Area 1 (the entire Sudan) elevations	<b>30 m surveyed</b>	<b>routine</b>
Obstacles in Area 2 (the part outside the aerodrome / heliport boundary)	<b>3 m surveyed</b>	<b>essential</b>
Distance Measuring Equipment (DME), elevation	<b>30 m (100 ft) surveyed</b>	<b>essential</b>
Instrument approach procedure altitude	<b>As specified in PANS-OPS</b>	<b>essential</b>
Minimum altitudes	<b>50 m calculated</b>	<b>routine</b>

**Table 3. Declination and magnetic variation**

<i>Declination / variation</i>	<i>Accuracy data type</i>	<i>Integrity classification</i>
VHF NAVAID station declination used for technical line-up	<b>1 degree surveyed</b>	<b>essential</b>
NDB NAVAID magnetic variation	<b>1 degree surveyed</b>	<b>routine</b>

**Table 4. Bearing**

<i>Bearing</i>	<i>Accuracy data type</i>	<i>Integrity classification</i>
Airway segments	<b>1 /10 degree surveyed</b>	<b>routine</b>
Bearing used for the formation of an en-route and of a terminal fix	<b>1/10 degree calculated</b>	<b>routine</b>
Terminal arrival / departure route segments	<b>1/10 degree calculated</b>	<b>routine</b>
Bearing used for the formation of an instrument approach procedure fix	<b>1/100 degree calculated</b>	<b>essential</b>

**Table 5. Length/distance/dimension**

<i>Length/distance/dimension</i>	<i>Accuracy data type</i>	<i>Integrity classification</i>
Airway segments length	<b>1 /10 km calculated</b>	<b>routine</b>
Distance used for the formation of an en-route fix	<b>1/10 km calculated</b>	<b>routine</b>
Terminal arrival / departure route segments length	<b>1/100 km calculated</b>	<b>essential</b>
Distance used for the formation of a terminal and instrument approach procedure fix	<b>1/100 km calculated</b>	<b>essential</b>

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## APPENDIX 9 –

### POLICY, PROCESSES AND PROCEDURES FOR THE ISSUANCE, AMENDMENT, AND RENEWAL OF AN AIR TRAFFIC SERVICES CERTIFICATE

#### 1. INTRODUCTION

- 1.1 The Sudan Civil Aviation Act 2010 gives to SCAA the powers to license the establishment, operation and management of aeronautical navigation services.
- 1.2 The Sudan Civil Aviation Safety Act 2010 further specifies that an air navigation services provider cannot exercise its activities unless with an approval of the Authority.
- 1.3 The air traffic services standards have been further specified in SUCAR 11, and include the requirements for certification.
- 1.4 Policy, processes and procedures contained in this Appendix and its Attachments complement the regulatory requirements of SUCAR 11 and therefore can be considered as an extension of the regulatory requirements.
- 1.5 As clearly provided for in Chapter 2 of SUCAR 11, an ANSP shall not operate air traffic services unless he is holder of an air traffic services certificate issued under SUCAR 11.

#### 2. RESPONSIBILITIES OF THE AIR TRAFFIC SERVICES PROVIDER

- 2.1 The Air traffic services provider is responsible for submitting the application for issuance, renewal or amendment of an air traffic services certificate, on the prescribed form, along with the required documentation.
- 2.2 It is also the responsibility of the applicant's ANSP to complete all the certification activities as outlined in this Appendix, including the development of a Manual of Air Traffic Service Operations (MATSOPS), and implementation of the corrective action plans as applicable.
- 2.3 The ANSP submits safety assessments or report as may be required by the Director General pursuant to SUCARs, and associated Advisory Circulars, Directives, Operational Policies, Orders, or Sudan Civil Aviation Safety Publications, applicable to the air traffic services and to the ANSP as amended.
- 2.4 The ANSP submits any request for exemption following the procedure in this Appendix, and/or, alternative means of compliance acceptable to the Director General, as may be required.
- 2.5 The applicant for the issuance, renewal or amendment of an air traffic services certificate shall permit an officer, inspector or any person authorized by the Authority to carry out safety inspections or audit as part of the assessment of the application.
- 2.6 After being issued an air traffic services certificate, the certificate holder undertakes to permit an officer, inspector or any person authorized by the Authority to carry out safety inspections or audit as may be necessary to determine compliance with the appropriate requirements prescribed in SUCARs 11 & 19, associated Advisory Circulars, Directives, Operational Policies, Orders, or Sudan Civil Aviation Safety Publications, applicable to the air traffic services and to the air traffic services provider as amended.

#### 3. REQUIREMENTS FOR THE ISSUANCE, AMENDMENT, OR RENEWAL OF AN AIR TRAFFIC SERVICES CERTIFICATE

##### 3.1 *General*

The issuance of the air traffic services certificate shall be dependent upon the applicant demonstrating an adequate organization, technical capabilities, installations, facilities and equipment consistent with the nature and extent of the services specified. When the SCAA is satisfied that an applicant has successfully

met the requirements established, it shall grant an Air traffic services Certificate, setting forth the conditions and limitations to provide the air traffic services.

### 3.2 *Requirements for the issuance of an Air traffic services Certificate*

Before issuing an air traffic services certificate, the Authority will need to be satisfied that:

- a) the personnel of the applicant are adequate in number and have the necessary competency to provide the service;
- b) the MATSOPS prepared for the applicant's air traffic services and submitted with the application contains:
  - i. all the relevant information as required in Attachment 1 to this Appendix,
  - ii. operating procedures that make satisfactory provision for the safety of aircraft; and
  - iii. a safety management system for the supervision and control of the air traffic services, compliant with the appropriate requirements specified in this SUCAR and in SUCAR Part 19 – *Safety Management*;
- c) the applicant's key personnel conform to the requirements under Attachment 2 to this Appendix;
- d) the facilities, services and equipment are established in accordance with this SUCAR for the types of airspace and services to be provided;
- e) the technical inspection of the air traffic services and on-site verification confirm that the facilities, services and equipment established in (d) are compatible with the applicable requirements under SUCAR 11 for the types of airspace and services to be provided; and
- f) where non-compliance with SUCAR 11 requirements have been detected, corrective action plans have been accepted to eliminate or mitigate the findings, or, where applicable, applications for exemptions granted, and/or alternative means of compliance approved.

### 3.3 *Requirements for the amendment of an Air traffic services Certificate*

Before amending an air traffic services certificate, the Authority will need to be satisfied that the requirements referred to in 3.2 (b) to (f) are fully complied with.

### 3.4 *Requirements for the renewal of an Air traffic services Certificate*

Before renewing an air traffic service certificate, the Authority will need to be satisfied that:

- a) the revised/updated MATSOPS incorporates all changes that occurred at the air traffic services, its organization, facilities installation, and equipment since its most recent approval, and the periodic review documented in line with Attachment 1 to this Appendix and contains:
  - i. all the relevant information as required in Attachment 1 to this Appendix,
  - ii. air traffic services operating procedures that make satisfactory provision for the safety of aircraft; and
  - iii. an acceptable safety management system for the supervision and control of the air traffic services; and
- b) the requirements referred to in 3.2 (c) to (f) are fully complied with.

## 4. AIR TRAFFIC SERVICES CERTIFICATION PROCESS

### 4.1 *Application for an Air Traffic Services certificate*

4.1.1 The application for the issuance of an air traffic services certificate must be submitted in the form prescribed by the Authority and accompanied by: -

- a) Two copies of a Manual of Air Traffic Services Operations (MATSOPS), applicable to the air traffic services for which the application is made, prepared in accordance with Attachment 1 to this Appendix;
- b) A written statement setting out the services and locations at which they shall be provided;



- c) A compliance statement, and where applicable, the particulars of non-compliance with, or deviations from -
  - d) the appropriate air traffic services standards prescribed in SUCAR 11; or
  - e) the appropriate airspace classification requirements prescribed in SUCAR 11;
  - f) A proof of payment of the appropriate application fee as prescribed by related regulations; and
  - g) A proof of a third-party insurance policy acceptable to the Director General.
- 4.1.2 Upon receipt of the application, the Authority notifies the applicant whether the application is accepted or not.
- 4.1.3 An application is accepted when:
- a) the documentation specified in 4.1.1 has been provided; and
  - b) the information is complete and detailed enough to permit a thorough evaluation of the ANSP's document.
- 4.1.4 An application may not be accepted if:
- a) the information is incomplete or,
  - b) its quality does not permit a thorough evaluation of the submitted document.
- In this case, the application must be immediately returned with an explanation of the deficiencies that need to be addressed for the submission of a revised application.
- 4.1.5 The acceptance of the application does not constitute acceptance or approval of the MATSOPS or any other attachment.
- 4.1.6 Once the application is accepted, the Authority evaluates the MATSOPS submitted by the applicant to determine its compliance with the standards and practices specified in SUCAR 11.
- 4.1.7 The objective of the evaluation of the MATSOPS is to verify that:
- a) it contains all the required information;
  - b) the information is:
    - iv. technically correct;
    - v. conforms to the requirements of SUCAR 11 and associated Advisory Circulars, Directives, Operational Policies, Orders, or Sudan Civil Aviation Safety Publications, applicable to the air traffic services and to the ANSP as amended; and
  - c) all the procedures related to air traffic services certification that will be assessed by the on-site verification team are provided.
- 4.1.8 Upon completion of the evaluation of the MATSOPS, the Authority notifies to the applicant the outcomes of the evaluation.
- 4.1.9 In case of discrepancies, it specifies the provisions that are not complied with, and requests the submission of a corrective action plan to correct the identified deficiencies.
- 4.1.10 If the manual is approved, an approved copy is sent to the ANSP along with a notification of the approval. The approved manual is also sent to the on-site verification team.
- 4.2 *Inspection of facilities and equipment*
- 4.2.1 The Authority conducts:
- a) *technical inspections* of the infrastructure of the ANSP and its equipment as related to the requirements associated with the intended air traffic services; and
  - b) *on-site verification* of the ANSP's procedures, its organization and its Safety Management System based upon the contents of the MATSOPS.
- 4.2.2 The technical inspections of the air traffic services include the infrastructure, facilities and equipment described in the MATSOPS.



- 4.2.3 The on-site verification confirms that the air traffic services are provided effectively in accordance with the applicable provisions of SUCAR 11, and associated documentation as well as the procedures described in the MATSOPS.
- 4.2.4 Upon completion of the technical inspection of the ANSP and on-site verification, the Authority provides to the ANSP a preliminary list of findings and a full report after the classification of findings by the Authority.
- 4.2.5 In case of findings, the report specifies the provisions that are not complied with, and request the submission of a corrective action plan to correct the identified deficiencies.
- 4.2.6 If the on-site verification team notices any deviations from the technical inspection reports, they are included in the team's report.
- 4.2.7 The ANSP is responsible for the development and implementation of Corrective Action Plan proposing ways to eliminate or mitigate the findings with deadlines for each subsequent action.
- 4.2.8 The ANSP may submit requests for exemption following the procedure in this Appendix, and/or, alternative means of compliance acceptable to the Director General, as may be required.
- 4.2.9 The Authority may impose immediate appropriate measures on the ANSP, if necessary, until actions have been taken to remove or mitigate the findings.
- 4.3 *Issuing or refusing to issue, amend, or renew the certificate:*
- 4.3.1 The Authority notifies to the applicant its decision to grant or refuse the application. The conditions to be endorsed on the certificate are also determined and included in the certificate to be issued.
- 4.3.2 The Authority determines whether the certification requirements prescribed in SUCAR 11 are met and determines whether granting the application will not jeopardize aviation safety.
- 4.3.3 The Authority notifies the applicant of any findings that need to be resolved prior to the issuance of the certificate.
- 4.3.4 Once no findings are reported, corrective action plans accepted, mitigations measures are agreed upon, applications for exemptions granted, and/or alternative means of compliance approved, the Authority determines the conditions to be endorsed for the use of the air traffic services including:
- a) the *holder's name and physical and mailing address of its principal place of business;*
  - b) the type of services to be provided;
  - c) the location of services to be provided;
  - d) for air traffic service the service to be provided within a particular airspace or controlled aerodrome designated to the provider by the Authority;
  - e) conditions of approval; and
  - f) *effective and expiry dates of the certificate.*
- 4.3.5 If, after being advised of the additional steps that must be taken to rectify the shortcomings, the applicant is still not able to satisfy the requirements of the regulations, the Authority may refuse to grant a certificate.
- 4.3.6 The refusal may be based on one or more of the following determinations, for which details shall be given:
- a) the assessment of the MATSOPS revealed that it does not contain the information required by the regulations;
  - b) the technical inspection of ANSP's facilities and equipment revealed that they do not make satisfactory provision for the safety of aircraft operations;
  - c) the on-site verification revealed that the ANSP operating procedures do not make satisfactory provision for the safety of aircraft operations; or
  - d) the assessment of the above facts revealed that the applicant will not be able to properly operate and maintain the air traffic services as required by the regulations.



## 5. AMENDMENT OF AN AIR TRAFFIC SERVICES CERTIFICATE

- 5.1 An ANSP may apply for amendment of an air traffic services certificate in one or more of the following cases:
- There is a change in the ownership or management structure of the ANSP that affects the safety management and accountabilities;
  - There is a change in the type of use or operations of the air traffic services;
  - There is a change in the boundaries of the designated airspace; or
  - There is a change in the classification of airspace that affects the conditions specified in the air traffic services certificate or type of use/operations.
- 5.2 An application for amendment of an air traffic services certificate must be submitted in the form prescribed by the Authority, and accompanied by: -
- A description of the changes in the ownership, management structure of the operator, type of use or operations of the designated airspace, boundaries, or airspace classification as applicable;
  - Two copies of the MATSOPS;
  - A compliance statement, and where applicable, the particulars of non-compliance with, or deviations from -
    - the appropriate air traffic services standards prescribed in SUCAR Part 11; or
    - the appropriate airspace classification requirements prescribed in SUCAR 11;
  - A payment of the appropriate application fee as prescribed by related regulations;
  - In case of a change ownership, evidence of lawful entitlement to provide the services;
  - In cases of a change of boundaries, a plan of the airspace and;
  - A proof of a third-party insurance policy acceptable to the Director General.
- 5.3 The application for amendment of an air traffic services certificate shall be processed following the procedure outlined in sections 4.1.2 to 4.1.10, 4.2 and 4.3.

## 6. RENEWAL OF AN AIR TRAFFIC SERVICES CERTIFICATE

- 6.1 The holder of the certificate shall at least 60 days immediately preceding the date on which such certificate expires, apply for the renewal of such certificate.
- 6.2 An application for the renewal of an air traffic services certificate must be submitted in the form prescribed to that effect, and accompanied by: -
- Two copies of revised MATSOPS;
  - A documentation of periodic review of the MATSOPS as required in Attachment 1 to this Appendix;
  - A compliance statement, and where applicable, the particulars of non-compliance with, or deviations from -
    - the appropriate air traffic services standards prescribed in SUCAR 11; or
    - the appropriate airspace classification requirements prescribed in SUCAR 11;
  - A payment of the appropriate application fee as prescribed by related regulations;
  - A proof of a third-party insurance policy acceptable to the Director General.
- 6.3 An application for the renewal of an air traffic services certificate shall be processed in two steps:
- evaluation of the revised/update MATSOPS, and
  - the procedure outlined in sections 4.3 and 4.4.



## **7. VALIDITY OF AN AIR TRAFFIC SERVICES CERTIFICATE**

7.1 An Air traffic services certificate shall be valid for two years from the date of issuance unless it is surrendered by the ANSP or is suspended, or cancelled by the Director General.

## **8. ISSUANCE OF A TEMPORARY AIR TRAFFIC SERVICES CERTIFICATE**

8.1 The Authority may grant a temporary air traffic services certificate to an ANSP provided that:

- c) The ANSP has applied for the issuance, renewal or amendment of an air traffic services certificate:
  - i. accepted by the Authority in line with 4.1.3, and
  - ii. The authority is satisfied that an air traffic services certificate in respect of the proposed services will be issued to the applicant as soon as the application procedure for the grant of an air traffic services certificate has been completed;
- d) The application for the issuance, renewal or amendment of an air traffic services certificate is accompanied by a safety assessment on the non-compliance/deviations from the requirements of SUCARs, acceptable by the Authority which demonstrates implementation of:
  - i. mitigating measures to bring the safety risk posed by such non-compliance to acceptable level, or
  - ii. equivalent means of compliance, and
- e) The grant of a temporary air traffic services certificate is :
  - i. in the public interest, and,
  - ii. not detrimental to aviation safety;

8.2 The duration of a temporary air traffic services certificate shall not exceed six months.

8.3 The grant of a temporary air traffic certificate does not relieve an ANSP from any provision of SUCAR 11.

## **9. TRANSFER OF AN AIR TRAFFIC SERVICES CERTIFICATE**

9.1 An air traffic services certificate shall not be transferable.

9.2 In case of change of ownership of the ANSP, the new ANSP applies for amendment of the air traffic services certificate following the procedure outlined in 5.

## **10. SURRENDER OF AN AIR TRAFFIC SERVICES CERTIFICATE**

10.1 An air traffic services certificate holder shall give the Authority, not less than 90 days, written notice of the date on which the certificate is to be surrendered in order that suitable promulgation action can be taken.

10.2 The Authority will cancel the certificate on the date specified in the notice.

## **11. CONDITIONS ON AN AIR TRAFFIC SERVICES CERTIFICATE**

11.1 If the issuing of air traffic services certificate, amending an air traffic services certificate, or renewing an air traffic services certificate, involves the attachment of certain conditions, written notification of the conditions will be provided.

## **12. EXEMPTIONS**

12.1 *Application for an exemption*

12.1.1 The applicant for the issuance, amendment or renewal of an air traffic services certificate or the holder of an air traffic services certificate may apply for an exemption from a standard prescribed in SUCAR 11.

12.1.2 An application for exemption must be made in the form prescribed by the Authority, and accompanied with a safety assessment specifying:

- a) the requirement(s) that the applicant requests to deviate from



- b) the impact of the deviation on all relevant factors determined to be safety-significant, and
  - c) alternative means of compliance to reach a level of safety at least equivalent to what could be achieved by implementing the requirement
- 12.1.3 The Sudan Civil Aviation Safety Publication entitled – Air traffic Services Safety Assessment contains further information on the development of an air traffic services safety assessment.
- 12.2 *Processing an application for an exemption*
- 12.2.1 The Authority reviews the information provided in the application for exemption and the attached safety assessment to determine whether the deviation can be granted. It analyses the safety assessment to verify that:
- a) appropriate coordination has been performed between the concerned stakeholders;
  - b) the risks have been properly identified and assessed, based on documented arguments;
  - c) the proposed mitigation measures adequately address the risk; and
  - d) the time frames for planned implementation are acceptable.
- 12.2.2 If the proposed mitigation measures constitute an acceptable means of compliance leading to a level of safety equivalent to that of the requirements, the authority issues an acceptance letter to the ANSP and notifies the Sudan Aeronautical Information Services.
- 12.2.3 If some risks have been underestimated or have not been identified, the Authority coordinates with the ANSP to reach an agreement on safety acceptance.
- 12.2.4 If no agreement can be reached, the Authority informs the applicant that the application was not successful, and requests the submission of a corrective action plan to correct the deficiency, including revision of the safety assessment or impose conditional measures to ensure safety.
- 12.3 *Publication of an exemption and conditions on air traffic certificate*
- 12.3.1 Upon approval of an exemption or deviation, the Director General notifies the Aeronautical information Services for publication in the Sudan AIP with the following information:
- a) Name of the ANSP;
  - b) the type of services provided and location;
  - c) Particulars of the exemption or deviation, and the appropriate air traffic services standard as prescribed in SUCAR 11.
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**Attachment 1 to Appendix 6**  
**Preparation, Revision, Structure and Content of the Manual of Air Traffic Services**  
**Operations (MATSOPS)**

1. **Requirements for a manual of air traffic services operations**
  - 1.1. An application for the issuance or amendment of an air traffic services certificate shall submit a manual of air traffic services operations that:
    - a) contains all information and instructions necessary to enable the personnel of air navigation service provider perform their duties, operating procedures, organization and management including a safety management system as detailed in section 2 below, and
    - b) is prepared in accordance with section 3 below.
  - 1.2. An application for the renewal of an air traffic services certificate shall submit an updated/revised manual of air traffic services operations that:
    - a) contains up-to-date information and instructions necessary to enable the personnel of air navigation service provider perform their duties, operating procedures, organization and management including a safety management system as detailed in section 2 below, and
    - b) is prepared in accordance with section 3 below.
2. Once granted a certificate, the ANSP is required to maintain the manual of air traffic services operations in conformity with this SUCAR and enable all air traffic services operating staff to have access to the relevant parts of the manual.
3. **Contents of the manual of air traffic services operations**
  - 7.1 The MATSOPS shall contain:
    - a) a table of contents;
    - b) a table of effective pages;
    - c) an amendment record page;
    - d) a procedure for control and distribution;
    - e) a statement by the accountable executive confirming that the MATSOPS and any included manuals define the organization of the applicant and demonstrate the procedures and methods for ensuring that the provisions of the SUCARs in this part will be complied with at all times;
    - f) an organizational chart describing the ANSP's organizational structure, supported by a description of:
      - i) the names, qualifications, experience and positions of key officers including the accountable manager;
      - ii) the duties and responsibilities of any supervisory positions within the organizational structure, and
      - iii) the responsibilities and functions for each operating position;
    - g) a description of the functions that the ANSP performs, or proposes to perform under SUCAR 11;
    - h) a description of the ANSP's procedure to determine the number of operational staff required including the number of operational supervisory staff;
    - i) a description of the particulars of each airspace within which the service is provided, or proposed to be provided including:





- i) an aeronautical chart;
- ii) the classification;
- iii) the type of services provided or proposed to be provided;
- iv) the air traffic services units and locations from where the service is provided, or proposed to be provided;
- v) for each air traffic service unit, the hours of operation of the service;
- j) if the ANSP provides, or proposes to provide, an air traffic service for a controlled aerodrome:
- k) a description of the maneuvering area of the aerodrome;
- l) a description of the arrangements in place for the control of aircraft of aircraft in the maneuvering areas, and agreements with the airport operator as applicable;
- m) copy of the parts of the aerodrome emergency plan, set out in the aerodrome operator's aerodrome manual that are relevant to the provision of the service;
- n) a copy of the procedures set out in the aerodrome operator's aerodrome manual for preventing the unauthorized entry of persons or things onto the maneuvering area of the aerodrome; and
- o) a copy of the procedures set out in the aerodrome operator's aerodrome manual for the control of surface vehicles operating on or in the vicinity of the maneuvering area;
- p) a description of the arrangements made or proposed to be made by the ANSP to ensure that it has, and will continue to receive, on a daily basis, the information necessary for providing the service, including:
  - i) Meteorological information;
  - ii) Aeronautical Information Publications; and
  - iii) Aerodrome conditions
- q) a description of the arrangements made or proposed to be made by the ANSP to ensure that it has, and will continue to be able to provide, information in connection with its air traffic services to another person whose functions reasonably require that information (includes SAR alerting);
- r) a description of the ANSP's document and record keeping system;
- s) a copy of any agreement entered into by the ANSP in relation to the provision of any of the air traffic services;
- t) a description of the safety management system established in accordance with the provisions of SUCAR 19, which includes the procedures for safety assessment as well as the safety policy signed by the accountable executive;
- u) a copy of the ANSP's contingency plan;
- v) a copy of the ANSP's security program established in accordance with the provisions of Sudan Aviation Security Regulations applicable to air traffic services and the ANSP as amended;
- w) a description of the processes and documentation used to present to staff the relevant standards, rules and procedures contained in:
  - i) ICAO Annexes 2, 10 and 11,
  - ii) ICAO PANS-ATM (DOC 4444),
  - iii) ICAO Regional Supplementary Procedures (DOC 7030),
  - iv) SUCAR 11, and associated documentation (Advisory Circulars, Directives, Orders, Safety Publications, etc), and



- v) any of the ANSP's site-specific instructions for the provision of air traffic services;
- x) a description of the processes and documentation used to provide operational instructions to staff;
- y) a description of the procedures to be followed to ensure all operational staff are familiar with any operational changes that have been issued since they last performed operational duties;
- z) a description of the ANSP's training and checking program;
- aa) a description of the procedures to be used in commissioning new facilities, equipment and services; and
- bb) the procedures to be followed for revising the MATSOPS.

#### 4. Preparation of the manual of air traffic services operations

##### 4.1. Approval.

- a) **ANSP's Approval.** The manual shall contain a Statement of compliance signed by the Accountable Executive. The statement of compliance must include the ANSP name, the official's title and name, the official's signature, and the date.
- b) **Authority's Approval.** Prior to issuing an air traffic services certificate, the Authority must approve a MATSOPS. Each page of the manual shall show Authority's approval and the date of initial approval or, if the page has been revised, the date of approval for the most recent change. This applies to all aspects of the manual, including the table of contents, control and distribution pages, plans, maps, attachments and appendices. To facilitate this approval process, each page of the manual must include a location for indicating Authority's approval and the approval date. For ease of use, the Authority's approval block shall have a consistent format and location throughout the document.

4.2. **Format.** Page layout and organization of content must be considered during preparation of the manual. The MATSOPS is a working document that reflects current air traffic services conditions and instructions to the personnel. It shall be easy to maintain and revise. In addition to the date and Authority's approval, each page of the manual must specify the page number and document part and section. The manual must also include a Page Revision Log that can function as an inventory of current pages. This log can simply include columns of page numbers with space for approval dates alongside. This serves as a checklist for maintenance of the manual as it tracks pages that have been revised, added, or deleted.

4.3. **Distribution.** The procedure for distribution must ensure that the manual is distributed to the personnel having a role to play in its implementation.

4.4. **Access to the manual:** The method of enabling all ANSP's staff to have access to the relevant parts of the manual must be defined and the ANSP must be able to demonstrate it to the Authority.

4.5. **Operating Procedures.** Each procedure shall contain as a minimum:

- a) a description of the responsibilities of the ANSP;
- b) a list of the tasks that are to be achieved by the ANSP or its subcontractors;
- c) a description of the means and step-by-step procedure required to complete the task; and
- d) details such as the frequency of application and operating modes.



5. **Review, and amendment of the manual of air traffic services operations**
- 5.1. **Updating the manual:** The responsibility for maintaining the accuracy of the MATSOPS shall be clearly defined in the manual including:
- e) the names of the person(s) in charge of the amendment;
  - f) the process of initiating amendment;
  - g) amendments approval; and
  - h) the record of amendments and effective dates;
- 5.2. **Periodic Review:** The ANSP shall review the MATSOPS and determine the changes required. The review shall be conducted at least once a year, and whenever there is a change in:
- a) An air navigation services facility that may affect the information required to be reported to the Sudan Aeronautical Information Services; or
  - b) one or more operating procedures or safety measures in place at an air traffic services unit;
  - c) the ANSP's administration, safety responsibilities or accountabilities;
- 5.3. **Documentation of the review:** The ANSP shall document the process of review the MATSOPS from its initiation until the issuance of amendment, if any, and ensure such documentation is available to the Authority during a safety inspection and audit.
- 5.4. **Amendment:** The ANSP must submit any proposed amendment to the Authority at least 30 days before its effective date. If timing issues arise, the ANSP must contact the Authority who can assign an inspector to work with ANSP management to prepare the change as expeditiously as possible and assist in keeping the air traffic services units in compliance with SUCAR 11. In the case of lengthy or complicated changes, the ANSP may discuss with the assigned inspector the possibility of providing a draft for early review and consideration.
- 5.5. **Amendment Record:** A Page Revision Log summarizing individual page and text revisions must be maintained in the manual. When a revision to the manual becomes effective, the ANSP must place special emphasis on any effected areas of air traffic services operations to ensure personnel are aware of changes and understand how the changes might impact operations.
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## Attachment 2 to Appendix 9 Requirements for ANSP's key personnel

### ANSP Key Personnel

1. The applicant for the issuance, amendment or renewal of an air traffic services certificate shall establish a procedure for determining ATS capacity and associated personnel requirements to operate and maintain the services and facilities according to the requirements prescribed in SUCAR 11.
2. The applicant for the issuance, amendment or renewal of an air traffic services certificate shall engage, employ or contract :
  - a) a senior person identified as the accountable executive of the organization concerned, to whom contractual authority has been granted to ensure that all activities undertaken by the organization are carried out in accordance with the applicable requirements prescribed in the SUCAR 11 and who conforms to the requirements of SUCAR 19 for the accountable executive.
  - b) a competent person acceptable by the Authority, who is responsible for the development and implementation of the safety management system, and who conforms to the requirements of SUCAR 19 for the safety manager; and
  - c) for each air traffic services unit:
    - i. a manager; and
    - ii. adequate personnel determined in accordance with the procedure established in paragraph 1 above.
3. The applicant shall establish a procedure for initially assessing, and for maintaining, the competence of those personnel involved in operating and maintaining the air traffic services and facilities.

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**Sudan Civil Aviation Authority  
SUCAR PART 11 – Air Traffic Services  
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