



**RWANDA CIVIL AVIATION AUTHORITY**

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**RWANDA CIVIL AVIATION TECHNICAL STANDARDS – AIR TRAFFIC SERVICES**

**RCATS-ATS001**

**Fourth Edition**

**May 2020**

## **Foreword**

The Director General, under Article 11 of the law, No.20/2018 of 29/04/2018 is empowered to develop and promote appropriate, clear and concise regulatory requirements and technical civil aviation safety and security standards;

The Rwanda Technical Standards (RCATS) - Air Traffic Services are issued by the Authority to prescribe standards and requirements in line with civil aviation regulations to be met by air navigation services providers.

The standards are based mainly on standards and recommended practices stipulated in Annex 11 to the Chicago Convention on International Civil Aviation and in the Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM) and with such modifications as may be determined by the Authority to be applicable in Rwanda. This Amendment Captures Amendment 50 to Annex 11 to the Convention (Chicago) and the use of a global reporting format for assessing and reporting runway surface conditions and aligned it to the new promulgated Air Traffic Services Regulations

Amendments to RCATS -ATS is a responsibility of the Authority. Readers should forward advice of errors, inconsistencies or suggestions for improvement to the Authority.

This Amendment supersedes the Amendment of January 2019.

  
Director General  
Rwanda Civil Aviation Authority.





**Distribution Lists**

<b>Serial no.</b>	<b>Issued to</b>	<b>Date</b>
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## **Chapter 1 INTRODUCTION**

### **1.1. Introduction**

The Rwanda Civil Aviation Technical Standards -Air Traffic Services contains standards pertaining to the provision of Air Traffic Services in order to meet the requirements of the Rwanda Civil Aviation law and compliments Civil Aviation (Air Traffic Services) regulations. The Authority is responsible for the development, promulgation and amendment of these Standards. Complementary publications including Advisory Circulars, etc. are provided to further assist ATS providers in complying with these standards and regulations in these standards, use of the word 'shall' indicates that compliance is compulsory

1.1.1 The Technical Standards for ATS) prescribes the detailed technical provisions that contains standards, procedures, instructions and information which are intended to form the basis of air traffic services within the Kigali Flight Information Region. The air navigation services provider (ANSP) in Rwanda is required to comply with the provisions these standards. The ANSP shall document local procedures in their own operational manuals to ensure the maintenance of and compliance with the Standards.

1.1.2 The provisions of these Standards are based on the ICAO Annex 11, and on the procedures for Air Navigation Services- Air Traffic Management (PANS-ATM).

1.1.3 Where the ATS Provider is unable to comply with any provision in any of the Standards, the ANSP shall inform the Director General Rwanda Civil Aviation Authority within a reasonable period of time and in writing. The ANSP shall explain the basis for its non-compliance and proposal with its assessment in a timely manner and the Director General may approve the proposal, subject to such other conditions it may impose.

1.1.4 The ATS provider shall ensure that the units of measurement as specified in the Rwanda civil Aviation regulations part 38 are used for the provision of air traffic serves.

### **1.2. Related documents**

These Standards shall be read in conjunction with:

- a) Rwanda Civil aviation regulations
- b) ICAO Doc.4444

- c) ICAO Regional Supplementary Procedures (Doc7030);
- d) Rwanda Aeronautical Information Publication (AIP) and other relevant documents for clarity and compliant.

### **1.3 Definitions**

The terms used in this document, and defined below, are those used to describe facilities, services and procedures for air traffic and related services. As far as possible, the terms used in this document, and defined below, are those which have the widest international use.

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

**Accident:** An occurrence associated with the operation of an aircraft which, in the case of a manned aircraft, 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 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 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; 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 a single engine,(including its cowlings or accessories), to propellers, wing tips, antennas, probes, vanes, tires, brakes, wheels, fairings, panels, landing gear doors, windscreens, the aircraft skin(such as small dents or puncture holes) or for minor damages to main rotor blades, tail rotor blades, landing gear, and those resulting from hail or bird strike( including holes in the radome) or;

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

Note 1 - For statistical uniformity only, an injury resulting in death within thirty days of the date of the accident is classified as a fatal injury.

Note 2 - An aircraft is considered to be missing when the official search has been terminated and the wreckage has not been located.

Note 3.-The type of unmanned aircraft system to be investigated is addressed in Annex 13, 5.1.

Note 4.-Guidance for the determination of aircraft damage can be found in Annex 13, Attachment F.

**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).

Note - The terms of the agreement will be exchanged between the ground system and the aircraft by means of a contract, or a series of contracts.

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

**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 of 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 manoeuvring area of an aerodrome and all aircraft flying in the vicinity of an aerodrome.

*Note - An aircraft is in the vicinity of an aerodrome when it is in, entering or leaving an aerodrome traffic circuit.*

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

**Aeronautical mobile service (RR SI.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 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

**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 kts)

Note - The actual height may vary, and some helicopters may require air-taxiing above 8 m (25 ft) AGL to reduce ground effect turbulence or provide clearance for cargo sling loads.

**Air traffic;** all aircraft in flight or operating on the manoeuvring 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 control clearance;** Authorization for an aircraft to proceed under conditions specified by an air traffic control unit.

Note 1- For convenience, the term "air traffic control clearance" is frequently abbreviated to "clearance" when used in appropriate contexts.

Note 2 - The abbreviated term “clearance” may be prefixed by the words “taxi”, “takeoff”, “departure”, “en route”, “approach” or “landing” to indicate the particular portion of flight to which the air traffic control clearance relates.

**Air traffic control service;** a service provided for the purpose of:

- a) preventing collisions;
  - 1) between aircraft, and
  - 2) on the manoeuvring 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 centre, approach control unit or aerodrome control tower

**Air traffic controller schedule.** † A plan for allocating air traffic controller duty periods and non-duty periods over a period of time, otherwise referred to as a roster.

**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.

*Note - ATS airspaces are classified as Class A to G as described in 2.6.*

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

Note - An air traffic services reporting office may be established as a separate unit or combined with an existing unit, such as another air traffic services unit, or a unit of the aeronautical information service.

**Air traffic services unit;** a generic term meaning variously, air traffic control unit, flight information centre 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

**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 where the necessary services and facilities are available, where aircraft performance requirements can be met and which is operational at the expected time of use. Alternate aerodromes include the following:

**Take-off Alternate;** An alternate aerodrome at which an aircraft would be able to land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.

**En- route Alternate;** An alternate aerodrome at which an aircraft would be able to land in the event that a diversion becomes necessary while en route.

**Destination Alternate;** An alternate aerodrome at which an aircraft would be able to land should it become either impossible or inadvisable to land at the aerodrome of intended landing.

*Note - The aerodrome from which a flight departs may also be an en-route or a destination alternate aerodrome for that flight*

**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 centre;** 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 ground- or space-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

*Note - Area navigation includes performance-based navigation as well as other operations that do not meet the definition of performance-based navigation.*

**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.

Note 1 - The term “ATS route” is used to mean variously, airway, advisory route, controlled or uncontrolled route, arrival or departure route, etc.

Note 2 - An ATS route is defined by route specifications which include an ATS route designator, the track to or from significant points (waypoints), distance between significant points, reporting requirements and, as determined by the appropriate ATS authority, the lowest safe altitude.

**Authority** the Rwanda Civil Aviation Authority

**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.

*Note - The abbreviated term “ADS contract” is commonly used to refer to ADS event contract, ADS demand contract, ADS periodic contract or an emergency mode.*

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

**Data link-automatic terminal information service (D-ATIS).** The provision of ATIS via data link

**Voice-automatic terminal information service (Voice-ATIS).** The provision of ATIS by means of continuous and repetitive voice broadcasts.

**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.

*Note - Base turns may be designated as being made either in level flight or while descending, according to the circumstances of each individual procedure.*

**Calendar** Discrete temporal reference system that provides the basis for defining temporal position to a resolution of one day

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

*Note - Change-over points are established to provide the optimum balance in respect of signal strength and quality between facilities at all levels to be used and to ensure a common source of azimuth guidance for all aircraft operating along the same portion of a route segment.*

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

**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

*Note - The term “controlled aerodrome” indicates that air traffic control service is provided to aerodrome traffic but does not necessarily imply that a control zone exists.*

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

*Note - Controlled airspace is a generic term which covers ATS airspace Classes A, B, C, D and E as described in Appendix 4.*

**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.

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

**Cyclic redundancy checks (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 nor 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 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.

**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.

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

**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.

**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

**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

**Flight crew member.** A licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period.

**Flight information centre.** 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.

*Note 1 - A pressure type altimeter calibrated in accordance with the Standard Atmosphere:*

- a) *when set to a QNH altimeter setting, will indicate altitude;*
- b) *when set to a QFE altimeter setting, will indicate height above the QFE reference datum;*
- c) *when set to a pressure of 1 013.2 hPa, may be used to indicate flight levels.*

*Note 2 - The terms “height” and “altitude”, used in Note 1 above, indicate altimetric rather than geometric heights and altitudes.*

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

*Note - Specifications for flight plans are contained in the Rwanda Civil Aviation (Rules of the Air) Regulation, 2014. When the expression “flight plan form” is used it denotes the model flight plan form attached as Appendix 2 to PANS-ATM (specify right doc when developed).*

**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.

**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.

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

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

**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.

*Note. — The types of incidents which are of main interest to the International Civil Aviation Organization for accident prevention studies are listed in Annex 13 attachment C*

**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.

*Note - The specified minima for visual meteorological conditions are contained in annex2.*

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

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

**International NOTAM office.** An office designated by the Authority for the exchange of NOTAM internationally.

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

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

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

**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).

**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:

**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.

**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.

*Note 1 - The Performance-based Navigation (PBN) Manual (ICAO Doc 9613), Volume II contains detailed guidance on navigation specifications.*

*Note 2 - The term RNP, previously defined as “a statement of the navigation performance necessary for operation within a defined airspace”, has been removed from this Manual as the concept of RNP has been overtaken by the concept of PBN. The term RNP in this Manual is now solely used in the context of navigation specifications that require performance monitoring and alerting, e.g. RNP 4 refers to the aircraft and operating requirements, including a 4 NM lateral performance with on-board performance monitoring and alerting that are detailed in ICAO Doc 9613.*

**Night.** The time between fifteen minutes after sunset and fifteen minutes before sunrise, sunset and sunrise being determined at surface level and includes any time between sunset and sunrise when unlighted aircraft or other prominent unlighted object cannot clearly be seen at a distance of 4,572 m.

**Non-duty period.** A continuous and defined period of time, subsequent to and/or prior to duty periods, during which the air traffic controller is free of all duties.

**NOTAM** A notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

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

- 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.

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

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

*Note.— An RCP specification 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.*

**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.

*Note - Performance requirements are expressed in navigation specifications (RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.*

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

*Note. — An RSP specification 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.*

**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.

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

**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.

**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.

**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.

***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

**Rescue coordination centre (RCC);** 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.

**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 to certain specified conditions.

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

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

**Safety management system;** a systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures

**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 .

**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.

*Note - There are three categories of significant points: ground-based navigation aid, intersection and waypoint. In the context of this definition, intersection is a significant point expressed as radials, bearings and/or distances from ground-based navigation aids.*

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

**State safety programme;** an integrated set of regulations and activities aimed at improving safety.

**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.

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

**Terminal control area;** a control area normally established at the confluence of ATS routes in the vicinity of one or more major aerodromes.

**Time-in-position.** † The period of time when an air traffic controller is exercising the privileges of the air traffic controller's licence at an operational position.

**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).

**Traffic avoidance advice;** Advice provided by an air traffic services unit specifying manoeuvres 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.

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

**VFR flight;** a flight conducted in accordance with the visual flight rules.

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

*Note - The specified minima are contained in Annex2.*

**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:

***Fly-by waypoint*** A waypoint which requires turn anticipation to allow tangential interception of the next segment of a route or procedure, or

***Flyover waypoint.*** A waypoint at which a turn is initiated in order to join the next segment of a route or procedure.

## Chapter 2 GENERAL PROVISIONS FOR AIR TRAFFIC SERVICES

### 2.1 Divisions of the air traffic services

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

The *air traffic control service*, to accomplish objectives of reg.22.030 (a) (1) (2) (3) of civil aviation, 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 2.1.1 b) and c), in order to accomplish objectives 22.030(a) (1) and (3) of civil aviation regulations;

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 22.030(a) (1) and (3) of civil aviation regulations;

c) *Aerodrome control service*: the provision of air traffic control service for aerodrome traffic, except for those parts of flights described in 2.1.1 b), in order to accomplish objectives 22.030(a) (1) (2) and (3) of civil aviation regulations;

2.1.2 **The flight information service**, to accomplish objective of providing advice and information useful for the safe and efficient conduct of flight as required in reg.22.030 (a) (4)

2.1.3 **The alerting service**, to accomplish the objective of notifying appropriate organization regarding an aircraft in need of search and rescue aid and assist such organization as required is require in reg.22.030 (a) (5).

### 2.2 Determination of the need for air traffic services

2.2.1 The need for the provision of air traffic services shall be determined 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.

Note. — Due to the number of elements involved, it has not been possible to develop specific data to determine the need for air traffic services in a given area or at a given location.

For example:

- a) a mixture of different types of air traffic with aircraft of varying speeds (conventional jet, etc.) might necessitate the provision of air traffic services, whereas a relatively greater density of traffic where only one type of operation is involved would not;
- b) meteorological conditions might have considerable effect in areas where there is a constant flow of air traffic (e.g. scheduled traffic), whereas similar or worse meteorological conditions might be relatively unimportant in an area where air traffic would be discontinued in such conditions (e.g. local VFR flights);
- c) Open stretches of water, mountainous, uninhabited or desert areas might necessitate the provision of air traffic services even though the frequency of operations is extremely low.

2.2.2 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.

### **2.3 Designation of the portions of the airspace and controlled aerodromes where air traffic services will be provided**

2.3.1 The designation of the particular portions of the airspace or the particular aerodromes shall be as follows:

**2.3.1.1 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.

#### **2.3.1.2 Control areas and control zones**

2.3.1.2.1 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.

2.3.1.2.1.1 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

2.3.1.2.1.2 Where designated within a flight information region, control areas and control zones shall form part of that flight information region.

**2.3.1.3. 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.

*Note. — Applicable guidance on performance-based navigation and implementation is published in the Performance Based Navigation Manual (Doc 9613)*

## **2.4 Specifications for flight information regions, control areas and control zones**

### **2.4.1 Flight information regions**

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

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

2.4.1.3 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 tables in Appendix 1 to 40.375 of Civil aviation regulation

*Note. — In cases where an upper flight information region is established the procedures applicable therein need not be identical with those applicable in the underlying flight information region.*

### **2.4.2 Control areas**

2.4.2.1 Control areas including, inter alia, airways and terminal control areas shall be delineated by ATS provider 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, taking into account the capabilities of the navigation aids normally used in that area.

2.4.2.2 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).

*Note.— This does not imply that the lower limit has to be established uniformly in a given control area (see Figure A-5 of the Air Traffic Services Planning Manual (Doc 9426), Part I, Section 2, Chapter 3).*

2.4.2.3 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 tables in Appendix 1 to 40.375 of Civil aviation regulation.

### **2.4.3 Control zones**

2.4.3.1 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.

*Note. — Aircraft holding in the vicinity of aerodromes are considered as arriving aircraft.*

2.4.3.2 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.

*Note. — A control zone may include two or more aerodromes situated close together.*

2.4.3.3 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.

*Note.* — *An upper limit higher than the lower limit of the overlying control area may be established when desired.*

## **2.5 Identification of air traffic services units and airspaces**

2.5.1 An area control centre or flight information centre shall be identified by the name of a nearby town or city or geographic feature.

2.5.2 An aerodrome control tower or approach control unit shall be identified by the name of the aerodrome at which it is located.

2.5.3 A control zone, control area or flight information region shall be identified by the name of the unit having jurisdiction over such airspace.

## **2.6 Establishment and identification of standard routes for taxiing aircraft**

2.6.1 Where necessary, standard routes for taxiing aircraft should be established on an aerodrome between runways, aprons and maintenance areas. Such routes should be direct, simple and where practicable, designed to avoid traffic conflicts

2.6.2 Standard routes for taxiing aircraft should be identified by designators distinctively different from those of the runways and ATS routes

## **2.7 Coordination between the operator and air traffic services**

2.7.1 Regulation 22.155 (a) (3) requires the applicant of air traffic service certificate to establish systems and procedures for ensuring, if applicable, co-ordination between each ATS unit (s) and aircraft operators. Therefore, Air traffic services units, in carrying out their

objectives, shall have due regard for the requirements of the air operators. If so required by the operators, the ATS provider 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.

2.7.2. 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.

## **2.8 Coordination between military authorities and air traffic services**

2.8.1 Regulation 22.155 (a) (4) require the applicant of air traffic service certificate to establish systems and procedures for ensuring, if applicable, co-ordination between each ATS unit (s) and the Military Authorities. Air traffic services provider shall establish and maintain close cooperation with military authorities responsible for activities that may affect flights of civil aircraft.

2.8.2 Coordination of activities potentially hazardous to civil aircraft shall be effected in accordance with 2.9 of this document.

2.8.3 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.

2.8.3. 1 Air traffic services units 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, ATS provider shall designate any areas or routes where the requirements of part 40 of civil aviation regulations 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.

2.8.3.2 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.

## **2.9 Coordination of activities potentially hazardous to civil aircraft**

2.9.1 The arrangements for activities potentially hazardous to civil aircraft, whether over the territory of Rwanda or over the high seas, shall be coordinated by the ATS provider as required by civil aviation regulation, section 22.155 (i). The coordination shall be effected early enough to permit timely promulgation of information regarding the activities in accordance with the provisions of Rwanda Civil Aviation Technical Standards –Aeronautical information Services (RCATS-AIS)

2.9.1.1 If the appropriate ATS authority is not that of the State where the organization planning the activities is located, initial coordination should be effected through the ATS authority responsible for the airspace over the State where the organization is located

2.9.2 Adequate steps shall be taken to prevent emission of laser beams from adversely affecting flight operations.

2.9.3 The ATS Provider 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.

2.9.4 The ATS Provider 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.

Note. — 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).

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

## **2.10 Service to aircraft in the event of an emergency**

2.10.1 Regulation 22.270 requires an applicant for the grant of an air traffic service certificate to establish procedures to ensure maximum assistance and priority is given to an aircraft known, or believed to be, in a state of emergency including being subjected to unlawful interference.

*Note. — To indicate that it is in a state of emergency, an aircraft equipped with an appropriate data link capability and/or an SSR transponder might operate the equipment as follows:*

- a) on Mode A, Code 7700; or*
- b) on Mode A, Code 7500, to indicate specifically that it is being subjected to unlawful interference; and/or*
- c) activate the appropriate emergency and/or urgency capability of ADS-B or ADS-C; and/or*
- d) Transmit the appropriate emergency message via CPDLC.*

2.10.1.1 In communications between ATS units and aircraft in the event of an emergency, Human Factors principles shall be observed.

*Note. — Guidance material on Human Factors principles can be found in the Human Factors Training Manual (Doc 9683).*

2.10.1.2 ATS provider shall establish and implement detailed procedures related to various circumstances surrounding each emergency situation as detailed in ICAO Doc.4444, Chapter 15. Air traffic control units shall maintain full and complete coordination as mention in 2.9 above, and personnel shall use their best judgement in handling emergency situations.

2.10.2 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.

2.10.3 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 Authority and exchange necessary information with the operator or its designated representative.

## **2.11 In-flight contingencies**

### 2.11.1 Strayed or unidentified aircraft

*Note 1. — The terms “strayed aircraft” and “unidentified aircraft” in this paragraph have the following meanings:*

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

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

*Note 2. — An aircraft may be considered, at the same time, as a “strayed aircraft” by one unit and as an “unidentified aircraft” by another unit.*

*Note 3. — A strayed or unidentified aircraft may be suspected as being the subject of unlawful interference.*

2.11.1.1. Regulation 22.270 (b) requires an applicant for the grant of an air traffic service certificate to appropriately establish procedures to assist strayed aircraft, unidentified aircraft, and aircraft subject to military interception. As soon as an air traffic services unit becomes aware of a strayed aircraft it shall take all necessary steps as outlined in 2.11.1.1.1 and 2.11.1.1.2 to assist the aircraft and to safeguard its flight.

***Note.*** *— Navigational assistance by an air traffic services unit is particularly important if the unit becomes aware of an aircraft straying, or about to stray, into an area where there is a risk of interception or other hazard to its safety.*

2.11.1.1.1 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.

*Note.* — *The requirements in d) and e) apply also to ATS units informed in accordance with c).*

2.11.1.1.2 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.

2.11.1.2 As soon as an air traffic services unit becomes aware of an unidentified aircraft in its area, it shall endeavor 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.

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

2.11.1.3 Should the ATS unit consider that a strayed or unidentified aircraft may be the subject of unlawful interference; the RCAA shall immediately be informed.

## **2.11.2 Interception of civil aircraft**

2.11.2.1 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.

2.11.2.2 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 2.11.2.1;
- b) Relay messages between the intercepted aircraft and the appropriate ATS unit, the intercept control unit or the intercepting aircraft.

## **2.12 OTHER ATC CONTINGENCY PROCEDURES**

### **2.12.1 Emergency separation**

2.12.1.1 When emergency separation is applied for vertical separation where horizontal separation can not be used due to emergency situation, the flight crews concerned shall be advised that emergency separation is being applied and informed of the actual minimum used.

2.12.1.2 In the above 2.12.1.1, all flight crews concerned shall be provided with essential traffic information.

### **2.12.2 Short-term conflict alert (STCA)**

2.12.2.1 ATS provider shall establish Local instructions concerning use of the STCA function and specify, inter alia:

- a) the types of flight which are eligible for generation of alerts;
- b) the sectors or areas of airspace within which the STCA function is implemented;
- c) the method of displaying the STCA to the controller;
- d) in general terms, the parameters for generation of alerts as well as alert warning time;
- e) the volumes of airspace within which STCA can be selectively inhibited and the conditions under which this will be permitted;
- f) conditions under which specific alerts may be inhibited for individual flights; and
- g) procedures applicable in respect of volume of airspace or flights for which STCA or specific alerts have been inhibited.

2.12.2.2 In the event an STCA is generated in respect of controlled flights, the controller shall without delay assess the situation and, if necessary, take action to ensure that the applicable separation minimum will not be infringed or will be restored.

### **2.12.3 Procedures in regard to aircraft equipped with airborne collision avoidance systems (ACAS)**

2.12.3.1 When a pilot reports an ACAS resolution advisory (RA), the controller shall not attempt to modify the aircraft flight path until the pilot reports "Clear of Conflict".

2.12.3.2 The controller shall resume responsibility for providing separation for all the affected aircraft when:

- a) the controller acknowledges a report from the flight crew that the aircraft has resumed the current clearance; or
- b) the controller acknowledges a report from the flight crew that the aircraft is resuming the current clearance and issues an alternative clearance which is acknowledged by the flight crew

## **2.12.4 Fuel dumping**

### **2.12.4.1 General**

2.12.4.1.1 An aircraft in an emergency or other urgent situations may need to dump fuel so as to reduce to maximum landing mass in order to effect a safe landing.

2.12.4.1.2 When an aircraft operating within controlled airspace needs to dump fuel, the flight crew shall advise ATC.

2.12.4.1.3 The ATC unit shall then coordinate with the flight crew the following:

- a) The route to be flown, which, if possible, shall be clear of cities and towns, preferably over water and away from areas where thunderstorms have been reported or are expected;
- b) The level to be used, which shall not be less than 11000ft; and
- c) The duration of the fuel dumping.

### **2.12.4.2 Information to Other ATS Units and Non-Controlled Traffic**

2.12.4.2.1 A warning message shall be broadcast on appropriate frequencies for non-controlled traffic to remain clear of the area concerned. Adjacent ATC units and control sectors should be informed of the fuel dumping taking place and requested to broadcast on applicable frequencies an appropriate warning message for other traffic to remain clear of the area concerned.

## **2.12.5 Fuel emergency and minimum fuel**

2.12.5.1 When a pilot reports a state of minimum fuel, the controller shall inform the pilot as soon as practicable of any anticipated delays or that no delays are expected

## **2.13 ATS Safety management**

### **2.13.1 General**

2.13.1.1 Safety management system shall be developed and Implemented in accordance with Part 30 of Civil Aviation regulations. The ATS provider shall ensure that the level of air traffic services (ATS) and communications, navigation and surveillance, as well as the ATS

procedures applicable to the airspace or aerodrome concerned, are appropriate and adequate for maintaining an acceptable level of safety in the provision of ATS.

2.13.1.2 The requirements in respect of services, systems and procedures applicable to airspaces and aerodromes should be established on the basis of securing the highest practicable degree of uniformity in procedures in adjacent airspaces.

2.13.1.3 The ATS provider shall implement a safety management system acceptable to RCAA as a minimum:

- a) Identifies safety hazards;
- b) Ensure the implementation of remedial action necessary to maintain agreed safety performance;
- c) Provides for continuous monitoring and regular assessment of the safety performance; and
- d) Aims at a continuous improvement of the overall performance of the safety management system.

2.13.1.4 A safety management system shall clearly define lines of safety accountability throughout the air traffic services provider, including a direct accountability for safety on the part of senior management.

*Note.* — *Related regulations and guidance that include the safety management provisions applicable to ATS providers is contained in civil Aviation regulations, part 30, RCATS –ATS t and the Safety Management Manual (SMM) (Doc 9859).*

## **2.13.2 Objectives**

The objectives of ATS safety management are to ensure that:

- a) The established level of safety applicable to the provision of ATS within an airspace or at an aerodrome is met; and
- b) safety-related enhancements are implemented whenever necessary.

## **2.13.3 ATS Safety Management Activities**

2.13.3.1 An ATS SMS should include, *inter alia*, the following with respect to the provision of air traffic services:

- a) Monitoring of overall safety levels and detection of any adverse trend;
- b) Safety reviews of ATS units;
- c) Safety assessments in respect of the planned implementation of airspace reorganizations, the introduction of new equipment systems or facilities, and new or changed ATS procedures; and
- d) A mechanism for identifying the need for safety enhancing measures.

2.13.3.2 All activities undertaken in an ATS SMS shall be fully documented and retained for 90 days. When the documents are pertinent to inquiries or investigations, they shall be retained for longer periods until it is evident that they will no longer be required.

#### **2.13.4 Monitoring of Safety Performance and Measurement**

The ATS provider shall develop and maintain the means to verify the safety performance of the organization and to validate the effectiveness of safety risk controls.

The ATS provider's safety performance shall be verified in reference to the safety performance indicators and safety performance targets of the SMS.

##### **2.13.4.1 Collection and evaluation of safety-related data**

2.13.4.1.1 Data for use in safety monitoring programmes should be collected from as wide a range of sources as possible, as the safety-related consequences of particular procedures or systems may not be realized until after an incident has occurred.

2.13.4.1.2 The ATS provider shall establish a formal incident reporting system for ATS personnel to facilitate the collection of information on actual or potential safety hazards or deficiencies related to the provision of ATS, including route structures, procedures, communications, navigation and surveillance systems and other safety significant systems and equipment as well as controller workloads.

*Note.* — Guidance related to both mandatory and voluntary incident reporting systems is contained in the safety management manual (SMM) (Doc 9859)

#### **2.13.4.2 Review of incident and other safety-related reports**

2.13.4.2.1 Safety-related reports concerning the operation of air traffic services, including air traffic incident reports, shall be systematically reviewed by the ATS provider to detect any adverse trend in the number and types of incidents which occur.

2.13.4.2.2 Reports concerning the serviceability of ATS facilities and systems, such as failures and degradations of communications, surveillance and other safety significant systems and equipment, shall be systematically reviewed by the ATS provider to detect any trend in the operation of such systems which may have an adverse effect on safety.

#### **2.13.4.3 The management of change**

The ATS provider shall develop and maintain a process to identify changes which may affect the level of safety risk associated with its aviation products or services and to identify and manage the safety risks that may arise from those changes.

#### **2.13.4.4 Continuous improvement of the SMS**

The ATS provider shall monitor and assess the effectiveness of its SMS processes to enable continuous improvement of the overall performance of the SMS.

### **2.13.5 Safety Reviews**

#### **2.13.5.1 General Requirements**

2.13.5.1.1 In accordance with Reg. 22.295 (b)(7) Safety reviews of ATS units shall be conducted on a regular and systematic basis by personnel qualified through training, experience and expertise and having a full understanding of relevant standards and civil aviation regulations, procedures for Air Navigation Services (PANS), safe operating practices and Human Factors Principles.

2.13.5.1.2 The ATS provider shall also establish and implement a mechanism for the safety review and elimination of deficiencies identified within the framework of Planning and Implementation Regional Groups (PIRGs) and those deficiencies identified in the provision of ATS.

2.13.5.2 The scope of ATS units' safety reviews should include at least the following issues:

2.13.5.2.1 Regulatory issues to ensure that:

- a) ATS operations manuals, ATS unit instructions, unit logbooks and air traffic control (ATC) coordination procedures are complete, concise, and up- to –date;
- b) The ATS route structure, where applicable, provides for:
  - 1) Adequate route spacing; and
  - 2) Crossing points for ATS routes located so as to reduce the need for controller intervention and for inter-and intra-unit coordination;
- c) The separation minima used in the airspace or at the aerodrome are appropriate and all the provisions applicable to those minima are being complied with;
- d) Where applicable, provision is made for adequate observation of the maneuvering area, and procedures and measures aimed at maximizing the potential for inadvertent runway incursions are in place. This observation may be performed visually or by means of an ATS surveillance system;
- e) Appropriate procedures for low visibility aerodrome operations are in place;
- f) Traffic volumes and associated controller workloads do not exceed defined, safe levels and that procedures are in place for regulating traffic volumes whenever necessary;
- g) Procedures to be applied in the event of failures or degradations of ATS systems, including communications, navigation and surveillance systems, are practicable and will provide for an acceptable level of safety; and
- h) Procedures for the reporting of incidents and other safety- related occurrences are implemented, that the reporting of incidents is encouraged and that such reports are reviewed to identify the need for any remedial action.

2.13.5.2.2 Operational and technical issues to ensure that:

- a) The environmental working conditions meet established levels for temperature, humidity, ventilation, noise and ambient lighting, and do not adversely affect controller performance;
- b) Automation systems generate and display flight plan, control and coordination data in a timely, accurate and easily recognizable manner and in accordance with human Factors principles;

*Note – The ATS provider shall take into account relevant human factors aspects when designing or certifying equipment and operating procedures and when training and licensing personnel*

- c) Equipment, including input/output devices for automation systems, are designed and positioned in the working position in accordance with ergonomic principles;
- d) Communications, navigation, surveillance and other safety significant systems and equipment;
  - 1) are tested for normal operations on a routine basis;
  - 2) Meet the required level of reliability and availability as defined by the ATS provider and accepted by the Authority.
  - 3) Provide for timely and appropriate detection and warning of system failures and degradation;
  - 4) Include documentation on the consequences of system, sub-system and equipment failures and degradations;
  - 5) Include measures to control the probability of failures and degradations; and
  - 6) Include back-up facilities and /or procedures in the event of a system failure or degradation; and
- e) Detailed records of systems and equipment serviceability are kept and periodically reviewed.
- f) Checklists and SOPs are developed and implemented in accordance with human factor principles.

*Note – In the context above, the terms reliability and availability have the following meanings;*

- 1) Reliability: the probability that a device or system will function without failure over a specified time period or amount of usage ; and*
- 2) Availability; the ration of the percentage of the time that a system is operating correctly to the total time in that period.*

2.13.5.2.3 Licensing and training issues to ensure that:

- a) Controllers are adequately trained and properly licensed with valid ratings;
- b) Controller competency is maintained by adequate and appropriate refresher training, including the handling of aircraft emergencies and operations under conditions with failed and degraded facilities and systems;
- c) Controllers, where the ATC unit/ control sector is staffed by teams, are provided relevant and adequate training in order to ensure efficient teamwork;

- d) The implementation of new or amended procedures, and new or updated communications, surveillance and other safety significant systems and equipment is preceded by appropriate training and instructions;
- e) Controller competency in the English language is satisfactory in relation to providing ATS to international air traffic; and
- f) Standard phraseology is used.

## **2.13.6 Safety Risk Assessments**

### **2.13.6.1 Need for safety risk assessments**

2.13.6.1.1 A safety risk assessment shall be carried out in respect of proposals for significant airspace reorganizations, for significant changes in the provision of ATS procedures applicable to an airspace or an aerodrome, and for the introduction of new equipment, systems or facilities, such as;

- a) A reduced separation minimum to be applied within an airspace or at an aerodrome;
- b) A new operating procedure, including departure and arrival procedures, to be applied within an airspace or at an aerodrome;
- c) A reorganization of an airspace;
- d) A reorganization of the ATS route structure
- e) Physical changes to the layout of runways and/ or taxiways at an aerodrome; and
- f) Implementation of new communications, surveillance or other safety-significant systems and equipment, including those providing new functionality and /or capabilities.

*Note. — 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 judgment*

2.13.6.1.2 Proposals shall be implemented only when the assessment has shown that an acceptable level of safety will be met. When appropriate, the ATS provider shall ensure that adequate provision is made for post-implementation monitoring to verify that the defined level of safety continues to be met.

### **2.13.6.2 Safety- significant factors**

The safety risk assessment shall consider relevant all factors determined to be safety-significant, including:

- a) types of aircraft and their performance characteristics, including aircraft navigation capabilities and navigation performance;

- b) traffic density and distribution;
- c) airspace complexity, ATS route structure and classification of the airspace;
- d) aerodrome layout, including runway configurations, runway lengths and taxiway configurations;
- e) type of air-ground communications and time parameters for communication dialogues, including controller intervention capability;
- f) Type and capabilities of surveillance system, and the availability of systems providing controller support and alert functions. Where ADS-B implementation envisages reliance upon a common source for surveillance and/or navigation, the safety assessment shall take account of adequate contingency measures to mitigate the risk of either degradation or loss of this common source (ie common mode failure); and
- g) Any significant local or regional weather phenomena.

### **2.13.7 Safety- Enhancing Measures**

2.13.7.1 Any actual or potential hazard related to the provision of ATS within airspace or at an aerodrome, whether identified through an ATS safety management activity or by any other means, shall be assessed and classified by the ATS provider for its risk acceptability.

2.13.7.2 Except when the risk can be classified as acceptable, the ATS provider shall implement appropriate measures to eliminate the risk or reduce the risk to a level that is acceptable.

2.13.7.3 If it becomes apparent that the level of safety applicable to an airspace or an aerodrome is not, or may not be achieved, the ATS provider shall implement appropriate remedial measures.

2.13.7.4 Implementation of any remedial measure shall be followed by an evaluation of the effectiveness of the measure in eliminating or mitigating a risk.

### **2.13.8 Human Resources Management**

2.13.8.1 To ensure that human resources are properly managed with a view to minimizing their contribution to accident /incident in the provision of ATS services.

2.13.8.2 The ATS provider shall systematically address human resources management in the following key aspects:

- (i) Management responsibilities and accountabilities
- (ii) Staff deployment;
- (iii) Operational watch rostering; and
- (iv) Operational support arrangements.

2.13.8.3 In line with regulation 22.110 (5) (7) the ATS provider shall identify the key personnel responsible for the safe conduct of the ATM services. Their positions, responsibilities, functions, accountabilities and authorities are to be clearly defined. The ATS provider shall also develop job descriptions for other ATS staff & technical staff. Organization chart indicating the specific responsibilities shall be provided.

2.13.8.4 In line with regulation 22.110 (8), the ATS provider shall document and define the method of determining staffing levels to ensure safe and efficient ATM operations. The ATS provider shall allocate sufficient number of properly licensed /rated staff to cover the published operating hours of ATC control units.

2.13.8.4.1 The ATS provider shall plan the level of ATC staffing requirements taking into account the following factors:

- (i) Training requirements;
- (ii) Rest days or rest periods between shifts;
- (iii) Leave requirements;
- iv) Sick leave reserve;
- v) Traffic volume, pattern and trend; and
- vi) Mid- to long- term projection on the development of ATM systems.

2.13.8.5 The ATS provider shall ensure that adequate operations support staff are trained and maintained to fill established positions of the organization so as to fulfill the necessary functions, such as Flight service officers by providing them with adequate training and that their proficiency shall be checked on a recurrent basis and training records of each Technical staff shall be maintained.

2.13.8.5.1 The ATS provider shall develop and maintain a safety training programme and training Plan that ensures that personnel are trained and competent to perform their SMS duties

2.13.8.6 The ATS provider shall develop policies and procedures to enable recruitment and retention of adequate ATS staff.

2.13.8.7 The ATS provider shall develop and maintain a formal means for safety communication that:

- a) ensures personnel are aware of the SMS to a degree commensurate with their positions;
- b) conveys safety-critical information;
- c) Explains why particular safety actions are taken; and
- d) Explains why safety procedures are introduced or changed

## **2.14 Common reference systems**

### 2.14.1 Horizontal reference system.

World Geodetic System — 1984 (WGS-84) shall be used as the horizontal (geodetic) reference system for air navigation. Reported aeronautical geographical coordinates (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum.

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

### 2.14.2 Vertical reference system

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

*Note. — The geoids globally most closely approximate MSL. It is defined as the equipotential surface in the gravity field of the Earth which coincides with the undisturbed MSL extended continuously through the continents.*

### 2.14.3 Temporal reference system

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

2.14.3.2 When a different temporal reference system is used, this shall be indicated in GEN 2.1.2 of the Aeronautical Information Publication (AIP).

## **2.15 Fatigue Risk Management**

2.15.1 Regulation 22.145 requires the ATS provider to establish and implement procedures to manage Fatigue for licenced Air Traffic Controllers

2.15.2 In accordance with regulation 22.145 (c) the ATS provider shall identify a process for assigning unscheduled duties that allows air traffic controllers to avoid extended periods of being awake.

2.15.3 The ATS provider shall provide evidence that the limitations are not exceeded and that non-duty period requirements are met;

2.15.4 The ATS provider shall familiarize its personnel with the principles of fatigue management and its policies with regard to fatigue management;

2.15.5 The ATS providers when complying with prescriptive limits shall identify and mitigate fatigue risks when varying from prescriptive limits for tactical or strategic reasons.

2.15.6 The ATS provider when varying from prescriptive limits for tactical or strategic reasons as mentioned in 2.15.5 above shall obtain approval from the Authority.

## **2.16 Identification and delineation of prohibited, restricted and danger areas**

2.16.1 Regulation 22.067 requires each prohibited area, restricted area, or danger area, upon initial establishment be given an identification and full details to be promulgated.

The identification so assigned shall be used to identify the area in all subsequent notifications pertaining to that area.

2.16.2 The identification shall be composed of a group of letters and figures as follows:

- a) Nationality letters for location indicators assigned to Rwanda
- b) A letter P for prohibited area, R for restricted area and D for danger area as appropriate; and
- c) A number, unduplicated within Rwanda.

*Note. — Nationality letters are those contained in Location Indicators (Doc 7910).*

2.16.3 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.

## **Chapter 3 : PROVISIONS FOR AIR TRAFFIC CONTROL SERVICE**

### **3.1 Area of responsibility**

The ATS provider shall designate the area of responsibility for each air traffic control (ATC) unit and, when applicable, for individual control sectors within an ATC unit. Where there is more than one ATC working position within a unit or sector, the duties and responsibilities of the individual working positions shall be defined.

### **3.2 Responsibility for control**

#### **3.2.1 Place or time of transfer**

Regulation 22.195 (c) requires the applicant to establish procedures for the transfer of responsibility for the control of an aircraft. Therefore, responsibility for the control of an aircraft shall be transferred from one air traffic control unit to another as follows:

##### **3.2.1.1 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 ACC having control of the aircraft or at such other point or time as has been agreed between the two units.

##### **3.2.1.2 Between a unit providing area control service and a unit providing approach control service.**

3.2.1.2.1 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.

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

Except for flights which are provided aerodrome control service only, the control of arriving and departing controlled flights shall be divided between units providing aerodrome control service and units providing approach control service as follows:

3.2.1.3.1 *Arriving aircraft.* 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.

3.2.1.3.2 *Departing aircraft.* 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) when the aircraft is at a prescribed point or level, as specified in local instructions;

b) *When instrument meteorological conditions prevail at the aerodrome:*

- 1) Immediately after the aircraft is airborne, or
- 2) When the aircraft is at a prescribed point or level, as specified in local instructions.

#### **3.2.1.4 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 local instructions.

### **3.2.2 Coordination of transfer**

3.2.2.1 Regulation 22.195 (d) (2) requires coordination of traffic to the accepting unit before the traffic is transferred which shall be effected in accordance with 3.2.2.2, 3.2.2.3, 3.2.2.4 and chapter 9 of this manual

3.2.2.2 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.

3.2.2.3 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.

3.2.2.4 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.

3.2.2.5 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.

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

### **3.3 Flight Plan**

Regulation 22.250 of civil aviation regulations, requires an applicant for the grant of an air traffic service certificate to establish procedures for the acceptance and actioning of flight plans. Standards and format shall be adhered to as follows;

#### **3.3.1 Flight plan form**

3.3.1.1 A flight plan form shall be provided and shall be used by operators and air traffic services units for the purposes of completing flight plans.

*Note- A different form may be provided for use in completing repetitive flight plan listings.*

3.3.1.2 The flight plan form shall be printed in English.

3.3.1.3 Operators and air traffic services units may comply with the instructions for completion of the flight plan form and the repetitive flight plan.

3.3.1.4 In reference to reg.22.250 (e ), an operator shall, prior to departure:

- a) Ensure that the correct data is entered in the flight plan before submission to Aeronautical Information Service/ briefing Office or ATS unit. Special emphasis on item 10a and 10b on Equipment and capabilities
- b) ensure that, where the flight is intended to operate on a route or in an area where a required navigation performance (RNP) type is prescribed, the aircraft has an appropriate RNP approval, and that all conditions applying to that will be satisfied; The letter **R** shall be inserted in item 10 (Equipment) of the flight plan if the aircraft and operator have received PBN state approval
- c) Ensure that, where operation in reduced vertical separation minimum (RVSM) airspace is planned, the aircraft has the RVSM approval. The letter **W** shall be inserted in item 10 (Equipment) of the flight plan if the aircraft and operator have received RVSM state approval, regardless of the requested flight level. The aircraft registration shall be inserted in Item 18 of the flight plan.

*Note – Operators must obtain airworthiness and operational approval from the state registry or state of the Operator, as appropriate, to conduct RVSM operations (see AIP Rwanda ENR 1.1-10).*

- d) Ensure that, where flight is intended to operate where a Required Communication Performance (RCP) type is prescribed, the aircraft has an appropriate approval, and that all conditions applying to that approval will be satisfied.

### **3.3.2 Submission of a flight Plan**

3.3.2.1 Information relative to an intended flight or portion of a flight, to be provided to air traffic services units, shall be in the form of a flight plan.

3.3.2.2. A flight plan shall be submitted prior to operating:

- a) any flight or portion thereof to be provided with air traffic control service;
- b) any flight within or into designated areas, or along designated routes to facilitate the provision of flight information, alerting and search and rescue services;
- c) any flight within or into designated areas, or along designated routes to facilitate coordination with appropriate military units or with air traffic services units in adjacent States in order to avoid the possible need for interception for the purpose of identification;
- d) Any flight across international borders.

### **3.3.3 Prior to Departure**

3.3.3.1 Flight plans shall not be submitted more than 120 hours before the estimated off-block time of a flight.

Except when other arrangements have been made for submission of repetitive flight plans, a flight plan submitted prior to departure shall be submitted to the aeronautical information service at the departure aerodrome. A flight plan for a flight to be provided with air traffic control service shall be submitted at least 30 minutes before departure.

### **3.3.4 during Flight**

3.3.4.1 A flight plan to be submitted during flight shall normally be transmitted to the ATS unit in charge of the FIR. When this not practical, it shall be transmitted to another ATS unit or aeronautical telecommunication station for retransmission as required to the appropriate air traffic services unit.

3.3.4.2 The submission of flight plan during flight shall ensure its receipt by the appropriate air traffic services unit at least ten minutes (10min) before the aircraft is estimated to reach:

- a) The intended point of entry into a control area; or
- b) The point of crossing an airway.

### **3.3.5 Acceptance of a flight plan**

The first ATS unit receiving a flight plan, or change thereto, shall:

- a) Check it for compliance with the format and data conventions;
- b) Check it for completeness and, to the extent possible, for accuracy;
- c) Take action, if necessary, to make it acceptable to the air traffic services; and
- d) Indicate acceptable of the flight plan or change thereto, to the originator.

## **3.4 Air traffic control clearances**

Regulation 22.210 requires that each applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish procedures for the provision of ATC clearances

### **3.4.1 Scope and purpose**

3.4.1.1 Clearances are issued solely for expediting and separating air traffic and are based on known traffic conditions which affect safety in aircraft operation. Such traffic conditions include not only aircraft in the air and on the manoeuvring area over which control is being exercised, but also any vehicular traffic or other obstructions not permanently installed on the manoeuvring area in use.

3.4.1.2 The issuance of air traffic control clearances by air traffic control units constitutes authority for an aircraft to proceed only in so far as known air traffic is concerned. ATC clearances do not constitute authority to violate any applicable regulations for promoting the safety of flight operations or for any other purpose; neither do clearances relieve a pilot-in-command of any responsibility whatsoever in connection with a possible violation of applicable rules and regulations.

### **3.4.2 Aircraft subject to ATC for part of flight**

3.4.2.1 When a flight plan specifies that the initial portion of a flight will be uncontrolled, and that the subsequent portion of the flight will be subject to ATC, the aircraft shall be advised to obtain its clearance from the ATC unit in whose area controlled flight will be commenced.

3.4.2.2 When a flight plan specifies that the first portion of a flight will be subject to ATC, and that the subsequent portion will be uncontrolled, the aircraft shall normally be cleared to the point at which the controlled flight terminates.

3.4.2.3 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

### **3.4.3 Flights through intermediate stops**

3.4.3.1 When an aircraft files, at the departure aerodrome, flight plans for the various stages of flight through intermediate stops, the initial clearance limit will be the first destination aerodrome and new clearances shall be issued for each subsequent portion of flight.

3.4.3.2 The flight plan for the second stage, and each subsequent stage, of a flight through intermediate stops will become active for ATS and search and rescue (SAR) purposes only when the appropriate ATS unit has received notification that the aircraft has departed from the relevant departure aerodrome, except as provided for in 3.4.3.3.

3.4.3.3 By prior arrangement between ATC units and the operators, aircraft operating on an established schedule may, if the proposed route of flight is through more than one control area,

be cleared through intermediate stops within other control areas but only after coordination between the ACCs concerned.

### **3.4.4 Coordination of clearances**

3.4.4.1 Regulation 22.210 requires coordination of ATC clearances and an aircraft shall be cleared for the entire route to the aerodrome of first intended landing:

- a) when it has been possible, prior to departure, to coordinate the clearance between all the units under whose control the aircraft will come; or
- b) When there is reasonable assurance that prior coordination will be effected between those units under whose control the aircraft will subsequently come.

3.4.4.2 When coordination as in 3.4.4.1 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.

3.4.4.2.1 When prescribed by the ATS provider, aircraft shall contact a downstream air traffic control unit, for the purpose of receiving a downstream clearance prior to the transfer of control point.

3.4.4.2.2 Aircraft shall maintain the necessary two-way communication with the current air traffic control unit whilst obtaining a downstream clearance.

3.4.4.2.3 A clearance issued as a downstream clearance shall be clearly identifiable as such to the pilot.

3.4.4.2.4 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.

*Note. — Requirements relating to the application of downstream clearance delivery service are specified in Part II, Volume II of this Manual. Guidance material is contained in the Manual of Air Traffic Services Data Link Applications (ICAO Doc 9694).*

3.4.4.3 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 centers concerned, coordination with the subsequent area control centre shall be effected prior to issuance of the departure clearance.

3.4.4.4 When an aircraft intends to leave a control area for flight outside controlled airspace, and will subsequently re-enter 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.

### **3.4.5 Departing aircraft**

ACCs shall, except where procedures providing for the use of standard departure clearances have been implemented forward a clearance to approach control units or aerodrome control towers with the least possible delay after receipt of request made by these units, or prior to such request if practicable.

### **3.4.6 En-route aircraft**

3.4.6.1 An ATC unit may request an adjacent ATC unit to clear aircraft to a specified point during a specified period. After the initial clearance has been issued to an aircraft at the point of departure, it will be the responsibility of the appropriate ATC unit to issue an amended clearance whenever necessary and to issue traffic information, if required.

3.4.6.2 When so requested by the flight crew, an aircraft shall be cleared for cruise climb whenever traffic conditions and coordination procedures permit. Such clearance shall be for cruise climb either above a specified level or between specified levels

### **3.4.7 Description of air traffic control clearances**

#### **3.4.7.1 CLEARANCE LIMIT**

3.4.7.1.1 A clearance limit shall be described by specifying the name of the appropriate significant point, or aerodrome, or controlled airspace boundary

3.4.7.1.2 When prior coordination has been effected with units under whose control the aircraft will subsequently come, or if there is reasonable assurance that it can be effected a reasonable time prior to their assumption of control, the clearance limit shall be the destination aerodrome or, if not practicable, an appropriate intermediate point, and coordination shall be expedited so that a clearance to the destination aerodrome may be issued as soon as possible.

3.4.7.1.3 When the destination aerodrome is outside controlled airspace, the ATC unit responsible for the last controlled airspace through which an aircraft will pass shall issue the appropriate clearance for flight to the limit of that controlled airspace

### **3.4.8 Route of Flight**

3.4.8.1 The route of flight shall be detailed in each clearance when deemed necessary. The phrase “cleared flight planned route” may be used to describe any route or portion thereof, provided the route or portion thereof is identical to that filed in the flight plan and sufficient routing details are given to definitely establish the aircraft on its route.

3.4.8.2 The phrase “cleared flight planned route” shall not be used when granting a re-clearance.

### **3.4.9. Clearance of a requested change in flight plan**

3.4.9.1 When issuing a clearance covering a requested change in route or level, the exact nature of the change shall be included in the clearance.

3.4.9.2 When traffic conditions will not permit clearance of a requested change, the word “UNABLE” shall be used.

3.4.9.3 When an alternative route is offered and accepted by the flight crew under the procedures described in 3.4.9.2, the amended clearance issued shall describe the route to the point where it joins the previously cleared route, or, if the aircraft will not re-join the previous route, to the destination.

## **3.5 Horizontal Speed Control Instructions**

### **3.5.1 General**

3.5.1.1 In order to facilitate a safe and orderly flow of traffic, aircraft may, subject to conditions specified by the Appropriate ATC unit, be instructed to adjust speed in a specified manner. Flight crews should be given adequate notice of planned speed control.

3.5.1.2 Speed control instructions shall remain in effect unless explicitly cancelled or amended by the controller

3.5.1.3 Speed control shall not be applied to aircraft entering or established in a holding pattern

3.5.1.4 The flight crew shall inform the ATC unit concerned if at any time they are unable to comply with a speed instruction. In such cases, the controller shall apply an alternative method to achieve the desired spacing between the aircraft concerned

3.5.1.5 Aircraft shall be advised when a speed control restriction is no longer required.

### 3.5.2 SID and STAR

The flight crew shall comply with published SID and STAR speed restrictions unless the restrictions are explicitly cancelled or amended by the controller

## **3.6 Vertical Speed Control Instructions**

3.6.1 In order to facilitate a safe and orderly flow of traffic, aircraft may be instructed to adjust rate of climb or rate of descent. Vertical speed control may be applied between two climbing aircraft or two descending aircraft in order to establish or maintain a specific vertical separation minimum

3.6.2 The flight crew shall inform the ATC unit concerned if unable, at any time, to comply with a specified rate of climb or descent. In such cases, the controller shall apply an alternative method to achieve an appropriate separation minimum between aircraft, without delay

3.6.3 Aircraft shall be advised when a rate of climb/descent restriction is no longer required

## **3.7 Change from IFR to VFR Flight**

3.7.1 Change from instrument flight rules (IFR) flight to visual flight rules (VFR) flight is only acceptable when a message initiated by the pilot-in-command containing the specific expression “CANCELLING MY IFR FLIGHT”, together with the changes, if any, to be made to the current

flight plan, is received by an air traffic services unit. No invitation to change from IFR flight to VFR flight is to be made either directly or by inference

3.7.2 An ATC unit receiving notification of an aircraft's intention to change from IFR to VFR flight shall, as soon as practicable thereafter, so inform all other ATS units to whom the IFR flight plan was addressed, except those units through whose regions or areas the flight has already passed

### **3.8 Wake Turbulence Categories**

3.8.1 Wake turbulence separation minima shall be based on a grouping of aircraft types into three categories according to the maximum certificated take-off mass as follows:

- a) HEAVY (H) — all aircraft types of 136 000 kg or more;
- b) MEDIUM (M) — aircraft types less than 136 000 kg but more than 7 000 kg; and
- c) LIGHT (L) — aircraft types of 7 000 kg or less.

3.8.2 Helicopters should be kept well clear of light aircraft when hovering or while air taxiing.

3.8.3 For aircraft in the heavy wake turbulence category the word “Heavy” shall be included immediately after the aircraft call sign in the initial radiotelephony contact between such aircraft and ATS units.

### **3.9 Altimeter Setting Procedures**

#### **3.9.1 Expression of vertical position of aircraft**

3.9.1.1 For flights in the vicinity of aerodromes and within terminal control areas the vertical position of aircraft shall, except as provided for in 3.9.1.2, be expressed in terms of altitudes at or below the transition altitude and in terms of flight levels at or above the transition level. While passing through the transition layer, vertical position shall be expressed in terms of flight levels when climbing and in terms of altitudes when descending.

3.9.1.2 When an aircraft which has been given clearance to land is completing its approach using atmospheric pressure at aerodrome elevation (QFE), the vertical position of the aircraft shall be

expressed in terms of height above aerodrome elevation during that portion of its flight for which QFE may be used, except that it shall be expressed in terms of height above runway threshold elevation:

- a) For instrument runways, if the threshold is 2 m (7 ft) or more below the aerodrome elevation; and
- b) For precision approach runways.

3.9.1.3 For flights en route, the vertical position of aircraft shall be expressed in terms of:

- a) Flight levels at or above the lowest usable flight level; and
- b) Altitudes below the lowest usable flight level;

Except where, on the basis of regional air navigation agreements, a transition altitude has been established for a specified area, in which case the provisions of 3.9.1.1 shall apply.

### **3.9.2 Determination of the transition level**

3.9.2.1 The ATS unit shall establish the transition level to be used in the vicinity of the aerodrome(s) concerned and, when relevant, the terminal control area (TMA) concerned, for the appropriate period of time on the basis of QNH (altimeter subscale setting to obtain elevation when on the ground) reports and forecast mean sea level pressure, if required.

3.9.2.2 The transition level shall be the lowest flight level available for use above the transition altitude established for the aerodrome(s) concerned. Where a common transition altitude has been established for two or more aerodromes which are so closely located as to require coordinated procedures, the appropriate ATS units shall establish a common transition level to be used at any given time in the vicinity of the aerodrome and, when relevant, in the TMA concerned

### **3.9.3 Minimum cruising level for IFR flights**

3.9.3.1 Except when specifically authorized by the authority, cruising levels below the minimum flight altitudes established shall not be assigned

3.9.3.2 ATC units shall, when circumstances warrant it, determine the lowest usable flight level or levels for the whole or parts of the control area for which they are responsible, use it when assigning flight levels and pass it to pilots on request.

3.9.3.3 Appropriate ATS units shall at all times have available for transmission to aircraft in flight, on request, the information required to determine the lowest flight level which will ensure adequate terrain clearance on routes or segments of routes for which this information is required.

3.9.3.4 Flight information centres/ACCs or Approach control unit, whichever is available shall have available for transmission to aircraft, on request, an appropriate number of QNH reports or forecast pressures for the FIRs and control areas for which they are responsible, and for those adjacent.

3.9.3.5 The flight crew shall be provided with the transition level in due time prior to reaching it during descent.

This may be accomplished by voice communications, ATIS broadcast or data link.

3.9.3.6 The transition level shall be included in approach clearances when so prescribed by the appropriate authority or requested by the pilot.

3.9.3.7 A QNH altimeter setting shall be included in the descent clearance when first cleared to an altitude below the transition level, in approach clearances or clearances to enter the traffic circuit, and in taxi clearances for departing aircraft, except when it is known that the aircraft has already received the information.

3.9.3.8 A QFE altimeter setting shall be provided to aircraft on request or on a regular basis in accordance with local arrangements; it shall be the QFE for the aerodrome elevation except for:

a) Non-precision approach runways, if the threshold is 2 m (7 ft) or more below the aerodrome elevation; and

b) Precision approach runways;

in which cases the QFE for the relevant runway threshold shall be provided.

3.9.3.9 Altimeter settings provided to aircraft shall be rounded down to the nearest lower whole hectopascal

### **3.10 Position Reporting**

#### **3.10.1 Transmission of position reports**

3.10.1.1 On routes defined by designated significant points, position reports shall be made by the aircraft when over, or as soon as possible after passing, each designated compulsory reporting point, except as provided in 3.10.1.3 and 3.10.3. Additional reports over other points may be requested by the appropriate ATS unit

3.10.1.2 On routes not defined by designated significant points, position reports shall be made by the aircraft as soon as possible after the first half hour of flight and at hourly intervals thereafter, except as provided in 3.10.1.3.

Additional reports at shorter intervals of time may be requested by the appropriate ATS unit.

3.10.1.3 Under conditions specified by the ATS provider, flights may be exempted from the requirements to make position reports at each designated compulsory reporting point or interval. In applying this, account should be taken of the meteorological requirement for the making and reporting of routine aircraft observations.

3.10.1.4 The position reports required by 3.10.1.1 and 3.10.1.2 shall be made to the ATS unit serving the airspace in which the aircraft is operated. In addition, when so prescribed by the ATS provider in aeronautical information publications or requested by the appropriate ATS unit, the last position report before passing from one FIR or control area to an adjacent FIR or control area shall be made to the ATS unit serving the airspace about to be entered.

3.10.1.5 If a position report is not received at the expected time, subsequent control shall not be based on the assumption that the estimated time is accurate. Immediate action shall be taken to obtain the report if it is likely to have any bearing on the control of other aircraft

#### **3.10.2 Contents of voice position reports**

3.10.2.1 The position reports required by 3.10.1.1 and 3.10.1.2 shall contain the following elements of information, except that elements d), e) and f) may be omitted from position reports transmitted by radiotelephony, when so prescribed on the basis of regional air navigation agreements:

- a) Aircraft identification;
- b) Position;
- c) Time;
- d) Flight level or altitude, including passing level and cleared level if not maintaining the cleared level;
- e) Next position and time over; and
- f) Ensuing significant point.

3.10.2.1.1 Element d), flight level or altitude, shall, however, be included in the initial call after a change of air-ground voice communication channel.

3.10.2.2 When assigned a speed to maintain, the flight crew shall include this speed in their position reports. The assigned speed shall also be included in the initial call after a change of air-ground voice communication channel, whether or not a full position report is required.

3.10.2.3 When so prescribed by the appropriate ATS authority, the initial call to an ATC unit after a change of air-ground voice communication channel shall contain the following elements:

- a) Designation of the station being called;
- b) Call sign and, for aircraft in the heavy wake turbulence category, the word “Heavy”;
- c) Level, including passing and cleared levels if not maintaining the cleared level;
- d) Speed, if assigned by ATC; and
- e) Additional elements, as required by the appropriate ATS authority.

## **3.11 Reporting of Operational and Meteorological Information**

### **3.11.1 General**

3.11.1.1 When operational and/or routine meteorological information is to be reported, using data link, by an aircraft en route at times where position reports are required in accordance with 3.10.1.1 and 3.10.1.2. Special aircraft observations shall be reported as special air-reports. All air-reports shall be reported as soon as is practicable

### **3.11.2 Contents of routine air-reports**

3.11.2.1 Routine air-reports transmitted by data link, when ADS-C is not being applied, shall give information relating to such of the following elements as are necessary for compliance with 3.11.2.2:

*Section 1. — Position information:*

- 1) Aircraft identification
- 2) Position
- 3) Time
- 4) Flight level or altitude
- 5) Next position and time over
- 6) Ensuing significant point

*Section 2. — Operational information:*

- 7) Estimated time of arrival
- 8) Endurance

*Section 3. — Meteorological information:*

- 9) Wind direction
- 10) Wind speed
- 11) Wind quality flag
- 12) Air temperature
- 13) Turbulence (if available)
- 14) Humidity (if available).

3.11.2.2 Section 1 of the air-report is obligatory, except that elements 5) and 6) thereof may be omitted when so prescribed on the basis of regional air navigation agreements. Section 2 of the

air-report, or a portion thereof, shall only be transmitted when so requested by the operator or a designated representative, or when deemed necessary by the pilot-in-command. Section 3 of the air-report shall be transmitted in accordance with part 24 of civil aviation regulations.

### 3.11.3 Contents of special air-reports

3.11.3.1 Special air-reports shall be made by all aircraft whenever the following conditions are encountered or observed:

- a) Moderate or severe turbulence; or
- b) Moderate or severe icing; or
- c) Severe mountain wave; or
- d) Thunderstorms, without hail that are obscured, embedded, widespread or in squall lines; or
- e) Thunderstorms, with hail that are obscured, embedded, widespread or in squall lines; or
- f) Heavy duststorm or heavy sandstorm; or
- g) Volcanic ash cloud; or
- h) Pre-eruption volcanic activity or a volcanic eruption.

*Note. — Pre-eruption volcanic activity in this context means unusual and/or increasing volcanic activity which could presage a volcanic eruption.*

In addition, in the case of transonic and supersonic flight:

- i) Moderate turbulence; or
- j) Hail; or
- k) Cumulonimbus clouds.

3.11.3.2 When air-ground data link is used, special air-reports shall contain the following elements:

- message type designator
- aircraft identification

Data block 1:

Latitude

Longitude

Pressure-altitude

Time

Data block 2:

Wind direction

Wind speed

Wind quality flag

Air temperature

Turbulence (if available)

Humidity (if available)

Data block 3:

Condition prompting the issuance of the special air-report; to be selected from the list a) to k) presented under 3.11.3.1.

3.11.3.3 When voice communications are used, special air-reports shall contain the following elements:

Message type designator

*Section 1. — Position information*

- 1) Aircraft identification
- 2) Position
- 3) Time
- 4) Flight level or altitude

*Section 3. — Meteorological information*

- 5) Condition prompting the issuance of the special air-report; to be selected from the list a) to k) presented under 3.11.3.1.

### **3.11.4 Compilation and transmission of air-reports by voice communications**

3.11.4.1 Forms based on the model AIREP SPECIAL form at Appendix 1 shall be provided for the use of flight crews in compiling the reports. The detailed instructions for reporting, as given at **Appendix 1**, shall be complied with.

3.11.4.2 The detailed instructions, including the formats of messages and the phraseologies given at **Appendix 1**, shall be used by flight crews when transmitting air-reports and by air traffic services units when retransmitting such reports.

*Note. — Increasing use of air-reports in automated systems makes it essential that the elements of such reports be transmitted in the order and form prescribed.*

### **3.11.5 Recording of special air-reports of volcanic activity**

Special air-reports containing observations of volcanic activity shall be recorded on the special air-report of volcanic activity form. Forms based on the model form for special air-reports of volcanic activity at **Appendix 1** shall be provided for flight crews operating on routes which could be affected by volcanic ash clouds.

*Note. — The recording and reporting instructions may conveniently be printed on the back of the special air-report of volcanic activity form.*

### **3.11.6 Forwarding of meteorological information**

3.11.6.1 When receiving ADS-C reports which contain a meteorological information block, air traffic services units shall relay the basic ADS-C and meteorological information blocks and aircraft registration without delay to the world area forecast centres (WAFCs).

3.11.6.2 When receiving special air-reports by data link communications, air traffic services units shall forward them without delay to their associated meteorological watch office, the WAFCs, and the centres designated by regional air navigation agreement for the operation of aeronautical fixed service Internet-based services.

3.11.6.3 When receiving special air-reports by voice communications, air traffic services units shall forward them without delay to their associated meteorological watch offices.

## **3.12 Presentation and Updating of flight Plan and Control Data**

### **3.12.1 General**

The ATS provider shall establish provisions and procedures for the presentation to controllers, and subsequent updating, of flight plan and control data for all flights being provided with a service by an ATS unit. Provision shall also be made for the presentation of any other information required or desirable for the provision of ATS.

### **3.12.2 Information and data to be presented**

3.12.2.1 Sufficient information and data shall be presented in such a manner as to enable the controller to have a complete representation of the current air traffic situation within the controller's area of responsibility and, when relevant, movements on the manoeuvring area of aerodromes. The presentation shall be updated in accordance with the progress of aircraft, in order to facilitate the timely detection and resolution of conflicts as well as to facilitate and provide a record of coordination with adjacent ATS units and control sectors.

3.12.2.2 An appropriate representation of the airspace configuration, including significant points and information related to such points, shall be provided. Data to be presented shall include relevant information from flight plans and position reports as well as clearance and coordination data. The information display may be generated and updated automatically, or the data may be entered and updated by authorized personnel.

3.12.2.3 Requirements regarding other information to be displayed, or to be available for display, shall be specified by the appropriate authority.

### **3.12.3 Presentation of information and data**

3.12.3.1 The required flight plan and control data may be presented through the use of paper flight progress strips or electronic flight progress strips, by other electronic presentation forms or by a combination of presentation methods.

3.12.3.2 The method(s) of presenting information and data shall be in accordance with Human Factors principles. All data, including data related to individual aircraft, shall be presented in a manner minimizing the potential for misinterpretation or misunderstanding.

3.12.3.3 Means and methods for manually entering data in ATC automation systems shall be in accordance with Human Factors principles.

3.12.3.4 When flight progress strips (FPS) are used, there should be at least one individual FPS for each flight. The number of FPS for individual flights shall be sufficient to meet the requirements of the ATS unit concerned. Procedures for annotating data and provisions specifying the types of data to be entered on FPS, including the use of symbols, shall be specified by the ATS provider.

3.12.3.5 Data generated automatically shall be presented to the controller in a timely manner. The presentation of information and data for individual flights shall continue until such time as the data is no longer required for the purpose of providing control, including conflict detection and the coordination of flights, or until terminated by the controller

### **3.13 Data Link Communications Initiation Procedures**

#### **3.13.1 General**

*Note 1. — Provisions concerning the data link initiation capability (DLIC) are contained in RCATS- Aeronautical Telecommunication, Volume I*

*Note 2. — Guidance material relating to the implementation of DLIC can be found in the Global Operational Data Link (GOLD) Manual (Doc 10037).*

3.13.1.1 Before entering an airspace where data link applications are used by the ATS unit, data link communications shall be initiated between the aircraft and the ATS unit in order to register the aircraft and, when necessary, allow the start of a data link application. This shall be initiated by the aircraft, either automatically or by the pilot, or by the ATS unit on address forwarding.

3.13.1.2 The logon address associated with an ATS unit shall be published in Aeronautical Information Publications in accordance with Part 25 of civil aviation regulations.

### **3.13.2 Aircraft initiation**

On receipt of a valid data link initiation request from an aircraft approaching or within a data link service area, the ATS unit shall accept the request and, if able to correlate it with a flight plan, shall establish a connection with the aircraft.

### **3.13.3 ATS unit forwarding**

Where the ground system initially contacted by the aircraft is able to pass the necessary aircraft address information to another ATS unit, it shall pass the aircraft updated ground addressing information for data link applications previously coordinated in sufficient time to permit the establishment of data link communications

### **3.13.4 Failure**

3.13.4.1 In the case of a data link initiation failure, the data link system shall provide an indication of the failure to the appropriate ATS unit(s). The data link system shall also provide an indication of the failure to the flight crew when a data link initiation failure results from a logon initiated by the flight crew.

3.13.4.2 The ATS unit shall establish procedures to resolve, as soon as practicable, data link initiation failures.

Procedures should include, as a minimum, verifying that the aircraft is initiating a data link request with the appropriate ATS unit (i.e. the aircraft is approaching or within the ATS unit's control area), and if so:

a) when a flight plan is available, verify that the aircraft identification, aircraft registration, or aircraft address and other details contained in the data link initiation request correspond with

details in the flight plan, and where differences are detected, verify which is the correct information and make the necessary changes; or

b) When a flight plan is not available, create a flight plan with sufficient information in the flight data processing system to achieve a successful data link initiation; then

c) Arrange for the re-initiation of the data link.

3.13.4.3 The aircraft operator shall establish procedures to resolve, as soon as practicable, data link initiation failures. Procedures should include, as a minimum, that the pilot:

a) verify the correctness and consistency of the flight plan information available in the FMS or equipment from which the data link is initiated, and where differences are detected, make the necessary changes;

b) Verify the correct address of the ATS unit; then

c) Re-initiate the data link

### **3.14 Air traffic flow management**

3.14.1 Regulation 22.205 requires the air traffic service certificate holder to establish and implement procedures for flow Control (where applicable) where air traffic demand at times exceeds, or is expected to exceed, the declared capacity of the air traffic control services concerned.

3.14.2 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 ATC 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.

### **3.15 Runway Safety Program**

3.15.1 The ATS provider in coordination with Aerodrome operator to establish and implement runway safety programmes to enhance runway safety using collaborative approach that involves; regulators, aircraft operators, aerodrome operators and air navigation service providers.

The ATS provider shall established and document an agreement/arrangement with an entity doing runway inspection for all the controlled stations if the inspection is done by a person other than ATS provider.

3.15.2 In the event the aerodrome controller, after a take-off clearance or a landing clearance has been issued, becomes aware of a runway incursion or the imminent occurrence thereof, or the existence of any obstruction on or in close proximity to the runway likely to impair the safety of an aircraft taking off or landing, appropriate action shall be taken as follows:

- a) Cancel the take-off clearance for a departing aircraft;
- b) Instruct a landing aircraft to execute a go-around or missed approach;
- c) In all cases inform the aircraft of the runway incursion or obstruction and its location in relation to the runway

3.15.3 Pilots and air traffic controllers shall report any occurrence involving an obstruction on the runway or a runway incursion.

### **3.16 Provision of radar and ADS-B**

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.

### **3.17 Use of surface movement radar (SMR)**

In the absence of visual observation of all or part of the manoeuvring area or to supplement visual observation, surface movement radar (SMR) provided in accordance with the provisions of part 26 of civil aviation regulations, or other suitable surveillance equipment, shall be utilized to:

- a) monitor the movement of aircraft and vehicles on the manoeuvring area;
- b) provide directional information to pilots and vehicle drivers as necessary; and
- c) Provide advice and assistance for the safe and efficient movement of aircraft and vehicles on the manoeuvring area.

### **3.18 Control of persons and vehicles at aerodromes**

3.18.1 Regulation 22.185 (a) (6) requires that in the provision of Aerodrome control services, systems and procedures shall be established to provide for the control of the movement of persons

or vehicles, including towed aircraft. 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 3.18.2, 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.

3.18.2 Emergency vehicles proceeding to the assistance of an aircraft in distress shall be afforded priority over all other surface movement traffic.

3.18.3 Subject to the provisions in 3.18.2, vehicles on the manoeuvring area shall be required to comply with the following rules:

- a) Vehicles and vehicles towing aircraft shall give way to aircraft which are landing, taking off or taxiing;
- b) Vehicles shall give way to other vehicles towing aircraft;
- c) Vehicles shall give way to other vehicles in accordance with ATS unit instructions;
- d) Notwithstanding the provisions of a), b) and c), vehicles and vehicles towing aircraft shall comply with instructions issued by the aerodrome control tower

### **3.19 Read-back of clearances and safety-related information**

3.19.1 With reference to regulation 22.215, 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.

3.19.2 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.

## **Chapter 4 : FLIGHT INFORMATION SERVICE AND ALERTING SERVICE**

Flight information service and alerting service shall be provided as follows:

- a) *Within a flight information region (FIR):* by a flight information centre, unless the responsibility for providing such services is assigned to an air traffic control unit having adequate facilities for the exercise of such responsibilities;
- b) Within controlled airspace and at controlled aerodromes: by the relevant air traffic control units

### **4.1 Scope of flight information service**

4.1.1 Flight information services shall be provided in accordance with regulations 22.230 and 22.235 of civil aviation. More details regarding the provision of flight information services shall be as specified below.

*Note. — Flight information service does not relieve the pilot-in-command of an aircraft of any responsibilities and the Pilot-in-command has to make the final decision regarding any suggested alteration of flight plan.*

4.1.2. Flight information service provided to flights shall include, in addition to that outlined in regulation 22.230 (b) the provision of information concerning:

- a) weather conditions reported or forecast at departure, destination and alternate aerodromes
- b) Collision hazards, to aircraft operating in airspace Classes C, D, E, F and G;
- c) 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

*Note.— It is recognized that in certain circumstances aircraft on final approach, landing, take-off and climb may require to receive without delay essential information other than that pertaining to the provision of air traffic control service*

4.1.3 ATS units shall transmit, as soon as practicable, special air-reports to other aircraft concerned, to the associated meteorological office, and to other ATS units concerned.

4.1.4 Flight information service provided to VFR flights shall include, in addition to that outlined in regulation 22.230 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

## **4.2 Operational flight information service broadcasts**

### **4.2.1 Application**

4.2.1.1 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.

4.2.1.2 Where integrated operational flight information messages are to be transmitted to aircraft, they shall be transmitted with the content and, where specified, in the sequence indicated, for the various phases of flight.

4.2.1.3 Operational flight information service broadcasts, when provided, should consist of messages containing integrated information regarding selected operational and meteorological elements appropriate to the various phases of flight. These broadcasts should be of three major types, i.e. HF, VHF and ATIS.

4.2.1.4 When requested by the pilot, the applicable OFIS message(s) shall be transmitted by the appropriate ATS unit.

### **4.2.2 VHF operational flight information service (OFIS) broadcasts**

4.2.2.1 VHF operational flight information service broadcasts shall be provided as determined by regional air navigation agreements

4.2.2.2 Whenever such broadcasts are provided:

- a) the aerodromes for which reports and forecasts are to be included shall be as determined by regional air navigation agreements;
- b) each aerodrome message shall be identified by the name of the aerodrome to which the information applies;
- c) when information has not been received in time for a broadcast, the latest available information shall be included together with the time of that observation;

- d) the broadcasts shall be continuous and repetitive;
- e) The VHF OFIS broadcast message shall take into consideration human performance. The broadcast message shall, whenever practicable, not exceed five minutes, care being taken that the readability is not impaired by the speed of the transmission;
- f) The broadcast message shall be updated on a scheduled basis as determined by regional air navigation agreements. In addition, it shall be expeditiously updated immediately a significant change occurs; and
- g) the VHF OFIS message shall be prepared and disseminated by the most appropriate unit(s) as designated by the Authority

4.2.2.3 Pending the development and adoption of a more suitable form of speech for universal use in aeronautical radiotelephony communications, VHF OFIS broadcasts concerning aerodromes designated for use by international air services should be available in the English language.

4.2.2.4 VHF operational flight information service broadcast messages shall contain the following information in the sequence indicated:

- a) name of aerodrome;
- b) time of observation;
- c) landing runway;
- d) significant runway surface conditions and, if appropriate, braking action;
- e) changes in the operational state of the radio navigation services, if appropriate;
- f) holding delay, if appropriate;
- g) surface wind direction and speed; if appropriate, maximum wind speed;
- h) visibility and, when applicable, runway visual range (RVR);
- i) present weather;
- j) 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;
- k) air temperature;
- l) dew point temperature;
- m) QNH altimeter setting;
- n) supplementary information on recent weather of operational significance and, where necessary, wind shear;

- o) trend forecast, when available; and
- p) Notice of current SIGMET messages.

#### **4.2.3 Voice-automatic terminal information service (Voice-ATIS) broadcasts**

4.2.3.1 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.

4.2.3.2 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.

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

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

4.2.3.5 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 take-off, whenever the message has not been prepared by that (those) unit(s).

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

#### **4.2.4 Data link-automatic terminal information service (D-ATIS)**

4.2.4.1 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.

4.2.4.1.1 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.

*Note.* — Significant change criteria are specified in RCATS-MET001.

4.2.4.2 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.

#### **4.2.5 Automatic terminal information service (voice and/or data link)**

4.2.5.1 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. Designators assigned to consecutive ATIS messages shall be in alphabetical order;
- e) 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;
- f) 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
- g) The meteorological information shall be extracted from the local meteorological routine or special report.

4.2.5.2 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.

4.2.5.3 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 4.2.5.1 (f) above.

4.2.5.4 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.

4.2.5.5 Contents of ATIS shall be kept as brief as possible

#### **4.2.6 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 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;
- 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.

#### **4.2.7 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 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;
- 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.

#### **4.2.8 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 take-off; status of arresting system constituting a potential hazard, if any;
- g) significant surface conditions of runway(s) to be used for take-off and, if appropriate, braking action;
- h) departure delay, if appropriate;
- i) transition level, if applicable;
- j) other essential operational information;
- k) surface wind direction 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;
- 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.

#### **4.3 Recording and transmission of information on the progress of flights**

Information on the actual progress of flights, including those of heavy or medium unmanned free balloons, under neither air traffic control service nor air traffic advisory service shall be:

- a) Recorded by the air traffic services unit serving the FIR within which the aircraft is flying in such a manner that it is available for reference and in case it is requested for search and rescue action;
- b) Transmitted by the air traffic services unit receiving the information to other air traffic services units concerned, when so required

#### **4.4 Transfer of responsibility for the provision of flight information service**

The responsibility for the provision of flight information service to a flight normally passes from the appropriate ATS unit in an FIR to the appropriate ATS unit in the adjacent FIR at the time of crossing the common FIR boundary. However, when coordination is required, but communication facilities are inadequate, the former ATS unit shall, as far as practicable, continue to provide flight information service to the flight until it has established two-way communication with the appropriate ATS unit in the FIR it is entering

## **4.5 Transmission of information**

### 4.5.1 MEANS OF TRANSMISSION

4.5.1.1 Except as provided in 4.5.2.1, information shall be disseminated to aircraft by one or more of the following means as determined by the ATS provider:

- a) The preferred method of directed transmission on the initiative of the appropriate ATS unit to an aircraft, ensuring that receipt is acknowledged; or
- b) A general call, unacknowledged transmission to all aircraft concerned; or
- c) Broadcast; or
- d) Data link.

4.5.1.2 The use of general calls shall be limited to cases where it is necessary to disseminate essential information to several aircraft without delay, e.g. the sudden occurrence of hazards, a change of the runway-in-use, or the failure of a key approach and landing aid.

### 4.5.2 TRANSMISSION OF SPECIAL AIR-REPORTS, SIGMET AND AIRMET INFORMATION

4.5.2.1 Appropriate SIGMET and AIRMET information, as well as special air-reports which have not been used for the preparation of a SIGMET, shall be disseminated to aircraft by one or more of the means specified in 4.5.1.1 as determined on the basis of regional air navigation agreements. Special air-reports shall be disseminated to aircraft for a period of 60 minutes after their issuance.

### 4.5.3 TRANSMISSION OF INFORMATION CONCERNING VOLCANIC ACTIVITY

Information concerning pre-eruption volcanic activity, volcanic eruptions and volcanic ash clouds (position of clouds and flight levels affected) shall be disseminated to aircraft by one or more of the means specified in 4.5.1.1 as determined on the basis of regional air navigation agreements.

### 4.5.4 TRANSMISSION OF INFORMATION CONCERNING RADIOACTIVE MATERIALS AND TOXIC CHEMICAL CLOUDS

Information on the release into the atmosphere of radioactive materials or toxic chemicals which could affect airspace within the area of responsibility of the ATS unit shall be transmitted to aircraft by one or more of the means specified in 4.5.1.1.

#### 4.5.5 TRANSMISSION OF SPECI AND AMENDED TAF

4.5.5.1 Special reports in the SPECI code form and amended TAF shall be transmitted on request and supplemented by:

- a) directed transmission from the appropriate air traffic services unit of selected special reports and amended TAF for the departure, destination and its alternate aerodromes, as listed in the flight plan; or
- b) A general call on appropriate frequencies for the unacknowledged transmission to affected aircraft of selected special reports and amended TAF; or
- c) Continuous or frequent broadcast or the use of data link to make available current METAR and TAF in areas determined on the basis of regional air navigation agreements where traffic congestion dictates. VOLMET broadcasts and/or D-VOLMET should be used to serve this purpose.

#### 4.5.6 TRANSMISSION OF INFORMATION CONCERNING SPACE WEATHER ACTIVITY

Information on space weather phenomena that have an impact on high frequency radio communications, communications via satellite, GNSS-based navigation and surveillance systems, and/or pose a radiation risk to aircraft occupants at flight levels within the area of responsibility of the ATS unit, shall be transmitted to the affected aircraft by one or more of the means specified in 4.5.1.1.

#### 4.5.7 TRANSMISSION OF INFORMATION ON HEAVY OR MEDIUM UNMANNED FREE BALLOONS

Appropriate information on heavy or medium unmanned free balloons shall be disseminated to aircraft by one or more of the means specified in 4.5.1.1.

### **4.6 Alerting Service**

With reference to reg. 22.245 (d), 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 (where applicable) 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.

#### **4.6.1 Aircraft**

4.6.1.1 When so required by the appropriate ATS authority to facilitate the provision of alerting and search and rescue services, an aircraft, prior to and when operating within or into designated areas or along designated routes, shall comply with the provisions detailed in part 40, concerning the submission, completion, changing and closing of a flight plan.

4.6.1.2 In addition to the above, aircraft equipped with suitable two-way radiocommunications shall report during the period twenty to forty minutes following the time of last contact, whatever the purpose of such contact, merely to indicate that the flight is progressing according to plan, such report to comprise identification of the aircraft and the words “Operations normal” or the signal QRU.

4.6.1.3 The “Operations normal” message shall be transmitted air-ground to an appropriate air traffic services unit (e.g. normally to the aeronautical telecommunication station serving the air traffic services unit in charge of the FIR in which the aircraft is flying, otherwise to another aeronautical telecommunication station to be retransmitted as required to the air traffic services unit in charge of the FIR).

#### **4.6.2 Air traffic services units**

4.6.2.1 When no report from an aircraft has been received within a reasonable period of time (which may be a specified interval prescribed on the basis of regional air navigation agreements) after a scheduled or expected reporting time, the ATS unit shall, within the stipulated period of thirty minutes, endeavour to obtain such report in order to be in a position to apply the provisions relevant to the “Uncertainty Phase” should circumstances warrant such application.

4.6.2.2 When alerting service is required in respect of a flight operated through more than one FIR or control area, and when the position of the aircraft is in doubt, responsibility for coordinating such service shall rest with the ATS unit of the FIR or control area:

- a) Within which the aircraft was flying at the time of last air-ground radio contact;
- b) That the aircraft was about to enter when last air-ground contact was established at or close to the boundary of two FIRs or control areas;
- c) Within which the aircraft's intermediate stop or final destination point is located:
  - 1) If the aircraft was not equipped with suitable two-way radiocommunication equipment; or
  - 2) Was not under obligation to transmit position reports.

4.6.2.3 The unit responsible for alerting service, in accordance with 4.4.3.2, shall:

- a) notify units providing alerting service in other affected FIRs or control areas of the emergency phase or phases, in addition to notifying the rescue coordination centre associated with it;
- b) request those units to assist in the search for any useful information pertaining to the aircraft presumed to be in an emergency, by all appropriate means and especially those indicated in the use of communication facilities;
- c) Collect the information gathered during each phase of the emergency and, after verifying it as necessary, transmit it to the rescue coordination centre;
- d) Announce the termination of the state of emergency as circumstances dictate.

4.6.2.4 In obtaining the necessary information as required under these RCATS, attention shall particularly be given to informing the relevant rescue coordination centre of the distress frequencies available to survivors, as listed in Item 19 of the flight plan but not normally transmitted.

## **Chapter 5 : AIR TRAFFIC SERVICES REQUIREMENTS FOR COMMUNICATIONS**

### **5.1 Aeronautical mobile service (air-ground communications)**

#### **5.1.1 General**

5.1.1.1 Communications are a vital part of the provision of air traffic services (ATS) and their timely and dependable availability have a most significant bearing on the quality of the service provided by ATS. ATS provider shall ensure that a Radiotelephony and/or data link shall be used in air-ground communications for air traffic services purposes.

5.1.1.2 Where an RCP specification has been prescribed by the ATS provider for performance-based communication ATS units shall, in addition to the requirements specified in 5.1.1.1, be provided with communication equipment which will enable them to provide ATS in accordance with the prescribed RCP specification(s)

*Note. — Information on the performance-based communication and surveillance (PBCS) concept and guidance material on its implementation are contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869) `*

5.1.1.3 When direct pilot-controller two-way radiotelephony or data link communications are used for the provision of air traffic control service, shall be automatically recorded for use in accident and incident investigations, search and rescue, air traffic control and surveillance systems evaluation and training. 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. Paper FPS shall be retained for a period of at least 90 days. Electronic flight progress and coordination data shall be recorded and retained for at least the same period of time as specified in regulation 22.135 of civil aviation.

#### **5.1.2 for flight information service**

5.1.2.1 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.

### **5.1.3 for area control service**

5.1.3.1 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).

### **5.1.4 for approach control service**

5.1.4.1 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.

### **5.1.5 for aerodrome control service**

5.1.5.1 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.

## **5.2 Aeronautical fixed service (ground-ground communications)**

### **5.2.1 General**

5.2.1.1 Regulation 22.135 (d) requires ATS provider to use Direct-speech and/or data link communications in ground-ground communications for air traffic services purposes.

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

5.2.2.1 Communications between air traffic services units

5.2.2.1.1 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.

5.2.2.1.2 An area control centre, in addition to being connected to the flight information centre as prescribed in 5.2.2.1.1, 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.

5.2.2.1.3 An approach control unit, in addition to being connected to the flight information centre and the area control centre as prescribed in 5.2.2.1.1 and 5.2.2.1.2, shall have facilities for communications with the associated aerodrome control tower(s) and, when separately established, the associated air traffic services reporting office(s).

5.2.2.1.4 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 5.2.2.1.1, 5.2.2.1.2 and 5.2.2.1.3, shall have facilities for communications with the associated air traffic services reporting office, when separately established.

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

5.2.2.2.1 ATS provider shall ensure that a flight information centre and an area control centre 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.

5.2.2.2.2 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.);
- d) The meteorological office serving the unit concerned;
- e) The aeronautical telecommunications station serving the unit concerned;
- f) The unit providing apron management service, when separately established.

5.2.2.2.3 The communication facilities required under 5.2.2.2.1 a) and 5.2.2.2.2 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.

### **5.2.2.3 Description of communication facilities**

5.2.2.3.1 The communication facilities required under 5.2.2.1, 5.2.2.2.1 a) and 5.2.2.2.2

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.

5.2.2.3.2 In all cases not covered by 5.2.2.3.1, the communication facilities shall include provisions for:

a) communications by direct speech alone, or in combination with data link communications, whereby 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.

5.2.2.3.3 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.

5.2.2.3.4 The communication facilities required under 5.2.2.2.2 a), b) and c) shall include provisions for communications by direct speech arranged for conference communications.

5.2.2.3.5 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 5.2.2.2.1 and 5.2.2.2.2 shall be provided with automatic recording.

5.2.2.3.6 Recordings of any data and communications in ATS systems as required shall be retained for a period of at least ninety days.

### **5.2.3 Communications between flight information regions**

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

5.2.3.1.1 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.

5.2.3.1.2 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.

5.2.3.1.3 When so required by agreement between the Authorities 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 5.2.3.1.2 shall include provisions for direct speech alone, or in combination with data link communications. The communication facilities shall be provided with automatic recording.

5.2.3.2 Wherever local conditions are such that it is necessary to clear aircraft into an adjacent control area prior to departure, an approach control unit and/ or aerodrome control tower shall be connected with the area control centre serving the adjacent area.

5.2.3.3 The communication facilities in 5.2.3.2 shall include provisions for communications by direct speech alone, or in combination with 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.

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

#### **5.2.4 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 Minimum facility requirement shall be as specified in regulation 22.125 of civil aviation regulations

### **5.3 Surface movement control service**

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

5.3.1.1 Regulation 22.185 (a) (6) requires an applicant for the grant of an air traffic service certificate in respect of an aerodrome control service to establish systems and procedures to provide for the control of the movement of persons or vehicles, including towed aircraft, on the manoeuvring area. The ATS provider shall provide 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.

5.3.1.2 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.

5.3.1.3 Recordings of communications as required in 6.3.1.2 shall be retained as specified in regulation 22.135 (c).

### **5.4 Aeronautical radio navigation service**

5.4.1 Automatic recording of surveillance data

Regulation 22.135 (b) (c) requires an applicant to ensure that all facilities for direct-speech or data link communications between ATS units and other units to be provided with automatic recording for 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, for the use in accident and incident investigations, search and rescue, air traffic control and surveillance systems evaluation and training. 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.

### **5.5 Addition materials to be retained**

Written records (flight progress strips, ATS messages, duty logs, etc.) shall be retained for the same period of time (minimum of 90 days)

## **Chapter 6 : AIR TRAFFIC SERVICES REQUIREMENTS FOR INFORMATION**

### **6.1 Meteorological information**

#### **6.1.1 General**

6.1.1.1 Air traffic services units shall be supplied with available detailed information on the location, vertical extent, direction and rate of movement of meteorological phenomena in the vicinity of the aerodrome, and particularly in the climb-out and approach areas, which could be hazardous to aircraft operations.

#### **6.1.2 Flight information centres and area control centres**

6.1.2.1 Flight information centres and area control centres shall be supplied with meteorological information as described in regulation 22.170 of civil aviation regulations and Technical Standards - Aeronautical Meteorological Services, Appendix 9 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.

*Note. — For the purpose of this provision, certain changes in meteorological conditions are construed as deterioration in a weather element, although they are not ordinarily considered as such. An increase in temperature may, for example, adversely affect the operation of certain types of aircraft.*

6.1.2.2 Flight information centres and area control/ approach control unit 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 /approach control unit concerned.

#### **6.1.3 Units providing approach control service**

6.1.3.1 Units providing approach control service shall be supplied with meteorological information as described in regulation 22.170 of civil aviation (Air traffic Services) regulations and Technical standards - Aeronautical Meteorological Services , Appendix 9, 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.

*Note.* — See Note following 6.1.2.1.

6.1.3.2 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

6.1.3.3 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.

6.1.3.4 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.

6.1.3.5 Units providing approach control service for final approach, landing and take-off at aerodromes where the height of cloud base is assessed by instrumental means shall be equipped with display(s) permitting read-out of the current value(s) of the height of cloud base. The displays shall be related to the same location(s) of observations 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.

6.1.3.6 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.

*Note.* — Provisions concerning the issuance of wind shear warnings and alerts and ATS requirements for meteorological information are given in Section III, Chapter 7 and Appendices 6 and 9.

#### **6.1.4 Aerodrome control towers**

6.1.4.1 Aerodrome control towers shall be supplied with meteorological information as described in regulation 22.170 of civil aviation regulations and Technical standards -- Aeronautical Meteorological Services , Appendix 9 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.

*Note.* — See Note following 6.1.2.1.

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

6.1.4.3 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.

6.1.4.4 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.

6.1.4.5 Aerodrome control towers at aerodromes where the height of cloud base is assessed by instrumental means shall be equipped with display(s) permitting read-out of the current value(s) of the height of cloud base. The displays shall be related to the same location(s) of

observations and be fed from the same sensor(s) as the corresponding display(s) in the meteorological station, where such a station exists.

6.1.4.6 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. Aerodrome control towers and/or other appropriate units shall be supplied with aerodrome warnings.

*Note. — The meteorological conditions for which aerodrome warnings are issued are listed in Technical standards-Aeronautical Meteorological Services, Appendix 6.*

### **6.1.5 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/Approach control unit

### **6.2 Information on the operational status of navigation services**

Information on the operational status, and any changes thereto, of radio navigation services and visual aids as required in regulation 22.165 (b) shall be received by the appropriate ATS unit(s) on a timely basis consistent with the use of the service(s) and aid(s) involved.

*Note: Guidance material regarding the provision of information to ATS units in respect to visual and non-visual navigation aids is contained in the Air Traffic Services Planning Manual (Doc 9426). Specifications for monitoring visual aids are contained in Annex 14, Volume I, and related guidance material is in the Aerodrome Design Manual (Doc 9157), Part 5. Specifications for monitoring non-visual aids are contained in Annex 10, Volume I.*

### **6.3 Information on unmanned free balloons**

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 Part 40 of civil aviation regulations.



## **Chapter 7 : ATS SURVEILLANCE SERVICES**

Where an ATS surveillance system is used to support the provision of an air traffic service, an applicant for the grant of an air traffic service certificate shall establish procedures in accordance with regulation 22.350 of civil aviation and the Civil Aviation Technical Standards (RCATS) in this chapter

### **7.1 ATS Surveillance Systems Capabilities**

ATS surveillance systems used in the provision of air traffic services shall have capabilities in accordance with reg.22.350 (a) and as given below;

7.1.1 SSR systems, especially those utilizing monopulse techniques or having Mode S capability or MLAT, may be used alone, including in the provision of separation between aircraft, provided:

- a) The carriage of SSR transponders is mandatory within the area; and
- b) Identification is established and maintained.

7.1.2 ADS-B shall only be used for the provision of air traffic control service provided the quality of the information contained in the ADS-B message exceeds the values specified by the ATS Provider.

7.1.3 ADS-B may be used alone, including in the provision of separation between aircraft, provided:

- a) Identification of ADS-B-equipped aircraft is established and maintained;
- b) The data integrity measure in the ADS-B message is adequate to support the separation minimum;
- c) There is no requirement for detection of aircraft not transmitting ADS-B; and
- d) There is no requirement for determination of aircraft position independent of the position-determining elements of the aircraft navigation system.

7.1.4 In accordance with reg.22.350 (b), the provision of ATS surveillance services shall be limited to specified areas of coverage and shall be subject to such other limitations as have been specified by the ATS provider. Adequate information on the operating methods used shall be published in aeronautical information publications, as well as operating practices and/or equipment limitations having direct effects on the operation of the air traffic services.

*Note.* — *The ANSP will provide information on the area or areas where PSR, SSR, ADS-B and MLAT systems are in use as well as ATS surveillance services and procedures in accordance with RCATS-AIS), Appendix 3.*

## **7.2 Situation Display**

7.2.1 A situation display providing surveillance information to the controller shall, as a minimum, include position indications, map information required to provide ATS surveillance services and, where available, information concerning the identity of the aircraft and the aircraft level.

7.2.2 The ATS surveillance system shall provide for a continuously updated presentation of surveillance information, including position indications.

7.2.3 Where surveillance data quality degrades such that services need to be limited, symbology or other means shall be used to provide the controller with an indication of the condition.

7.2.4 Reserved SSR codes, including 7500, 7600 and 7700, operation of IDENT, ADS-B emergency and/or urgency modes, safety-related alerts and warnings as well as information related to automated coordination shall be presented in a clear and distinct manner, providing for ease of recognition.

## **7.3 Communications**

7.3.1 the level of reliability and availability of communications systems shall be such that the possibility of system failures or significant degradations is very remote. Adequate backup facilities shall be provided.

*Note.* — *Guidance material and information pertaining to system reliability and availability are contained in RCATS- Telecommunication services).*

7.3.2 Direct pilot-controller communications shall be established prior to the provision of ATS surveillance services, unless special circumstances, such as emergencies, dictate otherwise.

## **7.4 Provision of ATS Surveillance Services**

7.4.1 The number of aircraft simultaneously provided with ATS surveillance services shall not exceed that which can safely be handled under the prevailing circumstances, taking into account:

- a) The structural complexity of the control area or sector concerned;
- b) The functions to be performed within the control area or sector concerned;
- c) Assessments of controller workloads, taking into account different aircraft capabilities, and sector capacity; and
- d) The degree of technical reliability and availability of the primary and backup communications, navigation and surveillance systems, both in the aircraft and on the ground.

## **7.5 Use of SSR Transponders and ADS-B Transmitters**

### **7.5.1 General**

To ensure the safe and efficient use of ATS surveillance services, pilots and controllers shall strictly adhere to published operating procedures and standard radiotelephony phraseology shall be used. The correct setting of transponder codes and/or aircraft identification shall be ensured at all times.

### **7.5.2 SSR code management**

7.5.2.1 Codes 7700, 7600 and 7500 shall be reserved internationally for use by pilots encountering a state of emergency, radio-communication failure or unlawful interference, respectively.

7.5.2.2 SSR codes are to be allocated and assigned in accordance with the following principles.

7.5.2.2.1 The ATS provider shall establish a plan and procedures for the allocation of codes to ATS units

7.5.2.2.2 Codes shall be assigned to aircraft in accordance with the plan and procedures laid down by the  
ATS provider.

7.5.2.2.3 Where there is a need for individual aircraft identification, each aircraft shall be assigned a discrete code which should, whenever possible, be retained throughout the flight.

7.5.2.2.4 Except for aircraft in a state of emergency, or during communication failure or unlawful interference situations, and unless otherwise agreed by regional air navigation agreement or between a transferring and an accepting ATC unit, the transferring unit shall assign Code A2000 to a controlled flight prior to transfer of communications.

7.5.2.3 SSR codes shall be reserved, as necessary, for exclusive use by medical aircraft operating in areas of international armed conflict. SSR codes shall be allocated by ICAO through its Regional Offices in coordination with States concerned and should be assigned to aircraft for use within the area of conflict.

### 7.5.3 Operation of SSR transponders

7.5.3.1 When it is observed that the Mode A code shown on the situation display is different to what has been assigned to the aircraft, the pilot shall be requested to confirm the code selected and, if the situation warrants (e.g. not being a case of unlawful interference), to reselect the correct code.

7.5.3.2 If the discrepancy between assigned and displayed Mode A codes still persists, the pilot may be requested to stop the operation of the aircraft's transponder. The next control position and any other affected unit using SSR and/or MLAT in the provision of ATS shall be informed accordingly.

7.5.3.3 Aircraft equipped with Mode S having an aircraft identification feature shall transmit the aircraft identification as specified in Item 7 of the ICAO flight plan or, when no flight plan has been filed, the aircraft registration.

7.5.3.4 Whenever it is observed on the situation display that the aircraft identification transmitted by a Mode S-equipped aircraft is different from that expected from the aircraft, the pilot shall be requested to confirm and, if necessary, re-enter the correct aircraft identification.

7.5.3.5 If, following confirmation by the pilot that the correct aircraft identification has been set on the Mode S identification feature, the discrepancy continues to exist, the following actions shall be taken by the controller:

a) Inform the pilot of the persistent discrepancy;

b) Where possible, correct the label showing the aircraft identification on the situation display;  
and c) notify the erroneous aircraft identification transmitted by the aircraft to the next control position and any other interested unit using Mode S for identification purposes.

#### **7.5.4 Operation of ADS-B transmitters**

7.5.4.1 Aircraft equipped with ADS-B having an aircraft identification feature shall transmit the aircraft identification as specified in Item 7 of the ICAO flight plan or, when no flight plan has been filed, the aircraft registration.

7.5.4.2 Whenever it is observed on the situation display that the aircraft identification transmitted by an ADS-B-equipped aircraft is different from that expected from the aircraft, the pilot shall be requested to confirm and, if necessary, re-enter the correct aircraft identification.

7.5.4.3 If, following confirmation by the pilot that the correct aircraft identification has been set on the ADS-B identification feature, the discrepancy continues to exist, the following actions shall be taken by the controller:

- a) Inform the pilot of the persistent discrepancy;
- b) Where possible, correct the label showing the aircraft identification on the situation display;  
and
- c) Notify the next control position and any other unit concerned of the erroneous aircraft identification transmitted by the aircraft.

#### **7.5.5 Level information based on the use of pressure-altitude information**

##### **7.5.5.1 VERIFICATION OF LEVEL INFORMATION**

7.5.5.1.1 The tolerance value used to determine that pressure-altitude-derived level information displayed to the controller is accurate shall be  $\pm 60$  m ( $\pm 200$  ft) in RVSM airspace. In other airspace, it shall be  $\pm 90$  m ( $\pm 300$  ft), except that the appropriate ATS authority may specify a smaller criterion, but not less than  $\pm 60$  m ( $\pm 200$  ft), if this is found to be more practical. Geometric height information shall not be used for separation.

7.5.5.1.2 Verification of pressure-altitude-derived level information displayed to the controller shall be effected at least once by each suitably equipped ATC unit on initial contact with the

aircraft concerned or, if this is not feasible, as soon as possible thereafter. The verification shall be effected by simultaneous comparison with altimeter-derived level information received from the same aircraft by radiotelephony. The pilot of the aircraft whose pressure-altitude-derived level information is within the approved tolerance value need not be advised of such verification. Geometric height information shall not be used to determine if altitude differences exist.

7.5.5.1.3 If the displayed level information is not within the approved tolerance value or when a discrepancy in excess of the approved tolerance value is detected subsequent to verification, the pilot shall be advised accordingly and requested to check the pressure setting and confirm the aircraft's level.

#### **7.5.5.2 DETERMINATION OF LEVEL OCCUPANCY**

7.5.5.2.1 The criterion which shall be used to determine that a specific level is occupied by an aircraft shall be  $\pm 60$  m ( $\pm 200$  ft) in RVSM airspace. In other airspace, it shall be  $\pm 90$  m ( $\pm 300$  ft), except that the ATS provider may specify a smaller criterion, but not less than  $\pm 60$  m ( $\pm 200$  ft), if this is found to be more practical.

7.5.5.2.2 *Aircraft maintaining a level.* An aircraft is considered to be maintaining its assigned level as long as the pressure-altitude-derived level information indicates that it is within the appropriate tolerances of the assigned level, as specified in 7.5.5.2.1.

7.5.5.2.3 *Aircraft vacating a level.* An aircraft cleared to leave a level is considered to have commenced its manoeuvre and vacated the previously occupied level when the pressure-altitude-derived level information indicates a change of more than 90 m (300 ft) in the anticipated direction from its previously assigned level.

7.5.5.2.4 *Aircraft passing a level in climb or descent.* An aircraft in climb or descent is considered to have crossed a level when the pressure-altitude-derived level information indicates that it has passed this level in the required direction by more than 90 m (300 ft).

7.5.5.2.5 *Aircraft reaching a level.* An aircraft is considered to have reached the level to which it has been cleared when the elapsed time of three display updates, three sensor updates or 15 seconds, whichever is the greater, has passed since the pressure-altitude-derived level

information has indicated that it is within the appropriate tolerances of the assigned level, as specified in 7.5.5.2.1.

7.5.5.2.6 Intervention by a controller shall only be required if differences in level information between that displayed to the controller and that used for control purposes are in excess of the values stated above.

## **7.6 General Procedures**

### **7.6.1 Performance checks**

7.6.1.1 The controller shall adjust the situation display(s) and carry out adequate checks on the accuracy thereof, in accordance with the technical instructions prescribed by the appropriate authority for the equipment concerned.

7.6.1.2 The controller shall be satisfied that the available functional capabilities of the ATS surveillance system as well as the information presented on the situation display(s) is adequate for the functions to be performed.

7.6.1.3 The controller shall report, in accordance with local procedures, any fault in the equipment, or any incident requiring investigation, or any circumstances which make it difficult or impractical to provide ATS surveillance services.

### **7.6.2 Identification of aircraft**

#### **7.6.2.1 ESTABLISHMENT OF IDENTIFICATION**

7.6.2.1.1 Before providing an ATS surveillance service to an aircraft, identification shall be established and the pilot informed. Thereafter, identification shall be maintained until termination of the ATS surveillance service.

7.6.2.1.2 If identification is subsequently lost, the pilot shall be informed accordingly and, when applicable, appropriate instructions issued.

7.6.2.1.3 Identification shall be established by at least one of the methods specified in ADS-B Identification Procedures, SSR and/or MLAT Identification Procedures, PSR Identification Procedures and Additional Identification Method.

7.6.2.2 When a discrete code has been assigned to an aircraft, a check shall be made at the earliest opportunity to ensure that the code set by the pilot is identical to that assigned for the

flight. Only after this check has been made shall the discrete code be used as a basis for identification

### **7.6.3 Transfer of radar identification**

7.6.3.1 Transfer of identification shall be effected by one of the following methods:

- a) Designation of the position indication by automated means, provided that only one position indication is thereby indicated and there is no possible doubt of correct identification;
- b) Notification of the aircraft's discrete SSR code or aircraft address;
- c) Notification that the aircraft is SSR Mode S-equipped with an aircraft identification feature when SSR Mode S coverage is available;
- d) Notification that the aircraft is ADS-B-equipped with an aircraft identification feature when compatible ADS-B coverage is available;
- e) Direct designation (pointing with the finger) of the position indication, if the two situation displays are adjacent, or if a common "conference" type of situation display is used;

*Note.* — Attention must be given to any errors which might occur due to parallax effects.

- f) designation of the position indication by reference to, or in terms of bearing and distance from, a geographical position or navigational facility accurately indicated on both situation displays, together with the track of the observed position indication if the route of the aircraft is not known to both controllers;
- g) Where applicable, issuance of an instruction to the aircraft by the transferring controller to change SSR code and the observation of the change by the accepting controller; or
- h) Issuance of an instruction to the aircraft by the transferring controller to squawk/transmit IDENT and observation of this response by the accepting controller.

### **7.6.4 Position information**

7.6.4.1 Position information shall be passed to aircraft in one of the following forms:

- a) As a well-known geographical position;
- b) Magnetic track and distance to a significant point, an en-route navigation aid, or an approach aid;
- c) Direction (using points of the compass) and distance from a known position;
- d) Distance to touchdown, if the aircraft is on final approach; or

e) Distance and direction from the centre line of an ATS route.

7.6.4.2 Whenever practicable, position information shall relate to positions or routes pertinent to the navigation of the aircraft concerned and shown on the situation display map.

7.6.4.3 When so informed, the pilot may omit position reports at compulsory reporting points or report only over those reporting points specified by the air traffic services unit concerned. Unless automated position reporting is in effect (e.g. ADS-C), pilots shall resume voice or CPDLC position reporting:

- a) When so instructed;
- b) When advised that the ATS surveillance service has been terminated; or
- c) When advised that identification is lost.

### **7.6.5 Vectoring**

7.6.5.1 Vectoring shall be achieved by issuing to the pilot specific headings which will enable the aircraft to maintain the desired track. When vectoring an aircraft, a controller shall comply with the following:

a) whenever practicable, the aircraft shall be vectored along tracks on which the pilot can monitor the aircraft position with reference to pilot-interpreted navigation aids (this will minimize the amount of navigational assistance required and alleviate the consequences resulting from an ATS surveillance system failure);

b) except when transfer of control is to be effected, aircraft shall not be vectored closer than 4.6 km (2.5 NM) or, where the minimum permissible separation is greater than 9.3 km (5 NM), a distance equivalent to one-half of the prescribed separation minimum, from the limit of the airspace for which the controller is responsible, unless local arrangements have been made to ensure that separation will exist with aircraft operating in adjoining areas;

c) controlled flights shall not be vectored into uncontrolled airspace except in the case of emergency or in order to circumnavigate adverse meteorological conditions (in which case the pilot should be so informed), or at the specific request of the pilot; and

d) when an aircraft has reported unreliable directional instruments, the pilot shall be requested, prior to the issuance of manoeuvring instructions, to make all turns at an agreed rate and to carry out the instructions immediately upon receipt.);

7.6.5.2 When vectoring an IFR flight and when giving an IFR flight a direct routing which takes the aircraft off an ATS route, the controller shall issue clearances such that the prescribed obstacle clearance will exist at all times until the aircraft reaches the point where the pilot will resume own navigation. When necessary, the relevant minimum vectoring altitude shall include a correction for low temperature effect

7.6.5.4 Operators are required to report incidents involving activations of aircraft ground proximity warning systems so that their locations can be identified and altitude, routing and/or aircraft operating procedures can be altered to prevent recurrences.

7.6.5.5 In terminating vectoring of an aircraft, the controller shall instruct the pilot to resume own navigation, giving the pilot the aircraft's position and appropriate instructions, as necessary, in the form prescribed in 7.6.4.1 b), if the current instructions had diverted the aircraft from a previously assigned route.

## **7.6.6 Navigation assistance**

7.6.6.1 An identified aircraft observed to deviate significantly from its intended route or designated holding pattern shall be advised accordingly. Appropriate action shall also be taken if, in the opinion of the controller, such deviation is likely to affect the service being provided.

7.6.6.2 The pilot of an aircraft requesting navigation assistance from an air traffic control unit providing ATS surveillance services shall state the reason (e.g. to avoid areas of adverse weather or unreliable navigational instruments) and shall give as much information as possible in the circumstances

## **7.6.7 Interruption or termination of ATS surveillance service**

7.6.7.1 An aircraft which has been informed that it is provided with ATS surveillance service shall be informed immediately when, for any reason, the service is interrupted or terminated.

7.6.7.2 When the control of an identified aircraft is to be transferred to a control sector that will provide the aircraft with procedural separation, the transferring controller shall ensure that appropriate procedural separation is established between that aircraft and any other controlled aircraft before the transfer is effected.

### **7.6.8 Minimum levels**

7.6.8.1 The controller shall at all times be in possession of full and up-to-date information regarding:

- a) Established minimum flight altitudes within the area of responsibility;
- b) The lowest usable flight level or levels determined; and
- c) Established minimum altitudes applicable to procedures based on tactical vectoring.

7.6.8.2 Unless otherwise specified by the ATS provider, minimum altitudes for procedures based on tactical vectoring with any ATS surveillance system shall be determined using the criteria applicable to tactical radar vectoring.

## **7.7 Use of ATS Surveillance Systems in the Air Traffic Control Service**

### **7.7.1 Separation application**

7.7.1.1 Except as provided for in Doc. 4444, 8.7.2.8, 8.7.2.9 and 8.8.2.2, the separation minima specified in Doc.4444, 8.7.3 shall only be applied between identified aircraft when there is reasonable assurance that identification will be maintained.

7.7.1.2 When control of an identified aircraft is to be transferred to a control sector that will provide the aircraft with procedural separation, such separation shall be established by the transferring controller before the aircraft reaches the limits of the transferring controller's area of responsibility, or before the aircraft leaves the relevant area of surveillance coverage.

7.7.1.3 When authorized by the ATS Provider, separation based on the use of ADS-B, SSR and/or MLAT, and/or PSR position symbols and/or PSR blips shall be applied so that the distance between the centres of the position symbols and/or PSR blips, representing the positions of the aircraft concerned, is never less than a prescribed minimum.

7.7.1.4 Separation based on the use of PSR blips and SSR responses shall be applied so that the distance between the centre of the PSR blip and the nearest edge of the SSR response (or centre, when authorized by the ATS provider) is never less than a prescribed minimum.

7.7.1.5 Separation based on the use of ADS-B position symbols and SSR responses shall be applied so that the distance between the centre of the ADS-B position symbol and the nearest edge of the SSR response (or the centre, when authorized by the ATS Provider) is never less than a prescribed minimum.

7.7.1.6 Separation based on the use of SSR responses shall be applied so that the distance between the closest edges of the SSR responses (of the centres, when authorized by the appropriate ATS authority) is never less than a prescribed minimum.

7.7.1.7 In no circumstances shall the edges of the position indications touch or overlap unless vertical separation is applied between the aircraft concerned, irrespective of the type of position indication displayed and separation minimum applied.

7.7.1.8 The separation minima specified in Doc.4444, 8.7.3 shall not be applied between aircraft holding over the same holding fix. Application of ATS surveillance system separation minima based on radar and/or ADS-B and/or MLAT systems between holding aircraft and other flights shall be subject to requirements and procedures prescribed by the ATS provider.7.7.3 The Separation minima based on ATS surveillance systems shall be applied in accordance with Doc.4444, 8.7.3

## **7.7.2 Transfer of control**

7.7.2.1 The minimum agreed separation between aircraft about to be transferred and the advance notice shall be determined taking into account all relevant technical, operational and other circumstances.

## **7.7.3 Emergencies, Hazards and Equipment Failures**

### **7.7.3.1 Emergencies**

7.7.3.1.1 In the event of an aircraft in, or appearing to be in, any form of emergency, every assistance shall be provided by the controller, and the procedures prescribed herein may be varied according to the situation.

7.7.3.1.2 The progress of an aircraft in emergency shall be monitored and (whenever possible) plotted on the situation display until the aircraft passes out of coverage of the ATS surveillance system, and position information shall be provided to all air traffic services units which may be able to give assistance to the aircraft. Transfer to adjacent sectors shall also be effected when appropriate

7.7.3.1.3 Whenever a general ADS-B emergency alert is observed on the situation display and there is no other indication of the particular nature of the emergency, the controller shall take the following action:

- a) Attempt to establish communication with the aircraft to verify the nature of the emergency;
- or
- b) If no response is received from the aircraft, the controller shall attempt to ascertain if the aircraft is able to receive transmissions from the air traffic control unit by requesting it to execute a specified manoeuvre which can be observed on the situation display.

### **7.7.3.2 Collision hazard information**

7.7.3.2.1 When an identified controlled flight is observed to be on a conflicting path with an unknown aircraft deemed to constitute a collision hazard, the pilot of the controlled flight shall, whenever practicable:

- a) be informed of the unknown aircraft, and if so requested by the controlled flight or if, in the opinion of the controller, the situation warrants, a course of avoiding action should be suggested; and
- b) Be notified when the conflict no longer exists.

7.7.3.2.2 When the pressure-altitude-derived level information has been verified, the information shall be passed to pilots in a clear and unambiguous manner.

### **7.7.3.3 Failure of equipment**

#### **7.7.3.3.1 AIRCRAFT RADIO TRANSMITTER FAILURE**

7.7.3.3.1.1 If two-way communication is lost with an aircraft, the controller may determine whether or not the aircraft's receiver is functioning by instructing the aircraft on the channel so far used to acknowledge by making aspecified manoeuvre and by observing the aircraft's track, or by instructing the aircraft to operate IDENT or to make SSR code and/or ADS-B transmission changes.

7.7.3.3.1.2 If the action prescribed in 7.7.3.3.1.1 is unsuccessful, it shall be repeated on any other available channel on which it is believed that the aircraft might be listening.

7.7.3.3.1.3 In both the cases covered by 7.7.3.3.1.1 and 7.7.3.3.1.2, any manoeuvring instructions shall be such that the aircraft would regain its current cleared track after having complied with the instructions received.

#### **7.7.3.4 ATS surveillance system failure**

7.7.3.4.1 In the event of complete failure of the ATS surveillance system where air-ground communications remain, the controller shall plot the positions of all aircraft already identified, take the necessary action to establish procedural separation between the aircraft and, if necessary, limit the number of aircraft permitted to enter the area

#### **7.7.3.5 Degradation of aircraft position source data**

In order to reduce the impact of a degradation of aircraft position source data, for example, a receiver autonomous integrity monitoring (RAIM) outage for GNSS, the ATS provider shall establish contingency procedures to be followed by control positions and ATC units in the event of data degradation.

#### **7.7.3.6 Ground radio failure**

7.7.3.6.1 In the event of complete failure of the ground radio equipment used for control, the controller shall, unless able to continue to provide the ATS surveillance service by means of other available communication channels, proceed as follows:

a) Without delay inform all adjacent control positions or ATC units, as applicable, of the failure;

- b) Apprise such positions or units of the current traffic situation;
- c) Request their assistance, in respect of aircraft which may establish communications with those positions or units, in establishing and maintaining separation between such aircraft; and
- d) Instruct adjacent control positions or ATC units to hold or re-route all controlled flights outside the area of responsibility of the position or ATC unit that has experienced the failure until such time that the provision of normal services can be resumed.

#### **7.7.4 Use of ATS Surveillance Systems in the Approach Control Service and Aerodrome Control Service**

In accordance with reg. 22.350 (a) (1) the use of ATS surveillance systems used in the provision of approach control service and Aerodrome Control Service shall be in accordance with Doc.4444, 8.9 and 8.10

## Chapter 8 PROCEDURES FOR AERODROME CONTROL SERVICE

### 8.1 Functions of Aerodrome Control Towers

#### 8.1.1 General

8.1.1.1 In Accordance with reg.22.185 Aerodrome control towers shall issue information and clearances to aircraft under their control to achieve a safe, orderly and expeditious flow of air traffic on and in the vicinity of an aerodrome with the object of preventing collision(s) between:

- a) Aircraft flying within the designated area of responsibility of the control tower, including the aerodrome traffic circuits;
- b) Aircraft operating on the manoeuvring area;
- c) Aircraft landing and taking off;
- d) Aircraft and vehicles operating on the manoeuvring area;
- e) Aircraft on the manoeuvring area and obstructions on that area.

8.1.1.2 In accordance with reg. 22.185 (5) (6) Aerodrome controllers shall maintain a continuous watch on all flight operations on and in the vicinity of an aerodrome as well as vehicles and personnel on the manoeuvring area. Watch shall be maintained by visual observation, augmented when available by an ATS surveillance system. Traffic shall be controlled in accordance with the procedures set forth herein and all applicable traffic rules specified by the ATS provider. If there are other aerodromes within a control zone, traffic at all aerodromes within such a zone shall be coordinated so that traffic circuits do not conflict. Visual observation shall be achieved through direct out-of-the-window observation, or through indirect observation utilizing a visual surveillance system where applicable.

*Note. — Provisions for the use of an ATS surveillance system in the aerodrome control service are contained in*

*Chapter 7 above.*

8.1.1.3 The functions of an aerodrome control tower may be performed by different control or working positions, such as:

- a) Aerodrome controller, normally responsible for operations on the runway and aircraft flying within the area of responsibility of the aerodrome control tower;

- b) Ground controller, normally responsible for traffic on the manoeuvring area with the exception of runways;
- c) Clearance delivery position, normally responsible for delivery of start-up and ATC clearances to departing IFR flights, if applicable.

### **8.1.2 Alerting service provided by aerodrome control towers**

8.1.2.1 Aerodrome control towers are responsible for alerting the rescue and fire fighting services whenever:

- a) An aircraft accident has occurred on or in the vicinity of the aerodrome; or
- b) Information is received that the safety of an aircraft which is or will come under the jurisdiction of the aerodrome control tower may have or has been impaired; or
- c) Requested by the flight crew; or
- d) When otherwise deemed necessary or desirable.

8.1.2.2 Procedures concerning the alerting of the rescue and fire fighting services shall be contained in local instructions. Such instructions shall specify the type of information to be provided to the rescue and fire fighting services, including type of aircraft and type of emergency and, when available, number of persons on board, and any dangerous goods carried on the aircraft.

8.1.2.3 Aircraft which fail to report after having been transferred to an aerodrome control tower, or, having once reported, cease radio contact and in either case fail to land five minutes after the expected landing time, shall be reported to the approach control unit, ACC or flight information centre if separate, or to the rescue coordination centre or rescue sub-centre, in accordance with local instructions

### **8.1.3 Failure or irregularity of aids and equipment**

In accordancy with reg.22.130 of Civil aviation regulations, Aerodrome control towers shall immediately report in accordance with local instructions any failure or irregularity of operation in any equipment, light or other device established at an aerodrome for the guidance of aerodrome traffic and flight crews or required for the provision of air traffic control service

## **8.2 Selection of Runway-In-Use**

8.2.1 The term “runway-in-use” shall be used to indicate the runway or runways that, at a particular time, are considered by the aerodrome control tower to be the most suitable for use by the types of aircraft expected to land or take off at the aerodrome.

8.2.2 Normally, an aircraft will land and take off into wind unless safety, the runway configuration, meteorological conditions and available instrument approach procedures or air traffic conditions determine that a different direction is preferable. In selecting the runway-in-use, however, the unit providing aerodrome control service shall take into consideration, besides surface wind speed and direction, other relevant factors such as the aerodrome traffic circuits, the length of runways, and the approach and landing aids available.

8.2.3 A runway for take-off or landing, appropriate to the operation, may be nominated for noise abatement purposes, the objective being to utilize whenever possible those runways that permit aeroplanes to avoid noise-sensitive areas during the initial departure and final approach phases of flight.

8.2.4 A pilot-in-command, prompted by safety concerns, can refuse a runway offered for noise-preferential reasons.

8.2.5 Noise abatement shall not be a determining factor in runway nomination under the following circumstances:

a) If the runway surface conditions are adversely affected (e.g. by snow, slush, ice, water, mud, rubber, oil or other substances);

b) For landing in conditions:

1) when the ceiling is lower than 150 m (500 ft) above aerodrome elevation, or the visibility is less than 1 900 m; or

2) When the approach requires use to be made of vertical minima greater than 100 m (300 ft) above aerodrome elevation and:

i) The ceiling is lower than 240 m (800 ft) above aerodrome elevation; or

ii) The visibility is less than 3 000 m;

c) For take-off when the visibility is less than 1 900 m;

d) When wind shear has been reported or forecast or when thunderstorms are expected to affect the approach or departure; and

e) When the crosswind component, including gusts, exceeds 28 km/h (15 kt), or the tailwind component, including gusts, exceeds 9 km/h (5 kt).

### **8.3 Initial Call to Aerodrome Control Tower**

For aircraft being provided with aerodrome control service, the initial call shall contain:

- a) Designation of the station being called;
- b) Call sign and, for aircraft in the heavy wake turbulence category, the word “Heavy”;
- c) Position; and
- d) Additional elements, as required by the ATS provider

### **8.4 Information to aircraft by Aerodrome Control Towers**

#### **8.4.1 Information related to the operation of aircraft**

##### **8.4.1.1 START-UP TIME PROCEDURES**

8.4.1.1.1 A start-up clearance shall only be withheld under circumstances or conditions specified by the ATS provider, if a start-up clearance is withheld, the flight crew shall be advised of the reason.

##### **8.4.1.2 Aerodrome and Meteorological Information**

8.4.1.2.1 In accordance with reg.22.170 (f), prior to taxiing for take-off, aircraft shall be advised of the following elements of information, in the order listed, with the exception of such elements which it is known the aircraft has already received:

- a) The runway to be used;
- b) The surface wind direction and speed, including significant variations therefrom;
- c) The QNH altimeter setting and, either on a regular basis in accordance with local arrangements or if so requested by the aircraft, the QFE altimeter setting;
- d) The air temperature for the runway to be used, in the case of turbine-engined aircraft;

- e) The visibility representative of the direction of take-off and initial climb, if less than 10 km, or, when applicable, the RVR value(s) for the runway to be used;
- f) The correct time.

8.4.1.2.2 Prior to take-off aircraft shall be advised of:

- a) Any significant changes in the surface wind direction and speed, the air temperature, and the visibility or RVR value(s) given in accordance with 7.4.1.2.1;
- b) significant meteorological conditions in the take-off and climb-out area, except when it is known that the information has already been received by the aircraft.

8.4.1.2.3 Prior to entering the traffic circuit or commencing its approach to land, an aircraft shall be provided with the following elements of information, in the order listed, with the exception of such elements which it is known the aircraft has already received:

- a) The runway to be used;
- b) The surface wind direction and speed, including significant variations therefrom;
- c) The QNH altimeter setting and, either on a regular basis in accordance with local arrangements or if so requested by the aircraft, the QFE altimeter setting

### **8.4.1.3 Essential Local Traffic Information**

8.4.1.3.1 In accordance with reg.22.180 (g) (6) of civil aviation regulation, Information on essential local traffic shall be issued in a timely manner, either directly or through the unit providing approach control service when, in the judgement of the aerodrome controller, such information is necessary in the interests of safety, or when requested by aircraft.

8.4.1.3.2 Essential local traffic shall be considered to consist of any aircraft, vehicle or personnel on or near the manoeuvring area, or traffic operating in the vicinity of the aerodrome, which may constitute a hazard to the aircraft concerned.

8.4.1.3.3 Essential local traffic shall be described so as to be easily identified.

#### 8.4.1.4 Uncertainty of Position on the Manoeuvring Area

8.4.1.4.1 Except as provided for in 8.4.1.4.2, a pilot in doubt as to the position of the aircraft with respect to the manoeuvring area shall immediately:

- a) Stop the aircraft; and
- b) Simultaneously notify the appropriate ATS unit of the circumstances (including the last known position).

8.4.1.4.2 In those situations where a pilot is in doubt as to the position of the aircraft with respect to the manoeuvring area, but recognizes that the aircraft is on a runway, the pilot shall immediately:

- a) Notify the appropriate ATS unit of the circumstances (including the last known position);
- b) If able to locate a nearby suitable taxiway, vacate the runway as expeditiously as possible, unless otherwise instructed by the ATS unit; and then,
- c) Stop the aircraft.

8.4.1.4.3 A vehicle driver in doubt as to the position of the vehicle with respect to the manoeuvring area shall immediately:

- a) Notify the appropriate ATS unit of the circumstances (including the last known position);
- b) Simultaneously, unless otherwise instructed by the ATS unit, vacate the landing area, taxiway, or other part of the manoeuvring area, to a safe distance as expeditiously as possible; and then,
- c) Stop the vehicle.

8.4.1.4.4 In the event the aerodrome controller becomes aware of an aircraft or vehicle that is lost or uncertain of its position on the manoeuvring area, appropriate action shall be taken immediately to safeguard operations and assist the aircraft or vehicle concerned to determine its position.

#### **8.4.1.5 Abnormal Aircraft Configuration and Condition**

8.4.1.5.1 Whenever an abnormal configuration or condition of an aircraft, including conditions such as landing gear not extended or only partly extended, or unusual smoke emissions from

any part of the aircraft, is observed by or reported to the aerodrome controller, the aircraft concerned shall be advised without delay

## **8.5 Essential Information on Aerodrome Conditions**

8.5.1 In accordance with reg.22.165 (c) Essential information on aerodrome conditions is information necessary to safety in the operation of aircraft, which pertains to the movement area or any facilities usually associated therewith. For example, construction work on a taxi strip not connected to the runway-in-use would not be essential information to any aircraft except one that might be taxied in the vicinity of the construction work. As another example, if all traffic must be confined to runways, that fact should be considered as essential aerodrome information to any aircraft not familiar with the aerodrome.

8.5.2 Essential information on aerodrome conditions shall include information relating to the following:

- a) Construction or maintenance work on, or immediately adjacent to the movement area;
- b) Rough or broken surfaces on a runway, a taxiway or an apron, whether marked or not;
- c) Snow, slush or ice on a runway, a taxiway or an apron;
- d) Water on a runway, a taxiway or an apron;
- e) Snow banks or drifts adjacent to a runway, a taxiway or an apron;
- f) Other temporary hazards, including parked aircraft and birds on the ground or in the air;
- g) Failure or irregular operation of part or all of the aerodrome lighting system;
- h) Any other pertinent information

8.5.3 Essential information on aerodrome conditions shall be given to every aircraft, except when it is known that the aircraft already has received all or part of the information from other sources. The information shall be given in sufficient time for the aircraft to make proper use of it, and the hazards shall be identified as distinctly as possible.

8.5.4 When a not previously notified condition pertaining to the safe use by aircraft of the manoeuvring area is reported to or observed by the controller, the appropriate aerodrome authority shall be informed and operations on that part of the manoeuvring area terminated until otherwise advised by the appropriate aerodrome authority.

## **8.6 Control of Aerodrome Traffic**

### **8.6.1 General**

As the view from the flight deck of an aircraft is normally restricted, the controller shall ensure that instructions and information which require the flight crew to employ visual detection, recognition and observation are phrased in a clear, concise and complete manner.

### **8.6.2 Traffic on the manoeuvring area**

#### 8.6.2.1 Control of Taxiing Aircraft

##### 8.6.2.1.1 *Taxi Clearance*

8.6.2.1.1.1 Prior to issuing a taxi clearance, the controller shall determine where the aircraft concerned is parked. Taxi clearances shall contain concise instructions and adequate information so as to assist the flight crew to follow the correct taxi routes, to avoid collision with other aircraft or objects and to minimize the potential for the aircraft inadvertently entering an active runway.

8.6.2.1.1.2 When a taxi clearance contains a taxi limit beyond a runway, it shall contain an explicit clearance to cross or an instruction to hold short of that runway.

8.6.2.1.2.2 If the control tower is unable to determine, either visually or via an ATS surveillance system that a vacating or crossing aircraft has cleared the runway, the aircraft shall be requested to report when it has vacated the runway. The report shall be made when the entire aircraft is beyond the relevant runway-holding position

##### 8.6.2.1.3 *Use of Runway-Holding Positions*

8.6.2.1.3.1 Except as provided in 8.6.2.1.3.2 or as prescribed by the ATS provider, aircraft shall not be held closer to a runway-in-use than at a runway-holding position.

8.6.2.1.3.2 Aircraft shall not be permitted to line up and hold on the approach end of a runway-in-use whenever another aircraft is effecting a landing, until the landing aircraft has passed the point of intended holding

#### 8.6.2.2 Control of other than Aircraft Traffic

##### 8.6.2.2.1 *Entry to the Manoeuvring Area*

The movement of pedestrians or vehicles on the manoeuvring area shall be subject to authorization by the aerodrome control tower. Persons, including drivers of all vehicles, shall be required to obtain authorization from the aerodrome control tower before entry to the manoeuvring area. Notwithstanding such an authorization, entry to a runway or runway strip or change in the operation authorized shall be subject to a further specific authorization by the aerodrome control tower.

##### 8.6.2.2.2 *Priority on the Manoeuvring Area*

8.6.2.2.2.1 in accordance with reg.22.200 of civil aviation all vehicles and pedestrians shall give way to aircraft which are landing, taxiing or taking off, except that emergency vehicles proceeding to the assistance of an aircraft in distress shall be afforded priority over all other surface movement traffic. In the latter case, all movement of surface traffic should, to the extent practicable, be halted until it is determined that the progress of the emergency vehicles will not be impeded.

8.6.2.2.2.2 When an aircraft is landing or taking off, vehicles shall not be permitted to hold closer to the runway-in-use than:

- a) at a taxiway/runway intersection — at a runway-holding position; and
- b) at a location other than a taxiway/runway intersection — at a distance equal to the separation distance of the runway-holding position.

##### 8.6.2.2.3 *Communication Requirements and Visual Signals*

8.6.2.2.3.1 At controlled aerodromes all vehicles employed on the manoeuvring area shall be capable of maintaining two-way radiocommunication with the aerodrome control tower, except when the vehicle is only occasionally used on the manoeuvring area and is:

- a) Accompanied by a vehicle with the required communications capability; or
- b) Employed in accordance with a pre-arranged plan established with the aerodrome control tower.

8.6.2.2.3.2 When communications by a system of visual signals is deemed to be adequate, or in the case of radiocommunication failure, the signals given hereunder shall have the meaning indicated therein:

## **Chapter 9 COORDINATION**

### **9.1 Coordination in respect of the provision of Air Traffic Control Service**

#### **9.1.1 General**

9.1.1.1 The coordination and transfer of control of a flight between successive ATC units and control sectors shall be effected by a dialogue comprising the following stages:

- a) Notification of the flight in order to prepare for coordination, as necessary;
- b) Coordination of conditions of transfer of control by the transferring ATC unit;
- c) Coordination, if necessary, and acceptance of conditions of transfer of control by the accepting ATC unit; and
- d) The transfer of control to the accepting ATC unit or control sector

9.1.1.2 Such agreements and instructions shall cover the following as applicable:

- a) Definition of areas of responsibility and common interest, airspace structure and airspace classification(s);
- b) Any delegation of responsibility for the provision of ATS;
- c) Procedures for the exchange of flight plan and control data, including use of automated and/or verbal coordination messages;
- d) Means of communication;
- e) Requirements and procedures for approval requests;
- f) Significant points, levels or times for transfer of control;
- g) Significant points, levels or times for transfer of communication;
- h) conditions applicable to the transfer and acceptance of control, such as specified altitudes/flight levels, specific separation minima or spacing to be established at the time of transfer, and the use of automation;
- i) ATS surveillance system coordination procedures;
- j) SSR code assignment procedures;
- k) Procedures for departing traffic;
- l) Designated holding fixes and procedures for arriving traffic;
- m) Applicable contingency procedures; and

n) Any other provisions or information relevant to the coordination and transfer of control of flights

### **9.1.2 Coordination between ATC units providing air traffic service within contiguous control areas**

#### 9.1.2.1 GENERAL

9.1.2.1.1 ATC units shall forward from unit to unit, as the flight progresses, necessary flight plan and control information. When so required by agreement between the appropriate ATS authorities to assist in the separation of aircraft, flight plan and flight progress information for flights along specified routes or portions of routes in close proximity to flight information region boundaries shall also be provided to the ATC units in charge of the flight information regions adjacent to such routes or portions of routes.

9.1.2.1.2 The flight plan and control information shall be transmitted in sufficient time to permit reception and analysis of the data by the receiving unit(s) and necessary coordination between the units concerned.

#### 9.1.2.2 Transfer of Control

9.1.2.2.1 The responsibility for the control of an aircraft shall be transferred from the ATC unit to the next unit at the time of crossing the common control area boundary as determined by the unit having control of the aircraft or at such other point or time as has been agreed between the two units.

9.1.2.2.2 Where specified in letters of agreement between the ATC units concerned, and when transferring an aircraft, the transferring unit shall notify the accepting unit that the aircraft is in position to be transferred, and specify that the responsibility for control should be assumed by the accepting unit forthwith at the time of crossing the control boundary or other transfer control point specified in letters of agreement between the ATC units or at such other point or time coordinated between the two units.

9.1.2.2.3 If the transfer of control time or point is other than forthwith, the accepting ATC unit shall not alter the clearance of the aircraft prior to the agreed transfer of control time or point without the approval of the transferring unit.

9.1.2.2.4 If transfer of communication is used to transfer an aircraft to a receiving ATC unit, responsibility for control shall not be assumed until the time of crossing the control area boundary or other transfer of control point specified in letters of agreement between the ATC units.

9.1.2.2.5 When transfer of control of identified aircraft is to be effected, the appropriate procedures specified in Section 7.7.4 of this standards, shall be applied.

#### 9.1.2.3 APPROVAL REQUESTS

9.1.2.3.1 If the flying time from the departure aerodrome of an aircraft to the boundary of an adjacent control area is less than the specified minimum required to permit transmission of the necessary flight plan and control information to the accepting ATC unit after take-off and allow adequate time for reception, analysis and coordination, the transferring ATC unit shall, prior to departure, forward that information to the accepting ATC unit together with a request for approval. The required time period shall be specified in letters of agreement or local instructions, as appropriate. In the case of revisions to a previously transmitted current flight plan, and control data being transmitted earlier than this specified time period, no approval from the accepting ATC unit shall be required.

9.1.2.3.2 In the case of an aircraft in flight requiring an initial clearance when the flying time to the boundary of an adjacent control area is less than a specified minimum, the aircraft shall be held within the transferring ATC unit's control area until the flight plan and control information have been forwarded together with a request for approval, and coordination effected, with the adjacent ATC unit.

9.1.2.3.3 In the case of an aircraft requesting a change in its current flight plan, or of a transferring ATC unit proposing to change the current flight plan of an aircraft, and the flying

time of the aircraft to the control area boundary is less than a specified minimum, the revised clearance shall be withheld pending approval of the proposal by the adjacent ATC unit.

9.1.2.3.4 When boundary estimate data are to be transmitted for approval by the accepting unit, the time in respect of an aircraft not yet departed shall be based upon the estimated time of departure as determined by the ATC unit in whose area of responsibility the departure aerodrome is located. In respect of an aircraft in flight requiring an initial clearance, the time shall be based on the estimated elapsed time from the holding fix to the boundary plus the time expected to be needed for coordination.

9.1.2.3.5 The conditions, including specified flying times, under which approval requests shall be forwarded, shall be specified in letters of agreement or local instructions as appropriate.

#### **9.1.2.4 Transfer of Communication**

9.1.2.4.1 Except when separation minima specified in 8.7.3 are being applied, the transfer of air-ground communications of an aircraft from the transferring to the accepting ATC unit shall be made five minutes before the time at which the aircraft is estimated to reach the common control area boundary, unless otherwise agreed between the two ATC units concerned.

9.1.2.4.2 When separation minima specified in 7.7.3 are being applied at the time of transfer of control, the transfer of air-ground communications of an aircraft from the transferring to the accepting ATC unit shall be made immediately after the accepting ATC unit has agreed to assume control.

9.1.2.4.3 The accepting ATC unit shall normally not be required to notify the transferring unit that radio and/or data communication has been established with the aircraft being transferred and that control of the aircraft has been assumed, unless otherwise specified by agreement between the ATC units concerned. The accepting ATC unit shall notify the transferring unit in the event that communication with the aircraft is not established as expected.

9.1.2.4.4 The intermediate unit shall retain responsibility for coordination and for ensuring that separation is maintained between all traffic within its area of responsibility

#### 9.1.2.5 TERMINATION OF CONTROLLED FLIGHT

In the case where a flight ceases to be operated as a controlled flight, i.e. by leaving controlled airspace or by cancelling its IFR flight and proceeding on VFR in airspace where VFR flights are not controlled, the ATC unit concerned shall ensure that appropriate information on the flight is forwarded to ATS unit(s) responsible for the provision of flight information and alerting services for the remaining portion of the flight, in order to ensure that such services will be provided to the aircraft.

### **9.1.3 Coordination between a unit providing area control service and a unit providing approach control service**

#### 9.1.3.1 Division of Control

9.1.3.1.1 Except when otherwise specified in letters of agreement or local instructions, or by the ACC concerned in individual cases, a unit providing approach control service may issue clearances to any aircraft released to it by an ACC without reference to the ACC. However, when an approach has been missed the ACC shall, if affected by the missed approach, be advised immediately and subsequent action coordinated between the ACC and the unit providing approach control service as necessary.

9.1.3.1.2 An ACC may, after coordination with the unit providing approach control service, release aircraft directly to aerodrome control towers if the entire approach will be made under visual meteorological conditions.

#### 9.1.3.2 Take-Off and Clearance Expiry Times

9.1.3.2.1 Time of take-off shall be specified by the ACC when it is necessary to:

- a) Coordinate the departure with traffic not released to the unit providing approach control service; and
- b) Provide en-route separation between departing aircraft following the same track.

9.1.3.2.2 If time of take-off is not specified, the unit providing approach control service shall determine the take-off time when necessary to coordinate the departure with traffic released to it.

9.1.3.2.3 A clearance expiry time shall be specified by the ACC if a delayed departure would conflict with traffic not used to clear the unit providing approach control service. If, for traffic reasons of its own, a unit providing approach control service has to specify in addition its own clearance expiry time, this shall not be later than that specified by the ACC.

### 9.1.3.3 Exchange of Movement and Control Data

9.1.3.3.1 The unit providing approach control service shall keep the ACC promptly advised of pertinent data on controlled traffic such as:

- a) Runway (s)-in-use and expected type of instrument approach procedure;
- b) Lowest vacant level at the holding fix available for use by the ACC;
- c) Average time interval or distance between successive arrivals as determined by the unit providing approach control service;
- d) Revision of the expected approach time issued by the ACC when the calculation of the expected approach time by the unit providing approach control service indicates a variation of five minutes or such other time as has been agreed between the two ATC units concerned;
- e) Arrival times over the holding fix when these vary by three minutes, or such other time as has been agreed between the two ATC units concerned, from those previously estimated;
- f) Cancellations by aircraft of IFR flight, if these will affect levels at the holding fix or expected approach times of other aircraft;
- g) Aircraft departure times or, if agreed between the two ATC units concerned, the estimated time at the control area boundary or other specified point;
- h) All available information relating to overdue or unreported aircraft;
- i) Missed approaches which may affect the ACC.

9.1.3.3.2 The ACC shall keep the unit providing approach control service promptly advised of pertinent data on controlled traffic such as:

- a) Identification, type and point of departure of arriving aircraft;
- b) Estimated time and proposed level of arriving aircraft over holding fix or other specified point;

- c) Actual time and proposed level of arriving aircraft over holding fix if aircraft is released to the unit providing approach control service after arrival over the holding fix;
- d) Requested type of IFR approach procedure if different to that specified by the approach control unit;
- e) Expected approach time issued;
- f) When required, statement that aircraft has been instructed to contact the unit providing approach control service;
- g) when required, statement that an aircraft has been released to the unit providing approach control service including, if necessary, the time and conditions of release;
- h) Anticipated delay to departing traffic due to congestion.

9.1.3.3.3 Information on arriving aircraft shall be forwarded not less than fifteen minutes before estimated time of arrival and such information shall be revised as necessary.

#### **9.1.4 Coordination between a unit providing approach control service and a unit providing aerodrome control service**

##### **9.1.4.1 DIVISION OF CONTROL**

9.1.4.1.1 A unit providing approach control service shall retain control of arriving aircraft until such aircraft have been transferred to the aerodrome control tower and are in communication with the aerodrome control tower. Letters of agreement or local instructions, appropriate to the airspace structure, terrain, meteorological conditions and ATS facilities available, shall establish rules for the transfer of arriving aircraft.

9.1.4.1.2 Aerodrome control towers shall, when so prescribed in letters of agreement or local instructions, obtain approval from the unit providing approach control service prior to authorizing operation of special VFR flights.

##### **9.1.4.2 Exchange of Movement and Control Data**

9.1.4.2.1 An aerodrome control tower shall keep the unit providing approach control service promptly advised of pertinent data on relevant controlled traffic such as:

- a) Arrival and departure times;

- b) When required, statement that the first aircraft in an approach sequence is in communication with and is sighted by the aerodrome control tower, and that reasonable assurance exists that a landing can be accomplished;
- c) All available information relating to overdue or unreported aircraft;
- d) Information concerning missed approaches;
- e) Information concerning aircraft that constitute essential local traffic to aircraft under the control of the unit providing approach control service.

9.1.4.2.2 The unit providing approach control service shall keep the aerodrome control tower promptly advised of pertinent data on controlled traffic such as:

- a) Estimated time and proposed level of arriving aircraft over the aerodrome, at least fifteen minutes prior to estimated arrival;
- b) When required, a statement that an aircraft has been instructed to contact the aerodrome control tower and that control shall be assumed by that unit;
- c) Anticipated delay to departing traffic due to congestion.

### **9.1.5 Coordination between control positions within the same unit**

9.1.5.1 Appropriate flight plan and control information shall be exchanged between control positions within the same air traffic control unit, in respect of:

- a) All aircraft for which responsibility for control will be transferred from one control position to another;
- b) Aircraft operating in such close proximity to the boundary between control sectors that control of traffic within an adjacent sector may be affected;
- c) All aircraft for which responsibility for control has been delegated by a controller using procedural methods to a controller using an ATS surveillance system, as well as other aircraft affected.

9.1.5.2 Procedures for coordination and transfer of control between control sectors within the same ATC unit shall conform to the procedures applicable to ATC units.

## **9.2 Coordination in respect of the provision of Flight Information Service and Alerting Service**

9.2.1 Where this is deemed necessary by the appropriate ATS authority or authorities, coordination between ATS units providing flight information service in adjacent FIRs shall be effected in respect of IFR and VFR flights, in order to ensure continued flight information service to such aircraft in specified areas or along specified routes. Such coordination shall be effected in accordance with an agreement between the ATS units concerned.

9.2.2 Where coordination of flights is effected in accordance with 10.2.1, this shall include transmission of the following information on the flight concerned:

- a) Appropriate items of the current flight plan; and
- b) The time at which last contact was made with the aircraft concerned.

9.2.3 This information shall be forwarded to the ATS unit in charge of the next FIR in which the aircraft will operate prior to the aircraft entering such FIR.

9.2.4 When so required by agreement between the appropriate ATS authorities to assist in the identification of strayed or unidentified aircraft and thereby eliminate or reduce the need for interception, flight plan and flight progress information for flights along specified routes or portions of routes in close proximity to FIR boundaries shall also be provided to the ATS units in charge of the FIRs adjacent to such routes or portions of routes.

9.2.5 In circumstances where an aircraft has declared minimum fuel or is experiencing an emergency or in any other situation wherein the safety of the aircraft is not assured, the type of emergency and/or the circumstances experienced by the aircraft shall be reported by the transferring unit to the accepting unit and any other ATS unit that may be concerned with the flight and to the associated rescue coordination centres, if necessary

### **9.3 Coordination between Air Traffic Services Units and Aeronautical Telecommunication Stations**

When so prescribed by the appropriate ATS authority, ATS units shall ensure that the aeronautical telecommunications stations serving the centres concerned are informed regarding transfers of communications contact by aircraft. Unless otherwise provided, information to be made available shall comprise the identification of the aircraft (including SELCAL code, when necessary), the route or destination (where necessary), and the expected or actual time of communications transfer.

## **Chapter 10 MISCELLANEOUS PROCEDURES**

### **10.1 Responsibility in regard to Military Traffic**

10.1.1 It is recognized that some military aeronautical operations necessitate non-compliance with certain air traffic procedures. In order to ensure the safety of flight operations the appropriate military authorities shall be asked, whenever practicable, to notify the proper air traffic control unit prior to undertaking such manoeuvres.

10.1.2 A reduction of separation minima required by military necessity or other extraordinary circumstances shall only be accepted by an air traffic control unit when a specific request in some recorded form has been obtained from the authority having jurisdiction over the aircraft concerned and the lower minima then to be observed shall apply only between those aircraft. Some recorded form of instruction fully covering this reduction of separation minima must be Issued by the air traffic control unit concerned.

10.1.3 Aircraft shall not be flown in formation except by prearrangement among the pilots-in-command of the aircraft taking part in the flight and , for formation flight in controlled airspace, in accordance with the following conditions;

- a) The formation operates as a single aircraft with regard to navigation and position reporting;
- b) separation between aircraft in the flight shall be the responsibility of the flight leader and the pilots-in-command of the other aircraft in the flight and shall include periods of transition when aircraft are maneuvering to attain their own separation within the formation and during join-up and breakaway; and
- c) A distance not exceeding 0.5NM laterally and longitudinally and 100ft vertically from the flight leader shall be maintained by each aircraft.

10.1.4 Temporary airspace reservation, either stationary or mobile, may be established for the use of large formation flights or other military air operations. Arrangements for the reservation

of such airspace shall be accomplished by coordination between the user and the ATS provider. The coordination shall be effected in accordance with the provisions of Part 22 of civil aviation regulations and this Standards and shall be completed early enough to permit timely promulgation of information in accordance with the provisions of Part 25 of Civil aviation regulations and Technical standards for Aeronautical Information Services.

## **10.2 Responsibility in regard to Unmanned Free Balloons**

10.2.1 On receipt of notification of the intended flight of a medium or heavy unmanned free balloon, the air traffic services unit shall arrange for the information to be disseminated to all concerned. The information shall include:

- a) The balloon flight identification or project code name;
- b) Balloon classification and description;
- c) SSR code or NDB frequency as applicable;
- d) The launch site;
- e) The estimated time of the commencement of the launch or the planned period of the launches;
- f) The expected direction of ascent;
- g) The cruising level(s) (pressure-altitude); and
- h) The estimated elapsed time to pass 18 000 m (60 000 ft) pressure-altitude, or to reach cruising level if at or below 18 000 m (60 000 ft), together with the estimated location.

10.2.2 On receipt of notification that a medium or heavy unmanned free balloon has been launched, the air traffic services unit shall arrange for the information to be disseminated to all concerned. The information shall include:

- a) The balloon flight identification or project code name;
- b) Balloon classification and description;
- c) SSR code or NDB frequency as applicable;
- d) The launch site;
- e) The time of launch (es);
- f) The estimated time at which 18 000 m (60 000 ft) pressure-altitude will be passed, or the estimated time at which the cruising level will be reached if at or below 18 000 m (60 000 ft), and the estimated location;
- g) The estimated date and time of termination of the flight; and
- h) The planned location of ground contact, when applicable.

10.2.3 When there is reasonable expectation that a heavy or medium unmanned free balloon will cross international borders, the appropriate ATS unit shall arrange for the pre-launch and the launch notifications to be sent by NOTAM to the ATS unit(s) in the State(s) concerned. If agreed between the States concerned, the launch notification may be transmitted orally by direct ATS speech circuit between the ACCs/flight information centres involved.

10.2.4 Air traffic services units shall maintain radar and/or ADS-B surveillance of medium and heavy unmanned free balloons to the extent possible and, if necessary and on the request of the pilot of an aircraft, provide separation using an ATS surveillance system between the aircraft and such balloons which are identified or their exact position is known.

### **10.3 Air Traffic Incident Report**

10.3.1 An air traffic incident report shall be submitted, normally to the air traffic services unit concerned, for incidents specifically related to the provision of air traffic services involving such occurrences as aircraft proximity (AIRPROX), or other serious difficulty resulting in a hazard to aircraft, caused by, among others, faulty procedures, non-compliance with procedures, or failure of ground facilities.

10.3.2 Aircraft accidents and incidents are often reported through ATS channels, such reports and any associated information shall be recorded by the unit concerned and forwarded to the Authority (RCAA).

*Note. — A model air traffic incident report form together with instructions for its completion is at Appendix 5. Further information regarding air traffic incidents is contained in the Air Traffic Services Planning Manual (Doc 9426)*

10.3.3 The following categories of occurrences, which are not exhaustive and only serve as guidance, shall be reported to FSS:

- a) Accidents, for example:
  - i) Mid Air collision
  - ii) Controlled Flight into Terrain (CFIT)
  - iii) Collision on the ground between aircraft

- iv) Collision between an airborne aircraft and vehicle/ another aircraft on the ground
- v) Collision on the ground between aircraft and vehicle, person, or obstructions(s)
- vi) Other accidents of special interest would include” losses of control in flight”, due to VORTEX or meteorological conditions

b) Incidents, for example

i) Instances of near collision (encompassing specific situations where one aircraft and another aircraft/ground terrain/vehicle/person or object are to be too close to each other) such as:

- Separation minima infringement
- Runway incursion where avoiding action was necessary

ii) Controlled flight into terrain only marginally avoided.

iii) Take-offs or aborted take-offs on a closed or engaged runway, on a taxiway or unassigned runway.

iv) Landings or attempted landings on a closed or engaged runway, on a taxiway or unassigned runway

v) Take-off or landing incidents. Incidents such as undershooting, overrunning or running off the side of runways.

vi) Potential for collision or near collision (encompassing specific situations having the potential to be an accident or a near collision, if another aircraft is in the vicinity):

- Runway incursion where no avoiding action is necessary
- Aircraft deviation from ATC clearance
- Aircraft deviation from applicable published ATM regulation
  - Aircraft deviation from applicable published ATM procedures
  - Unauthorized penetration of airspace
  - Deviation from aircraft ATM-related equipment carriage and operations, as mandated in applicable regulations(s)

10.3.5 The example of incidents given in 10.3.3 (b) above may be classified as serious incidents depending on the severity and the risk posed by the occurrences.

#### **10.4 Notification of suspected communicable diseases, or other public health risk, on Board an aircraft**

10.4.1 The flight crew of an en-route aircraft shall, upon identifying a suspected case(s) of communicable disease, or other public health risk, on board the aircraft, promptly notify the ATS unit with which the pilot is communicating, the information listed below:

- a) Aircraft identification;
- b) Departure aerodrome;
- c) Destination aerodrome;
- d) estimated time of arrival;
- e) Number of persons on board;
- f) Number of suspected case(s) on board; and
- g) Nature of the public health risk, if known.

The pilot-in-command of an aircraft shall ensure that a suspected communicable disease is reported promptly to air traffic control, in order to facilitate provision for the presence of any special medical personnel and equipment necessary for the management of public health risks on arrival.

10.4.2 The ATS unit, upon receipt of information from a pilot regarding suspected case(s) of communicable disease, or other public health risk, on board the aircraft, shall forward a message as soon as possible to the ATS unit serving the destination/departure, unless procedures exist to notify the appropriate authority designated by the State and the aircraft operator or its designated representative.

10.4.3 When a report of a suspected case(s) of communicable disease, or other public health risk, on board an aircraft is received by an ATS unit serving the destination/departure, from another ATS unit or from an aircraft or an aircraft operator, the unit concerned shall forward a message as soon as possible to the public health authority (PHA) or the appropriate authority (RCAA) as well as the aircraft operator or its designated representative, and the aerodrome authority

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

(Chapter 2, Sections 2.7 and 2.12 refer)

*Note - See Appendix 3 concerning the identification of standard departure and arrival routes and associated procedures. Guidance material on the establishment of these routes and procedures is contained in the Air Traffic Services Planning Manual (ICAO Doc 9426).*

### 1. Designators for ATS routes and navigation specifications

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:

- a) 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;
- b) to relate an ATS route to a specific vertical structure of the airspace, as applicable;
- c) to indicate a required level of navigation performance accuracy, when operating along an ATS route or within a specified area; and
- d) to indicate that a route is used primarily or exclusively by certain types of aircraft.

*Note 1.— Specifications concerning the publication of navigation specifications are given in Annex 4, Chapter 7, and PANS-AIM (Doc 10066), Appendix 2.*

*Note 2. — In relation to this appendix and for flight planning purposes, a prescribed navigation specification is not considered an integral part of the ATS route designator.*

1.2 In order to meet this purpose, the designation system shall:

- a) permit the identification of any ATS route in a simple and unique manner;

- b) avoid redundancy;
- c) be usable by both ground and airborne automation systems;
- d) permit utmost brevity in operational use; and
- e) 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:

- a) one prefix as prescribed in 2.3; and
- b) 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) A, B, G, R for routes which form part of the regional networks of ATS routes and are not area navigation routes;
- b) L, M, N, P for area navigation routes which form part of the regional networks of ATS routes;
- c) H, J, V, W for routes which do not form part of the regional networks of ATS routes and are not area navigation routes;

- d) 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 appropriate ATS provider 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.

*Note 1. — Due to limitations in the display equipment on board aircraft, the supplementary letters “F” or “G” may not be displayed to the pilot.*

*Note 2.— Implementation of a route or a portion thereof as controlled route, advisory route or flight information route is indicated in aeronautical charts and aeronautical information publications in accordance with the provisions in Part III of this Manual.*

### **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, State or regions traversed.

*Note.— This is of particular importance where automated ATS data processing and computerized airborne navigation equipment is used.*

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 Rwanda's requirements for designators shall be notified 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

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

*(Chapter 2, Section 2.14 refers)*

### **1. Establishment of significant points**

1.1 Significant points shall, whenever possible, be established with reference to ground based radio navigation aids, preferably VHF or higher frequency aids.

1.2 Where such refresher-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.

*Note. — When two radio navigation aids operating in different bands of the frequency spectrum are situated at the same location, their radio identifications are normally the same.*

2.3 The Authority's requirements for coded designators shall be notified 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 fiveletter pronounceable “name-code”. This name-code designator then serves as the name as well as the coded designator of the significant point.

*Note.— The principles governing the use of alphanumeric name-codes in support of RNAV SIDs, STARs and instrument approach procedures are detailed in PANS-OPS (ICAO Doc 8168).*

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 the Authority 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’s requirements for name-code designators shall be notified 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.

5.3 Reporting points shall be established either as “compulsory” or as “on-request”.

5.4 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.

5.5 “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.

5.6 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.

5.7 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, lowflying 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.

5.8 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

*Note.* — Material relating to the establishment of standard departure and arrival routes and associated procedures is contained in the Air Traffic Services Planning Manual (ICAO Doc 9426).

#### **1. Designators for standard departure and arrival routes and associated procedures**

*Note.* — In the following text the term “route” is used in the meaning of “route 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 selfcontained 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

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.

*Note.* — Limitations in the display equipment on board aircraft may require shortening of the basic indicator, if that indicator is a five-letter name-code, e.g. KODAP. The manner in which such an indicator is shortened is left to the discretion of operators.

### **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      BRECON ONE  
    Designator:        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                    KODAP     TWO     ALPHA  
designator:                            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 a 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            ADOLA FIVE BRAVO  
Designator                    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 Manual of Aerodrome Standards, Volume I, 5.2.2.

### 6.2 Coded designator

6.2.1 The coded designator of an MLS/RNAV approach procedure shall consist of:

- a) “MLS”; followed by
- b) the coded designator or name-code of the significant point described in 6.1.1 b); followed by
- c) the validity indicator in 6.1.1 c); followed by
- d) the route indicator in 6.1.1 d); followed by
- e) 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:*

- a) Plain language      MLS HAPPY ONE ALPHA  
    Designator:              APPROACH RUNWAY ONE EIGHT LEFT
- b) 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.

*Note.* — For the purpose of identification of routes, the words “departure”, “arrival” and “Visual” described in 2.1.1 d) and 2.1.1 e) are considered to be an integral element of the plain language designator.

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.

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

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

\* When the height of the transition altitude is lower than 3 050 m (10 000 ft) AMSL, FL 100 should be used in lieu of 10 000 ft.



## **APPENDIX 5 AIR TRAFFIC INCIDENT REPORT**

1 Air traffic incident report form

2 Instructions for the completion of the air traffic incident report form

1 Air traffic incident report form

For use when submitting and receiving reports on air traffic incidents. In an initial report by radio, shaded items shall be included.

<b>A - AIRCRAFT IDENTIFICATION</b>	<b>B - TYPE OF INCIDENT</b>
	AIRPROX / PROCEDURE / FACILITY*

**C - THE INCIDENT**

<b>1.</b>	<b>General</b>	
a)	Date / time of incident	UTC
b)	Position	

<b>2.</b>	<b>Own aircraft</b>	
a)	Heading and route	
b)	True airspeed	measured in <input type="checkbox"/> kt <input type="checkbox"/> km/h
c)	Level and altimeter setting	/
d)	Aircraft climbing or descending	
	<input type="checkbox"/> Level flight	<input type="checkbox"/> Climbing <input type="checkbox"/> Descending
e)	Aircraft bank angle	
	<input type="checkbox"/> Wings level	<input type="checkbox"/> Slight bank <input type="checkbox"/> Moderate bank
	<input type="checkbox"/> Steep bank	<input type="checkbox"/> Inverted <input type="checkbox"/> Unknown
f)	Aircraft direction of bank	
	<input type="checkbox"/> Left	<input type="checkbox"/> Right <input type="checkbox"/> Unknown
g)	Restrictions to visibility ( select as many as required)	
	<input type="checkbox"/> Sunglare	<input type="checkbox"/> Windscreen pillar <input type="checkbox"/> Dirty windscreen
	<input type="checkbox"/> Other cockpit structure	<input type="checkbox"/> None
h)	Use of aircraft lighting ( select as many as required)	
	<input type="checkbox"/> Navigation lights	<input type="checkbox"/> Strobe lights <input type="checkbox"/> Cabin lights
	<input type="checkbox"/> Red anti-collision lights	<input type="checkbox"/> Landing / taxi lights <input type="checkbox"/> Logo (tail fin) lights
	<input type="checkbox"/> Other	<input type="checkbox"/> None
i)	Traffic avoidance advice issued by ATS	
	<input type="checkbox"/> Yes, based on radar	<input type="checkbox"/> Yes, based on visual sighting <input type="checkbox"/> Yes, based on other information
	<input type="checkbox"/> No	
j)	Traffic information issued	
	<input type="checkbox"/> Yes, based on radar	<input type="checkbox"/> Yes, based on visual sighting <input type="checkbox"/> Yes, based on other information
	<input type="checkbox"/> No	
k)	Airborne collision avoidance system - ACAS	
	<input type="checkbox"/> Not carried	<input type="checkbox"/> Type <input type="checkbox"/> Traffic advisory issued
	<input type="checkbox"/> Resolution advisory issued	<input type="checkbox"/> Traffic advisory or resolution advisory not issued

l)	Radar identification	<input type="checkbox"/> No radar available	<input type="checkbox"/> Radar identification	<input type="checkbox"/> No radar identification
m)	Other aircraft sighted	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Wrong aircraft sighted
n)	Avoiding action taken	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
o)	Type of flight plan	<input type="checkbox"/> IFR	<input type="checkbox"/> VFR	<input type="checkbox"/> none*

3.	Other aircraft			
a)	Type and call sign / registration (if known)			
b)	If a) above not known, describe below			
	<input type="checkbox"/> High wing	<input type="checkbox"/> Mid wing	<input type="checkbox"/> Low wing	
	<input type="checkbox"/> Rotorcraft			
	<input type="checkbox"/> 1 engine	<input type="checkbox"/> 2 engines	<input type="checkbox"/> 3 engines	
	<input type="checkbox"/> 4 engines	<input type="checkbox"/> More than 4 engines		
	Making, colour or other available details			
c)	Aircraft climbing or descending	<input type="checkbox"/> Level flight	<input type="checkbox"/> Climbing	<input type="checkbox"/> Descending
		<input type="checkbox"/> Unknown		
d)	Aircraft bank angle	<input type="checkbox"/> Wings level	<input type="checkbox"/> Slight bank	<input type="checkbox"/> Moderate bank
		<input type="checkbox"/> Steep bank	<input type="checkbox"/> Inverted	<input type="checkbox"/> Unknown
e)	Aircraft direction of bank	<input type="checkbox"/> Left	<input type="checkbox"/> Right	<input type="checkbox"/> Unknown
f)	Lights displayed	<input type="checkbox"/> Navigation lights	<input type="checkbox"/> Strobe lights	<input type="checkbox"/> Cabin lights
		<input type="checkbox"/> Red anti-collision lights	<input type="checkbox"/> Landing / taxi lights	<input type="checkbox"/> Logo (tail fin) lights
		<input type="checkbox"/> Other	<input type="checkbox"/> None	<input type="checkbox"/> Unknown
g)	Traffic avoidance advice issued by ATS	<input type="checkbox"/> Yes, based on radar	<input type="checkbox"/> Yes, based on visual sighting	<input type="checkbox"/> Yes, based on other information
		<input type="checkbox"/> No	<input type="checkbox"/> Unknown	
h)	Traffic information issued	<input type="checkbox"/> Yes, based on radar	<input type="checkbox"/> Yes, based on visual sighting	<input type="checkbox"/> Yes, based on other information
		<input type="checkbox"/> No	<input type="checkbox"/> Unknown	
i)	Avoiding action taken	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown

<b>4.</b>	<b>Distance</b>
a)	Closest horizontal distance _____
b)	Closest vertical distance _____

<b>5.</b>	<b>Flight weather conditions</b>
a)	<input type="checkbox"/> IMC / <input type="checkbox"/> VMC*
b)	<input type="checkbox"/> Above / <input type="checkbox"/> below* clouds <input type="checkbox"/> fog <input type="checkbox"/> haze or <input type="checkbox"/> between layers*
c)	Distance vertically from cloud _____ m / ft* below _____ m / ft* above
d)	<input type="checkbox"/> In cloud <input type="checkbox"/> rain <input type="checkbox"/> snow <input type="checkbox"/> sleet <input type="checkbox"/> fog <input type="checkbox"/> haze*
e)	Flying <input type="checkbox"/> into <input type="checkbox"/> out of* sun
f)	Flight visibility _____ m / km*

<b>6.</b>	<b>Any other information considered important by the pilot-in-command</b>

**D – MISCELLANEOUS**

<b>1.</b>	<b>Information regarding reporting aircraft</b>
a)	Aircraft registration _____
b)	Aircraft type _____
c)	Operator _____
d)	Aerodrome of departure _____
e)	Aerodrome of first landing _____ Destination _____
f)	Reported by radio or other means to _____ (name of ATS unit) at time _____ UTC
g)	Date / time / place of completion of form _____

<b>2.</b>	<b>Function, address and signature of person submitting report</b>
a)	Function _____
b)	Address _____
c)	Signature _____
d)	Telephone number _____

<b>3.</b>	<b>Function and signature of person receiving report</b>
a)	Function _____
b)	Signature _____

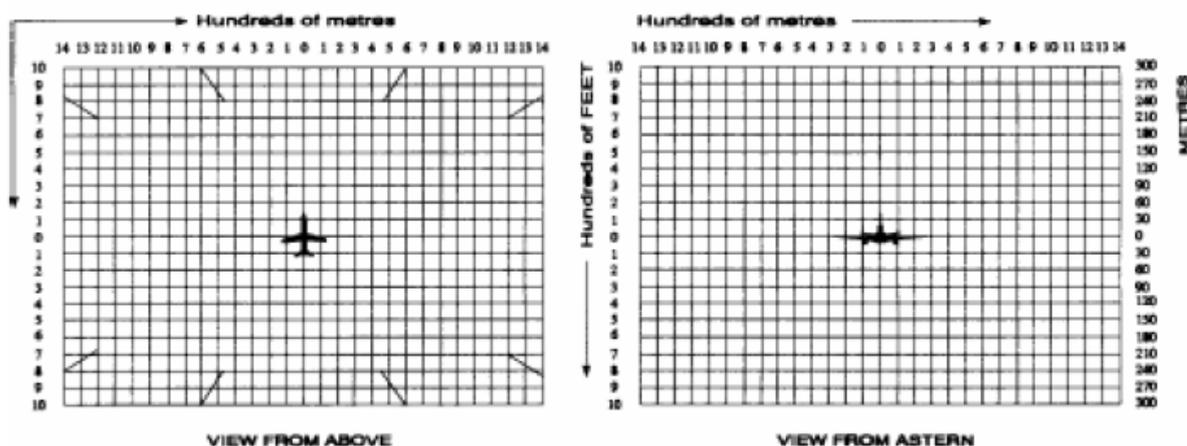
**E - SUPPLEMENTARY INFORMATION BY ATS UNIT CONCERNED**

<b>1.</b>	<b>Receipt of report</b>
a)	Report received via AFTN / radio / telephone / other (specify)* _____
b)	Report received by _____ (name of ATS unit)

<b>2.</b>	<b>Details of ATS action</b>
Clearance, incident seen (radar/visually, warning given, result of local enquiry, etc)	

## DIAGRAMS OF AIRPROX

Mark passage of other aircraft relative to you, in plan on the left and in elevation on the right, assuming you are at the centre of each diagram. Include first sight and passing distance.



### Instructions for the completion of the Air Traffic Incident Report Form

#### Item

- A. Aircraft identification of the aircraft filing the report.
- B. An AIRPROX report should be filed immediately by radio.
- C1. Date/Time UTC and position in bearing and distance from a navigation aid or in LAT/LONG
- C2. C.E.g. FL350/1013 hPa or 2500 ft/qnh1007 hPa or 102ft/QFE998hPa.
- C3. Information regarding the other aircraft involved.
- C4. Passing distance – state units used.
- C6. Attach additional papers as required. The diagrams may be used to show aircraft's positions.
- D1. f. State the name of ATS unit and date/time in UTC.

D1. g. Date and time in UTC

E2 Include details of ATS unit such as service provided, radiotelephony frequency SSR Codes assigned and altimeter setting. Use diagram to show the aircraft's position and attach additional papers as necessary.