GHANA CIVIL AVIATION

(AIR NAVIGATION SERVICES) DIRECTIVES

PART 24 – AIR TRAFFIC SERVICES

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INTRODUCTION

Part 24 comprises air traffic control, flight information and alerting services to ensure the safety and efficient operation of air traffic throughout the world.

The world's airspace is divided into a series of contiguous flight information regions (FIRs) within which air traffic services are provided. In some cases, the flight information regions cover large oceanic areas with relatively low air traffic density, within which only flight information service and alerting service are provided. In other flight information regions, large portions of the airspace are controlled airspace within which air traffic control service is provided in addition to flight information and alerting services.
The prime objective of air traffic services, as defined in this Directive, is to prevent collisions between aircraft, whether taxiing on the manoeuvring area, taking off, landing, en-route or in the holding pattern at the destination aerodrome. This Directive also deals with ways of expediting and maintaining an orderly flow of air traffic and of providing advice and information for the safe and efficient conduct of flights and alerting service for aircraft in distress. Therefore flight information centre and air traffic control units have been established in Ghana.

All aircraft fly in accordance with either instrument flight rules (IFR) or visual flight rules (VFR). Under IFR, the aircraft fly from one radio aid to the next or by reference to self-contained airborne navigation equipment from which the pilot can determine the aircraft's position at all times. IFR flights are conducted through all but the severest of weather conditions, while aircraft flying under VFR must remain clear of cloud and operate in visibility conditions which will permit the pilot to see and avoid other aircraft.

Part 24.3 specifies the types of service to be provided to these flights - for example, IFR flights are provided with air traffic control service when operating in controlled airspace. When operating in uncontrolled airspace, flight information service, which includes known traffic information, is provided and the pilot is responsible for arranging the flight to avoid other traffic. Control service is normally not provided to VFR flights, unless in specific areas, in which case VFR flights are separated from IFR flights but no separation service is provided between VFR flights, unless specifically required by the ATC authority. However, not all aircraft are provided with air traffic services. If an aircraft is operating entirely outside of controlled airspace in an area where flight plan is not required, the flight may not even be known to air traffic services.

Safety is the overriding concern of international civil aviation and air traffic management contributes substantially to safety in aviation. Part 24 contains an important requirement for the Authority to implement systematic and appropriate air traffic services (ATS) safety management programmes to ensure that safety is maintained in the provision of ATS within airspaces and at aerodromes. Safety management systems and programmes as developed by the Authority will serve as an important contribution toward ensuring safety in international and domestic civil aviation.

Air traffic control service consists of clearances and information issued by air traffic control units to achieve longitudinal, vertical or lateral separation between aircraft, in accordance with the provisions set out in Part 24.3 of this Directive.

This Part deals with the contents of clearances, their coordination between ATC units and the co-ordination of transfer of responsibility for control as a flight progresses from the area of one control unit to another. An orderly transfer process requires that an aircraft must be under the control of only one air traffic control unit at any one time.

Air traffic control units are sometimes faced with a traffic demand beyond the capacity of a particular location or area, as occurs at busy aerodromes during peak periods.

Part 24 provides for ATC units to specify restrictions to the traffic flow, when required, for the purpose of avoiding excessive delays to aircraft in flight and also specifies the requirements for coordination between the civil air traffic control units and military authorities or other agencies responsible for activities that may affect flights of civil aircraft. Military units are provided with flight plan and other data concerning flights of civil aircraft to assist in establishing identification in the event that a civil aircraft approaches or enters a restricted area. Flight information service is provided to aircraft operating in controlled airspace and to others known to the air traffic services units. The information includes significant meteorological (SIGMET) information, changes in the serviceability of navigation aids and in the condition of aerodromes and associated facilities and any other information likely to affect safety. IFR flights receive, in addition, information on weather conditions at departure, destination and alternate aerodromes, collision hazards to aircraft operating outside of control areas and control zones and, for flight over water, available information on surface vessels. VFR flights also receive information on weather conditions which would make visual flight impractical. Part 24 also contains specifications for operational flight information service (OFIS) broadcasts, including automated terminal information service (ATIS) broadcasts.

Part 24.5 is concerned with the alerting service, which provides for the alerting of rescue coordination centres when an aircraft is believed or known to be in a state of emergency, when it fails to communicate or to arrive on time or when information is received that a forced landing has been made or is imminent. Alerting service is automatically provided to all aircraft receiving air traffic control service and, as far as is practicable, to all other aircraft whose pilots have filed a flight plan or are otherwise known to air traffic services. It is also provided to aircraft known or believed to be subject to unlawful interference.

The effect of the alerting service is to set in motion all appropriate rescue and emergency organizations which can provide assistance when and where required.

Subsequent sub-parts of these Directives cover ATS requirements for air- ground communications and for communications between ATS units and between those units and other essential offices. These sub-parts also specify the information required to be supplied to each type of air traffic services unit. Air-ground communications shall permit direct, rapid and continuous static- free two-way radiotelephony communication, whenever practicable, while those between ATS units shall permit exchange of printed messages and, in the case of air traffic control units, direct voice communications between controllers. Because of the importance of the information transmitted over air- ground radio channels and that received from other units and offices, Part 24 recommends that such communications shall be recorded.

The Implementing Standards to the Directives spells out the principles governing the identification of air traffic services routes to allow both pilots and ATS to make unmistakable reference to any route without resorting to geographical references. The Implementing Standards specifies the requirements for designators for significant points marked by a radio aid as well as those not marked by a radio aid.

The sky may be limitless but not for air traffic. As more aircraft fill the crowded air routes, air traffic control concepts, procedures, equipment and rules will continue to evolve as will the provisions of this part.

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24.1 DEFINITIONS

When the following terms are used in these Directives they shall have the following meanings:

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

Accident. An occurrence associated with the operation of an aircraft which, 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 an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time it comes to rest at the end of the flight and the primary propulsion system is shut down, in which:

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

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

Note.— For measured positional data the accuracy is normally expressed in terms of a distance from a stated position within which there is a defined confidence of the true position falling.

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

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

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," "take-off," "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 24.2.6.

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

Air Traffic Services (ATS) Section. The section of the Authority which provides Air traffic service in Ghana.

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

***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 slingloads.

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. Alternate aerodromes include the following:

Take-off alternate. An alternate aerodrome at which an aircraft can land shall this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.

En-route alternate. An aerodrome at which an aircraft would be able to land after experiencing an abnormal or emergency condition while en route.

Destination alternate. An alternate aerodrome to which an aircraft may proceed shall 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 Republic of Ghana 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.

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.

Availability. The ratio of percentage of the time that a system is operating correctly to the total time in that period.

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.

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

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

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

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

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

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

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

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

Data 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.

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.

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

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

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

Emergencies and Unusual Situations Training Plan. A plan which describes the training carried out at an air traffic control unit in accordance with the Emergencies and Unusual Situations Training Scheme.

Emergencies and Unusual Situations Training Scheme. An annual training requirement designed to update and refresh a controller's ability to handle aircraft in emergency

Fatigue. A psychological 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 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, 1013.2 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 Part 19 of Ghana Civil Aviation Directives. When the expression "flight plan form" is used it denotes the model flight plan form at Appendix 2 to the PANS-ATM (Doc 4444).

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.

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 Part 19 of Ghana Civil Aviation (ANS) Directives.

Integrity (aeronautical data). A degree of assurance that an aeronautical data and its value has not been lost nor altered since the data origination or authorized amendment.

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

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 a State for the exchange of NOTAM internationally.

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

Manoeuvring 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 manoeuvring 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 (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 Annex as the concept of RNP has been overtaken by the concept of PBN. The term RNP in this Annex 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 Doc 9613.

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.

Reliability. The probability that a device or system will function without failure over a specified time period or amount of usage.

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. 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 with 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 Programme. An integrated set of Directives and activities aimed at improving safety.

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 phenomena which 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.

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

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

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

Student Air Traffic Controller. A student that has graduated in any

of the air traffic services rating courses (aerodrome, approach or area) from an approved air traffic services training organization and is undergoing on-the-job training for that specific rating.

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.

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

Unit Training Plan. A plan which provides structured unit training including on- the-job training instruction towards competence.

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 Part 19 of Ghana Civil Aviation (ANS) Directives.

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

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

Note 1.— Throughout the text of this document the term "service" is used as an abstract noun to designate functions, or service rendered; the term "unit" is used to designate a collective body performing a service.

Note 2.— The designation (RR) in these definitions indicates a definition which has been extracted from the Radio Regulations of the International Telecommunication Union (ITU) (see Handbook on Radio Frequency Spectrum Requirements for Civil Aviation including statement of approved ICAO policies (Doc 9718)).

24.2 GENERAL

24.2.1 ESTABLISHMENT OF AUTHORITY

(1) The portions of the airspace and those aerodromes where air traffic services will be provided shall be determined by the Government of the Republic of Ghana, in accordance with the provisions of these Directives and for the territories over which the the Republic of Ghana has jurisdiction. Such services shall be provided in accordance with the provisions of this Part in conjunction with ICAO Doc 4444 – PANS-ATM and Doc 7030 - Regional Supplementary Procedures as applicable under the prevailing circumstances.

(2) The provision of Air Traffic services for those portions of the airspace over the high seas or in airspace of undetermined sovereignty shall be on the basis of regional air navigation agreements. Provision of these services shall be in accordance with the provisions of these Directives.

(3) The Authority has responsibility for the provision of Air Traffic Services within the territory of the Republic of Ghana and the surrounding airspace over which it has jurisdiction.

(4) The Authority shall issue publications regarding Air Traffic Services as necessary to enable the utilization of such services.

24.2.2 OBJECTIVES OF THE AIR TRAFFIC SERVICES

The objectives of the air traffic services shall be to:

(a) prevent collisions between aircraft;

(b) prevent collisions between aircraft on the manoeuvring area and obstructions on that area;

(c) expedite and maintain an orderly flow of air traffic;

(d) provide advice and information useful for the safe and efficient conduct of flights;

(e) notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organizations as required.

24.2.3 DIVISIONS OF THE AIR TRAFFIC SERVICES

The air traffic services shall comprise of three services identified as follows:

(a) The air traffic control service, to accomplish objectives (a), (b) and (c) of 24.2.2, this service being divided in three parts as follows:

(i) Area control service: the provision of air traffic control service for controlled flights, except for those parts of such flights described in 24.2.3.1(b) and (c), in order to accomplish objectives a) and c) of 24.2.2;

(ii) Approach control service: the provision of air traffic control service for those parts of controlled flights associated with arrival or departure, in order to accomplish objectives (a) and (c) of 24.2.2;

(iii) Aerodrome control service: the provision of air traffic control service for aerodrome traffic, except for those parts of flights described in 24.2.3.1(b), in order to accomplish objectives (a), (b) and (c) of 24.2.2.

(b) The flight information service, to accomplish objective (d) of 24.2.2.

(c) The alerting service, to accomplish objective (e) of 24.2.2.

24.2.4 DETERMINATION OF THE NEED FOR AIR TRAFFIC SERVICES

(1) The need for the provision of air traffic services shall be determined by consideration of the following:

(a) The sustainable commercial viability of a proposed air traffic service, including the cost incurred in setting up the service as well as the projected maintenance costs;

(b) Forecast of air traffic movements and their composition;

(c) The level of communication, navigation and surveillance services available;

(d) The availability of other air navigation services systems;

(e) The proximity of other aerodromes;

(f) Surrounding terrain;

(g) Abnormal aerodrome circuit patterns;

(h) The flexibility of the use of airspace;

(i) Environmental issues;

(j) Meteorological conditions;

(k) National security requirements;

(l) Such other factors as may be relevant

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

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

(1) The designation of the particular portions of the airspace or at particular aerodromes shall conform to the air traffic services to be provided.

(2) The designation of the particular portions of the airspace or the particular aerodromes shall be as follows:

(a) ***Flight information region.*** Those portions of the airspace where it is determined that flight information service and alerting service are to be provided shall be designated as flight information regions.

(b) **Control areas and control zones**

(i) 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.

Note.— The distinction between control areas and control zones is made in 24.2.11.

(ii) 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.

(iii) Airspaces designated as control areas and control zones shall form part of the Accra Flight Information Region.

(c) ***Controlled aerodromes.*** Aerodromes where air traffic control service is provided to aerodrome traffic shall be designated as controlled aerodromes.

24.2.6 CLASSIFICATION OF AIRSPACES

(1) ATS airspaces shall be classified and designated in accordance with the following:

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

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

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

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

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

(f) ***Class F.*** IFR and VFR flights are permitted, all participating IFR flights receive an air traffic advisory service and all flights receive flight information service if requested. All IFR flights shall comply with the procedures for air traffic advisory service when operating in Class F airspace.

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

(2) Airspace classes appropriate to the national requirements shall be selected.

(3) The requirements for flights within each class of airspace shall be as shown in the table in IS: 24.2.6.3 of this Part.

Note.— Where the ATS airspaces adjoin vertically, i.e. one above the other, flights at a common level would comply with requirements of, and be given services applicable to, the less restrictive class of airspace. In applying these criteria, Class B airspace is therefore considered less restrictive than Class A airspace; Class C airspace less restrictive than Class B airspace, etc.

24.2.7 PERFORMANCE-BASED NAVIGATION (PBN) OPERATIONS

(1) In applying performance-based navigation, the Authority shall prescribe navigation specifications for designated areas, tracks or ATS routes. When applicable, the navigation specification(s) for designated areas, tracks or ATS routes shall be prescribed on the basis of regional air navigation agreements. In designating a navigation specification, limitations may apply as a result of navigation infrastructure constraints or specific navigation functionality requirements.

(2) Performance-based navigation operations shall be implemented by the Authority as soon as practicable.

(3) The prescribed navigation specification shall be appropriate to the level of

communications, navigation and air traffic services provided in the airspace concerned.

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

24.2.8 PERFORMANCE-BASED COMMUNICATION (PBC) OPERATIONS

(1) In applying Performance-Based Communication (PBC), RCP specifications shall be prescribed by the Authority. When applicable, the RCP specification(s) shall be prescribed on the basis of regional air navigation agreements.

Note. — In prescribing an RCP specification, limitations may apply as a result of communication infrastructure constraints or specific communication functionality requirements.

(2) The prescribed RCP specification shall be appropriate to the air traffic services provided.

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).

24.2.9 PERFORMANCE-BASED SURVEILLANCE (PBS) OPERATIONS

(1) In applying performance-based surveillance (PBS), RSP specifications shall be prescribed by the Authority. When applicable, the RSP specification(s) shall be prescribed on the basis of regional air navigation agreements.

Note.— In prescribing an RSP specification, limitations may apply as a result of surveillance infrastructure constraints or specific surveillance functionality requirements.

(2) The prescribed RSP specification shall be appropriate to the air traffic services provided.

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

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

24.2.10 ESTABLISHMENT AND DESIGNATION OF THE UNITS PROVIDING AIR TRAFFIC SERVICES

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

(a) The Accra Flight Information Centre shall provide flight information service and alerting service within the Accra Flight Information Region

Note.— This does not preclude delegating to other units the function of providing certain elements of the flight information service.

(b) Air traffic control units shall provide air traffic control service, flight information service and alerting service within control areas, control zones and at controlled aerodromes.

Note.— The services to be provided by various air traffic control units are indicated in 24.4.2.

24.2.11 SPECIFICATIONS FOR FLIGHT INFORMATION REGIONS, CONTROL AREAS AND CONTROL ZONES

The Authority shall delineate airspace wherein air traffic services are to be provided relative to the nature of the route structure and the need for an efficient air traffic services delivery rather than to national boundaries.

24.2.11.1 FLIGHT INFORMATION REGIONS

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

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

(3) Where a flight information region is limited by an upper flight information region, the lower limit specified for the upper flight information region shall constitute the upper vertical limit of the flight information region and shall coincide with a VFR cruising level of the tables in IS: 19.5.3.1 of Part 19 of Ghana Civil Aviation Directives.

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.

24.2.11.2 CONTROL AREAS

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

(2) The height of a lower limit of a control area established over land or water shall not be less than 200 metres or 700 feet.

(3) The lower limit of a control area shall when practicable and desirable in order to allow freedom of action for VFR flights below the control area, be established at a height greater than 24.2.11.3.2.

(4) When the lower limit of a control area is above 900m (3000ft) MSL it shall coincide with a VFR cruising level from the tables in IS: 19.5.3.1 of Part 19 of Ghana Civil Aviation (ANS) Directives.

Note.— This implies that the selected VFR cruising level be such that expected local atmospheric pressure variations do not result in a lowering of this limit to a height of less than 200 m (700 ft) above ground or water.

(5) An upper limit of a control area shall be established when either:

(a) air traffic control service will not be provided above such upper limit; or

(b) the control area is situated below an upper control area, in which case the upper limit shall coincide with the lower limit of the upper control area. When established, such upper limit shall coincide with a VFR cruising level of the tables in IS: 19.5.3.1 of Part 19 of Ghana Civil Aviation Directives.

24.2.11.3 FLIGHT INFORMATION REGIONS OR CONTROL AREAS IN THE UPPER AIRSPACE

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

24.2.11.4 CONTROL ZONES

(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) The lateral limits of a control zone shall extend to at least 9.3 km (5NM) 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.

(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.

(4) An upper limit shall be established for any control zone located outside of the lateral limits of a control area.

(5) Where the upper limits of control zones shall be established at levels higher than the lower limits of control zones established over them, or where such zones shall be located outside the lateral limits of the control areas, such upper limits shall be established at levels as would permit easy identification by pilots. Such limits shall when above 900m (3000ft) MSL, coincide with a VFR cruising level of the table in IS: 19.5.3.1 of Part 19 of Ghana Civil Aviation Directives.

Note.— This implies that, if used, the selected VFR cruising level be such that expected local atmospheric pressure variations do not result in a lowering of this limit to a height of less than 200 m (700 ft) above ground or water.

24.2.12 IDENTIFICATION OF AIR TRAFFIC SERVICES UNITS AND AIRSPACES

(1) The area control centre or flight information centre shall be identified by the name of a nearby town or city or geographical feature.

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

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

24.2.13 ESTABLISHMENT AND IDENTIFICATION OF ATS ROUTES

(1) ATS routes shall be established in such a manner that a protected airspace along each ATS route and a safe spacing between adjacent ATS routes are ensured.

(2) When the density, complexity or nature of traffic so demands, special routes shall be established for use by low-level traffic, including helicopters operating from helidecks on the high seas. The lateral spacing between such routes shall be determined, taking into account of the navigational facilities available and the navigation equipment carried on board helicopters.

(3) ATS routes shall be identified by designators.

(4) Designators for ATS routes other than standard departure and arrival routes shall be selected in accordance with the principles set forth in IS:24.2.13(4) of this Part.

(5) Standard departure and arrival routes and associated procedures shall be identified in accordance with the principles set forth in IS: 24.2.13(5) of this Part.

Note 1.— Guidance material relating to the establishment of ATS routes is contained in the Air Traffic Services Planning Manual (Doc 9426).

Note 2.— The spacing between parallel tracks or between parallel ATS route centre lines based on performance-based navigation will be dependent upon the relevant navigation specification required.

24.2.14 ESTABLISHMENT OF CHANGE-OVER POINTS

(1) Change-over points shall be established on ATS route segments defined by reference to very high frequency omni-directional radio ranges where this will assist accurate navigation along the route segments. The establishment of change-over points shall be limited to route segments of 110 km (60 NM) or more, except where the complexity of ATS routes, the density of navigation aids or other technical and operational reasons warrant the establishment of change-over points on shorter route segments.

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

24.2.15 ESTABLISHMENT AND IDENTIFICATION OF SIGNIFICANT POINTS

(1) Significant points shall be established for the purpose of defining an ATS route and or in relation to the requirements of air traffic services for information regarding the progress of aircraft in flight.

(2) Significant points shall be identified by designators.

(3) Significant points shall be established and identified in accordance with the principles set forth in IS: 24.2.15(3) of this Part.

24.2.16 ESTABLISHMENT AND IDENTIFICATION OF STANDARD ROUTES FOR TAXIING AIRCRAFT

(1) Standard routes for taxiing aircraft shall be established on an aerodrome between runways, aprons and maintenance areas. Such routes shall be direct, simple and where practicable, designed to avoid traffic conflicts.

(2) Standard routes for taxiing aircraft shall distinctly be identified by designators from those of the runways and ATS routes.

24.2.17 COORDINATION BETWEEN THE OPERATOR AND AIR TRAFFIC SERVICES

(1) Air traffic services units, shall when carrying out their objectives, have due regard for the requirements of the operators' consequent on their obligations as specified in Part 8 of Ghana Civil Aviation (Flight Standards) Directives, and, if so required by the operators, make available to them or their designated representatives such information as may be available to enable them or their designated representatives carry out their responsibilities.

(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.

Note.— For aircraft subjected to unlawful interference, see 24. 2.24.3.

24.2.18 COORDINATION BETWEEN MILITARY AUTHORITIES AND AIR TRAFFIC SERVICES

(1) The ATS Section shall maintain close cooperation with the military authorities responsible for activities that may affect flights of civil aircraft.

(2) Coordination of activities potentially hazardous to civil aircraft shall be effected in accordance with 24.2.19 of this Part.

(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.

(4) 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, air traffic services authorities shall designate any areas or routes where the requirements Part 19 of Ghana Civil Aviation (ANS) Directives 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.

Note.— For aircraft subjected to unlawful interference, see 24.2.24.3 and 24.2.25.1.3.

(5) 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.

24.2.19 COORDINATION OF ACTIVITIES POTENTIALLY HAZARDOUS TO CIVIL AIRCRAFT

(1) The arrangements for activities potentially hazardous to civil aircraft, whether over the territory of the Republic of Ghana or over the high seas shall be coordinated with the Authority. The coordination shall be effected early enough to permit timely promulgation of information regarding the activities in accordance with the provisions of Part 15 of Ghana Civil Aviation (ANS) Directives.

(2) If the appropriate ATS authority is not that of the Republic of Ghana where the organization planning the activities is located, initial coordination shall be effected through the ATS authority responsible for the airspace over the State where the organization is located.

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

(4) The following shall be considered in the determination of the arrangements mentioned in 24.2.19(2):

(a) the locations or areas, times and durations for the activities shall be selected to avoid closure or realignment of established ATS routes, blocking of the most economic flight levels, or delays of scheduled aircraft operations, unless no other options exist;

(b) the size of the airspace designated for the conduct of the activities shall be kept as small as possible;

(c) direct communication between the Authority or appropriate air traffic services unit and the organization or unit conducting the activities shall be provided for use in the event that civil aircraft emergencies or other unforeseen circumstances require discontinuation of the activities.

(5) The appropriate ATS authority shall be responsible for initiating the promulgation of information regarding the activities.

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

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

Note 1.— Guidance material regarding the hazardous effects of laser emitters on flight operations is contained in the Manual on Laser Emitters and Flight Safety (Doc 9815).

Note 2.— See also Part 14 of Ghana Civil Aviation (Aerodrome) Directives— Aerodrome Design and Operations.

(8) In order to provide added airspace capacity and to improve efficiency and flexibility of aircraft operations, the state shall establish procedures providing for a flexible use of airspace reserved for military or other special activities. The procedures shall permit all airspace users to have safe access to such reserved airspace.

24.2.20 AERONAUTICAL DATA

(1) Determination of air traffic services-related aeronautical data shall be in accordance with the accuracy and integrity classification required to meet the needs of the end-user of aeronautical data.

Note- Specifications concerning the accuracy and integrity classification of air traffic services-related aeronautical data are contained in PANS-AIM (Doc 10066), Appendix 1.

(2) Digital data error detection techniques shall be used during the transmission and or storage of aeronautical data and digital data sets.

Note- Detailed specifications concerning digital data error detection techniques are contained in PANS-AIM (Doc 10066).

24.2.21 COORDINATION BETWEEN METEOROLOGICAL AND AIR TRAFFIC SERVICES AUTHORITIES

(1) To ensure that aircraft receive the most up-to-date meteorological information for aircraft operations, arrangements shall be made, where necessary, between Ghana Meteorological Agency and the Ghana Civil Aviation Authority for air traffic services personnel:

(a) in addition to using indicating instruments, to report, if observed by air traffic services personnel or communicated by aircraft, such other

meteorological elements as may be agreed upon;

(b) to report as soon as possible to the associated meteorological office meteorological phenomena of operational significance, if observed by air traffic services personnel or communicated by aircraft, which have not been included in the aerodrome meteorological report;

(c) to report as soon as possible to the associated meteorological office pertinent information concerning pre-eruption volcanic activity, volcanic eruptions and information concerning volcanic ash cloud. In addition, area control centers and flight information centers shall report the information to the associated meteorological watch office and Volcanic Ash Advisory Centers (VAACs).

(2) Close coordination shall be maintained between area control centers, flight information centers and associated meteorological watch offices to ensure that information on volcanic ash included in NOTAM and SIGMET messages is consistent.

24.2.22 COORDINATION BETWEEN AERONAUTICAL INFORMATION SERVICES AND AIR TRAFFIC SERVICES AUTHORITIES

(1) To ensure that aeronautical information services units obtain information to enable them to provide up-to-date pre-flight information and to meet the need for in-flight information, arrangements shall be made between aeronautical information services and air traffic services authorities responsible for air traffic services to report to the responsible aeronautical information services unit, with a minimum of delay:

(a) information on aerodrome conditions;

(b) the operational status of associated facilities, services and navigation aids within their area of responsibility;

(c) the occurrence of volcanic activity observed by air traffic services personnel or reported by aircraft; and

(d) any other information considered to be of operational significance.

(2) Due account shall be taken by the services responsible for introducing changes to the air navigation system of the time needed by the aeronautical information service for the preparation, production and issuance of relevant material for promulgation before such changes are made.

(3) Of particular importance are changes to aeronautical information that affect charts and/or computer-based navigation systems which qualify to be notified by the Aeronautical Information Directive and Control (AIRAC) system, as specified in Subpart 15.6 and IS:15.6.1.1 of Part 15 of Ghana Civil Aviation (ANS) Directives. The predetermined, internationally agreed AIRAC effective dates in addition to 14 days postage time shall be observed by the responsible air traffic services when submitting the raw information or data to aeronautical information services.

(4) The air traffic services unit responsible for the provision of raw aeronautical

information or data to the aeronautical information services shall do so while taking into account accuracy and integrity requirements for aeronautical data as specified in IS: 24.2.20.1 of these Directives.

Note 1.— Specifications for the issue of a NOTAM and ASHTAM are contained in Part 15 of Ghana Civil Aviation (ANS) Directives.

Note 2.— Reports of volcanic activity comprise the information detailed in Subpart 20.3 of Part 20 of Ghana Civil Aviation (ANS) Directives..

Note 3.— AIRAC information is distributed by the aeronautical information service at least 42 days in advance of the AIRAC effective dates with the objective of reaching recipients at least 28 days in advance of the effective date.

Note 4.— The schedule of the predetermined, internationally agreed AIRAC common effective dates at intervals of 28 days and guidance for the AIRAC use are contained in the Aeronautical Information Services Manual (Doc 8126, Chapter 2, 2.6).

24.2.23 MINIMUM FLIGHT ALTITUDES

Minimum flight altitudes shall be determined and promulgated by the State for each ATS route and control area over its territory. The minimum flight altitudes determined shall provide a minimum clearance above the controlling obstacle located within the areas concerned.

Note.— The requirements for publication by the Authority of minimum flight altitudes and of the criteria used to determine them are contained in IS: 15.4 in Part 15 of Ghana Civil Aviation (ANS) Directives. Detailed obstacle clearance criteria are contained in PANS-OPS (Doc 8168), Volume II.

24.2.24 SERVICE TO AIRCRAFT IN THE EVENT OF AN EMERGENCY

(1) Maximum consideration, assistance and priority shall be given to any aircraft known or believed to be in a state of emergency or the subject of unlawful interference over other aircraft as appropriate.

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) ATS units shall apply Human Factors principles when communicating with aircraft in emergency.

(3) 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.

(4) 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 authorities designated by the State and exchange necessary information with the operator or its designated representative.

Note 1.— A strayed or unidentified aircraft may be suspected as being the subject of unlawful interference. See Subpart 24.2.25.1.3 of this Part.

Note 2.— Procedures relating to the handling of strayed or unidentified aircraft are contained in Subpart 24.2.25.1 of this.

Note 3.— The PANS-ATM (Doc 4444), Chapter 15, 15.1.3 contains more specific procedures related to unlawful interference.

24.2.25 IN-FLIGHT CONTINGENCIES

24.2.25.1 STRAYED OR UNIDENTIFIED AIRCRAFT

(1) As soon as an air traffic services unit becomes aware of a strayed aircraft it shall take all necessary steps as outlined in 24.2.25.1(2) and 24.2.25.1(3) to assist the aircraft and to safeguard its flight. Navigational assistance shall be accorded such aircraft as much as practicable to prevent the risk of interception or other hazard to safety.

Note 1.— The terms "strayed aircraft" and "unidentified aircraft" in this Subpart 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) 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 every assistance in establishing communication with the aircraft and determining its position.

(3) 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.

(4) As soon as an air traffic services unit becomes aware of an unidentified aircraft in its area, it shall take all necessary steps 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.

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

(6) Should the ATS unit consider that a strayed or unidentified aircraft may be the subject of unlawful interference, the appropriate authority designated by the State shall immediately be informed, in accordance with locally agreed procedures.

24.2.25.2 INTERCEPTION OF CIVIL AIRCRAFT

(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) 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 24.2.25.2.1;

(b) relay messages between the intercepted aircraft and the appropriate ATS unit, the intercept control unit or the intercepting aircraft.

24.2.26 TIME IN AIR TRAFFIC SERVICES

(1) Coordinated Universal Time (UTC) shall be used by the Air traffic services and shall be expressed in hours and minutes and when required, in seconds of the 24 hour day beginning at midnight.

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

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

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

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

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

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

Note.— This provision is intended to improve the effectiveness of air traffic services as well as airborne collision avoidance systems.

24.2.28 FATIGUE MANAGEMENT

(1) The ATS Section shall adhere to Fatigue Risk Management provisions specified in this Directive with the aim of ensuring that air traffic controllers perform at an adequate level of alertness.

Note.— Guidance on the development and implementation of fatigue management Directives is contained in the Manual for the Oversight of Fatigue Management Approaches *(Doc 9966).*

(2) The ATS Section shall, for the purposes of managing its fatigue-related safety risks, establish one of the following:

(a) air traffic controller schedules commensurate with the service(s) provided and in compliance with the prescriptive limitation of these Directives; or

(b) an FRMS, in compliance with these Directives, for the provision of all air traffic control services; or

(c) an FRMS, in compliance with these Directives, for a defined part of its air traffic control services in conjunction with schedules in compliance with the prescriptive limitation provisions of these Directives for the remainder of its air traffic control services.

(3) Where the ATS Section complies with prescriptive limitation provisions of these Directives in the provision of part or all of its air traffic control services, the Authority:

(a) shall require evidence that the limitations are not exceeded and that non-duty period requirements are met;

(b) shall require that the ATS Section familiarize its personnel with the principles of fatigue management and its policies with regard to fatigue management;

(c) shall establish a process to allow variations from the prescriptive limitation Directives to address any additional risks associated with sudden, unforeseen operational circumstances; and

(d) may approve variations to these Directives using an established process in order to address strategic operational needs in exceptional circumstances, based on the ATS Section demonstrating that any associated risk is being managed to a level of safety equivalent to, or better than, that achieved through the prescriptive fatigue management Directives.

Note.— Complying with the prescriptive limitations provisions of these Directives does not relieve the ATS Section of the responsibility to manage its risks, including fatigue-related risks, using its SMS in accordance with the provisions of Part 36 of Ghana Civil Aviation Directives.

(4) Where an ATS Section implements an FRMS to manage fatigue-related safety risks in the provision of part or all of its air traffic control services in accordance with 24.2.28(2)(b), the Authority shall:

(a) require the ATS Section to have processes to integrate FRMS functions with its other safety management functions; and

(b) approve an FRMS, according to a documented process, that provides a level of safety acceptable to the State.

Note.— Provisions on the protection of safety information, which support the continued availability of information required by an FRMS, are contained in Part 36 of Ghana Civil Aviation Directives.

24.2.29 SAFETY MANAGEMENT

(1) Established programmes shall be followed in order to achieve an acceptable level of safety in the provision of Air Traffic Services.

Note.— Part 36 of Ghana Civil Aviation Directives includes the safety management provisions applicable to ATS providers. Further guidance is contained in the Safety Management Manual (SMM) (Doc 9859) and associated procedures are contained in the PANS-ATM (Doc 4444).

(2) Acceptable levels of safety achieved shall not be below the levels of safety as established by the Authority.

(3) An acceptable (well defined) level of safety and safety objectives related to the provision of ATS within airspaces and at airports within the Republic of Ghana shall be established and adhered to.

(4) The Authority shall, as part of its safety programme, implement an acceptable safety management system that , as a minimum:

(a) identifies safety hazards;

(b) ensures that remedial action necessary to maintain an acceptable level of safety is implemented;

(c) provides for continuous monitoring and regular assessment of the safety level achieved; and

(d) aims to make continuous improvement to the overall level of safety.

(5) The ATS Provider shall have an SMS manual approved by the Authority which 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.

(6) Acceptance or approval of an ANSP SMS manual shall be preceded by thorough assessment of the system of operations of the ANSP to determine whether the ANSP complies with the SMS manual.

(7) Any significant safety-related changes to the ATC system, including the implementation of a reduced separation minimum or a new procedure, shall only be effected after a safety assessment has demonstrated that an acceptable level of safety would be met and users have been consulted. The Authority shall ensure that adequate provision is made for post-implementation monitoring to verify that the defined level of safety continues to be met.

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 judgement.

24.2.30 COMMON REFERENCE SYSTEMS

24.2.30.1 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).

24.2.30.2 VERTICAL REFERENCE SYSTEM

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

Note.— The geoid globally most closely approximates 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.

24.2.30.3 TEMPORAL REFERENCE SYSTEM

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

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

24.2.31 LANGUAGE PROFICIENCY

(1) An approved air traffic services provider shall ensure that air traffic controllers speak and understand English language used for international radiotelephony communications to ICAO Level 4 proficiency or above.

(2) Except when communications between air traffic control units are conducted in a mutually agreed language, the English language shall be used for all radiotelephony communications

24.2.32 CONTINGENCY ARRANGEMENTS

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

Note 1.— Contingency plans may constitute a temporary deviation from the approved regional air navigation plans; such deviations are approved, as necessary, by the President of the ICAO Council on behalf of the Council.

(2) The Air Traffic Services authorities shall establish and implement Air Traffic Control (ATC) contingency procedures as prescribed in ICAO Doc 4444 –PANS ATM for:

(a) Radio communications contingencies;
(b) Emergency separation; and
(c) if applicable, for
- Short-term conflict alert (STCA);

- Minimum safe altitude warning (MSAW);
- aircraft equipped with ACAS

24.2.33 IDENTIFICATION AND DELINEATION OF PROHIBITED, RESTRICTED AND DANGER AREAS

(1) Each prohibited area, restricted area, or danger area established by the Authority shall, upon initial establishment, be given identification and full details shall be promulgated.

Note.— See Ghana Aeronautical Information Publication, ENR 5.1

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

(3) The identification shall be composed of a group of letters and figures as follows:

(a) nationality letters for location indicators assigned to the Republic of Ghana;

(b) a letter P for prohibited area, R for restricted area and D for danger area as appropriate; and

(c) a number, unduplicated within the Republic of Ghana.

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

(4) To avoid confusion, identification numbers shall not be reused for a period of at least one year after cancellation of the area to which they refer.

(5) When a prohibited, restricted or danger area is established, the area shall be as small as practicable and be contained within simple geometrical limits, so as to permit ease of reference by all concerned.

24.2.34 INSTRUMENT FLIGHT PROCEDURE DESIGN SERVICE

The Authority shall ensure that an instrument flight procedure design service is in place in accordance with Part 38 of Ghana Civil Aviation (ANS) Directives.

24.3 APPROVAL OF AIR TRAFFIC SERVICES UNIT.

24.3.1 REQUIREMENT FOR AIR TRAFFIC SERVICES UNIT APPROVAL.

(1) Except with the approval of the Authority and in accordance with the provisions of an air traffic services unit approval issued under this part, no air traffic unit shall provide air traffic services in those portions of airspace and at approved aerodromes including;

(a) Aerodrome control services;

(b) Approach procedural control services;

(c) Area procedural control services;

(d) Approach surveillance services;

(e) Area surveillance services;

(f) Automatic Dependence Services;

(g) Flight Information services;

(h) Aerodrome flight information services and

(i) Any other service to air traffic.

(2) An applicant for the issue of an air traffic service unit approval to provide air traffic services shall provide the Authority with its Operations Manual which shall comply with the requirements prescribed in this subpart and be approved accordingly.

24.3.2 DISPLAY OF AIR TRAFFIC SERVICES APPROVAL.

The holder of an air traffic service unit approval shall display the approval in a prominent place, generally accessible to the public at such holder's principal place of business and, if a copy of the approval is displayed, shall produce the original approval to an air traffic services inspector if so required by such inspector.

24.3.3 SAFETY INSPECTIONS, AUDITS AND QUALITY CONTROL.

(1) An applicant for the issue of an air traffic service unit approval shall permit an air traffic service inspector to carry out such safety inspections and audits which may be necessary to verify the validity of any application made in terms of this Part.

(2) The ATS Section shall permit an air traffic service inspector to carry out such safety inspections and audits which may be necessary to determine compliance with the appropriate requirements prescribed in this part.

(3) The ATS Section shall establish a quality control system for the control and supervision of the service covered in the approval.

24.3.4 SUSPENSION AND CANCELLATION OF AIR TRAFFIC SERVICE UNIT APPROVAL AND APPEAL.

(1) The Authority may suspend for a period not exceeding 30 days, an air traffic service unit approval issued under this part if:

(a) After a safety inspection and/or audit carried out in terms of Subpart 24.3.3, it is evident that the holder of the approval does not comply with the requirements prescribed in this part, and such holder fails to remedy such non-compliance within 30 days after

receiving a Letter of Correction from the Authority to do so; or

(b) An air traffic service inspector is prevented by the holder of the approval to carry out a safety inspection and/or audit in terms of Subpart 24.3.3; or

(c) The suspension is necessary in the interest of aviation safety and security.

(2) The holder of an approval who feels aggrieved by the suspension of the approval may appeal against such suspension to the Authority, within 30 days after the holder becomes aware of such suspension.

24.3.5 SUBSTITUTE AIR TRAFFIC SERVICE PROVIDER.

The Authority may, if it is considered necessary in the interest of aviation safety and security, appoint a holder of an air traffic service unit approval as a substitute air traffic service provider to provide an air traffic service in respect of an approval which has been suspended by the Authority for the duration of such suspension.

24.3.6 PERSONNEL REQUIREMENTS.

(1) The ATS Section shall engage, employ or contract:

(a) A senior person identified as the accountable manager to whom contractual authority shall be granted to ensure that all activities undertaken by the service provider are carried out in accordance with the applicable requirements prescribed in this Part.

(b) A Safety officer who is responsible for quality control, safety management and has direct access to the accountable manager on matters affecting aviation safety and security; and

(c) Adequate licensed personnel to plan provide and supervise the services listed in its operations manual, in a safe and efficient manner.

(2) The service provider shall establish procedures for the initial assessment and maintenance of the competencies of the personnel required to operate and maintain units concerned.

(3) The service provider shall ensure that its personnel are of sufficient numbers and experience and have been given appropriate authority to be able to discharge their allocated responsibilities.

24.3.7 FACILITY REQUIREMENTS.

The ATS Section shall ensure that all facilities used in the services listed in the operations manual are adequate to comply with the requirements as prescribed in these Directives

24.3.8 DECLARED CAPACITY.

To ensure that adequate safety and security margins are maintained in the

provision of air traffic services, the holder of an air traffic service approval shall:

(a) Declare its capacity to the Authority every three months.

(b) The declared capacity shall include details of aircraft movements in the various Air Traffic Control sectors or units, the number of controllers responsible for a sector or unit, equipment availability and reliability in a sector or unit, and any other factors that may affect the workload and efficiency of the controllers responsible for the sector or unit.

24.3.9 SCOPE AND VALIDITY OF APPROVALS.

(1) The holder of an air traffic service approval shall be authorized to provide one or a combination of the services listed in its Operations Manual as follows:

(a) A single air traffic service by means of a single air traffic service unit: or

(b) A combination of air traffic services by means of a network of air traffic service units.

(2) An approval shall be valid for a period of one year, calculated from the date of issue or renewal thereof.

(3) An approval shall remain in force until it expires, suspended or cancelled by the Authority.

(4) The holder of an approval which has expired shall forthwith surrender the approval to the Authority.

(5) The holder of an approval which is suspended shall forthwith produce the approval upon suspension thereof, to the Authority for the appropriate endorsement.

(6) The holder of an approval which is cancelled, shall, within thirty (30) days from the date on which the approval is cancelled, surrender such approval to the Authority.

24.3.10 RENEWAL OF APPROVAL.

The holder of an air traffic service approval shall at least within sixty (60) days immediately preceding the date on which the approval expires, apply for the renewal of such approval.

24.3.11 TRANSFERABILITY AND CHANGE IN OWNERSHIP.

(1) An air traffic service approval shall not be transferable.

(2) A change in ownership of the holder of an approval shall be deemed to be a change of significance referred to in the scope and validity of approval.

24.3.12 CHANGES IN QUALITY CONTROL SYSTEM.

If the holder of an air traffic services approval desires to make any change in the quality control system, which shall necessitate the showing of compliance with the appropriate requirements in this part, the holder shall apply to the Authority for the approval of such change.

24.3.13 DUTIES OF HOLDER OF THE APPROVAL

(1) The holder of an air traffic service approval shall:

(a) Provide the services listed in its Operations Manual in accordance with the procedures as prescribed in the manual.

(b) Hold at least one complete and current copy of its operations manual at each air traffic service unit specified in the manual.

(c) Comply with all procedures detailed in the operations manual.

(d) Make each part of the operations manual available to the personnel who require these parts to carry out their duties.

(e) Furnish the Authority with quarterly aircraft en-route, arrival and departure traffic statistics.

(f) The quarterly statistics shall include details on the utilization of air routes and flight levels in the upper and lower airspaces of the Republic of Ghana by aircraft types, scheduled and non-scheduled operations.

(g) The quarterly statistics shall also include details on the utilization of air routes in the upper airspace of other States in the Accra FIR by aircraft types, scheduled and non-scheduled operations.

24.3.14 REPORTING AND INVESTIGATION OF ACCIDENTS AND INCIDENTS.

(1) The holder of an air traffic services approval shall report any accident reported to it or witnessed by the holder to the Authority and Ministry responsible for Aviation and shall assist in the investigation of any accident.

(2) The holder of an air traffic services proposal shall report all incidents that may occur to the Authority.

(3) The reporting of accidents and incidents shall be done within twenty-four hours of such occurrence.

(4) The investigation of accidents and incidents shall be done within seven days of such occurrence. The Authority may extend this deadline where necessary.

24.3.15 UNIT DOCUMENTATION.

The holder of an air traffic services approval shall ensure that:

(a) Air traffic services units listed in its Operations Manual are provided with copies of all documentation prescribed by the Authority.

(b) The documentations are reviewed and authorized by the appropriate personnel before issue.

(c) Current issues of relevant documentation are available to personnel at all locations where they need access to such documentation for the provision of services listed in its operations manual.

(d) Obsolete documentation is removed from all air traffic services units.

(e) Changes to documentation are reviewed and approved by appropriate personnel.

(f) The current version of each item of documentation can be identified to preclude the use of obsolete editions.

24.3.16 CONTROLLER COMPETENCY IN EMERGENCIES AND UNUSUAL SITUATIONS.

24.3.16.1 REQUIREMENTS FOR COMPETENCY IN EMERGENCIES AND UNUSUAL SITUATIONS.

(1) To ensure the maintenance of air safety, full and complete coordination, optimal controller judgment and performance in emergencies and unusual situations, the ATS Section shall train air traffic controllers appropriately in emergencies and unusual situations at least once every 12 months. Training plans in emergencies and unusual situations shall form part of the Unit Training and Assessment Plan required in 24.9.2 of this Part.

(2) Air traffic controllers shall be assessed in emergencies and unusual situations during competency assessments prior to:

(a) The issue of a first Certificate of Competence; or

(b) The issue of a subsequent Certificate of Competence at a new unit or at the same unit for additional sectors/operational positions where the training in emergencies and unusual situations are different.

(3) The Authority shall vary the ATC Licence of the holder of a Certificate of Competence who is assessed as not competent to handle emergencies and unusual situations by provisionally suspending the appropriate rating(s) until the competency is obtained.

(4) The ATS Section shall maintain accurate training records of all units or sectors which have been conducted in accordance with the emergencies and unusual situations training plans.

(5) Emergencies and unusual situations training plans shall be reviewed annually or when the situation demands such review to ensure that the plan continues to adequately meet the scheme objectives.

24.3.17 COORDINATION BETWEEN ATS ENGINEERING UNITS AND AIR TRAFFIC SERVICES.

To ensure optimum availability and serviceability of ATS operational equipment, approved maintenance and service level arrangements shall be made between ATS

Engineering units and air traffic services providers.

24.3.18 LETTERS OF PROCEDURES/AGREEMENTS.

(1) There shall be Letters of Procedures (LOPs) or Letters of Agreements (LOAs) between two or more adjacent ATS units or between ATS authorities of different States dealing with the manner in which ATS is to be provided and coordinated between the parties concerned.

(2) There shall be Letters of Procedures (LOPs) or Letters of Agreements (LOAs) between one or more ATS unit(s) on one hand and all other functional areas in the Air Navigation Services system, airport/aerodrome operators, air operators, military, other operators, agencies or authorities specifying the conditions, means and procedures to be employed to regulate their cooperation or the conduct of specific operations that shall affect ATS.

(3) Procedures shall be established by the Authority for the processing of LOPs and LOAs to ensure that:

(a) Any action required by LOPs or LOAs is coordinated with the ATS units concerned.

(b) Any necessary coordination with other parties concerned with an LOP or LOA is effected.

(c) The effective date of an agreement or procedure allows for at least 30 days for familiarization after distribution by all concerned.

(d) LOPs or LOAs are signed by the responsible officers of the ATS provider, other agencies and operators involved.

(e) Copies of LOPs or LOAs shall be provided to the units/agencies/operators involved, and the Authority.

(f) Copies of LOPs and LOAs shall be forwarded to the Authority for approval after safety assessment.

(g) LOPs and LOAs shall be reviewed annually and amended or replaced as necessary to ensure conformity with current operational requirements, directives and policy.

(h) Amendments shall be prepared and processed in the same manner as the original agreement.

24.3.19 ATS SECURITY

24.3.19.1 FACILITY SECURITY.

(1) To ensure their unimpeded operations, ATS facilities shall be provided with security systems adequate to prevent the threats to which the facility may be exposed.

(2) ATS security systems shall be provided as required by the National Civil Aviation Security Procedures (NCASP).

24.3.19.2 SECURITY PROCEDURES.

The ATS provider shall provide a security procedure manual for approval by the Authority in accordance with ICAO Doc 9985 and the NCASP and shall be compatible with the operating requirements of ATS.

24.3.19.3 PERSONNEL SECURITY.

ATS personnel shall be subjected to the relevant provisions in the NCASP for ATS.

24.4 AIR TRAFFIC CONTROL SERVICE

24.4.1 APPLICATION

Air traffic control service shall be provided:

(a) to all IFR flights in airspace Classes A, B, C, D and E;

(b) to all VFR flights in airspace Classes B, C and D;

(c) to all special VFR flights;

(d) to all aerodrome traffic at controlled aerodromes.

24.4.2 PROVISION OF AIR TRAFFIC CONTROL SERVICE

The parts of Air traffic control services described in 24.2.4.1 shall be provided by the various units as follows:

(a) **Area control service**:

(i) by the area control centre; or

(ii) by the unit providing approach control service in a control zone or in a control area of limited extent which is designated primarily for the provision of approach control service and when area control service is temporarily unavailable. In all cases, the approach controller must additionally have an area control rating.

(b) **Approach control service**:

(i) by the approach control unit when it is necessary or desirable to establish a separate unit; or

(ii) by the area control center when the provision of approach control service is temporarily unavailable.

(c) **Aerodrome control service***:* by the aerodrome control tower.

Note. — The task of providing specified services on the apron, e.g. apron management service, may be assigned to an aerodrome control tower or to a separate unit.

24.4.3 OPERATION OF AIR TRAFFIC CONTROL SERVICE

(1) In order to provide air traffic control service, an air traffic control unit shall:

(a) be provided with information on the intended movement of each aircraft, or variations therefrom, and with current information on the actual progress of each aircraft;

(b) determine from the information received, the relative positions of known aircraft to each other;

(c) issue clearances and information for the purpose of preventing collision between aircraft under its control and of expediting and maintaining an orderly flow of air traffic;

(d) coordinate clearances as necessary with other units:

(i) in order to avoid conflicts;

(ii) before transfer of control.

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

(3) Clearances issued by air traffic control units shall provide separation:

(a) between all flights in airspace Classes A and B;

(b) between IFR flights in airspace Classes C, D and E;

(c) between IFR flights and VFR flights in airspace Class C;

(d) between IFR flights and special VFR flights;

(e) between special VFR flights when so prescribed by the appropriate ATS authority,

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

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

(a) vertical separation, obtained by assigning different levels selected from:

(i) the tables of cruising levels in IS: 19.5.3.1 of Part 19; or

(ii) a modified table of cruising levels, when so prescribed in accordance with IS: 19.5.3.1 of Part 19 for flight above FL 410,

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

(b) horizontal separation, obtained by providing:
(i) longitudinal separation, by maintaining an interval between aircraft operating along the same, converging or reciprocal tracks, expressed in time or distance; or

(ii) lateral separation, by maintaining aircraft on different routes or in different geographical areas;

(c) composite separation, consisting of a combination of vertical separation and one of the other forms of separation contained in b) above, using minima for each which may be lower than, but not less than half of, those used for each of the combined elements when applied individually. Composite separation shall only be applied on the basis of regional air navigation agreements.

(5) A minimum vertical separation of 300 m (1 000 ft) between RVSM-approved aircraft shall be applied between FL 290 and FL 410 inclusive in the Accra FIR.

(6) To ensure effective implementation of RVSM in the Accra FIR, the ATS Section shall establish agreement with the AFI Regional Monitoring Agency (ARMA) for the exchange of Large Height Deviation (LHD) Data. The ATS Section shall establish a mechanism for monitoring RVSM in order to ensure that the implementation and continued application of this vertical separation minimum meets the safety objectives. The scope of regional monitoring programme shall be adequate to conduct analyses of aircraft group performance and evaluate the stability of altimetry system error.

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

Note.— Guidance material relating to RCP and RSP specifications and monitoring of communication and surveillance performance is contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).

(8) Arrangements shall be put in place, through interregional agreement, for the sharing between regions of data from monitoring programmes.

24.4.4 SEPARATION MINIMA

(1) The selection of separation minima for application within the Accra FIR shall be as follows:

(a) the separation minima shall be selected from those prescribed by the

provisions of the PANS-ATM and the *Regional Supplementary Procedures* as applicable under the prevailing circumstances except that, where types of aids are used or circumstances prevail which are not covered by current ICAO provisions, other separation minima shall be established as necessary by:

i. the appropriate ATS authority, following consultation with operators, for routes or portions of routes contained within the sovereign airspace of the Republic of Ghana;

ii. regional air navigation agreements for routes or portions of routes contained within airspace over the high seas or over areas of undetermined sovereignty.

Note.— Details of current separation minima prescribed by ICAO are contained in the PANS-ATM (Doc 4444) and the Regional Supplementary Procedures (Doc 7030).

(2) the selection of separation minima shall be made in consultation between the appropriate ATS authorities responsible for the provision of air traffic services in neighbouring airspace when:

(a) traffic will pass from one into the other of the neighbouring airspaces;

(b) routes are closer to the common boundary of the neighbouring airspaces than the separation minima applicable in the circumstances.

Note.— The purpose of this provision is to ensure, in the first case, compatibility on both sides of the line of transfer of traffic, and, in the other case, adequate separation between aircraft operating on both sides of the common boundary.

(3) Details of the selected separation minima and of their areas of application shall be notified:

(a) to the ATS units concerned; and

(b) to pilots and operators through aeronautical information publications, where separation is based on the use by aircraft of specified navigation aids or specified navigation techniques.

24.4.5 RESPONSIBILITY FOR CONTROL

24.4.5.1 RESPONSIBILITY FOR CONTROL OF INDIVIDUAL FLIGHTS

A controlled flight shall be under the control of only one air traffic control unit at any given time.

24.4.5.2 RESPONSIBILITY FOR CONTROL WITHIN A GIVEN BLOCK OF AIRSPACE

Responsibility for the control of all aircraft operating within a given block of airspace shall be vested in a single air traffic control unit. However, control of an aircraft or groups of aircraft may be delegated to

other air traffic control units provided that the coordination between all air traffic control units concerned has been effected.

24.4.6 TRANSFER OF RESPONSIBILITY FOR CONTROL

24.4.6.1 PLACE OR TIME OF TRANSFER

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

24.4.6.2 BETWEEN TWO UNITS PROVIDING AREA CONTROL SERVICE

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

24.4.6.3 BETWEEN A UNIT PROVIDING AREA CONTROL SERVICE AND A UNIT PROVIDING APPROACH CONTROL SERVICE.

The unit providing area control service shall transfer the responsibility for the control of an aircraft to the unit providing approach control service at an agreed point or time between the two units.

24.4.6.4 BETWEEN A UNIT PROVIDING APPROACH CONTROL SERVICE AND AN AERODROME CONTROL TOWER

24.4.6.4.1 ARRIVING AIRCRAFT.

The unit providing approach control service shall transfer the responsibility for the control of an arriving aircraft to the aerodrome control tower, when the aircraft:

(a) is in the vicinity of the aerodrome, and:

(i) it is considered that approach and landing will be completed in visual reference to the ground, or

(ii) 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.

Note.— Even though there is an approach control unit, control of certain flights may be transferred directly from an area control centre to an aerodrome control tower and vice versa, by prior arrangement between the units concerned for the relevant part of approach control service to be provided by the area control centre or the aerodrome control tower, as applicable.

24.4.6.4.2 DEPARTING AIRCRAFT.

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

(a) when visual meteorological conditions prevail in the vicinity of the aerodrome:

i. prior to the time the aircraft leaves the vicinity of the aerodrome, or

ii. prior to the aircraft entering instrument meteorological conditions, or

iii. at a prescribed point or level,

as specified in letters of agreement or ATS

(b) when instrument meteorological conditions prevail at the aerodrome:

i. immediately after the aircraft is airborne, or

ii. at a prescribed point or level,

as specified in letters of agreement or ATS unit instructions.

24.4.6.4.3 Between control sectors or positions within the same air traffic control unit

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

24.4.6.5 COORDINATION OF TRANSFER

(1) Responsibility for control of an aircraft shall not be transferred from one air traffic control unit to another without the consent of the accepting control unit, which shall be obtained in accordance with 24.4.6.5(2), 24.4.6.5(3), 24.4.6.5(4) and 24.4.6.5(5).

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

(3) Where transfer of control is to be effected using radar data or ADS-B, 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.

(4) 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.

(5) 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.

(6) 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.

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

24.4.7 AIR TRAFFIC CONTROL CLEARANCES

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

24.4.7.1 CONTENTS OF CLEARANCES

(1) An air traffic control clearance shall specify:

(a) aircraft identification as shown in the flight plan;

(b) clearance limit;

(c) route of flight;

(d) level(s) of flight for the entire route or part thereof and changes of levels if necessary;

(e) any necessary instructions or information on other matters such as approach or departure manoeuvres, communications and the time of expiry of the clearance.

Note.— The time of expiry of the clearance indicates the time after which the clearance will be automatically cancelled if the flight has not been commenced.

(2) Standard departure and arrival routes and associated procedures shall be established when necessary to facilitate:

(a) the safe, orderly and expeditious flow of air traffic;

(b) the description of the route and procedure in air traffic control clearances.

Note.— Material relating to the establishment of standard departure and arrival routes and associated procedures is contained in the Air Traffic Services Planning Manual (Doc 9426). The design criteria are contained in PANS-OPS (Doc 8168), Volume II.

24.4.7.2 CLEARANCES FOR TRANSONIC FLIGHT

(1) The air traffic control clearance relating to the transonic acceleration phase of a supersonic flight shall extend at least to the end of that phase.

(2) The air traffic control clearance relating to the deceleration and descent of an aircraft from supersonic cruise to subsonic flight shall provide for uninterrupted descent, at least during the transonic phase.

24.4.7.3 READ-BACK OF CLEARANCES AND SAFETY–RELATED INFORMATION.

(1) The flight crew shall read back to the air traffic controller safety-related parts of ATC clearances and instructions which are transmitted by voice. The following items shall always be read back:

(a) ATC route clearances;

(b) clearances and instructions to entering, landing on, taking off on, holding short of, crossing and backtracking on any runway; and

(c) runway-in-use, altimeter settings, SSR codes, level instructions, heading and speed instructions and, whether issued by the controller or contained in ATIS broadcasts, transition levels.

(2) Flight crew shall read back or acknowledge other clearances and instructions including conditional clearances in a manner to clearly show that they have been understood and would be complied with.

(3) The controller shall listen to the read-back to ascertain that the clearance or instruction has been correctly acknowledged by the flight crew and shall take immediate action to correct any discrepancies revealed by the read-back.

(4) Unless specified by the appropriate ATS authority, voice read-back of CPDLC messages shall not be required.

24.4.7.4 COORDINATION OF CLEARANCES

(1) An air traffic control clearance shall be coordinated between air traffic control units to cover the entire route of an aircraft or a specified portion thereof as follows.

(2) 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.

Note.— Where a clearance is issued covering the initial part of the flight solely as a means of expediting departing traffic, the succeeding en-route clearance will be as specified above even though the aerodrome of first intended landing is under the jurisdiction of an area control centre other than the one issuing the en-route clearance.

(3) When coordination as in 24.4.7.4(1) has not been achieved or is not anticipated, the aircraft shall be cleared only to that point where coordination is reasonably assured; prior to reaching such point, or at such point, the aircraft shall receive further clearance, holding instructions being issued as appropriate.

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

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

(6) Downstream clearances shall be clearly indicated as such to the pilot.

(7) 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.

(8) Where practicable, and where data link communications are used to facilitate downstream clearance delivery, two-way voice communications between the pilot and the air traffic control unit providing the downstream clearance shall be available.

(9) 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 center shall be effected prior to issuance of the departure clearance.

(10) 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.

24.4.7.5 AIR TRAFFIC FLOW MANAGEMENT

(1) Subject to the approval of the Authority, Air traffic flow management (ATFM) shall be implemented for airspace where air traffic demand at times exceeds, or is expected to exceed, the declared capacity of the air traffic control services concerned.

(2) ATFM shall be implemented on the basis of regional air navigation agreements or, if appropriate, through multilateral agreements. Such agreements shall make provision for common procedures and common methods of capacity determination.

(3) When it becomes apparent to an ATC unit that traffic additional to that already accepted cannot be accommodated within a given period of time at a particular location or in a particular area, or can only be accommodated at a given rate,

that unit shall so advise the ATFM unit, when such is established, as well as, when appropriate, ATS units concerned. Flight crews of aircraft destined to the location or area in question and operators concerned shall also be advised of the delays expected or the restrictions that will be applied.

24.4.8 CONTROL OF PERSONS AND VEHICLES AT AERODROMES

(1) In order to avoid any hazard to the movement of persons, vehicles and towed aircraft, such movements shall be controlled by the aerodrome control tower.

(2) In conditions where visibility is below 5000 metres:

(a) persons and vehicles operating on the manoeuvring area of an aerodrome shall be limited to the essential minimum, with particular regard being given to the requirements to protect the ILS or MLS sensitive area(s) when Category II or Category III precision instrument operations are in progress;

(b) subject to the provisions in 24.4.8(3), the minimum separation between vehicles and taxiing aircraft shall be as prescribed by the appropriate ATS authority taking into account the aids available;

(c) when mixed ILS and MLS Category II or Category III precision instrument operations are taking place to the same runway continuously, the more restrictive ILS or MLS critical and sensitive areas shall be protected.

Note.— Details of low visibility operations are specified in Subpart 24.10 of this Part.

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

(4) Subject to the provisions in 24.4.8(3), 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.

24.4.9 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.

24.4.10 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 14 of the Ghana Civil Aviation (Aerodromes) Directive, 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.

Note.— See the Manual of Surface Movement Guidance and Control Systems (SMGCS) (Doc 9476), the Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual (Doc 9830) and the Air Traffic Services Planning Manual (Doc 9426) for guidance on the use of SMR.

24.5 FLIGHT INFORMATION SERVICE

24.5.1 APPLICATION

(1) Flight information service shall be provided to all aircraft which are likely to be affected by the information and which are:

(a) provided with air traffic control service; or

(b) otherwise known to the relevant air traffic services units.

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.

(2) Where air traffic services units provide both flight information service and air traffic control service, the provision of air traffic control service shall have precedence over the provision of flight information service whenever the provision of air traffic control service so requires.

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.

24.5.2 SCOPE OF FLIGHT INFORMATION SERVICE

(1) Flight information service shall include the provision of pertinent:

(a) SIGMET and AIRMET information;

(b) information concerning pre-eruption volcanic activity, volcanic

eruptions and volcanic ash clouds;

(c) information concerning the release into the atmosphere of radioactive materials or toxic chemicals;

(d) information on changes in the serviceability of navigation aids;

(e) information on changes in condition of aerodromes and associated facilities, including information on the state of the aerodrome movement areas when they are affected by significant depth of water;

(f) information on unmanned free balloons;

and of any other information likely to affect safety.

(2) Flight information service provided to flights shall include, in addition to that outlined in 24.5.2(1), 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 1.— The information in b), including only known aircraft, the presence of which might constitute a collision hazard to the aircraft informed, will sometimes be incomplete and air traffic services cannot assume responsibility for its issuance at all times or for its accuracy.

Note 2.— When there is a need to supplement collision hazard information provided in compliance with b), or in case of temporary disruption of flight information service, traffic information broadcasts by aircraft may be applied in designated airspaces.

(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. Transmissions to aircraft shall be continued for a period to be determined by agreement between the meteorological and air traffic services authorities concerned.

(4) Flight information service provided to VFR flights shall include, in addition to that outlined in 24.5.2(1), the provision of available information concerning traffic and weather conditions along the route of flight that are likely to make operation under the visual flight rules impracticable.

24.5.3 OPERATIONAL FLIGHT INFORMATION SERVICE BROADCASTS

24.5.3.1 APPLICATION

(1) The meteorological information and operational information concerning

navigation aids and aerodromes included in the flight information service shall, whenever available, be provided in an operationally integrated form.

(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.

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

24.5.3.2 USE OF THE OFIS MESSAGES IN DIRECTED REQUEST OR REPLY TRANSMISSIONS

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

24.5.3.3 HF OPERATIONAL FLIGHT INFORMATION SERVICE (OFIS) BROADCASTS

(1) HF operational flight information service (OFIS) broadcasts shall be provided when it has been determined by regional air navigation agreements that a requirement exists.

(2) Whenever such broadcasts are provided:

(a) the information shall be in accordance with 24.5.3.2(5), as applicable, subject to regional air navigation agreements;

(b) the aerodromes for which reports and forecasts are to be included shall be as determined by regional air navigation agreements;

(c) the time-sequencing of stations participating in the broadcast shall be as determined by regional air navigation agreements;

(d) the HF OFIS broadcast message shall take into consideration human performance. The broadcast message shall not exceed the length of time allocated for it by regional air navigation agreements, care being taken that the readability is not impaired by the speed of the transmission;

(e) each aerodrome message shall be identified by the name of the aerodrome to which the information applies;

(f) 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;

(g) the full broadcast message shall be repeated if this is feasible within the remainder of the time allotted to the broadcasting station;

(h) the broadcast information shall be updated immediately a significant change occurs; and

(i) the HF OFIS message shall be prepared and disseminated by the

most appropriate unit(s) as designated by the Authority.

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

(4) HF operational flight information service broadcast messages shall contain the following information in the sequence indicated or as determined by regional air navigation agreements:

(5) ***En-route weather information.*** Information on significant en-route weather phenomena shall be in the form of available SIGMET as prescribed in Part 20 of Ghana Civil Aviation (ANS) Directives.

(a) Aerodrome information including:

i. name of aerodrome;

ii. time of observation;

iii. essential operational information;

iv. surface wind direction and speed; if appropriate, maximum wind speed;

v. visibility and, when applicable, runway visual range (RVR);

vi. present weather;

vii. 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; and

viii. aerodrome forecast.

** These elements are replaced by the term "CAVOK", whenever the conditions as specified in the PANS-ATM (Doc 4444), Chapter 11 prevail.*

24.5.3.4 VHF OPERATIONAL FLIGHT INFORMATION SERVICE (OFIS) BROADCASTS

(1) VHF operational flight information service broadcasts shall be provided as determined by regional air navigation agreements.

(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.

(3) VHF OFIS broadcasts concerning aerodromes designated for use by international air services shall be available in the English language.

(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 navigation aids, if appropriate;

(f) holding delay, if appropriate;

(g) surface wind direction and speed; if appropriate, available;

(h) air temperature;

(i) dew point temperature maximum wind speed;

(j) visibility and, when applicable, runway visual range (RVR);

(k) present weather;

(l) 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;

(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.

* *These elements are replaced by the term "CAVOK", whenever the conditions as specified in the PANS-ATM (Doc 4444), Chapter 11 prevail.*

† *As determined on the basis of regional air navigation agreements.*

24.5.3.5 VOICE-AUTOMATIC TERMINAL INFORMATION SERVICE (VOICE-ATIS) BROADCASTS

(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.

(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.

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

(4) Whenever Voice-ATIS is provided, the broadcast shall be continuous and repetitive.

(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).

(6) Pending the development and adoption of a more suitable form of speech for universal use in aeronautical radiotelephony communications, Voice-ATIS broadcasts provided at aerodromes designated for use by international air services shall be available in the English language.

(7) The Voice-ATIS broadcast message shall, whenever practicable, not exceed 30 seconds, care being taken that the readability of the ATIS message is not impaired by the speed of the transmission or by the identification signal of a navigation aid used for transmission of ATIS. The ATIS broadcast message shall take into consideration human performance.

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

24.5.3.6 DATA LINK-AUTOMATIC TERMINAL INFORMATION SERVICE (D- ATIS)

(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.

(2) Where real-time meteorological information is included but the data remains within the parameters of the significant change criteria, the content, for the purpose of maintaining the same designator, shall be considered identical.

Note.— Significant change criteria are specified in 2.3.2 of IS: 20.4 to Part 20 of the Ghana Civil Aviation (ANS) Directives – Aeronautical Meteorology

(3) 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.

Note.— Guidance material relating to D-ATIS is contained in the Manual of Air Traffic Services Data Link Applications (Doc 9694). The technical requirements for the D-ATIS application are contained in Subpart 23.3 of Part 23 of the Ghana Civil Aviation (ANS) Directives.

24.5.3.7 AUTOMATIC TERMINAL INFORMATION SERVICE (VOICE AND/OR DATA LINK)

(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.

(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.

(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 24.5.3.6(1)(f).

(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.

(5) Contents of ATIS shall be kept as brief as possible. Information additional to that specified in Subparts 24.5.3.7 to 24.5.3.9, for example information already available in Aeronautical Information Publications (AIPs) and NOTAM, shall only be included when justified in exceptional circumstances.

24.5.3.8 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 1500 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.

** These elements are replaced by the term "CAVOK" whenever the conditions as specified in the PANS-ATM (Doc 4444), Chapter 11 prevail.*

† As determined on the basis of regional air navigation agreements.

24.5.3.9 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 1500 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.

24.5.3.10 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 1500 m (5000 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.

* *These elements are replaced by the term "CAVOK", whenever the conditions as specified in the PANS-ATM (Doc 4444), Chapter 11 prevail.*

† As determined on the basis of regional air navigation agreements.

24.5.4 VOLMET BROADCASTS AND D-VOLMET SERVICE

(1) HF and/or VHF VOLMET broadcasts and/or D-VOLMET service shall be provided when it has been determined by regional air navigation agreements that a requirement exists.

Note.— Part 20 of Ghana Civil Aviation (ANS) Directives provide details of VOLMET broadcasts and DVOLMET service.

(2) VOLMET broadcasts shall use standard radiotelephony phraseologies.

Note.— Guidance on standard radiotelephony phraseologies to be used in VOLMET broadcasts is given in the Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services (Doc 9377), Appendix 1.

24.6 ALERTING SERVICE

24.6.1 APPLICATION

(1) Alerting service shall be provided:

(a) for all IFR flights and controlled VFR flights including SVFR flights within controlled airspace.

(b) in so far as practicable, for all other aircraft having filed a flight plan or otherwise known to the air traffic services; and

(c) for any aircraft known or believed to be the subject of unlawful interference.

(2) Flight information centres or area control centers shall collect all information relevant to a state of emergency of an aircraft operating within the flight information region or control area concerned and for forwarding such information to the appropriate rescue coordination centre.

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

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

24.6.2 NOTIFICATION OF RESCUE COORDINATION CENTRES

(1) Without prejudice to any other circumstances that may render such notification advisable, air traffic services units shall, except as prescribed in 24.6.5(1), notify rescue coordination centers immediately an aircraft is considered to be in a state of emergency in accordance with the following:

(a) Uncertainty phase when:

i. no communication has been received from an aircraft within a period of thirty minutes after the time a communication shall have been received, or from the time an unsuccessful attempt to establish communication with such aircraft was first made, whichever is the earlier, or when

ii. an aircraft fails to arrive within thirty minutes of the estimated time of arrival last notified to or estimated by air traffic services units, whichever is the later,

except when no doubt exists as to the safety of the aircraft and its occupants.

(b) Alert phase when:

i. following the uncertainty phase, subsequent attempts to establish communication with the aircraft or inquiries to other relevant sources have failed to reveal any news of the aircraft, or when

ii. an aircraft has been cleared to land and fails to land within five minutes of the estimated time of landing and communication has not been re-established with the aircraft, or when

iii. information has been received which indicates that the operating efficiency of the aircraft has been impaired, but not to the extent that a forced landing is likely,

except when evidence exists that would allay apprehension as to the safety of the aircraft and its occupants, or when

iv. an aircraft is known or believed to be the subject of unlawful interference.

(c) Distress phase when:

i. following the alert phase, further unsuccessful attempts to establish communication with the aircraft and more widespread unsuccessful inquiries point to the probability that the aircraft is in distress, or when

ii. the fuel on board is considered to be exhausted, or to be insufficient to enable the aircraft to reach safety, or when

iii. information is received which indicates that the operating efficiency of the aircraft has been impaired to the extent that a forced landing is likely, or when

iv. information is received or it is reasonably certain that the aircraft is about to make or has made a forced landing,

except when there is reasonable certainty that the aircraft and its occupants are not endangered and as such do not require immediate assistance.

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

a. INCERFA, ALERFA or DETRESFA, as appropriate to the phase of the emergency;

b. agency and person calling;

c. nature of the emergency;

d. significant information from the flight plan;

e. unit which made last contact, time and means used;

f. last position report and how determined;

g. colour and distinctive marks of aircraft;

h. dangerous goods carried as cargo;

i. any action taken by reporting office; and

j. other pertinent remarks.

(3) Such part of the information specified in 24.6.2(2), which is not available at the time notification is made to the rescue coordination centre, shall be sought by an air traffic services unit prior to the declaration of a distress phase, if there is every assurance that this phase will eventually occur.

(4) Further to the notification in 24.6.2(1), the rescue coordination centre shall, without delay, be furnished with:

(a) any useful additional information, especially on the development of the state of emergency through subsequent phases; or

(b) information that the emergency situation no longer exists.

24.6.3 USE OF COMMUNICATION FACILITIES

Air traffic services units shall, in as far as practicable, use all available communication facilities to ensure the establishment and maintenance of communication with aircraft in emergency, and to request news of such aircraft.

24.6.4 PLOTTING AIRCRAFT IN A STATE OF EMERGENCY

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

24.6.5 INFORMATION TO THE OPERATOR

(1) When the area control center decides that an aircraft is in the uncertainty or the alert phase, it shall, when practicable, advise the operator prior to notifying the rescue coordination centre.

(2) All information notified to the rescue coordination centre by area control centre shall, whenever practicable, also be communicated, without delay, to the operator.

24.6.6 INFORMATION TO AIRCRAFT OPERATING IN THE VICINITY OF AN AIRCRAFT IN A STATE OF EMERGENCY

(1) When an air traffic services unit has been assured that an aircraft is in a state of

emergency, other aircraft known to be in the vicinity of the aircraft involved shall, except as provided in 24.6.6(2), be informed of the nature of the emergency as soon as practicable.

(2) When an air traffic services unit knows or considers that an aircraft is being subjected to unlawful interference, no reference shall be made in ATS air- ground communications to the nature of the emergency unless it has first been referred to in communications from the aircraft involved and it is certain that such reference will not worsen the situation.

24.7 AIR TRAFFIC SERVICES REQUIREMENTS FOR COMMUNICATIONS

24.7.1 AERONAUTICAL MOBILE SERVICE (AIR-GROUND COMMUNICATIONS)

24.7.1.1 GENERAL

(1) Radiotelephony and/or data link shall be used in air-ground communications for air traffic services purposes.

(2) Where an RCP specification has been prescribed by the Authority for performance-based communication, ATS units shall, in addition to the requirements specified in 24.7.1.1(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).

(3) When direct pilot-controller two-way radiotelephony or data link communications are used for the provision of air traffic control service, recording facilities shall be provided on all such air-ground communication channels.

Note.— Requirements for retention of all automatic recordings of communications in ATC are specified in Part 23 of the Ghana Civil Aviation (ANS) Directives.

(4) Recordings of communications channels as required in Subpart 24.7.1.1(3) shall be retained for a period of at least thirty days.

24.7.1.2 FOR FLIGHT INFORMATION SERVICE

(1) Air-ground communication facilities shall be employed in the provision of two-way communications between the unit providing flight information service and appropriately equipped aircraft operating anywhere within the flight information region.

(2) Whenever practicable, air-ground communication facilities for flight information service shall permit direct, rapid, continuous and static-free two-way communications.

24.7.1.3 FOR AREA CONTROL SERVICE

(1) Air-ground communication facilities shall be employed in the provision of two- way communications between the unit providing area control service and appropriately equipped aircraft operating anywhere within the control area(s).

(2) Whenever practicable, air-ground communication facilities for area control service shall permit direct, rapid, continuous and static-free two-way communications.

(3) Where air-ground voice communication channels are used for area control service and are worked by air-ground communicators, suitable arrangements shall be made to permit direct pilot-controller voice communications, as and when required.

24.7.1.4 FOR APPROACH CONTROL SERVICE

(1) Air-ground communication facilities shall be employed in the provision of direct, fast, uninterrupted and static-free two-way communications between the unit providing approach control service and appropriately equipped aircraft under its control.

(2) The approach control unit shall be equipped with air- ground communication channels for its exclusive use.

24.7.1.5 FOR AERODROME CONTROL SERVICE

(1) Air-ground communication facilities shall be employed in the provision of direct, rapid, continuous and static-free two-way communications between the aerodrome control tower and appropriately equipped aircraft operating at any distance within 45 km (25 NM) of the aerodrome concerned.

(2) When conditions demand, separate communication channels shall be provided for the control of traffic operating on the manoeuvring area.

24.7.2 AERONAUTICAL FIXED SERVICE (GROUND-GROUND COMMUNICATIONS)

24.7.2.1 GENERAL

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

24.7.2.2 COMMUNICATIONS WITHIN A FLIGHT INFORMATION REGION

(1) ***Communications between air traffic services units.*** The flight information centre shall be equipped with facilities for communicating with the following units providing services within its area of responsibility:

(a) the area control centre, unless collocated;

(b) approach control units;

(c) aerodrome control tower(s).

(2) An area control centre, in addition to being connected to the flight information centre as prescribed in 24.7.2.2(1), shall be equipped with facilities for communicating with the following units providing services within its area of responsibility:
(a) approach control units;

(b) aerodrome control towers;

(c) air traffic services reporting offices, when separately established.

(3) The unit providing approach control service shall , in addition to being connected to the flight information centre and the area control centre as prescribed in 24.7.2.2(1) and 24.7.2.2(2), be equipped with facilities for communicating with the associated aerodrome control tower(s) and, when separately established, the associated air traffic services reporting office(s).

(4) The unit providing aerodrome control service shall, in addition to being connected to the flight information centre, the area control centre and the approach control unit as prescribed in 24.7.2.2(1), 24.7.2.2(2) and 24.6.2.2(3), be equipped with facilities for communicating with the associated air traffic services reporting office, when separately established.

24.7.2.3 COMMUNICATIONS BETWEEN AIR TRAFFIC SERVICES UNITS AND OTHER UNITS

(1) The flight information centre and the area control centre shall have facilities for communicating with the under listed units providing services 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.

(2) The approach control unit and the aerodrome control tower shall be equipped

with appropriate facilities for communicating with the following units providing services within their respective area of responsibility:

(a) appropriate military units;

(b) rescue and emergency services (including ambulance, fire, etc.);

(c) the meteorological office serving the unit concerned;

(d) the aeronautical telecommunications station serving the unit concerned;

(e) the unit providing apron management service, when separately established.

(3) The communication facilities required under 24.7.2.3(1)(a) and 24.7.2.3(2) (a) shall include provisions for fast and dependable 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.

24.7.2.4 DESCRIPTION OF COMMUNICATION FACILITIES

(1) The communication facilities required under 24.7.2.2.1, 24.7.2.2.2.1 a) and 24.7.2.2.2.2 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.

(2) In all cases not covered by 24.7.2.2.3.1, 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.

(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.

(4) The communication facilities required in accordance with 24.7.2.2.1 and 24.7.2.2.2 shall be supplemented, as and where necessary, by facilities for other forms of visual or audio communications, for example, closed circuit television or separate information processing systems.

(5) The communication facilities required under 24.7.2.2.2.2 a), b) and c) shall include provisions for communicating by direct speech arranged for conference communications.

(6) The communication facilities required under 24.7.2.2.2.2 d) shall include provisions for communicating by direct speech arranged for conference communications, whereby the communications can normally be established within fifteen seconds.

(7) All facilities for direct-speech or data link communications between air traffic services units and between air traffic services units and other units described under 24.7.2.2.2.1 and 24.7.2.2.2.2 shall be provided with automatic recording.

(8) Recordings of data and communications as required in 24.7.2.2.3.3 and 24.7.2.2.3.7 shall be retained for a period of at least thirty days.

24.7.2.5 COMMUNICATIONS BETWEEN FLIGHT INFORMATION REGIONS

(1) Flight information centres and area control centres shall be equipped with facilities for communicating with all adjacent flight information centres and area control centres.

(2) 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.

(3) 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 or 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.

(4) When so required by agreement between the States concerned in order to eliminate or reduce the need for interceptions in the event of deviations from assigned track, facilities for communications between adjacent flight information centres or area control centres other than those mentioned in 24.7.2.3.1.2 shall include provisions for direct speech alone, or in combination with data link communications. The communication facilities shall be provided with automatic recording.

(5) The communication facilities in 24.7.2.3.1.3 shall permit communications to be established normally within fifteen seconds.

(7) Adjacent ATS units shall be connected in all cases where special circumstances exist.

(8) 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.

(9) The communication facilities in 24.7.2.3.2 and 24.7.2.3.3 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 or ADS-B and ADS-C data, the communications can be established instantaneously and for other purposes the communications can

normally be established within fifteen seconds.

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

24.7.2.6 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.

24.7.3 SURFACE MOVEMENT CONTROL SERVICE

24.7.3.1 COMMUNICATIONS FOR THE CONTROL OF VEHICLES OTHER THAN AIRCRAFT ON MANOEUVRING AREAS AT CONTROLLED AERODROMES

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

(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.

(3) Recordings of communications as required in 24.7.3.1(2) shall be referred for a period of at least thirty days

24.7.4 AERONAUTICAL RADIO NAVIGATION SERVICE

24.7.4.1 Automatic recording of surveillance data

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

(2) Automatic recordings shall be retained for a period of at least thirty days. Recordings found to be pertinent to accident and incident investigations, shall be retained for longer periods until evidently no longer required.

24.7.5 APRON MANAGEMENT SERVICES.

24.7.5.1 PROVISION OF APRON MANAGEMENT SERVICES.

(1) When warranted by the volume of traffic, complexity of traffic and operating conditions, an appropriate Apron Management Services approved by the

Authority shall either be provided by an Aerodrome ATS unit, or an Airports operator or by a combination of both, in order to:

(a) Control movement with the objective of preventing collisions between aircraft, between aircraft and vehicles and between aircraft and obstacles:

(b) Control entry of aircraft into, and coordinate exit of aircraft from the apron with the aerodrome control tower:

(c) Ensure safe and expeditious movements of vehicles, persons and appropriate control of other movements on the apron.

(2) When the aerodrome control tower does not participate in the apron management services, approved coordination procedures shall be established to facilitate the orderly and safe transition of aircraft between the apron management unit and the aerodrome control tower.

(3) An apron management service shall be provided with approved radiotelephony communications facilities.

(4) Where low visibility procedures are in effect, persons and vehicles operating on an apron shall be restricted to the essential minimum.

(5) An emergency vehicle responding to an emergency shall be given priority over all other surface movement traffic.

(6) A vehicle operating on an apron shall:

(a) Give way to an emergency vehicle, an aircraft taxiing, about to taxi, or being pushed or towed.

(b) Give way to other vehicles in accordance with local procedures.

(7) An aircraft stand shall be visually monitored to ensure that the established clearance distances are provided to an aircraft using the stand.

24.7.6 AERODROME VEHICLE OPERATIONS.

(1) Roads located on the movement and manoeuvring areas shall be restricted to the exclusive use of authorized personnel and that access to the public buildings by authorized personnel shall not require the use of such roads.

(2) Only radio-equipped vehicles shall be permitted to operate:

(a) On a manouevring area only as authorized by the aerodrome control tower and;

(b) On the apron only as authorized by the appropriate designated authority.

(3) Drivers of vehicles on the manoeuvring or movement areas shall demonstrate to the Authority, proficiency in approved radiotelephony procedures and shall comply with all mandatory instructions conveyed by markings, radio, light signals and signs unless otherwise instructed by:

(a) The aerodrome control tower when on the manouevring area or

(b) The appropriate designated authority when on the apron.

(4) Drivers of vehicles on the movement area shall comply with all mandatory instructions conveyed by light signals.

(5) Drivers of vehicles on the movement or manoeuvring areas shall undergo appropriate training approved by the Authority for the tasks to be performed and shall comply with all instructions issued by:

(a) The aerodrome control tower, when on the manoeuvring area, and

(b) The appropriate designated authority when on the apron.

(6) Drivers of radio-equipped vehicles shall establish satisfactory two-way communication with the aerodrome control tower before entering the manoeuvring area and with the appropriate designated authority before entering the apron. Drivers shall maintain a continuous listening watch on the assigned frequency when on the movement or manoeuvring areas.

24.8 AIR TRAFFIC SERVICES REQUIREMENTS FOR INFORMATION

24.8.1 METEOROLOGICAL INFORMATION

24.8.1.1 GENERAL

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

(2) Meteorological offices shall be so situated as to facilitate personal consultation between meteorological personnel and personnel of units providing air traffic services. Where collocation is not practicable, the required consultation shall be achieved by other means.

(3) 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.

Note. — The meteorological phenomena are listed in Subpart 20.4.6.8. of Part 20 of the Ghana Civil Aviation (ANS) Directives.

(4) When computer-processed upper air data are made available to air traffic services units in digital form for use by air traffic services computers, the contents, format and transmission arrangements shall be as agreed between the Meteorological Authority and the appropriate ATS Authority.

24.8.1.2 FLIGHT INFORMATION CENTRES AND AREA CONTROL CENTRES

(1) The flight information centre and the area control center shall be supplied with SIGMET and AIRMET information, special air-reports, current meteorological reports and forecasts, with particular emphasis being laid on the occurrence or expected occurrence of bad weather as soon as this can be determined. Such reports and forecasts shall cover the flight information region or control area and such other areas as appropriate to be determined on the basis of regional air navigation agreements.

(2) Current pressure data for setting altimeters shall be supplied to the flight information center or the area control center at appropriate intervals for locations specified by these centers.

24.8.1.3 UNITS PROVIDING APPROACH CONTROL SERVICE

(1) Units providing approach control service shall be supplied with current meteorological reports and forecasts 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 displays to which they are related shall be clearly marked to identify the runway and section of the runway monitored by each anemometer.

(2) The approach control unit shall be supplied with current pressure information for setting altimeters, for locations specified by this unit.

(3) The unit 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.

(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(s) in the aerodrome control tower and in the meteorological station, where such a station exists.

(5) Units providing approach control service for final approach, landing and take-off at aerodrome 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) The unit 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.

24.8.1.4 AERODROME CONTROL TOWERS

(1) Aerodrome control towers shall be supplied with current meteorological reports and forecasts 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.

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

(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 sensors 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 sensor.

(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.

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

(7) Aerodrome control towers and or other appropriate units shall be supplied with aerodrome warnings.

24.8.1.5 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.

24.8.2 INFORMATION ON AERODROME CONDITIONS AND THE OPERATIONAL STATUS OF ASSOCIATED FACILITIES

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

24.8.3 INFORMATION ON THE OPERATIONAL STATUS OF NAVIGATION SERVICES

(1) ATS units shall be kept currently informed of the operational status of non-visual navigation aids, and those visual aids essential for take-off, departure, approach and landing procedures within their area of responsibility and those radio navigational services and visual aids essential for surface movement.

(2) Information on the operational status, and any changes thereto, of radio navigational services and visual aids as referred to in 24.8.3.1 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.

24.8.4 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 19.

24.8.5 INFORMATION CONCERNING VOLCANIC ACTIVITY

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

(2) Area Control Centers and Flight Information Centers shall be provided with volcanic ash advisory information issued by the associated VAAC.

24.8.6 INFORMATION CONCERNING RADIOACTIVE MATERIALS AND TOXIC CHEMICAL "CLOUDS"

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

24.8.7 INFORMATION CONCERNING SEVERE HARMATTAN CONDITIONS

(1) ATS units shall be informed, in accordance with local agreement, of anticipated severe Harmattan conditions which could affect airspace used by flights within their area of responsibility.

(2) ATS units shall be provided with advisory information issued by the authorized Meteorological Service Provider on Harmattan conditions.

24.8.8 INFORMATION ON SEASONAL BIRD CONCENTRATION AROUND AIRPORTS

(1) ATS units shall be informed, of the presence of bird concentration around airports which could constitute hazardous conditions for flight operations by the following:

(a) duty aerodrome controller

(b) Airports Operations

(c) Pilots

(d) any other source.

24.9 AIR TRAFFIC SERVICE TRAINING

24.9.1 GENERAL

(1) The provider of Air Traffic Services shall establish procedures and programmes for the training and assessment of the following personnel:

(a) Air traffic controllers;

(b) Flight procedure design officers;

(c) Personnel directly involved in supervision of, or immediate operational support to, personnel providing air traffic services listed in the ATS Provider's Manual.

(2) The ATS Provider shall establish procedures to ensure that personnel giving instruction in an operational environment hold an appropriate current On-the-Job Training (OJT) Instructor endorsement issued in accordance with the requirements of the Authority.

(3) The ATS Provider shall establish procedures to ensure that personnel carrying out assessment for the issue of licences or validation of ratings, hold an appropriate current OJT Instructor or Examiner endorsement issued in accordance with the requirements of the Authority.

(4) The ATS Provider shall submit the unit training and assessment plan (UTAP) to the Authority for approval.

(5) The ATS Provider shall establish procedures and programmes for recurrent training of ATS personnel in accordance with the requirements of the authority.

24.9.2 ATS OPERATIONS MANUAL

(1) The service provider shall submit to the Authority for approval an Operations Manual as stated in 24.3.1(2) and it shall be subject to compliance with the requirements in these Directives.

(2) Initial copies of the manual shall be submitted to the Authority both in hard and soft copies for review. A comprehensive review shall be conducted by the Authority to verify that the manual conform to the format and style as follows:

(a) The contents of the Operations Manual shall include, but not be limited to, the following:

(i) a table of contents based on the items in the manual, indicating the page number on which each item begins;

(ii) the titles and names, duties and responsibilities of the senior person or person(s) including matters for which they have responsibility to deal directly with the Authority on behalf of the organization;

(iii) an organization chart showing lines of responsibility of the accountable manager 24.3.6(1) (a) and other senior persons and, covering each location where the ATS Provider performs operations;

(iv) a summary of the organization's staffing structure at each location of operations and a statement showing the methodology the ATS Provider uses to determine the number of operational staff required including the number of supervisory staff;

(v) a summary of the scope of activities at each location where the organizations' personnel are based for the purpose of providing the types of services listed under 24.3.1(1);

(vi) the detailed procedures, or an outline of the procedures including information that identifies the following:

A. the ATS technical personnel qualification requirements and competence;

B. the training requirements of ATS technical personnel;

C. ATC Facilities requirements;

D. Documentation;

E. Management of Records, including electronic records;

F. ATC Facility Watch Logbook;

G. Quality Assurance and Safety Management System;

H. ATM Security Program in accordance with ICAO Doc 9985;

I. Prevention of Fatigue;

J. Substance abuse as in 24.9.2 (3) (a & b)

K. Shift Administration;

L. ATM Contingency Plan;

M. Periodic self-auditing;

N. Taking over and handing over watch;

O. Obligation of ATCOs to log all equipment unserviceability and report same to the duty ATSEP;

P. Processes or procedures for implementing Critical Incident Stress Management (CISM) after Accident or Incident;

Q. A description of the processes and documentation used to provide operational instructions to ATC technical staff;

R. A description of the procedures to be followed to ensure all ATC operational staff are familiar with any operational changes that have been issued since they last performed operational duties;

S. Clocks and Time Recording Devices;

T. Service Disruption;

U. Procedures for periodic maintenance of ATC equipment/facilities;

V. Fire Safety; and

W. The detailed procedures to control, amend, and distribute the Operations Manual.

(3) The ATS Provider shall ensure that no person whose function is critical to the safety of aviation (safety sensitive personnel) shall undertake that function while:

(a) under the influence of any psychoactive substance, by reason of which human performance is impaired and

(b) that they shall not engage in any problematic use of substances,

(c) Suffering from fatigue to the degree that their performance may be impaired.

24.9.3 UNIT TRAINING AND ASSESSMENT PLANS (UTAP)

(1) ATS Units shall develop Unit Training and Assessment Plans (UTAPs) that will satisfy the licensing requirements for all ATC training conducted within the unit.

(2) ATS units shall submit their draft UTAP or proposed changes to the UTAP to the Authority for approval.

(3) The UTAP shall adhere to Minimum Experience Requirements as described in this Part.

(4) The UTAP shall include the target training times and assessment schemes for Certificates of Competence (CoC) examinations towards issue of first or subsequent ratings. The UTAP shall indicate the amount of training, if any, that shall be conducted on a simulator.

(5) The Authority shall require an examination board to conduct any CoC examination. An examination board shall consist of an Air Navigation Services Inspector (ATS) and an ATC Examiner.

(6) The UTAP shall include the following:

(a) A description of the duties and qualification of the personnel designated as responsible for planning, performing and supervising the training;

(b) Detailed descriptions of the courses to be conducted at the ATS unit;
(c) Detailed descriptions of the competency assessment procedures; and
(d) A description of the method used for the completion and retention of training records.

24.9.4 ATC COURSE APPROVALS

(1) Courses detailed and described in a Unit Training and Assessment Plan (UTAP) of the ATS Provider do not require further approval by the Authority. Only those courses not specifically mentioned in the unit training and assessment plan require approval by the Authority prior to any ATS personnel attending such courses. This applies to all courses for any air traffic controller or student air traffic controller, who is proposed to attend a course leading to the issuance of the following, related to the Authority's licensing requirements:

(a) Student Air Traffic Controller Licence to conduct training towards the issue of an ATC Rating
(b) OJT Instructor (OJTI) endorsement
(c) Air Traffic Control Examiner (ATCE) endorsement

(2) Costs associated with the Authority's approval of courses shall be met in advance by the ATS Section.

(3) Training courses for ATS personnel shall include:

(a) Human Factors requirements, as contained in ICAO Documents 9683 and 9758,
(b) Threat and Error Management, as contained in ICAO Circular 314,
(c) Theoretical and practical training and assessment in Alerting Service.

(4) ATS units and ATSTOs requesting approval of an ATC course, not contained in UTAP or Operating Certificate, shall submit the following information to the Authority for review prior to commencing the course:

(a) Rating, endorsement or qualification being addressed by the course.
(b) Syllabus
(c) Course schedule
(d) List of Instructors and their Curriculum Vitae (CV)

(5) For courses leading to ATC Ratings requiring simulation, the following details shall be provided:

(a) Minimum number of simulation exercises planned per student;
(b) Statement from ATS unit or ATSTO providing the course confirming that all simulation exercises shall be conducted with one simulation instructor teaching, monitoring and assessing a maximum of one student.

(6) Statements from ATS unit or ATSTO providing the course to confirm that:

(a) In order to attain the course certificate, the student shall attain a pass level in all theoretical examinations and simulation mastery assessments given during the course;

(b) On successful completion of the course the student shall be provided with an individual final course certificate;
(c) The student shall be provided with a final course report indicating areas of weaknesses and strengths, the levels of achievement attained and the number of simulation exercises completed; and
(d) Any amendment to the course provisions, including instructor change or reduction to the syllabus content, which may affect the quality of the instruction, shall be forwarded to the Authority for review.

(7) The minimum pass grade for each subject examination shall be seventy percent (70%). The student air traffic controller shall pass all subject examinations appropriate to the ATC course to be eligible to successfully pass the overall course.

(8) No Air Traffic Services Training Organization in Ghana shall train ATS technical personnel in any of the courses listed in 24.9.4(1) (a), (b) and (c) unless it is approved and certified to do so in accordance with the requirements of the Authority.

(9) The ATS Provider shall ensure that only an Air Traffic Services Training Organization that has been approved and certified by the Authority shall be engaged in the training of its ATS technical personnel in the courses detailed in Section 24.9.4(1)(a), (b) and (c).

(10) The ATS Provider shall ensure that the courses detailed in Section 24.9.4(1) (a), (b) and (c) are approved and certified by the Authority under the Operating Specifications of the Air Traffic Services Training Organization (ATSTO) it engages for the training of ATS technical personnel.

(11) ATS technical personnel attending any of the courses detailed in Section 24.9.4(1)(a),(b) and (c) outside Ghana, shall undergo local preparatory training for a minimum period of two (2) weeks.

(12) ATS Technical personnel attending any of the courses detailed in 24.9.4(1)(a),(b) and (c) outside Ghana, shall undergo local procedures training that includes ATC simulation exercises for a minimum period of three(3) weeks before commencing On-the-Job training. The ATS Provider shall submit a detailed report of the completed local procedures training that shows individual assessment report of the Student Air traffic Controllers within five (5) working days after completion.

24.9.5 AIR TRAFFIC CONTROL EXAMINERS

(1) Examinations for the issue of Certificates of Competence (CoC) for first or subsequent ratings, the renewal of Certificates of Competence, including re-issues following suspensions or lapses of validations of less than 6 months, shall be carried out by a holder of a GCAA ATC Licence with a valid ATC Examiner (ATCE) endorsement, issued by the Authority.

(2) ATC Examiners shall only conduct examinations for sectors or operational positions for which they currently hold and have held for a period of 2 years, a valid CoC. In circumstances where the Examiner does not hold a CoC for a sector or position, an appropriately rated and endorsed OJT Instructor (OJTI) shall be responsible during the examination. In such cases the OJT Instructor shall be

responsible for the operation and safety of the sector or position, and shall sign the CoC under the lead examiner's signature.

(3) The lead examiner conducting the CoC assessment shall take accountability for the assessment result, which is indicated by the examiner signing the CoC.

(4) The lead examiner is the authorized ATC Examiner in charge of a CoC assessment in which the lead examiner does not hold a CoC for the Sector or position under assessment. The lead examiner shall be responsible for the assessment results.

(5) ATC Examiners shall conduct a minimum of two (2) CoC examinations annually. Examiners who do not meet this requirement shall be required to conduct one (1) CoC examination under the supervision of an ATC Examiner, before conducting further examinations.

(6) ATS units shall ensure an adequate number of ATC Examiners to permit coverage for vacation and sick leave.

(7) ATC Examiners shall be assessed annually for competence and suitability relative to their endorsements by either an ATC Examiner or the Head of ATC or Head of Training, by a process documented in the UTAP.

(8) On transferring to another ATS unit an ATC Examiner endorsement shall become invalid.

(9) An examiner who is responsible for the conduct of a CoC examination shall ensure:

(a) That the candidate is fully briefed on:

(i) the schedule for the examination and its constituent parts;

(ii) the persons involved and their roles in the examination;

(iii) the right to appeal in respect of the conduct of the examination.

(b) That the candidate and those involved in the examination are appropriately licensed;
(c) That, during the theoretical element of the examination, the written and oral questions conform to the guidance in this Directive;
(d) That the candidate is fully debriefed following the examination with, if appropriate, the reasons for failure; and
(e) That the necessary licensing documentation is completed.

24.9.6 AIR TRAFFIC CONTROL INSTRUCTORS

(1) Operational training of student air traffic controllers and air traffic controllers, for a specific ATC Rating Position, shall only be conducted by a holder of a GCAA ATC Licence appropriately issued with a valid OJT Instructor (OJTI) endorsement and current CoC for that specific ATC Rating Position.

(2) ATS units shall ensure an adequate number of OJT Instructors to permit coverage for vacation and sick leave.

(3) ATS units shall have procedures in place to ensure that student air traffic controllers or air traffic controllers providing air traffic control services under supervision towards the issuance of an ATC rating hold a valid Student Air Traffic Controller Licence with a valid Class 3 Medical certificate.

(4) Air traffic controllers who are approved to instruct student air traffic controllers shall meet the following criteria:

(a) For classroom training the air traffic controller shall hold a valid ATS Training Instructor certificate issued by the ATS unit having met the requirements stated in Subpart 24.9.27.2. (c).

(b) For operational and simulator training, the air traffic controller shall hold a valid OJT Instructor endorsement having met the requirements stated in Subparts 24.9.26.3(b) and 24.9.26.7.

(5) The Head of ATS Training shall be responsible for:

(a) The effective management of the OJT scheme including the allocation of OJT Instructors to student air traffic controllers and ensuring that individual training records are maintained; and
(b) Monitoring the instructional performance of OJT Instructors and ATS Training Instructors at the unit for continued competent performance.

(6) The OJT Instructor supervising a student air traffic controller providing an ATC service shall be responsible for closely monitoring the student air traffic controller and shall take control if:

(a) Loss of minimum separation has occurred or appears to be imminent,
(b) If any safety hazard becomes apparent
(c) If the OJTI considers a reduction in separation may lead to an unsafe situation, even though minimum separation may not be infringed.

(7) ATC units shall have procedures in place whereby:

(a) OJT Instructors shall demonstrate competence in the conduct of operational and simulator training acceptable to the Head of ATS Training at intervals not exceeding 12 months.
(b) ATS Training Instructors shall demonstrate competence in the conduct of classroom and simulator training acceptable to the Head of ATS Training at intervals not exceeding 12 months.

(8) On transfer to another ATS unit, an OJT Instructor endorsement shall become invalid.

(9) On transfer to another ATS unit, an ATS Training Instructor certificate remains valid for the ATC rating for which training will be conducted.

24.9.7 MANAGEMENT OF RECORDS

(1) The ATS Section shall establish systems and procedures to identify, collect, store, secure, maintain, access, and dispose of, records necessary for –

(a) The operational provision of air traffic services;
(b) The purpose of assisting with any accident or incident investigation;

(c) The ongoing SMS improvement process;
(d) Low visibility operations where applicable; and
(e) Personnel records.

(2) Where applicable, the records shall include electronic recordings of–

(a) Telephone communications;
(b) Radio broadcasts and communications;
(c) Air - ground or ground – ground digital data exchanges;
(d) Radar data and information;
(e) Automatic dependent surveillance data and information;
(f) Any other communication or surveillance system, and
(g) Any electronic means of providing situational awareness such as electronic flight strips.

(3) The records shall also include-

(a) Filed flight plans including standard and repetitive plans;
(b) Flight progress strips;
(c) Appropriate meteorological and aeronautical information, except where the information is retained for an equivalent period by Ghana Meteorological Agency or AIS Section;
(d) Staff duty rosters;
(e) ATS logs and position logs;
(f) A record of each internal audit report, corrective and/or preventive actions taken and management review of such actions. The record shall detail the activities reviewed and any necessary follow- up corrective and preventive actions; and
(g) Unit occurrence investigation records, which shall be retained for a period of not less than 5 years.

(4) The ATS Section shall establish systems and procedures to ensure that electronic records required by Subpart 24.9.7.2:

(a) Include time recording, correct to 5 seconds of UTC, as determined by reference to a standard time station or GPS time standard; and

(b) Replicate the voice communications, and, if applicable, the surveillance picture, applying at the particular operating position.

(5) The ATS Section shall establish systems and procedures to ensure that all records, except where replication is required by Subpart 24.9.7.4 (b) are of sufficient clarity to convey the required information.

(6) The ATS Section shall establish procedures to ensure that the records referred to in Subpart 24.9.7.2 and 24.9.7.3 are retained for 31 days from the date of entry, except for –

(a) ATS logs, which shall be retained for 3 years, and
(b) Unit occurrence investigation records, which shall be retained for a period of not less than 5 years.

(7) Records shall be made available to the Authority when requested.

24.9.8 TRAINING RECORDS

(1) Detailed training records shall be retained by the ATS unit to show that all UTAP and Ghana Civil Aviation Directives licensing requirements have been met.

(2) Training organisations shall maintain a system for recording the qualifications, training and assessment of instructional and examining staff.

(3) Training records shall be retained by ATS units for 3 years after the completion of the training or until the air traffic controller ceases employment at an ATS unit, whichever is longer.

(4) Training records for air traffic controllers holding OJT Instructor and/or Examiner endorsements shall be retained for a minimum period of 3 years after the air traffic controller ceases to perform the function for the training organisation or ceases employment at an ATS unit, whichever is longer.

(5) Training Records shall be signed and dated by the student air traffic controller and the OJT Instructor.

24.9.9 MINIMUM EXPERIENCE REQUIREMENTS

(1) Minimum Experience Requirement (MER) is defined as a minimum period of training under supervision, stated in Valid Training Days or Training Hours.

(2) The ATS unit shall decide whether to use Valid Training Days or Training Hours to determine compliance with the MER. Students shall commence and end training using only one method for calculating MER.

(3) A valid training day is defined as a training shift comprised of a minimum of 4 hours of total on-position training. Training Hours are defined as the total hours worked during a shift that provided operationally valuable training, which shall be determined by the OJT Instructor to ensure compliance with MER.

(4) Each ATC Unit shall, as acceptable to the Authority, determine its traffic density as High or Medium or Low.

(5) Training hours or days shall be recorded in the training summary report and a copy of the report shall be submitted to the Authority as evidence of having met the MER for a licence or rating application.

(6) The MER for the issue of a CoC in a Rating not previously held is based on the:

(a) Type of rating;
(b) Traffic density category of the unit; and
(c) Student's previous experience in other ratings.

(7) Before a student air traffic controller or air traffic controller is issued a CoC leading to a grant of a Rating not previously held, he shall be required to complete:

(a) The Minimum Experience Requirement (MER) as detailed in Subpart 24.9.9.8; or an UTAP; and
(b) The requirements for the issue of a CoC as detailed in Subpart 24.9.10.20, (a), (b) & (c).

(8) A student air traffic controller's Minimum Experience Requirement towards the issue of a CoC for a Rating not previously held for a particular operational position

is stated in net Valid Training Days or Training Hours and is tabulated in Table 24.9-1 below:

Table 24.9-1: Minimum Experience Requirements (MER)

MER	DAYS	HOURS
AREA / AREA SURVEILLANCE	140	520
APPROACH / APPROACH SURVEILLANCE	140	520
TOWER / APPROACH	112	416

(9) No reduction in the MER shall be allowed for a student air traffic controller with no previous rating experience.

(10) For a controller with previous experience in a different rating the Minimum Experience Requirement may be reduced by up to one half (50%) of the values Table 24.9-1 above, provided:

(a) The previous rating has been exercised within 90 days of commencing OJT for the new rating;
(b) The previous rating has been exercised for not less than one year on full-time operational duties;
(c) The new rating is in the same or lower Traffic Density Category as the previous rating;
(d) Area / Area Surveillance (Radar) students have previous Approach/Approach Surveillance (Radar) experience; and
(e) Approach/Approach Surveillance students have previous Area/Area Surveillance experience.

(11) The MER for the issue of a CoC in a Rating previously held is based on the type of rating and the Traffic Density Categorization of the unit.

(12) For an air traffic controller with previous experience the Minimum Experience Requirement may be reduced by substitution of up to 50% simulator training time, provided the simulation presents a valid representation of the airspace, traffic pattern, and operational environment in which the CoC is sought.

(13) Valid Training Days/Training Hours shall be logged and a training summary report submitted to the Authority with the Licence or Rating Application as evidence of having met the MER.

Note: Regardless of whether the unit uses valid training days or training hours to determine MER compliance, the minimum number of days will be complied with.

24.9.10 COMPETENCE OF AIR TRAFFIC CONTROLLERS

(1) The Authority shall ensure that the Air Traffic Control service being provided at a unit is being conducted in accordance with the requirements of this Directive and maintained at a satisfactory level by issuing and renewing Certificates of Competence (CoC) in accordance with the instructions in this paragraph.

(2) A CoC denotes that the holder has been certified by an approved examiner as being competent to provide an unsupervised air traffic control service at a specific operational position.

(3) A CoC certifies that the holder has successfully completed:

(a) Written;
(b) practical; and
(c) oral examinations relevant to the operational position.

(4) A current CoC shall:

(a) Be held for each ATC control position on which an air traffic controller provides an unsupervised ATC service;

(b) Only be issued to an air traffic controller who has demonstrated satisfactory competence in accordance with the examination;

(c) Be valid for 12 months after the end of the calendar month during which the certificate is issued subject to the air traffic controller maintaining the currency requirements of this section;

(5) A single CoC may be issued for multiple ATC control positions for which the air traffic controller has been assessed as competent to exercise the privileges of the ratings. All relevant ATC control positions shall be clearly stated on the CoC.

(6) A CoC shall be signed and dated by:

(a) the ATC Examiner;
(b) the Air Navigation Services Inspector conducting the examination;
(c) the air traffic controller who was assessed; and
(d) the Head of ATC or his designated representative.

(7) The names of the above persons shall be printed on the CoC form to allow for identification.

(8) The ATS unit shall forward a copy of each CoC to the Authority (Licensing department) within 5 working days.

(9) A record of the current CoC shall be included in the holder's ATC Licence.

(10) CoC examinations, be it the first issue of a CoC, the renewal of a CoC, the re-issue or reinstatement following lapses of validation or suspension of a CoC, shall be carried out by an Examination Board. An examination board shall comprise of an Air Navigation Services Inspector (ATS) and an authorised ATC Examiner.

(11) A CoC shall automatically expire at 2359 local time on the last day of the calendar month during which the licence holder reaches the age of 60 years.

(12) Before a CoC is issued or renewed an air traffic controller shall demonstrate satisfactory competence in the following areas by completing a CoC examination.

(13) Satisfactory knowledge in the following subjects:

(a) air law,
(b) air traffic control equipment,
(c) general aviation knowledge,
(d) human factors, fatigue and threat and error management relevant to Air Traffic Control including handling of an aircraft in an emergency,
(e) English language proficiency,
(f) SAR Alerting Service phraseologies and processes,
(g) Meteorology,
(h) Navigation,
(i) ICAO Standards and Recommended Practices including those in Doc 4444,
(j) Local Air Traffic Service Instructions (LATSI) and ATS unit operational procedures.
(k) SMS

(14) Satisfactorily demonstrate compliance with Radiotelephony Standards; the use of ICAO standardised phraseology in all situations for which it has been specified. Only when standardised phraseology cannot serve an intended transmission, shall plain English language be used.

(15) Before a candidate is examined for the issue of CoC, the ATS provider shall ensure that the candidate has met the MER as required in Subpart 24.9.9.(8) or completed an UTAP.

(16) The above requirements in 24.9.10.(18) do not apply to CoC renewals or re-issues following lapses of validation or suspensions.

(17) A CoC examination shall consist of:

(a) A written examination paper to be completed within the week prior to the practical examination;
(b) A practical examination at the operational position or sector where an air traffic controller will be exercising the privileges of a rating; and
(c) An oral examination to be conducted after the successful completion and review of the written and practical examinations.

(18) The written examination shall include questions covering at least the following areas:

(a) local ATS instructions
(b) unit SMS;
(c) current supplementary instructions;
(d) temporary operating instructions and other relevant operational documentation;
(e) relevant parts of Ghana Civil Aviation (ANS) Directives (Part 19 and Part 24);
(f) relevant parts of Annexes 2, 11 and ICAO Doc 4444;
(g) relevant NOTAMs and AICs.
(h) the operational aspects of equipment used at the relevant operational position; and
(i) Scenario type questions relating to the handling of aircraft in emergencies.

(19) The duration of the practical examination shall depend on the traffic situation at the time and shall not be less than 1 hour for renewals or re-issues; or 2 hours for the first issue of CoC. A representative level of traffic intensity and complexity for that unit must be observed during the examination. Where the traffic requirements are not met, the examination shall be rescheduled.

(20) The examination board may also require the candidate to demonstrate the handling of a simulated emergency, a communications exercise, or a simulated practice call out of the Airport Rescue and Fire Fighting Service.

(21) During the practical examination, the examination board shall sit adjacent to the air traffic controller to observe any surveillance or data display being used and to monitor the frequency and telephones.

(22) If there are overriding operational reasons, the examination board may assess an air traffic controller from a remote position. It is important in these circumstances that the air traffic controller is advised of the situation.

(23) Following a practical examination, the examination board shall de-brief the air traffic controller and apprise him of his performance.

(24) In circumstances where the traffic requirements of Subpart 24.9.10(19) cannot be met, it may not be possible to complete a renewal prior to the expiry date of a CoC. In such circumstances, the Authority may, at its discretion, grant an extension to the current CoC, to allow the air traffic controller to continue to exercise the privileges of his licence until a further practical examination can be conducted.

(25) The oral examination shall follow the successful completion of the written and practical examinations and shall consist of:

(a) Topics not covered during the written and practical examinations; and
(b) Areas identified in the written examination where the candidate's knowledge is seen to be deficient or a wider understanding needs to be confirmed.

(26) The written and oral examination pass mark for student air traffic controllers and air traffic controllers shall be 70%. When the written and oral examinations are retaken, the pass mark shall be 70%.

(27) The written and oral examination pass mark for licence holders with endorsements as OJT Instructors and ATC Examiners, shall be 85%. Licence holders of these categories achieving 70 to 84% may retain their CoC, but shall have the appropriate endorsements withdrawn. When the written and oral examinations are retaken, the pass mark shall be 85%.

(28) The written and oral examinations shall be conducted under supervision without reference to any document, maps, charts or any other material except where specified by the examination board.

(29) If the examination board is not satisfied that the air traffic controller is competent, the board shall immediately inform the air traffic controller concerned. Notwithstanding that a previous CoC has not expired, the air traffic controller shall not be permitted to exercise the privileges of the particular rating or ratings for which he has been found not competent.

(30) Records of ATC Licences, CoCs, examinations and tests shall be maintained in a file for each air traffic controller at the appropriate ATS unit. Such records shall be retained for a period of 3 years after the air traffic controller has ceased operational duties.

24.9.11 FAILURE TO MAINTAIN COMPETENCE

(1) If, during the period between annual competence examinations, the ATS Provider becomes aware that the competence of an air traffic controller is in doubt, the air traffic controller shall promptly be removed from operational duties and his CoC shall be withdrawn. The ATS unit shall subsequently notify the Authority.

(2) An air traffic controller whose CoC has been withdrawn shall not provide an air traffic control service associated with that rating except under the supervision of an OJT Instructor.

(3) Excluding cases where an air traffic controller's CoC has been withdrawn following relief from duty due to his involvement in an incident, he may continue to provide an unsupervised service for the ratings in which he remains competent.

(4) An air traffic controller whose CoC has been withdrawn shall be required to undergo a period of training under supervision and successfully complete a CoC examination before a CoC is re-issued.

(5) The period of training under supervision shall be determined by the ATS unit and acceptable to the Authority, and is a minimum period, which shall be extended in cases where an air traffic controller's ability to safely and professionally exercise the privileges of a particular rating is in doubt.

(6) If following the acceptable period of remedial training the air traffic controller is assessed as not competent, the Authority shall be notified in writing and will subsequently amend the air traffic controller's licence, which may result in revocation of the Air Traffic Controller Licence or any of its associated ratings. The Authority may elect to suspend or permanently revoke the air traffic controller's ATC Licence.

(7) Air traffic controllers who have had their licences suspended or permanently revoked shall forward their licences to the Authority.

24.9.12 SHIFT ADMINISTRATION

The ATS Section shall establish a procedure to ensure that:

(a) Adequate time is provided at the beginning and end of each shift for the performance of those duties required:

  (i) before providing an air traffic service including ATC briefing;
  (ii) after ceasing to provide an air traffic service; and

(b) Adequate time is provided for each transfer of position responsibility at an operational ATS position through mandatory use of a position relief procedure that includes the current status of position related equipment and operational conditions or procedures. This information on related equipment and operational conditions or procedures shall be clearly written in the control position log book at all times.

24.9.13 FACILITY REQUIREMENTS

(1) The ATS Section shall establish the following facilities appropriate to the air traffic services as listed in the ATS manual:

(a) Aerodrome control towers;
(b) Approach control units;
(c) Area control centres;
(d) Flight information centres;
(e) Aerodrome flight information services;
(f) Automatic Dependence Surveillance systems;
(g) Dedicated training and assessment facilities.

(2) Working conditions shall meet established levels for temperature, humidity, ventilation, noise and ambient lighting that do not adversely affect controller performance.

(3) The ATS Section providing an aerodrome control service, shall establish procedures to ensure that any aerodrome control tower, listed in its manual, is:

(a) Constructed and situated to provide:
  (i) the maximum practicable visibility of aerodrome traffic;
  (ii) protection from glare and reflection;
  (iii) protection from noise;
(b) Safeguarded from any development that would affect the requirements of (3)(a) above;
(c) At solo watch locations, provided with toilet facilities that ensure the minimum possible interruption to, or degradation of, air traffic services;
(d) Provided with equipment for two-way voice communication or data link, meeting the required communication performance (RCP) type prescribed by Part 24.7, with:
  (i) any aircraft, in or adjacent to airspace for which the ATS Section has responsibility;
  (ii) any aircraft, vehicle, and person, on, or adjacent to, the manoeuvring area;

(4) Provided with the following minimum equipment:

(i) a display system or systems designed to show the disposition of current and pending aerodrome traffic.
(ii) a power supply;
(iii) appropriate current maps and charts;
(iv) binoculars;
(v) clocks;
(vi) a log keeping system;
(vii) outside temperature indicator;
(viii) QNH displays;
(ix) signal lamp with green, red and white functions;
(x) telephone communications;
(xi) status indicators for approach and landing aids;
(xii) Wind direction and speed display(s);
(xiii) an audible emergency alerting system:
(xiv) an AFTN/AMHS terminal;

(xv) display(s) permitting read-out of the current runway visual range value(s) where runway visual range values are measured by instrumental means;
(xvi) display(s) permitting read-out of the current value(s) of the height of cloud base, where the height of cloud base is assessed by instrumental means; and
(xvii) If applicable, airfield lighting control panel.

(5) Provided with adequate facilities for staff off-watch break periods.

Note: Where a continuous watch of the entire aerodrome is not possible, electronic means of surveillance should be considered.

(6) The ATS Section providing an area control service, flight information service or approach control service shall establish procedures to ensure that any area control centre, flight information centre and approach control unit is:

(a) Provided with equipment enabling two-way voice communication meeting the required communication performance types prescribed in Part 24.7, to the fullest extent possible;
(b) If applicable, data communication with any aircraft in or adjacent to airspace for which the ATS Section has responsibility;
(c) Provided with the following minimum equipment:
(i) a display system or systems designed to show the disposition of current and pending flights;
(ii) a power supply;
(iii) appropriate current maps and charts;
(iv) clocks;
(v) log keeping system;
(vi) status indicator as appropriate for navigation, approach and landing aids;
(vii) telephone communications;
(viii) an AFTN/AMHS terminal

(d) For an approach control unit, an ILS status indicator at the approach control or approach control radar operating position for the aerodrome concerned.
(e) An approach control operating position responsible for aircraft on final approach, or aircraft landing or taking off shall be equipped with Meteorological facilities or equipment prescribed in accordance with 24.8.1.3(3), 24.8.1.3(4) and 24.8.1.3(5) in this Part.

(7) The ATS Section shall establish procedures to ensure that any equipment, maps, charts, monitors and displays used by air traffic service personnel are positioned with due regard to the relative importance of the information displayed and ease of use by the staff concerned.

(8) The equipment required by (3)(d), (4), (6)(a),(b),(c) and (d) of this section, shall have a level of reliability, availability and redundancy that minimises the possibility of failure, non-availability, or significant degradation of performance.

(9) The ATS Section shall establish procedures to ensure that the status indicators required by (4)(xi) and (6).vi and (6)(d) of this section, are fitted with:

(a) An aural alarm to indicate a change of status; and
(b) A visual indication of the current status.

24.9.14 ATS SURVEILLANCE SERVICES

(1) In these Directives, the use of the word surveillance includes ADS-B and Multilateration systems as well as primary and secondary radar in accordance with PANS-ATM (ICAO Doc 4444).

(2) A safety case for the introduction of ADS-B and Multilateration systems shall be presented to the Authority (as required in 24.2.29(7), prior to such equipment being introduced to operational service.

(3) The ATS Section shall establish procedures to ensure that, where radar or automatic dependent surveillance is used to support the provision of an air traffic service:

(a) All surveillance separations are in accordance with the requirements of PANS –ATM (ICAO Doc 4444);
(b) Mode A and or Mode S SSR code allocation shall be made by the ATC units in accordance with regional air navigation agreements;
(c) Full information is made available to pilots and aircraft operators on:
  (i) the nature and extent of the surveillance services provided;
  (ii) any significant limitations regarding such surveillance services;
(d) The information displayed at individual surveillance operating positions is that required for the air traffic services to be provided, including the display of safety-related alerts and warnings; and
(e) The surveillance system used shall be provided and maintained to have a very high level of reliability, availability, integrity and redundancy that minimises the possibility of failure, non-availability, or significant degradation of performance.

(4) Mode C information verification 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 tolerable values prescribed in PANS-ATM (ICAO Doc 4444).

(5) Determination of level occupancy: PANS-ATM (ICAO Doc 4444) shall be applicable.

(6) ADS-B may be used alone for separation of aircraft provided:

(i) Identification of ADS-B equipped aircraft is established and maintained;
(ii) The integrity of the ADS-B is adequate to support the separation minima; and
(iii) The sole use of ADS-B has been approved by the Authority.

(7) The display system shall provide a continuously updated presentation of the surveillance information.

(8) Position symbols may represent the raw data source of the position information, or a combined symbol.

(9) Safety related and automated coordination information shall be displayed in a clear and distinct manner to facilitate ease of recognition.

(10) Labels associated with displayed targets shall show, as a minimum, information relating to the identity of the aircraft and, if available, pressure altitude-derived information in a clear and concise manner.

(11) Labels shall be associated with the aircraft symbol in a manner precluding erroneous identification or confusion for the controller.

(12) Identification shall be established prior to the provision of any surveillance service, and the pilot informed. Identification shall be maintained until the termination of the surveillance service.

(13) Identification shall be established by one of the following methods:

(a) ADS-B:
- (i) direct recognition of aircraft identification in an ADS-B label; or
- (ii) transfer of ADS-B identification; or
- (iii) observance of compliance with an instruction to transmit ident.

(b) SSR:
- (i) direct recognition of aircraft identification in a radar label; or
- (ii) transfer of identification; or
- (iii) observance of compliance with an instruction to squawk ident; or
- (iv) recognition in a radar label, of an assigned discrete code which has been verified;
- (v) observation of compliance with an instruction to set a specific code.

(c) PSR:
- (i) by correlating a radar position indication with an aircraft reporting its position over, or as a bearing and distance from a point shown on the display, and by ascertaining that the track of the target is consistent with the aircraft's path or heading; or
- (ii) by correlating an observed radar position indication with an aircraft that is known to have just departed, provided that the identification is established within 1 NM of the end of the runway used, or
- (iii) by transfer of identification; or
- (iv) after ascertaining the aircraft's heading, by instructing a pilot to change heading by 30 degrees or more for a period long enough, based on the aircraft's speed, to allow the track change to be identified and correlating the movements of a particular radar position symbol with the aircraft's acknowledged compliance with the instruction; or
- (v) by correlating the movements of a particular position indication with movements currently reported by an aircraft.
- (vi) When using methods (13)(c) (iv) and (v), the controller shall verify that only one radar position indication has carried

out the manoeuvre, and that the aircraft will remain within coverage of both radar and the situation display.

(vii) Transfer of identification shall be effected by one of the following means:

(1) automated designation of the position indication; or

(2) notification of the aircraft's SSR code, Mode S or ADS-B identification feature; or

(3) manual indication of the target where displays are adjacent or common; or

(4) Designation of a position indication by reference to, or bearing and distance from a significant point or fix, together with the track of the position indication.

(5) Instruction by the transferring controller to change SSR code and observation by the receiving controller of the change; or

(6) Instruction by the transferring controller to squawk/ transmit ident and the observation of this response by the receiving controller.

(7) The use of methods (5) and (6) above require prior coordination between the controllers.

(14) The ATS Section shall establish procedures to ensure that, in the following circumstances, position information shall be passed to an aircraft receiving ATS surveillance service:

(a) upon identification, except when the identification is established:
  (i) based on the pilot's report of the aircraft position or within one nautical mile of the runway upon departure and the observed position on the situation display is consistent with the aircraft's time of departure; or
  (ii) by use of ADS-B aircraft identification, SSR Mode S aircraft identification or assigned discrete SSR codes and the location of the observed position indication is consistent with the current flight plan of the aircraft; or
  (iii) by transfer of identification;
(b) when the pilot requests this information;
(c) when a pilot's estimate differs significantly from the controller's estimate based on the observed position;
(d) when the pilot is instructed to resume own navigation after vectoring if the current instructions had diverted the aircraft from a previously assigned route;
(e) immediately before termination of ATS surveillance service, if the aircraft is observed to deviate from its intended route.

(15) Position information shall be passed in one of the following forms:

(a) As a well-known geographical position; or
(b) Magnetic track and distance to a significant point, enroute or approach aid; or
(c) Compass direction and distance from a known position; or
(d) Distance to touchdown if on final approach; or
(e) Distance and direction from the centreline of an ATS route.

24.9.15 RADAR SEPARATION FROM AN UNIDENTIFIED CONTROLLED

FLIGHT

(1) A minimum radar separation of 5 NM may be applied between an identified aircraft and an unidentified controlled flight entering or about to enter radar coverage, in accordance with the provisions of PANS-ATM (ICAO Doc 4444).

(2) Radar separation may be applied between a previously identified aircraft which has since passed out of radar coverage, and a following identified aircraft, provided the following aircraft can achieve the appropriate vertical separation at least 5 NM before the position at which the preceding aircraft passed out of radar coverage.

(3) Radar separation may be applied between aircraft on reciprocal tracks, when an identified aircraft is at least 5NM past the position at which a previously identified aircraft passed out of radar coverage.

(4) A minimum radar separation of 5NM may be applied between identified aircraft and the cleared route of an unidentified controlled VFR flight.

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

24.9.16 RADAR SEPARATION FROM HOLDING AIRCRAFT

(1) In airspace where the radar separation minima is 5NM or less, a minimum of 5NM shall be applied between an identified aircraft that is not holding, and other identified aircraft that are holding notwithstanding that individual identity of the holding aircraft may be lost.

(2) In airspace with higher radar separation minima that minima shall be used between holding and non-holding aircraft.

24.9.17 RADAR SEPARATION FOR AIRCRAFT ON RECIPROCAL TRACKS

(1) Reciprocal tracks are as defined in PANS ATM (ICAO Doc 4444).

(2) Where confirmation has been obtained from radar derived information that aircraft on reciprocal tracks have passed, there is no requirement to ensure that minimum radar separation exists before reducing minimum vertical separation provided that:

(a) Both aircraft are properly identified;
(b) Radar label leader lines for both tracks are not crossed;
(c) The distance between the position symbols is increasing; and
(d) The position symbols are not touching or overlapping.

24.9.18 LOGS, POSITION LOGS AND DUTY HOUR LOGS

(1) The ATS Section shall establish procedures to ensure that a log is kept at each ATS unit, and, where a unit has physically separate operations areas, at each such location within the unit.

(2) The log shall be used to record all significant occurrences and actions relating to operations, facilities, equipment and staff at an ATS unit including, but not limited to, such matters as:

(a) Incidents, accidents, non-compliance with Directives or ATC clearances regardless of whether an additional separate report is required;
(b) Aerodrome inspections, details of work in progress and other essential aerodrome information;
(c) Changes to the status of navigation facilities, services and procedures;
(d) Receipt of special aerodrome reports, SIGMET reports or other significant meteorological phenomena.

(3) The procedure shall ensure that:

(a) The log is maintained by the senior person on duty, or the person on watch at a nominated operating position;
(b) The log is maintained throughout the hours of watch of the ATS unit or operations room;
(c) If a logbook is used, the pages are sequentially numbered, all entries are:
  (i) in chronological order, include the time of entry in UTC;
  (ii) are in ink; and without erasure, defacement, or obliteration;
  (iii) corrected by drawing a single line through the erroneous information and initialling the correction;
(d) When the Log is in an electronic format, measures shall be taken to ensure that all entries made in the log are traceable and protected. The electronic format shall not permit entries to be subsequently altered or tampered with in any way;
(e) Actual times of opening and closing watch are recorded in the log, together with the reason for every variation from published hours of service; and
(f) Reviewed by the ATC Manager, or designee, daily to note all significant entries.

(4) An air traffic controller duty hour log shall be maintained at each ATC operational position. Controllers are responsible for ensuring that the entries made in the duty hour log are complete and accurate.

(5) Unit management shall have a process in place to ensure that entries made in the duty log are complete and accurate and to oversight the controller duty hours so that, in the event that a controller will or has worked outside the duty hour restrictions, the controller shall not be permitted to continue operational duties until the duty hours' requirements can be met and if necessary the controller has been counselled on the issue.

(6) Each duty hour log shall include unit and operational position identifiers. Air traffic controllers shall enter the following information into the log during handover procedures:

(a) The controller identifier;
(b) The date - time controller accepted handover from previous controller; and
(c) The date - time controller completed handover to on-coming controller.

24.9.19 TRIALS

(1) The Authority may, upon application in writing from the ATS provider, approve, subject to such conditions on that approval as the Authority considers necessary in the interests of aviation safety, the conduct of trials regarding:

(a) Reduced separation minima; or
(b) New operating procedures or routes; or
(c) Standard phraseology; or
(d) ATS surveillance procedures, or
(e) Data link procedures.

(2) The application shall include a safety assessment in accordance with ICAO PANS-ATM (ICAO Doc 4444) and ICAO Document 9859.

(3) A trial may be approved by the Authority for a single period of no longer than 6 months, and upon further application in writing by the ATS Section, be extended by the Authority for a single period of no longer than 3 months.

(4) A trial approved under this rule may be terminated by the Authority at any time.

24.9.20 DENIAL OF AN ATC CLEARANCE

(1) The ATS Section in respect of an aerodrome control service shall not deny the pilot of an aircraft an ATC clearance on the basis of non-payment of charges owed to the Authority unless: –

(a) The aircraft is on the ground; and
(b) That clearance is for entry onto the manoeuvring area.

(2) The ATS Section shall continue to provide normal ATC service for any aircraft entering the manoeuvring area without an ATC clearance.

24.9.21 DUTY HOURS AND STAFFING

(1) The duty hours for air traffic controllers shall be limited to ensure, so far as is reasonably possible, that controller fatigue does not impair operational safety and efficiency. When reference is made to air traffic controllers in these Directives it also includes student air traffic controllers.

(2) ATS units shall establish procedures for the management of fatigue related issues.

(3) Air traffic controllers shall be responsible for obtaining sufficient rest and sleep prior to attending operational duties.

(4) Sleeping or napping at operational positions shall not be permitted.

(5) Adherence to these Directives and fatigue-related issues shall be taken into account before shift changes are implemented.

(6) The requirements within this Directive shall apply to air traffic controllers having, prior to commencing operational duty, performed unlicensed duties, e.g. office, administration, training, courses, seminars, workshops etc. As far as reasonably practicable, the provisions of these Directives shall also apply to air traffic control assistants interacting with air traffic controllers.

(7) Duty hour requirements shall include the following:

(a) No Period of Duty shall exceed 10 hours;
(b) There shall be an interval of not less than 10 hours between the conclusion of one Period of Duty and the commencement of the next Period of Duty. This interval may be reduced by up to 20 minutes solely for the purpose of orderly shift handover;
(c) Not more than 2 Night Duties may be worked in immediate succession. This may be allowed in the event of an unplanned call-out to cover a Night duty.
(d) Within 40 consecutive hours the aggregate of Periods of Duty shall not exceed 20 hours;
(e) Within 720 consecutive hours (30 days) the sum of hours of total Off Duty Periods shall total more than 240hrs (10 days);
(f) ATC Operational Duties shall not normally exceed 2 ½ hours. During any 3 hour period consisting of ATC Operational Duties there shall normally be at least one break not less than 30 minutes in duration immediately prior to the resumption of operational duties. Frequent break periods shall be considered during heavy or complex traffic situations and low visibility conditions for aerodrome control rated air traffic controllers.
(g) The ATC Section may, where workload, density and complexity, for any part of the day are judged to be low and the activity is sporadic rather than continuous, increase the Operational Duty period stated in (f) to a maximum of 4 hours.

24.9.22 WATCH ROSTERS

(1) The ATS Section shall meet the rostering limitations specified in the duty hour requirements contained in 24.9.21.

(2) The ATS Section shall notify the Authority of formal rostering arrangements on monthly basis.

(3) The ATS Section shall not require controllers to carry out ancillary tasks while they are providing operational air traffic control services unless this can be accomplished without negative effects on safety. An ancillary task is any task in an operational control room, which is not directly associated with the provision of an air traffic control service.

(4) The ATS Section shall make available adequate support staff to enable controllers to carry out their duties in accordance with the Ghana Civil Aviation (ANS) Directives and PANS-ATM (Doc 4444). The number and disposition of support staff will depend on the complexity of the unit. The ATS Section shall arrange appropriate training and shall be responsible for the continued competency of

such staff. The Authority may require to be given details of the training support staff has received.

(5) Exceptionally, where such ancillary duties are unavoidable, the ATS Section shall satisfy the Authority that controllers will not be distracted from their primary function or placed under undue pressure. These duties and the person responsible for discharging them shall be clearly identified in the unit's Operations Manual.

(6) The ATS Section shall ensure that adequate staff resources are provided to ensure that such operational staff are provided with suitable breaks during the work shifts, with work periods not exceeding 10 hours and a minimum of 10 hours break being provided between working shifts.

(7) Air Traffic Controllers may delegate some of their responsibilities to adequately trained support staff (such as Air Traffic Control Assistants) provided they do not include duties for which an Air Traffic Control licence is required. Duties that may be delegated fall into two categories:

(a) Air Traffic Control related duties not closely associated with the safety of aircraft (e.g. Telephone messages concerning flight data and clearances). These duties and the person responsible for discharging them shall be clearly identified in the unit's Operations Manual; and
(b) Other duties of an administrative nature

24.9.23 STUDENT AIR TRAFFIC CONTROLLER LICENCE

(1) A person who provides an air traffic control service under supervision, towards the grant of an Air Traffic Controller Licence, whether first or subsequent rating, shall be required to hold a Student Air Traffic Controller Licence under the requirements of this directive.

(2) To be granted a Student Air Traffic Controller Licence, the applicant shall satisfy the appropriate requirements for age, knowledge, experience, competence, skill, linguistic ability and physical and mental fitness as detailed in this section of the Directives.

(3) Furthermore, the applicant shall only exercise the privileges of the Student Air Traffic Controller Licence at an air traffic service unit subject to the Ghana Civil Aviation Directives.

(4) Before the Authority will grant a Student Air Traffic Controller Licence to a person not holding a GCAA Air Traffic Controller Licence, it will require the applicant to meet the following requirements:

(a) Be not more than 60 years of age on application date;
(b) Successfully complete an ICAO ATC course, or equivalent, approved by the Authority for the applicable rating for which the Student will undergo OJT; or
(c) Have acted as a certified civilian air traffic controller performing full time operational duties for a minimum period of 3 years, in the applicable rating the Student will undergo OJT, at a civil air traffic facility under the jurisdiction of an authority, whose ATC licensing system has been deemed by the Authority as meeting the requirements laid down in these Directives;
(d) Demonstrate to the satisfaction of the Authority, through a test acceptable to the Authority, the ability to speak and understand

the English language used for radiotelephony communications to the level specified in the ICAO language proficiency requirements and

(e) Hold a current Class 3 Medical Certificate.

(5) Before the Authority will grant a Student Air Traffic Controller Licence to a person holding a GCAA Air Traffic Controller Licence, it will require the applicant to meet the following requirements:

(a) Successfully complete an ICAO ATC course of training appropriate to additional rating/s required, or equivalent, approved by the Authority, for the applicable rating for which the Student will undergo OJT, or

(b) Have acted as a certified civilian air traffic Air Traffic Controller performing full time operational duties for a minimum period of 3 years, in the applicable rating the applicant will undergo OJT, at a civil air traffic facility under the jurisdiction of an authority, whose ATC licensing system has been deemed by the Authority as meeting the requirements laid down in these Directives.

(6) Applicants seeking issue of ratings with reference to (4)(c) and (5)(b) of this section shall:

(a) Provide copies of their Air Traffic Controller Licence(s);

(b) Provide a Verification Letter from the Civil Aviation Authority having issued their Air Traffic Controller Licence(s);

(c) If required by the ATS unit, submit themselves for an Assessment of Previous Competence (APC) by an ATC Examiner; and

(d) Undertake and complete that part of an approved course of training which the ATC Examiner has determined is necessary and which is approved by the Authority.

(e) The APC will be based on the air traffic controller's experience, the period of time elapsed since the air traffic controller exercised the privilege of the particular rating and the relevance of duties performed in the intervening period, or the period of time which has elapsed since a student air traffic controller completed an ATC course. The assessment is carried out to determine the amount of refresher training required to achieve a level of competence similar to that achieved through recently passing an approved course of training. The person(s) to whom responsibility for this evaluation has been delegated, shall decide on the requirement for refresher training.

(7) The Authority will, at its discretion and subject to an evaluation of training plans and facilities, ATC systems, airspace structure, operating procedures, applied standards, safety management systems and general service level, identify States and ATS units, from whom civil ATC competencies and qualifications will be accepted to meet the requirements of (4)(c) and (5)(b) of this section.

(8) The ATS unit shall provide the following evidence for the issue of a Student Air Traffic Controller Licence:

(a) Proof of the applicant's age (valid passport copy);

(b) Certification that the applicant has successfully completed an ICAO ATC course, or equivalent, approved by the Authority; or

(c) Certification that the applicant has met the previous requirements stated in Subparts (4)(c) and (5)(b) of this section; and

(d) Certification that the applicant has demonstrated at least the minimum operational English Level of Proficiency.

(9) It is the responsibility of the applicant to ensure that his licence is valid, in that it is a current Student Air Traffic Controller Licence for the applicable rating and contains a current Class 3 medical certificate.

(10) OJT Instructors shall remain responsible at all times for the safety of the air traffic control service that the Student is providing under his supervision.

(11) A Student Air Traffic Controller Licence shall not be extended beyond a total duration of 2 years. In cases where training has been interrupted due to exceptional circumstances, the Authority may, at its discretion renew, extend or re-issue a Student Air Traffic Controller Licence.

(12) The holder of a Student Air Traffic Controller Licence who has not exercised the privileges of that licence for a period of 1 year may only commence or continue OJT in that rating after assessment of previous competence as to whether the Student continues to satisfy the requirements relevant to that rating, and after satisfying any training requirements that result from this assessment.

(13) The Authority will not issue a Student Air Traffic Controller Licence valid for combined ratings, except when ATS units require combined training in two ratings, e.g. aerodrome control and approach control procedural.

24.9.24 AIR TRAFFIC CONTROLLER LICENCE

(1) A person who wishes to act as an air traffic controller in Ghana shall be required to hold a valid Air Traffic Controller Licence issued by the Authority.

(2) To be granted an Air Traffic Controller Licence, the applicant shall satisfy the appropriate requirements for age, knowledge, experience, competence, skill, linguistic ability, physical and mental fitness as detailed in this section of the Directive.

(3) Furthermore, the applicant shall only exercise the privileges of the Air Traffic Controller Licence at an ATS unit (ATSU) subject to the Ghana Civil Aviation Directives.

(4) An applicant for initial issue of an Air Traffic Controller Licence shall meet the following requirements:

(a) Be not less than 21 years of age and not more than 60 years of age on application date;

(b) Demonstrate to the satisfaction of the Authority, the ability to speak and understand the English language, used for radiotelephony communications, to the level specified in the ICAO language proficiency requirements;

(c) Meet the applicable Minimum Experience Requirements (MER) for the entry qualifications, rating and unit as detailed in 24.9.8;

(d) Be assessed as being competent (as defined in paragraph 24.9.10), to provide a specific category of air traffic control service at a particular ATSU; and
(e) Hold a current Class 3 Medical Certificate from an approved Aero Medical Examiner;
(f) Hold a current Student Air Traffic Controller Licence.

(5) The ATS unit shall provide the following evidence for the issue of an Air Traffic Controller Licence:

(a) Certification that the applicant has successfully completed the relevant requirements of the Unit Training and Assessment Plan (UTAP); and
(b) Certification that the applicant has met the Minimum Experience Requirement (MER); and
(c) A valid Certificate of Competence (CoC) for the applicable rating.

24.9.25 REQUIRED KNOWLEDGE, SKILLS AND EXPERIENCE

(1) The knowledge required to be demonstrated by an air traffic controller or a student air traffic controller, shall be at an appropriate standard for a holder of an Air Traffic Controller Licence, and include at least the following subjects:

(a) Air Law;
(b) Air Traffic Control Equipment;
(c) General Aviation Knowledge;
(d) Human Factors, performance limitations, e.g. fatigue, relevant to ATC;
(e) Threat and Error Management;
(f) English Language Proficiency;
(g) Meteorology;
(h) Navigation;
(i) Air Traffic Control Procedures; and
(j) Safety Management System

(2) The experience required shall include:

(a) Experience gained while controlling under the supervision of an OJT Instructor for a required minimum period of time, known as the Minimum Experience Requirement (MER), before a CoC is issued for a rating; or
(b) Experience gained while training in accordance with an approved ATS unit training and assessment plan (UTAP);

(3) The skill and competence required shall be demonstrated by:

(i) Successful completion of an ICAO ATC training course, or equivalent, approved by the Authority; and
(ii) Being assessed as competent (as defined in 24.9.10), to provide a specific category of air traffic control service at a particular air traffic services unit (ATSU).

(4) The ICAO English language proficiency requirements shall be met.

(5) The physical and mental fitness requirements shall be met by the issuance of a Ghana Class 3 Medical Certificate.

(6) The Authority may grant a licence subject to such conditions as deemed appropriate to a person to act as an Air Traffic Controller, or as a Student Air Traffic Controller, upon being satisfied that the applicant is a fit person to hold the licence and is qualified by reasons of knowledge, experience, competence, skills, physical and mental fitness, and attitude to so act. For that purpose, the applicant shall, at his expense, furnish such evidence and undergo such training, examinations and tests (including medical examinations) as the Authority may require.

24.9.26 LICENCE AND CERTIFICATE MAINTENANCE AND RETURN

(1) An Air Traffic Controller Licence is valid for a period of 10 years.

(2) For an Air Traffic Controller to take responsibility of an ATC operational position he shall:

(a) Hold a valid Air Traffic Controller Licence for the relevant ATC rating;
(b) Hold a valid Certificate of Competence (CoC) for the relevant rating and sector(s);
(c) Hold a valid Class 3 Medical Certificate; and
(d) Hold a valid English Language Proficiency Certificate of Level 4 or greater.

(3) For a Student Air Traffic Controller to undertake OJT in an ATC operational position, under the supervision of an OJT Instructor endorsed by the Authority, he shall:

(a) Hold a valid Student Air Traffic Controller Licence for the relevant ATC rating;
(b) Hold a valid Class 3 Medical Certificate; and
(c) Hold a valid English Language Proficiency Certificate of Level 4 or greater.

(4) For an Air Traffic Controller to hold a valid Endorsement he shall hold a current Air Traffic Controller Licence.

(5) A holder of an Air Traffic Control Licence shall not be entitled to exercise the privileges of a rating contained in that licence unless he holds a current CoC specific to the unit or sector, at which the air traffic control service is to be provided.

(6) For the Air Traffic Controller Licence or Student Air Traffic Controller Licence to remain current the holder shall inform the ATS unit of any conditions or limitations applicable to the Licence including any conditions or limitations to the Medical certificate which may affect the holder's ability to perform air traffic control duties safely and efficiently. Air Traffic Controllers are reminded that it is their responsibility, as Air Traffic Controller Licence holders, to ensure compliance with the requirements stated in Subpart 24.9.25(6) above.

(7) An air traffic controller who does not exercise the privileges of a rating, for which a CoC has been issued, for a period likely to impair the air controller's performance through lack of routine, shall not exercise the privileges of the rating in question until an agreed upon period of training under supervision has been completed.

(8) To remain current, the air traffic controller shall perform the minimum number of hours of operational duty, as listed below, during the previous calendar month:

(a) 12 hours for an air traffic controller holding currency in one rating discipline; or
(b) 12 hours for an air traffic controller holding currency in more than one rating discipline, where the rating disciplines are normally combined during low traffic periods; or
(c) 8 hours for each rating discipline held, for air traffic controllers holding currency in more than one rating discipline, where the rating disciplines are not normally combined.

(9) These minimum total duty periods shall be conducted on ATC control positions appropriate to the rating and be performed without supervision and without OJT Instructor or Examiner duties.

(10) The minimum hour rule above and the associated remedial measures stipulated in (7) and (8) represent the minimum direct exposure to handling of air traffic necessary to maintain adequate routine and currency. Individual needs for practice may be higher, owing to local conditions, personal traits, variability in traffic etc. The rules formulated to strike a balance between the need for frequent practice and ease of administration and application do not relieve the air traffic controller from duty of care with respect to personal performance. ATS management shall have the option to institute higher minimum hour requirements.

(11) For air traffic controllers failing to satisfy the currency requirement stipulated in (8), competence may be ascertained by the following methods:

(a) Perform a Currency Check under the supervision of an OJT Instructor endorsed by the Authority lasting not less than 2 hours under traffic conditions permitting an evaluation of performance, at the discretion of the ATS unit. The OJT Instructor conducting the supervision is the responsible air traffic controller; or
(b) By a Certificate of Competence (CoC) examination, including the components of written, practical and oral examinations, conducted by an ATC Examiner (ATCE) endorsed by the Authority.

(12) For an air traffic controller who does not exercise the privileges of a rating for a period greater than one (1) calendar month, but less or equal to three (3) calendar months, competency shall be ascertained by performing a Currency Check under the supervision of an OJT Instructor endorsed by the Authority lasting not less than 25 hours under traffic conditions permitting an evaluation of performance, at the discretion of the ATS unit. The OJT Instructor conducting the supervision is the responsible air traffic controller.

(13) For an air traffic controller who does not exercise the privileges of a rating for a period greater than three (3) calendar months, but less than six (6) calendar months, competency may be ascertained by performing a Currency Check under the supervision of an OJT Instructor endorsed by the Authority lasting not less than 36 hours under traffic conditions permitting an evaluation of performance, at the discretion of the ATS unit. The OJT Instructor conducting the supervision is the responsible air traffic controller.

(14) Notwithstanding the alternative (remedial) actions detailed in (12) and (13), the Authority may require a complete CoC examination.

(15) The validity of a CoC shall lapse after an air traffic controller fails to exercise the operational privileges of an ATC rating for a period greater than 180 days, or after failing to satisfy the means of compliance in paragraphs (8), (11), (12) and (13).

(16) Air traffic controllers failing to meet the requirements detailed above shall inform the ATS unit that his competence has lapsed.

(17) Where a CoC ceases to be valid for one rating, an air traffic controller may continue to exercise the privileges of any other rating for which he holds a valid CoC.

(18) Active simulator practice (not instructional duties) may be substituted for up to 50 percent of the minimum operational hours requirement. Simulator hours which are credited towards minimum operational duty requirements, shall only include exercises which accurately represent the airspace, traffic pattern and operational environment of the operational position for which the hours are credited.

(19) ATS units shall have a process in place to ensure that Air Traffic Controller Licences, Student Air Traffic Controller Licences, Certificates of Competence and Class 3 Medical Certificates are signed by the holder and securely filed within the ATS unit.

(20) The ATS unit shall retain ATC Licences and Class 3 Medical Certificates and have a process in place to monitor the renewal and currency requirements for each Licence and Class 3 Medical Certificate.

(21) An Air Traffic Controller Licence is not required by persons who pass instructions or advice on behalf of an air traffic controller by the use of radiotelephony (RTF) or telecommunication lines.

(22) An ATS unit which wishes to utilize such persons shall:

(a) Submit proposal to the Authority for approval;
(b) Such proposal shall indicate the types of messages that will be passed and the safety implications of using such a procedure;
(c) Submit training and assessments plans to ensure that those who will pass instructions and or advice on the air traffic controller's behalf are competent to do so and are assessed annually to ensure they remain competent.

(23) An Air Traffic Controller Licence, complete with the Rating and Endorsement Record and the Class 3 Medical Certificate may be kept by the ATS unit or air traffic controller when the holder ceases operational duties permanently, unless the licence has been revoked in which case it shall be returned to the Authority.

24.9.27 AIR TRAFFIC CONTROLLER RATINGS AND ENDORSEMENTS

(1) Ratings of the classes outlined below may be included in an Air Traffic Controller Licence subject to the provisions of these Directives. The inclusion of a rating in a licence shall confer the privileges as set out below.

(2) The following ratings, indicating the type of air traffic control service, which the holder is authorised to provide, shall be included in an Air Traffic Controller Licence:

(a) Aerodrome Control (ADC): To provide or to supervise the provision of aerodrome control service for the aerodrome for which the licence holder is rated.
(b) Approach Control Procedural (APP): To provide or to supervise the provision of approach control service for the aerodrome or aerodromes for which the licence holder is rated, within the airspace or portion thereof, under the jurisdiction of the unit providing approach control service.
(c) Approach Control Surveillance (APS): To provide or to supervise the provision of approach control service with the use of applicable ATS surveillance systems for the aerodrome or aerodromes for which the licence holder is rated, within the airspace or portion thereof, under the jurisdiction of the unit providing approach control service.
(d) Area Control Procedural (ACP): To provide or to supervise the provision of area control service within the control area or portion thereof, for which the licence holder is rated.
(e) Area Control Surveillance (ACS): To provide or to supervise the provision of area control service with the use of an ATS surveillance system, within the control area or portion thereof, for which the licence holder is rated.

24.9.27.1 ENDORSEMENTS:

(1) Application for the endorsements listed below shall be made using GCAA-FORM-ATS 001 specified in IS: 24.9.27.1:

(a) ATC Examiner (ATCE): The ATCE endorsement shall entitle the holder of a licence to conduct examinations for the issuance and renewal of Certificates of Competence, at operational positions or sectors on which the holder is currently competent.

(b) OJT Instructor (OJTI): The OJTI endorsement shall entitle the holder of a licence to conduct On-the-Job training in simulators or at operational positions or sectors on which the holder is currently competent.

(2) The holder of a licence shall not simultaneously perform the functions of more than one rating except at ATS units where it has been determined by the ATS unit through a safety assessment that this can be achieved safely for the following ratings:

(a) The aerodrome control and approach control procedural ratings; or
(b) The approach control procedural and the approach control surveillance ratings; or
(c) The approach control procedural and the area control procedural ratings; or
(d) The area control procedural and the area control surveillance ratings;

(3) ATS units shall ensure that the validation of ratings is conducted by an appropriate examiner approved by the Authority whose endorsement is recorded in his Air Traffic Controller Licence.

(4) An air traffic controller may be endorsed as an ATC Examiner at the discretion of the Authority, providing:

(a) He has at least 5 years full time operational ATC experience in the rating for which the examinations will be conducted;
(b) He maintains and has held for a minimum period of 2 years, Certificates of Competence for the sectors or operational positions for which examinations will be conducted;
(c) He currently holds an OJT Instructor endorsement, which has been held for at least 1 year, at the unit for which the examinations will be conducted;
(d) He has completed an examiner course acceptable to the Authority; and
(e) He has conducted at least 2 initial or subsequent issues of CoC examinations under the supervision of an ATC Examiner.

(5) An air traffic controller may be endorsed as an OJT Instructor, at the discretion of the Authority, providing:

(i) He has at least 4 years full time operational experience in the rating for which instruction will be conducted;
(ii) He maintains, and has held for a minimum period of 1 year, Certificates of Competence for the sectors or operational positions for which instruction will be conducted;
(iii) He has completed an OJT Instructor course acceptable to the Authority; and
(iv) He has completed unit specified training on the conduct of the UTAP scheme.

(6) The ATS unit shall provide the following evidence for the issue of a rating:

(a) Certification that the applicant has successfully completed an approved ATC course for the applicable rating; or

(b) Evidence that the applicant has acted as a certified civilian air traffic controller performing full time operational duties for a minimum period of 3 years, in the applicable rating, at a civilian air traffic facility under the jurisdiction of an authority, whose ATC licensing system has been deemed by the Authority as meeting the requirements laid down in these Directives; and

(c) Certification that the applicant has met the Minimum Experience Requirements (MER) associated with that rating; or

(d) Certification that the applicant has successfully completed the UTAP associated with that rating; and

(e) A valid CoC for the applicable rating.

(7) Where the aerodrome control function is divided into specialist operational positions, an air traffic controller shall be competent on all positions, before a CoC relating to the Aerodrome Control rating will be issued.

(8) A specialist operational position in aerodrome control refers to ground movement control, aerodrome control and planner etc.

(9) ATS units shall seek advice from the Authority to determine if their air traffic controllers are required to hold both an approach control procedural rating and an

approach control surveillance rating and, area control procedural rating and an area control surveillance rating.

(10) At units where ATS surveillance systems are the primary controlling aid, air traffic controllers may not be required to hold a separate procedural rating provided that:

(i) Surveillance derived information is continuously available during the notified period of the provision of an ATS surveillance service;
(ii) Contingency measures and the procedures to be used in the event of a surveillance failure are published in the unit ATS Operations Manual, e.g. LATSI;
(iii) The surveillance used to provide the ATS surveillance service is a surveillance radar;
(iv) The ATS unit provides such additional procedural training as is appropriate to unit procedures. This training may be undertaken either at the unit or at an ATS Training Organisation providing the training under a programme acceptable to the Authority;
(v) Procedures for ATS surveillance service contingencies are assessed as part of CoC examinations.

24.9.28 CERTIFICATION OF SPECIAL AIR TRAFFIC CONTROL RELATED FUNCTIONS

(1) ATS Supervisors, ATS Safety Investigators and ATS Training Instructors are required to be certified by the ATS unit prior to commencing duties related to these job functions.

(2) The ATS unit shall ensure that procedures and processes are established for the certification of ATS Supervisors, ATS Safety Investigators and ATS Training Instructors, which shall meet the following qualifications, experience and competency requirements:

(a) **ATS Supervisor:**
(i) Hold or have held an ATC Licence in a rating where supervision will be conducted for a minimum of 5 years, of which 2 years have been at the ATS Unit;
(ii) Possess good skills in leadership, decision making, team work and overall ATC knowledge;
(iii) Possess a high level of written and verbal English communications skills;
(iv) Have successfully completed a supervisory management course or similar;
(v) Have demonstrated the competency to conduct supervisory duties to the satisfaction of the Head of ATC Training;

(b) **ATS Safety Investigator:**
(i) Hold or have held an ATC rating in which investigation will be conducted for a minimum of 5 years;
(ii) Possess a high level of written and verbal English communications skills;
(iii) Have successfully completed an Incident Investigation course;
(iv) Have successfully completed a mandatory Safety Investigation Training Workshop conducted by the Authority;
(v) Have demonstrated to the satisfaction of the Safety Management post holder the competency to conduct Investigator duties to the expected ATS Unit standard.

(c) **ATS Training Instructor:**

(i) Hold or have held an ATC Licence in a rating for which unit ATC theoretical rating training or academic ATC theoretical and simulator training will be conducted, for a minimum of 5 years;

(ii) Hold or have held an OJT Instructor endorsement for minimum 1 year in a rating for which training will be conducted;

(iii) For unit training, hold or have held a Certificate of Competence for a minimum of 2 years at the ATS unit in a rating for which unit ATC theoretical rating training will be conducted;

(iv) Possess a high level of written and verbal English communications skills;

(v) Have successfully completed a classroom/presentation instructional techniques course;

(vi) Have successfully demonstrated competence in the conduct of classroom instruction acceptable to the Head of ATC Training or Academy Manager of an ATS Training Organisation.

(3) In addition to the provision in 24.9.27(1) and 24.9.27(2)(c), an ATS Training Instructor shall apply for endorsement by the Authority using GCAA-FORM-ATS 001 specified in IS: 24.9.27.1.

24.9.29 RELIEF FROM DUTY

(1) When an air traffic controller's actions may have been a contributing factor in an ATS occurrence such as an accident, AIRPROX, serious incident, loss of separation or hazardous situation where the safety of an aircraft was or may have been jeopardized, he shall be relieved as soon as reasonably practicable from all operational duties pending a unit investigation.

(2) There shall be no partial removal from duty.

(3) The controller's relief from duty should not be taken as a suspicion of guilt but purely to protect the controller and the unit in the following ways:

(a) To ensure a potentially unsettled controller does not make post occurrence errors;

(b) To allow the controller to be available to write a statement and assist in the initial investigation;

(c) To allow the controller time for recovery and be offered post-incident stress counselling, i.e. critical incident stress management (CISM); and

(d) To give the unit protection if in fact some actions are required to raise the controller's competence to the required standard.

(4) Following an accident or serious incident, an ATCO relieved from duty shall not be returned to operational duties without approval from the Authority.

(5) If during or after the ATS unit investigation of an ATS occurrence other than an accident or serious incident, it is found that the controller's actions were correct and did not contribute to the occurrence, an ATS unit may return the controller to operational duties. The ATS unit shall notify the Authority accordingly.

(6) If during or after the ATS unit investigation of an ATS occurrence other than an accident or serious incident, it is found that the controller's actions did or may have contributed to the occurrence, the controller shall remain relieved of all operational duties until successfully completing remedial actions.

(7) The Head of ATC shall determine, after consultation with ATC operational management, the remedial actions required to ensure that a controller relieved of duty has the required knowledge and competence to return to duty. The remedial actions shall be documented, dated and signed by all parties and kept on the concerned controller's file for a minimum 3 years after the occurrence.

(8) Where it is determined that remedial training is required, the controller's CoC for the affected rating/s shall be withdrawn and the Authority be notified. A CoC shall only be reissued after the successful completion of a full CoC examination (written, practical and oral examination) and the Licensing Department is to be informed when the CoC has been re-issued.

(9) When ATS remedial training is required, the controller involved shall first be counselled with the objective of ensuring that he understands what errors were made, accepts ownership of his actions, and will be receptive to training. This shall be documented, dated and signed by all parties and kept on the concerned controller's file for a minimum 3 years after the occurrence.

(10) In cases where remedial training is required, a training needs analysis shall be carried out by the ATS unit and documented to determine specific training requirements

24.9.30 INCIDENTS INVOLVING AIRLINE OPERATORS

(1) Following an aviation incident, controllers shall ensure that pilots involved in the incident are aware that the incident has occurred and that reporting action is being taken.

(2) In the event of a serious incident, the pilot involved shall, when possible, be interviewed by an ATS unit officer to ascertain relevant details, which may assist in the unit investigation. The interview shall be conducted at an appropriate time, and on an appropriate recorded private frequency or communication line. The interview shall be documented for inclusion in the ATS unit investigation.

24.9.31 LIST OF INCIDENTS INVOLVING AIRLINE OPERATORS

This list as shown in Subpart 24.9.32 is in no way exhaustive and as such any occurrence which is believed to be a flight safety issue shall be reported.

Note. Bird-strike and wildlife reports related to events on or in the immediate vicinity of an aerodrome shall be reported according to the procedures in force at the relevant aerodrome.

24.9.32 CATEGORY AND DESCRIPTION OF OCCURRENCE

(1) **ACAS Event:** An incident where a resolution advisory event (RA) did or may have occurred.

(2) **Accident:** An occurrence meeting the definition of an accident contained in Part 24.1.

(3) **AIRPROX:** A situation in which, in the opinion of a pilot or air traffic services personnel, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved may have been compromised.

(4) **Risk of collision:** The risk classification of an aircraft proximity in which serious risk of collision has existed.

(5) **Safety not assured:** The risk classification of an aircraft proximity in which the safety of the aircraft may have been compromised.

(6) **No risk of collision:** The risk classification of an aircraft proximity in which no risk of collision has existed.

(7) **Risk not determined:** The risk classification of an aircraft proximity in which insufficient information was available to determine the risk involved, or inconclusive or conflicting evidence precluded such determination.

(8) **ASMI Category A:** An incident in which a reduction in required ATC separation occurs where the separation remaining is 25% or less of the required minimum, regardless of whether or not corrective action or an evasive response to avoid a collision was taken. (ASMI: Airborne Separation Minima Infringement).

(9) **ASMI Category B:** An incident in which a reduction in required ATC separation occurs where the separation remaining is 26% up to and including 50% of the required minimum and no ATC action is taken, or the initial action to resolve the situation was determined by the pilot or ACAS.

(10) **ASMI Category C:** An incident in which a reduction in required separation occurs where:

(i) The separation remaining is 26% up to and including 50% of the required minimum and ATC resolved the situation; or
(ii) The separation remaining is 51% up to and including 75% of the required minimum and no ATC action is taken, or the initial action to resolve the situation was determined by the pilot or ACAS

(11) **ASMI Category D:** An incident in which a reduction in required separation occurs where:

(i) The separation remaining is 51% up to but not including 90% of the required minimum and ATC resolved the situation; or
(ii) The separation remaining is 76% or more and no ATC action is taken, or the pilot or ACAS resolved the situation.

(12) **ASMI Category E:** An incident in which a reduction in required separation occurs where the separation remaining is 90% or more of the required minimum and ATC resolved the situation.

(13) **Airspace Penetration (CTA/CTR/SUA) without clearance or approval:** An incident where an aircraft enters civil or military controlled airspace or SUA without clearance or proper authorisation.

(14) **Apron Incident:** An incident reported to ATC where the flight safety of an aircraft was or may have been affected on the apron area.

(15) **ATC Co-ordination Error:** An incident where the coordination between ATC Sectors or units is not completed correctly, where the ATC coordination failure affected flight safety.

(16) **ATC Operational issue:** An incident, not resulting in any other category, where incorrect ATCO actions or ATC procedures affected, may have affected flight safety.

(17) **ATS or Aerodrome Equipment failure:** An incident where there is a failure or irregularity of ATS or Aerodrome communication, navigation or surveillance systems or any other safety significant systems or equipment which could adversely affect the safety or efficiency of flight operations and or the provision of an air traffic control service.

(18) **Communications failure:** An incident where an aircraft experiences a total or partial communications failure.

(19) **Deviations from ATC Clearance (not including a level bust):** An incident where an aircraft fails to comply with any component of an ATC clearance, excluding a cleared altitude or flight level.

(20) **Emergency (other than engine failure or fuel shortage):** An incident, excluding an accident, security event, engine failure, fuel emergency or medical emergency, where a pilot declares an emergency, Mayday or Pan.

(21) **Engine failure:** An incident where a pilot reports he has experienced an engine failure during take-off, in flight or landing, or reports that he has shut down an engine due to a technical problem.

(22) **Flight planning error:** An incident where a flight planning error has been reported which may affect the safety of a flight.

(23) **FOD:** An incident involving FOD detected on a runway including reported tyre bursts from aircraft which have recently operated on a runway.

(i) **Category A:** FOD which is likely to cause damage to an aircraft on a runway or runway shoulder;
(ii) **Category B:** FOD which is likely to cause damage to an aircraft found within runway strip or RESA (Runway End Safety Area);
(iii) **Category C:** FOD which is likely to cause damage to an aircraft on taxiways or taxiway shoulders;
(iv) **Category D:** FOD which is likely to cause damage to an aircraft found on the taxiway strips, apron areas or elsewhere on the airfield.

(24) **Fuel emergency:** An incident where a pilot reports he is experiencing a minimum fuel situation which requires an emergency declaration.

(25) **Go-around event:** Any go- around event, except where an aircraft intentionally goes around for training purposes.

(26) **Level Bust Category A:** An incident where an aircraft deviates from an assigned level by 800 feet or more, and there was no loss of separation.

(27) **Level Bust Category B:** An incident where an aircraft deviates from an assigned level by 600 or 700 feet and there was no loss of separation.

(28) **Level Bust Category C:** An incident where an aircraft deviates from an assigned level by 400 or 500 feet, and there was no loss of separation.

(29) **Level Bust Category D:** An incident where an aircraft deviates from an assigned level by 300 feet or less and there was no loss of separation.

(30) **Loss of Runway Separation Category A:** An incident in which a reduction in required runway separation occurs where:

(i) A collision is narrowly avoided; or
(ii) The separation remaining is 25% or less of the required minimum, regardless of whether or not corrective action or an evasive response to avoid a collision was taken.

(31) **Loss of Runway Separation Category B:** An incident in which a reduction in required runway separation occurs where:

(i) A significant potential for collision which may result in a time-critical corrective evasive response to avoid a collision; or
(ii) The separation remaining is 26% up to and including 50% of the required minimum, and no ATC action is taken, or the initial action to resolve the situation was determined by the pilot.

(32) **Loss of Runway Separation Category C:** An incident in which a reduction in required runway separation occurs where:

(i) There is ample time or distance to avoid a potential collision; or
(ii) The separation remaining is 26% up to and including 50% of the required minimum, and ATC resolved the situation; or
(iii) The separation remaining is 51% or more of the required minimum and no ATC action is taken, or the initial action to resolve the situation was determined by the pilot.

(33) **Loss of Runway Separation Category D:** An incident in which a reduction in required runway separation occurs where:

(i) The separation remaining is 51% or more of the required minimum and ATC resolved the situation; or
(ii) An aircraft is in receipt of a landing or take-off clearance, while another aircraft is on the runway, and the initial action to resolve the situation was determined by the pilot.

(34) **LVP Violations:** An incident where an aircraft conducts an operation when RVR, Met visibility and/or cloud-base conditions are below the required approach minima or the aerodrome operator minima.

(35) **Manoeuvring Area Excursion:**

(i) Category A: An incident in which an aircraft has an excursion from a runway – i.e. overruns, excursion off the side of the runway – resulting in damage to aircraft.
(ii) Category B: An incident in which an aircraft has an excursion from a taxiway – excursion off the side of the taxiway – resulting in damage to aircraft.
(iii) Category C: An incident in which an aircraft has an excursion from a runway – i.e. overruns, excursion off the side of the runway – resulting in no damage to aircraft.
(iv) Category D: An incident in which an aircraft has an excursion from a taxiway- excursion off the side of the taxiway – resulting in no damage to aircraft.

(36) **Medical emergency:** An incident where a pilot reports a medical emergency requiring a diversion or priority track or landing due to a sick or injured passenger or crew member.

(37) **Runway incursion category A:** A serious incident in which a collision is narrowly avoided.

(38) **Runway incursion Category B:** A runway incursion in which the separation decreases and there is a significant potential for collision, which may result in a time-critical corrective or evasive response to avoid a collision. This includes a runway incursion occurring while a departing aircraft has commenced its take-off roll or an arriving aircraft has crossed the threshold.

(39) **Runway incursion Category C**: A runway incursion characterised by ample time and or distance to avoid a collision, including a runway incursion occurring while a departing aircraft has been cleared to line up, or cleared for take-off or an arriving aircraft has been cleared to land but has not crossed the threshold.

(40) **Runway incursion Category D:** A runway incursion that meets the definition of a runway incursion such as the incorrect presence of a vehicle, person or aircraft on the protected area of a surface designated for the landing and take-off of aircraft but with no immediate safety consequences.

(41) **Runway incursion category E:** Insufficient information or inconclusive or conflicting evidence precludes a severity assessment.

(42) **Runway operation incident:** An incident occurring on a runway, where operational safety was or may have been affected, excluding a runway incursion, such as: An aircraft conducts an operation on a runway without proper authority, e.g. conducting a take-off or landing on an operational or closed runway without a clearance; or Attempting a take-off from, or landing on a taxiway not approved for such an operation.

(43) **Security event:** An incident involving a security event relating to an aircraft, which may adversely affect flight safety, such as a Hijack, Bomb Warning or an unruly passenger, which results in a request for a priority diversion or landing, or the attendance to an aircraft by security personnel.

(44) **Technical problem:** An incident excluding a declared emergency where a pilot reports an aircraft technical problem.

(45) **Visual hazard report:** An incident where a pilot or ATS Unit becomes aware of a situation involving a light source, including laser, spotlights or pyrotechnics, where flight safety was or may have been compromised

24.10 LOW VISIBILITY OPERATIONS

24.10.1 INTRODUCTION

(1) The Low Visibility Directives contained herein address the safety and regularity issues related to:
   (a) Approaches and landings in Category I and Category II meteorological conditions;

(b) Take offs in RVR not less than 550 metres (for CAT I) and 350 metres (for CAT II);

(c) Control of surface movements in meteorological conditions not permitting ATS to be carried out with visual reference.

(2) These Directives prescribe the circumstances in which Low Visibility Procedures (LVP) are required as well as the requirements to be addressed by these procedures.

(3) The additional measures required to support safe operations at an airport in Low Visibility Conditions (LVC) shall be specified in local procedures as "Low Visibility Procedures" (LVP).

(4) LVPs shall be established to:

(a) Prevent collisions between aircraft on the ground;
(b) Prevent collisions between aircraft and vehicles;
(c) Prevent runway incursions;
(d) Protect and extend the integrity of ground based navigation equipment;
(e) Extend protection from obstacles and confusing lighting effects;
(f) Maintain continuity of service of visual and non-visual aids;
(g) Extend ability to give adequate guidance to rescue and firefighting services;
(h) Extend meteorological services; and
(i) Provide reporting for enforcement and monitoring of safety levels.

24.10.2 AIR TRAFFIC MANAGEMENT PROCEDURES

(1) The actual LVP required at an airport will depend on the type of operations conducted. Low Visibility Procedures established by the ATS Provider shall be approved by the Authority.

(2) The general provisions in ICAO Doc 4444, Pans ATM shall apply.

(3) Local ATS Instructions (LATSI) shall specify types of approved LVO along with associated procedures.

(4) The LATSI shall contain detailed procedures for the following:

(a) The RVR values at which the LVP shall be implemented;
(b) Minimum ILS equipment requirements for Category I or II operations;
(c) Other facilities and aids, such as lighting, required for category I or II operations;
(d) Runway holding positions to be used;
(e) Minimum spacing between an arriving and a departing aircraft to ensure protection of the sensitive and critical areas;
(f) Minimum spacing between successive approaching aircraft;
(g) Procedures to verify that aircraft and vehicles have vacated the runway and sensitive areas for ILS components;
(h) Procedures applicable to separation of aircraft on the manoeuvring area;
(i) Procedures applicable to separation of aircraft and vehicles;
(j) Low visibility taxi routes;
(k) Staffing of operational positions.

(5) A formal agreement between ATC and the Apron Management Service, shall define the LVP to be used and clearly state the tasks and responsibilities of each party in LVC, in particular including provisions for the movement of vehicles on the apron. Except as required for essential operational reasons, vehicles shall not be permitted on the manoeuvring area in LVC.

24.10.3 INITIATION AND CANCELLATION OF ATS LOW VISIBILITY PROCEDURES

(1) The conduct of LVO depends on the existence of suitable runway protection measures, surface movement guidance and control, emergency procedures and apron management.

(2) LVO shall be initiated by the aerodrome control tower, once the aerodrome operator has advised that all measures required to protect aircraft operations in poor weather conditions are in place.

(3) The aerodrome control tower shall inform the approach control unit concerned when procedures for precision approach category I or II and low visibility operations will be applied and also when such procedures are discontinued.

(4) Criteria for Category I or II status shall be clearly established. Procedures shall be established to manage full or partial failure of the overall system, to enable one of the following to occur:

(a) Downgrade LVO for all aircraft movements;
(b) Continue LVO for specified types or categories of movements;
(c) Continue LVO without restrictions.

(5) Based on the defined and approved criteria, ATC shall communicate the low visibility status of the airport or runway to pilots.

24.10.4 RUNWAY RESTRICTIONS AND PROTECTION

(1) The following shall not be permitted in LVC:

(a) Intersection take-offs;

(b) Use of operational runways as taxi routes.

(2) Critical and Sensitive areas shall be clearly identified to the aerodrome controller(s) on radar maps or charts on display.

(3) For Category I and II operations, the sensitive areas shall be protected when aircraft are close to the runways during take-off and landing operations.

(4) When take-off is carried out on a runway with a radiating localizer, the critical and sensitive areas for the localizer shall be kept clear of all vehicles, aircraft or mobile objects.

(5) A Surface Movement Guidance and Control System (SMGCS) or Advanced Surface Movement Guidance and Control System (ASMGCS) required for operations in LVC shall be used to assist in prevention of incursions of aircraft and vehicles on active runways and associated critical and sensitive areas for ILS components.

24.10.5 LOW VISIBILITY TAXI ROUTES

(1) LVP taxi routes shall be established and enforced in LVC to facilitate navigation, reduce traffic complexity and minimise risk of runway incursions.

(2) LVP taxi routes shall minimise manoeuvring between runway and apron.

(3) SMGCS and signs shall support standard LVP taxi routes.

(4) LVP taxi routes shall be indicated on charts.

24.10.6 SURFACE MOVEMENT SURVEILLANCE

(1) A Surface Movement Surveillance system shall be provided for the manoeuvring area:

(a) At airports intended for use in RVR conditions less than 300 metres;

(b) Where airport layout is complex and or visual guidance makes surveillance required to protect the runway(s) and sensitive areas from incursions;

(c) Where traffic density and operating conditions are such that regularity of traffic flow cannot be maintained by alternative procedures and facilities.

(2) Surveillance can be used for:

(a) Confirmation that the runway and associated critical and sensitive areas are clear of aircraft, vehicles and other obstructions prior to a departure or landing;
(b) Ensuring that a departing aircraft is lined up on the correct runway;
(c) Ascertaining that a departing aircraft has commenced take-off run;
(d) Guiding and monitoring aircraft and vehicles on the manoeuvring area as required;
(e) Expediting surface traffic flows by directing along optimum routings;
(f) Providing guidance to emergency vehicles;
(g) Ensuring pushback will not conflict with traffic on the manoeuvring area.

24.10.7 LVO CONTINGENCY PROCEDURES

(1) Detailed LVO contingency procedures shall be established by the ATS Provider to address failures of essential components of the SMGCS.

(2) These contingency procedures shall be approved by the Authority.

24.10.8 TRAINING

(1) ATS staff involved in LVO shall be trained in knowledge and application of the approved procedures. Understanding and skills shall be demonstrated as part of periodic competency checking.

(2) The training syllabus shall include handling of failures and emergency situations.

24.10.9 AUTOMATIC TERMINAL INFORMATION SERVICE (ATIS)

(1) Availability of low visibility facilities shall be communicated to pilots by means of the ATIS broadcast, where available, except for short notice changes which shall be passed by radio.

(2) The following standard phraseology shall be used in ATIS broadcasts:

"Low Visibility Procedures...(CAT I or II) in operation"

a) Additionally, when local conditions require specific holding positions to be used the following message shall be used if necessary:

"Use Category XX Holding Positions"

Where **"XX"** is replaced by the relevant category of operation (I or II) as appropriate.

b) When LVP are terminated, the ATIS shall be updated by removing the "Low Visibility Procedures…(CAT I or CAT II) in operation" message.

24.11 EQUIPMENT

24.11.1 REQUIREMENTS FOR RADIOTELEPHONY (RTF)

In addition to RTF redundancy requirement, a battery powered emergency transceiver shall be available and selectable to any frequency used by aerodrome control.

24.11.2 SECONDARY POWER SUPPLY

(1) Secondary power supply shall be provided to maintain continuity of communications services during LVP.

(2) The following facilities shall be supplied with secondary power:
- (a) RTF equipment;
- (b) Telephone equipment;
- (c) Any data link equipment used in support of LVO.

24.11.3 METEOROLOGICAL DISPLAYS

(1) RVR measurements shall be continuously displayed for the controller(s) providing ATS for aircraft taking off and for approaching aircraft within eight nautical miles from the runway.

(2) Multi-site RVR measurements shall be made for low visibility take-offs.

(3) Measurements of ceiling or cloud height shall be continuously displayed for the controller(s) providing ATS for approaching aircraft within eight nautical miles from the runway.

24.12 ATS SYSTEMS CHANGES

(1) The ATS Section shall not introduce any new ATS system, including equipment, facilities, procedures, airspace design or structural changes or changes to ATS rating courses, without the required regulatory approval prior to commencement of the new ATS system.

(2) The concept of the change, including any design, specifications, purpose of introducing the change and initial safety assessment performed, shall be sent to the Regulator for assessment and approval before continuing with the process.

(3) The ATS section shall include the Regulator (ATS Inspector(s)) in the training of its technical staff regarding any new equipment, procedures or other technical changes.

(4) The ATS Section shall not conduct any Factory and Site Acceptance Tests (FAT and SAT) without the involvement of the Regulator (ATS Inspector(s). This is to enable the Regulator make appropriate evaluation prior to the acceptance of the equipment.

(5) Installation and implementation processes of new ATS equipment shall be monitored and assessed by the Regulator (ATS Inspector(s)) to ensure proper procedures are being adhered to for safety assurance.

(6) The Regulator (ATS Inspector(s)) shall carry out post-implementation monitoring to ensure acceptable levels of safety are maintained.

24.13 RUNWAY SAFETY PROGRAMME

(1) The Authority shall ensure the establishment and implementation of a runway safety programme by the Aerodrome Operators, Air Traffic Services Section, Airline Operators and all relevant stakeholders.

(2) Additional guidance on the establishment and implementation of runway safety programme shall be found in IS: 24.13.

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GHANA CIVIL AVIATION (AIR NAVIGATION SERVICES) DIRECTIVES

PART 24 – IMPLEMENTING STANDARDS

For ease of reference, the number assigned to each implementing standard corresponds to its associated Directive. For example, IS 24.2.1 would reflect a standard required in subsection 24.2.1

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IS: 24.2.13.4 PRINCIPLES GOVERNING THE IDENTIFICATION OF STANDARD DEPARTURE AND ARRIVAL ROUTES AND ASSOCIATED PROCEDURES

(See 24.2,24.2.13.4)

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 self-contained airborne aids, and routes requiring navigation by visual reference to the ground;

c) be compatible with ATS and aircraft data processing and display requirements;

d) be of utmost brevity in its operational application;

e) avoid redundancy;

f) provide sufficient possibility for extension to cater for any future requirements without the need for fundamental changes.

1.2 Each route shall be identified by a plain language designator and a corresponding coded designator.

1.3 The designators shall, in voice communications, be easily recognizable as relating to a standard departure or arrival route and shall not create any difficulties in pronunciation for pilots and ATS personnel.

2. Composition of designators

2.1 Plain language designator

2.1.1 The plain language designator of a standard departure or arrival route shall consist of:

a) a basic indicator; followed by

b) a validity indicator; followed by

c) a route indicator, where required; followed by

d) the word "departure" or "arrival"; followed by

e) the word "visual", if the route has been established for use by aircraft operating in accordance with the visual flight rules (VFR).

2.1.2 The basic indicator shall be the name or name-code of the significant point where a standard departure route terminates or a standard arrival route begins.

2.1.3 The validity indicator shall be a number from 1 to 9.

2.1.4 The route indicator shall be one letter of the alphabet. The letters "I" and "O" shall not be used.

2.2 Coded designator

2.2.1 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.

IS: 24.2.6.3 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.

IS: 24.2.13.4 PRINCIPLES GOVERNING THE IDENTIFICATION OF NAVIGATION SPECIFICATIONS AND THE IDENTIFICATION OF ATS ROUTES OTHER THAN STANDARD DEPARTURE AND ARRIVAL ROUTES

(section 24.2.7 and 24.2.13 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 *(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 governing the publication of navigation specifications are given in Annex 4, Chapter 7, and Annex 15, Appendix 1.

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 should, 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 authority or on the basis of regional air navigation agreements, a supplementary letter may be added after the basic designator of the ATS route in question in order to indicate the type of service provided in accordance with the following:

a) the letter F to indicate that on the route or portion thereof advisory service only is provided;

b) the letter G to indicate that on the route or portion thereof flight information service only is provided.

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 Annexes 4 and 15.

3. Assignment of basic designators

3.1 Basic ATS route designators shall be assigned in accordance with the following principles.

3.1.1 The same basic designator shall be assigned to a main trunk route throughout its entire length, irrespective of terminal control areas, States or regions traversed.

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 States' 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 should not be required to use them in voice communications.

IS: 24.2.13.5 PRINCIPLES GOVERNING THE IDENTIFICATION OF STANDARD DEPARTURE AND ARRIVAL ROUTES AND ASSOCIATED PROCEDURES

(Subpart 24.2, 24.2.13 refers)

Note.— Material relating to the establishment of standard departure and arrival routes and associated procedures is contained in the Air Traffic Services Planning Manual *(Doc 9426).*

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 self-contained airborne aids, and routes requiring navigation by visual reference to the ground;

c) be compatible with ATS and aircraft data processing and display requirements;

d) be of utmost brevity in its operational application;

e) avoid redundancy;

f) provide sufficient possibility for extension to cater for any future requirements without the need for fundamental changes.

1.2 Each route shall be identified by a plain language designator and a corresponding coded designator.

1.3 The designators shall, in voice communications, be easily recognizable as relating to a standard departure or arrival route and shall not create any difficulties in pronunciation for pilots and ATS personnel.

2. Composition of designators

1.1 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 designator: BRECON ONE DEPARTURE

b) Coded designator: BCN 1

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

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

a) Plain language designator: KODAP TWO ALPHA ARRIVAL

b) Coded designator: KODAP 2 A

5.2.1 *Meaning*: This designator identifies a standard instrument arrival route which begins at the significant point KODAP (basic indicator). KODAP is a significant point not marked by the site of a radio navigation facility and therefore assigned a five-letter name-code in accordance with Appendix 2. The validity indicator TWO (2) signifies that 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 designator: ADOLA FIVE BRAVO DEPARTURE VISUAL

b) Coded designator: ADOLA 5 B

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

6. Composition of designators for MLS/RNAV approach procedures

6.1 Plain language designator

6.1.1 The plain language designator of an MLS/RNAV approach procedure shall consist of:

a) "MLS"; followed by

b) a basic indicator; followed by

c) a validity indicator; followed by

d) a route indicator; followed by

e) the word "approach"; followed by

f) the designator of the runway for which the procedure is designed.

6.1.2 The basic indicator shall be the name or name-code of the significant point where the approach procedure begins.

6.1.3 The validity indicator shall be a number from 1 to 9.

6.1.4 The route indicator shall be one letter of the alphabet. The letters "I" and "O" shall not be used.

6.1.5 The designator of the runway shall be in accordance with Annex 14, 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 designator: MLS HAPPY ONE ALPHA 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.

IS: 24.2.15.3 PRINCIPLES GOVERNING THE ESTABLISHMENT AND IDENTIFICATION OF SIGNIFICANT POINTS

(section 24.2, 24.2.15 refers)

1. Establishment of significant points

1.1 Significant points should, whenever possible, be established with reference to ground-based or space-based radio navigation aids, preferably VHF or higher frequency aids.

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

2. Designators for significant points marked by the site of a radio navigation aid

2.1 Plain language name for significant points marked by the site of a radio navigation aid

2.1.1 Whenever practicable, significant points shall be named with reference to an identifiable and preferably prominent geographical location.

2.1.2 In selecting a name for the significant point, care shall be taken to ensure that the following conditions are met:

a) the name shall not create difficulties in pronunciation for pilots or ATS personnel when speaking in the language used in ATS communications. Where the name of a geographical location in the national language selected for designating a significant point gives rise to difficulties in pronunciation, an abbreviated or contracted version of this name, which retains as much of its geographical significance as possible, shall be selected;

Example: FUERSTENFELDBRUCK = FURSTY

b) the name shall be easily recognizable in voice communications and shall be free of ambiguity with those of other significant points in the same general area. In addition, the name shall not create confusion with respect to other communications exchanged between air traffic services and pilots;

c) the name should, 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 States' 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 five-letter 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 the PANS-OPS (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 a State wishes to keep the allocation of specific name-codes for reuse at a different location, such name-codes shall not be used until after a period of at least six months.

3.5 States' requirements for unique five-letter pronounceable 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 should not necessarily determine its designation as a compulsory reporting point;

c) compulsory reporting points should 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 should 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 should not be required to make routine position reports over all reporting points established as compulsory for low-speed, low-flying aircraft;

b) aircraft transiting through a terminal control area should 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.

IS: 24.2.20.1 AERONAUTICAL DATA QUALITY REQUIREMENTS

Table 1. Latitude and longitude

Latitude and longitude	*Accuracy Data type*	*Integrity Classification*
Flight information region boundary points.....	2 km declared	routine
P, R, D area boundary points (outside CTA/CTR boundaries).....	2 km declared	routine
P, R, D area boundary points (inside CTA/CTR boundaries).....	100 m calculated	essential
CTA/CTR boundary points	100 m calculated	essential
En-route navaids and fixes, holding, STAR/SID points.....	100 m surveyed/calculated	essential
Obstacles in Area 1 (the entire State territory)	50 m surveyed	routine
Obstacles in Area 2 (the part outside the aerodrome/heliport boundary)	5 m surveyed	essential
Final approach fixes/points and other essential fixes/points comprising the instrument approach procedure.....	3 m surveyed/calculated	essential

Note 1.— See Part 15, IS: 15.10.2.6, for graphical illustrations of obstacle data collection surfaces and criteria used to identify obstacles in the defined areas.

Note 2.— In those portions of Area 2 where flight operations are prohibited due to very high terrain or other local restrictions and regulations, obstacle data are to be collected in accordance with the Area 1 numerical requirements specified in Part 15, IS: 15.10.2.6, Table A8-2.

Table 2. Elevation/altitude/height

Elevation/altitude/height	*Accuracy Data type*	*Integrity Classification*
Threshold crossing height (Reference datum height), precision approaches	0.5 m calculated	critical
Obstacle clearance altitude/height (OCA/H)	as specified in the PANS-OPS (Doc 8168)	essential
Obstacles in Area 1 (the entire State territory), elevations	30 m surveyed	routine
Obstacles in Area 2 (the part outside the aerodrome/heliport boundary)	3 m surveyed	essential
Distance measuring equipment (DME), elevation.....	30 m (100 ft) surveyed	essential
Instrument approach procedures altitude.....	as specified in the PANS-OPS (Doc 8168)	essential
Minimum altitudes.....	50 m calculated	routine

Note 1.— See Part 15, IS: 15.10.2.6, for graphical illustrations of the obstacle data collection surfaces and criteria used to identify obstacles in the defined areas.

Note 2.— In those portions of Area 2 where flight operations are prohibited due to very high terrain or other local restrictions and/or regulations, obstacle data are to be collected in accordance with the Area 1 numerical requirements specified in Part 15, IS: 15.10.2.6, Table A8-2.

Table 3. Declination and magnetic variation

Declination/variation	*Accuracy Data type*

Integrity	*Classification*	
VHF NAVAID station declination used for technical line-up	1 degree surveyed	essential
NDB NAVAID magnetic variation	1 degree surveyed	routine

Table 4. Bearing

Bearing	*Accuracy Data type*	*Integrity Classification*
Airway segments	1/10 degree calculated	routine
Bearing used for the formation of an en-route and of a terminal fix	1/10 degree calculated	routine
Terminal arrival/departure route segments	1/10 degree calculated	routine
Bearing used for the formation of an instrument approach procedure fix.....	1/100 degree calculated	essential

Table 5. Length/distance/dimension

Length/distance/dimension	*Accuracy Data type*	*Integrity Classification*
Airway segments length	1/10 km calculated	routine
Distance used for the formation of an en-route fix.....	1/10 km calculated	routine
Terminal arrival/departure route segments length	1/100 km calculated	essential
Distance used for the formation of a terminal and instrument approach procedure fix	1/100 km calculated	essential

IS:24.22.28 FATIGUE RISK MANAGEMENT SYSTEM (FRMS) REQUIREMENTS

Note.— Guidance on the development and implementation of FRMS is contained in the Manual for the Oversight of Fatigue Management Approaches *(Doc 9966).*

An FRMS shall contain, at a minimum:

1. FRMS policy and documentation

1.1 FRMS policy

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

1.1.2 The policy shall:

a) define the scope of FRMS operations;

b) reflect the shared responsibility of management, air traffic controllers, and other involved personnel;

c) clearly state the safety objectives of the FRMS;

d) be signed by the accountable executive of the organization;

e) be communicated, with visible endorsement, to all the relevant areas and levels of the organization;

f) declare management commitment to effective safety reporting;

g) declare management commitment to the provision of adequate resources for the FRMS;

h) declare management commitment to continuous improvement of the FRMS;

i) require that clear lines of accountability for management, air traffic controllers, and all other involved personnel are identified; and

j) require periodic reviews to ensure it remains relevant and appropriate.

Note.— Effective safety reporting is described in the Safety Management Manual (SMM) *(Doc 9859).*

1.2 FRMS documentation

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

a) FRMS policy and objectives;

b) FRMS processes and procedures;

c) accountabilities, responsibilities and authorities for these processes and procedures;

d) mechanisms for ongoing involvement of management, air traffic controllers, and all other involved personnel;

e) FRMS training programmes, training requirements and attendance records;

f) scheduled and actual duty and non-duty periods and break periods between periods of time-in-position in a duty period with significant deviations and reasons for deviations noted; and

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

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

2. Fatigue risk management processes

2.1 Identification of fatigue-related hazards

Note.— Provisions on the protection of safety information are contained in Annex 19.

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

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

a) air traffic services or industry operational experience and data collected on similar types of operations or from other industries with shift work or 24-hour operations;

b) evidence-based

scheduling practices; and

c) bio-mathematical

models.

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

a) self-reporting of fatigue risks;

b) fatigue surveys;

c) relevant air traffic controller performance data;

d) available safety databases and scientific studies;

e) tracking and analysis of differences in planned and actual worked times; and

f) observations during normal operations or special evaluations.

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

a) fatigue reports;

b) confidential reports;

c) audit reports; and

d) incidents.

2.2 Fatigue-related risk assessment

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

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

a) operational processes;

b) their probability;

c) possible consequences; and

d) the effectiveness of existing preventive controls and recovery measures.

2.3 Risk mitigation

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

a) select the appropriate mitigation strategies;

b) implement the mitigation strategies; and

c) monitor the strategies' implementation and effectiveness.

3. FRMS safety assurance processes

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

a) provide for continuous FRMS performance monitoring, analysis of trends,

and measurement to validate the effectiveness of the fatigue safety risk controls. The sources of data may include, but are not limited to:

1) hazard reporting and investigations;

2) audits and surveys; and

3) reviews and fatigue studies (both internal and external);

b) provide a formal process for the management of change. This shall include, but is not limited to:

1) identification of changes in the operational environment that may affect the FRMS;

2) identification of changes within the organization that may affect the FRMS; and

3) consideration of available tools which could be used to maintain or improve FRMS performance prior to implementing changes; and

c) provide for the continuous improvement of the FRMS. This shall include, but is not limited to:

1) the elimination and/or modification of preventive controls and recovery measures that have had unintended consequences or that are no longer needed due to changes in the operational or organizational environment;

2) routine evaluations of facilities, equipment, documentation and procedures; and

3) the determination of the need to introduce new processes and procedures to mitigate emerging fatigue-related risks.

4. FRMS promotion processes

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

a) training programmes to ensure competency commensurate with the roles and responsibilities of management, air traffic controllers, and all other involved personnel under the planned FRMS; and

b) an effective FRMS communication plan that:

1) explains FRMS policies, procedures and responsibilities to all relevant stakeholders; and

2) describes communication channels used to gather and disseminate

IS: 24.2.34. STATE RESPONSIBILITIES CONCERNING AN INSTRUMENT FLIGHT PROCEDURE DESIGN SERVICE

(Chapter 24.2, 24.2.34 refers)

1. A State shall:

a) provide an instrument flight procedure design service; and/or

b) agree with one or more Contracting State(s) to provide a joint service; and/or

c) delegate the provision of the service to external agency(ies).

2. In all cases in paragraph 1 above, the State concerned shall approve and remain responsible for all instrument flight procedures for aerodromes and airspace under the authority of the State.

3. Instrument flight procedures shall be designed in accordance with State-approved design criteria.

4. Each State shall ensure that an instrument flight procedure design service provider intending to design an instrument flight procedure for aerodromes or airspace under the authority of that State meets the requirements established by that State's regulatory framework.

Note.— Guidance material for regulatory framework for the oversight of instrument flight procedure design service is contained in the Manual on the Development of a Regulatory Framework for Instrument Flight Procedure Design Service *(Doc 10068).*

5. A State shall ensure that an instrument flight procedure design service provider utilizes a quality management system at each stage of the instrument flight procedure design process.

Note.— This requirement can be met by means of a quality assurance methodology, such as that described in PANS-OPS (Doc 8168), Volume II. Guidance for implementing such a methodology is contained in the Quality Assurance Manual for Flight Procedure Design *(Doc 9906).*

6. A State shall ensure that maintenance and periodic review of instrument flight procedures for aerodromes and airspace under the authority of the State are conducted. Each State shall establish an interval for periodic review of instrument flight procedures not exceeding five years.

Note.— Guidance on maintenance and periodic review is contained in the Quality Assurance Manual for Flight Procedure Design *(Doc 9906).*

IS: 24.9.26.1 GCAA-FORM-ATS 001

APPLICATION FOR OJT INSTRUCTOR, ATC EXAMINER AND ATS INSTRUCTOR ENDORSEMENT

PART A – APPLICATION DETAILS

APPLICANT NAME			
FIRST :			
MIDDLE :			
LAST :			
GENDER	☐ **MALE**	☐ **FEMALE**	
DATE OF BIRTH (dd/mm/yyyy)			
NATIONALITY			
EMPLOYER			
FACILITY			
Tel. No. (OFFICE/RESIDENCE)			
MOBILE No.			
FACSIMILE No. (*if any*):			
GCAA STAFF No.			
GCAA LICENCE NUMBER			
EMAIL:			
POSTAL ADDRESS:			

PART B – APPLICATION CHECK LIST (Applicant shall submit the following):

	ON THE JOB TRAINING INSTRUCTOR	**FOR GCAA USE ONLY**
	1. Request letter from employer.	
	2. One full colour photo with White background, less than 6 months old. Wearing glasses are not acceptable.	
	3. Copy of OJTI course certificate.	
	4. Copy of evidence of at least 4 years full time operational ATC experience in the rating for which instructions will be conducted.	
	5. Copy of evidence of a current Certificates of Competence held for the last **one year**, for the sectors and operational positions for which instruction will be conducted.	
	6. Copy of valid GCAA License and Medical Certificate	
	7. Proof of English Language Proficiency at or above Level 4	
	8. Copy of evidence of completion of unit-specific training on the conduct of the Approved Unit Training Plan (AUTP).	

	AIR TRAFFIC SERVICES INSTRUCTOR	**FOR GCAA USE ONLY**
	1. Request letter from employer including statement from Director, Air Traffic Services, that applicant is competent to conduct classroom instruction.	
	2. Copy of Instructional Techniques course completion certificate	

	AIR TRAFFIC CONTROL EXAMINER	**FOR GCAA USE ONLY**
	1. Request letter from employer	
	2. Copy of GCAA ATC License, Ratings and Medical Certificate.	
	3. Copy of evidence of at least 5 years full time operational ATC experience in the rating for which examination will be conducted.	
	4. Copy of evidence of current Certificates of Competence held for the sectors and operational positions for which examinations will be conducted.	
	5. Copy of Approved Examiners Course completion certificate.	
	6. Copy of evidence that applicant has conducted at least 2 initial or subsequent Certificates of Competence examinations under the supervision of an ATC Examiner.	

PART C – MEDICAL DETAILS

CLASS:	**EXPIRY DATE:** .....

Has your GCAA Medical Certificate ever been refused, downgraded, issued with a waiver, or issued with a limitation (except for use and carriage of glasses)?

Yes ☐ **No** ☐

If so, please submit details**:**

Has your GCAA license (or foreign license) ever been suspended or revoked?

Yes ☐ **No** ☐

If so, please submit details**:**

PART D – APPLICATION DETAILS

Requested Endorsement Privileges

Current Rating(s): ADC ☐ APCH ☐ APCH (R) ☐ ACC ☐ ACC (R) ☐

Endorsement: OJT Instructor ☐ ATS Instructor ☐ Air Traffic Control Examiner ☐

PART E – APPLICATION DECLARATION

I hereby declare and certify that I have read and understood all the questions and notes set forth in this application and the answers I have furnished on all pages of this form are true and correct to the best of my knowledge and belief. I understand that any false or misleading statement may result in the refusal of this application or the revocation/suspension of the license or rating.

SIGNATURE OF APPLICANT (sign inside the above box)

DATE……

CHIEF OF FACILITY / TRAINING MANAGER'S

NAME……

SIGNATURE……

DATE……

PART F – FOR GCAA USE ONLY – INSPECTOR REMARKS

1 – AGE	☐ ACCEPTABLE	☐ NOT ACCEPTABLE
2 – KNLOWLEDGE	☐ ACCEPTABLE	☐ NOT ACCEPTABLE
3 – SKILL	☐ ACCEPTABLE	☐ NOT ACCEPTABLE
4 – EXPERIENCE	☐ ACCEPTABLE	☐ NOT ACCEPTABLE
5 – MEDICAL	☐ ACCEPTABLE	☐ NOT ACCEPTABLE

☐ RECOMMENDED ☐ NOT RECOMMENDED

ANS INSPECTORS COMMENTS:

NAME OF ANS INSPECTOR……

ASI NUMBER ……

SIGNATURE / DATE……

ANS MANAGER'S COMMENTS

NAME OF ANS MANAGER……

SIGNATURE……

DATE……

IS: 24.13 GUIDANCE FOR ESTABLISHMENT AND IMPLEMENTATION OF A RUNWAY SAFETY PROGRAMME BY THE AIR NAVIGATION SERVICES PROVIDERS, AERODROME OPERATORS AND AIRLINE OPERATORS.

1.PURPOSE

These guidelines are provided for collaboration of Air Navigation Services Providers (ANSPs), Aerodrome Operators and Airline Operators to establish a Runway Safety Team (RST) for the implementation of a Runway safety Programme in accordance with relevant provisions of Parts 8, 24 and 14 of the Ghana Civil Aviation Directives as well as Doc 9870.

Runway Safety Programmes undertaken by Runway Safety Teams, provide for a runway safety enhancement system that basically identifies hazards, ensures the implementation of remedial actions necessary to maintain or enhance safety performance, provides for continuous monitoring, reporting, data gathering and analysis, and regular assessment of the safety performance of stakeholders and aims at a continuous improvement of the risk mitigation measures of the Runway Safety Programme.

2. BACKGROUND

Aviation Safety Programmes shall have a common goal to reduce hazards, mitigate and manage residual risk in air transportation. Runway operations are an integral part of aviation; the hazards and risks associated with runway operations need to be managed in order to prevent runway incursions that may lead to accidents. Runway incursion prevention was closely examined by the Eleventh Air Navigation Conference (An-Conf/11) (Montreal, September – October, 2003). The Conference recommended that States take actions to improve runway safety worldwide through the implementation of runway safety programmes.

3. APPLICABILITY

An Aerodrome operator in collaboration with air traffic controllers, pilots, vehicle drivers and aerodromes management shall establish a Local Runway Safety Team (LRST) that is acceptable to the Ghana Civil Aviation Authority. The Authority shall be represented on the LRST.

These provisions are applicable to aerodrome operators, air traffic service providers, air operator certificate holders, and air navigation service providers, including any other groups, which may have a direct involvement in runway operations.

4. CONTRIBUTORY FACTORS

Pilots, controllers and drivers can all be involved in runway incursions. Mitigation strategies that address all three parties shall be included in systemic solutions.

Runway incursions can be divided into several recurring scenarios. Common scenarios include:

a) an aircraft or vehicle crossing in front of a landing aircraft;
b) an aircraft or vehicle crossing in front of an aircraft taking off;
c) an aircraft or vehicle crossing the runway-holding position marking;
d) an aircraft or vehicle unsure of its position and inadvertently entering an active runway;
e) a breakdown in communications leading to failure to follow an air traffic control instruction; and
f) an aircraft passing behind an aircraft or vehicle that has not vacated the runway.

Statistics show that most runway incursions occur in visual meteorological conditions during daylight hours; however, most accidents occur in low visibility or at night. All runway incursions shall be reported and analysed, whether or not another aircraft or vehicle is present at the time of the occurrence.

4.1. Breakdown in Communications

A breakdown in communications between controllers and pilots or airside vehicle drivers is a common factor in runway incursions and often involves:

a) use of non-standardized phraseology;
b) failure of the pilot or the vehicle driver to provide a correct readback of an instruction;
c) failure of the controller to ensure that the readback by the pilot or the vehicle driver conforms with the clearance issued;
d) the pilot and/or vehicle driver misunderstanding the controller's instructions;
e) the pilot and/or vehicle driver accepting a clearance intended for another aircraft or vehicle;
f) blocked and partially blocked transmissions; and
g) overlong or complex transmissions.

4.2. Airside Vehicle Driver Factors

The most common driver-related factors identified in several studies are:

a) failure to obtain clearance to enter the runway;
b) failure to comply with ATC instructions;
c) inaccurate reporting of position to ATC;
d) communication errors;
e) inadequate training of airside vehicle drivers;
f) absence of radiotelephony equipment;
g) absence of radiotelephony training;
h) lack of familiarization with the aerodrome;
i) lack of knowledge of aerodrome signs and markings; and
j) lack of aerodrome maps for reference in vehicles.

4.3. Aerodrome Design Factors

Complex or inadequate aerodrome design significantly increases the probability of a runway incursion. The frequency of runway incursions has been shown in many studies to be related to the number of runway crossings and the characteristics of the aerodrome

layout.

Common factors include:

a. the complexity of the airport layout including roads and taxiways adjacent to the runway;
b. insufficient spacing between parallel runways;
c. departure taxiways that fail to intersect active runways at right angles; and
d. no end-loop perimeter taxiways to avoid runway crossings.

4.4. Pilot Factors

Pilot factors that may result in a runway incursion include inadvertent non-compliance with ATC clearances. Often these cases result from a breakdown in communications or a loss of situational awareness in which pilots think that they are at one location on the aerodrome (such as a specific taxiway or intersection) when they are actually elsewhere, or they believe that the clearance issued was to enter the runway, when in fact it was not.

Other common factors include:

a) inadequate signage and markings (particularly the inability to see the runway-holding position lines);
b) controllers issuing instructions as the aircraft is rolling out after landing (when pilot workload and cockpit noise are both very high);
c) pilots performing mandatory head-down tasks, which reduces situational awareness;
d) pilots being pressed by complicated and/or capacity enhancement procedures, leading to rushed behaviour;
e) a complicated airport design where runways have to be crossed;
f) incomplete, non-standard or obsolete information about the taxi routing to expect; and
g) last-minute changes by ATC in taxi or departure routings.

4.5. Air Traffic Control Factors

The most common controller-related actions identified in several studies are:

a) momentarily forgetting about:
   1) an aircraft;
   2) the closure of a runway;
   3) a vehicle on the runway; or
   4) a clearance that had been issued;
b) failure to anticipate the required separation, or miscalculation of the impending separation;
c) inadequate coordination between controllers;
d) a crossing clearance issued by a ground controller instead of an air/tower controller;
e) misidentification of an aircraft or its location;
f) failure of the controller to provide a correct readback of another

controller's instruction;

d) failure of the controller to ensure that the readback by the pilot or the vehicle driver conforms with the clearance issued;
e) communication errors;
f) overlong or complex instructions;
g) use of non-standard phraseologies; and
h) reduced reaction time due to on-the-job training.

Other common factors include:

a) distraction;
b) workload;
c) experience level;
d) inadequate training;
e) lack of a clear line of sight from the control tower;
f) human-machine interface; and
g) incorrect or inadequate handover between controllers.

5. ESTABLISHMENT OF LOCAL RUNWAY SAFETY TEAMS

A Runway Incursion Prevention Programme start with the establishment of Runway Safety Teams at individual airports. The requirement for establishing the Runway Safety Team and terms and reference of the team are given below:

(a) Airport operators shall initiate the establishment of Local Runway Safety Teams at individual aerodromes.

(b) The Runway Safety Team shall comprise of representatives from aerodrome operations, air traffic service providers, airlines or aircraft operators, pilots and air traffic controller associations, representatives from the GCAA and any other groups with a direct involvement in runway operations. The Airport General Manager (or his representative) or the Head of Air Traffic Services (or his representative) shall head the Team as agreed among the members.

(c) The LRSTs shall have the terms of reference as given in paragraph 5.1 below in these Directives.

(d) The primary role of the Local Runway Safety Team shall be:

- to develop an action plan for runway safety;
- to identify potential runway incursion issues;
- to recommend strategies for hazard removal and mitigation of individual risk;

(e) The Team shall meet at least once in every three (3) months. Frequency of meetings may be increased keeping in view increasing traffic due to capacity enhancement.

5.1 Generic Terms of Reference (TOR) of the Local Runway Safety Teams

The generic terms of reference for the Runway Safety Team formed at individual

aerodromes shall be, but not limited to:

(a) Determining the number, type and, if available, the severity of runway incursions;
(b) Considering the outcome of investigation reports in order to establish local hotspots or problem areas at the aerodromes;
(c) Working as a cohesive team to better understand the operating difficulties of personnel working in other areas and recommending areas for improvement;
(d) Ensuring that the recommendations contained in the *Manual on the Prevention of Runway Incursions* (ICAO Doc 9870) and applicable on the various aspects of aerodrome operation are implemented;
(e) Identify any local problem areas and suggest improvements;
(f) Conduct a runway safety awareness campaign that focuses on local issues, for example, producing and disturbing local hot spot maps or other guidance material as considered necessary;
(g) Regularly review the airfield to ensure its adequacy and compliance with regulatory requirements contained in the GCADs and other guidance material issued by the GCAA; and
(h) Reporting of runway incursion and casual factor identification by the Safety Manager to the Authority.

5.2. Objectives of the LRSTs

Once the overall number, type and severity of runway incursions have been determined, the team shall establish goals to improve the safety of runway operations. Examples of possible goals are:

(a) To improve runway safety data collection, analysis and dissemination;
(b) To check that signage and markings are compliant with GCADs and visible to pilots and drivers;
(c) To develop initiatives for improving the standard of communication.
(d) To identify potential new technologies that may reduce the possibility of runway incursion;
(e) To ensure that procedures are compliant with the GCADs and other guidance material issued by the Authority from time to time; and
(f) To initiate local awareness by developing and distributing runway safety education and training material to controllers, pilots, personnel driving vehicles on the airside and personnel working at aerodromes

5.3. Action Items to Be Prepared and Monitored by the LRSTs

The outcome of the meetings of the LRSTs shall be the development of an action plan containing action items for mitigating runway safety deficiencies. The action plan would be aerodrome specific and linked to a runway safety concern, issue or problem at that particular aerodrome. Action items may include suggested changes to the physical features of, or facilities at, the aerodrome; air traffic control procedures; airfield access requirements; pilot and

vehicle operator awareness; and production of hot spot maps.

Each action item shall have a designated person or organization, which is responsible for completing the relevant tasks. There may be more than one person or organization affected by an action item; in such cases the head of the safety team, shall co-ordinate with such persons or organizations for the completion of all tasks associated with the action item. A realistic time frame to accomplish the work shall also be associated with each action item.

Periodically the effectiveness of the implemented and/or completed action items shall be assessed. This can be accomplished by comparing the results of the initial analysis and the current runway incursion status. For example, if an action item was to provide training for controllers, pilots or vehicle drivers, the team shall evaluate the effectiveness of such training. If the analysis shows little or no improvement in the number, type or severity of runway incursions, the team shall re-evaluate the implementation of that action item.

Education and awareness material such as newsletters, posters, stickers and other educational information are invaluable tools for reducing the risk of runway incursions. These shall be used by the LRSTs for the guidance and education of controllers, pilots, vehicle drivers and personnel working at the aerodromes.

Identification of Hotspots. Suitable strategies shall be implemented to remove the hazard associated with hot spots. When this is not immediately possible, action shall be initiated by adopting strategies to manage and mitigate the risk. These strategies may include:

(a) Awareness campaigns;
(b) Additional visual aids (signs, markings and lighting);
(c) Use of alternative routings;
(d) Construction of new taxiways;
(e) The mitigation of blind spots in the aerodrome control tower; and
(f) Aerodrome charts showing the aerodrome operator, checked regularly for accuracy, revised as needed, shall produce hot spots distributed locally and published in the Aeronautical Information Publication (AIP).

6. MONITORING

The Aerodrome Safety and Standards (ASAS) and Air Navigations Services (ANS) Inspectorates of the Authority shall monitor the activities of the LRSTs. These Divisions, for surveillance and monitoring purposes, will conduct programmed visits.

Reports of the meetings and mitigating action by the LRSTs including runway incursion and casual factor identification reports shall be submitted to Authority.

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