



GHANA
CIVIL AVIATION AUTHORITY

ADVISORY CIRCULAR AC-AD-031

OPERATIONAL SAFETY COMPETENCE REQUIREMENTS

GENERAL

Ghana Civil Aviation Authority (GCAA) Advisory Circulars from Aerodrome Safety and Standards (ASAS) contain information about standards, practices and procedures that the Authority has found to be an Acceptable Means of Compliance (AMC) with the associated Regulations.

An AMC is not intended to be the only means of compliance with a regulation, and consideration will be given to other methods of compliance that may be presented to the Authority.

PURPOSE

This Advisory Circular (AC) provides information and guidance to aerodrome operators on the conduct of Aeronautical Study and risk assessment where the aerodrome is unable to meet requirements and need to identify alternative means to achieve an equivalent level of safety.

REFERENCE

The Advisory Circular relates specifically to the Aerodrome GCARs and Manual of Standards (MOS).

STATUS OF THIS AC

This is the first AC to be issued on this subject.

FOREWARD

This document provides guidance to Aerodrome Operators on aerodrome mandatory occurrence reporting and investigation. An Aerodrome Operator is responsible to report to the Aerodrome Safety and Standards Section of any incident and accident occurring at the aerodrome as soon as reasonably practicable. □

APPROVAL

Issue No : 01	Approved by:  _____ Director-General	_____ 2015
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Chapter 1
Areas of competence

1 Aerodrome operation, Legal Framework

Tasks	Specified Post (s)	Named Person(s)
1 Ensure that aerodrome safe operation requirements are met, and that the aerodrome operates in accordance with Ghana Civil Aviation regulation requirements		
2 Ensure an understanding of the GCAA’s statutory duties in OPERATION , inspecting and safety auditing of aerodromes		
1.3 Ensure an understanding by the aerodrome management of the legal requirement for and status of the Aerodrome certification Manual		
4 Ensure that the aerodrome operator implements ,communicates, and amends information and instructions concerned with ensuring the safe operation of aircraft in accordance with statutory and aerodrome management requirements		
5 Ensure that aerodrome operator takes all reasonable steps to ensure that the aerodrome and its airspace are safe at all times for use by aircraft		

Background Knowledge

- Ghana Civil Aviation (Aerodrome) Regulation on the following;
- Safety Program
- Aerodrome certification procedures
- Aerodrome rescue and fire fighting services
- Control of obstacles
- Removal of disabled aircraft
- Aeronautical Information Publication
- Airport Emergency Planning
- Safety Management System
- Visual Aids
- Bird Control and Reduction

- Airport security
 - Certification and operation of aircraft ground handling service Providers
 - Aeronautical chart
 - Investigative and enforcement procedures
 - Notice To Air Men (NOTAM)
 - The ICAO Convention, And ICAO Annex 14 To The Convention
- 2 Aerodrome Physical Characteristics**

Tasks	Specified Post(s)	Named Person(s)
2.1 Determine aerodrome reference codes for taxiways and runways		
2.2 Ensure that the paved areas, runway strips, clear and graded areas meet GCAR Part 24 requirements		
2.3 Ensure that aerodrome is clear of obstructions, debris and spoil		
2.4 Determine and instigate repair programmes process for aerodrome pavements and surfaces		
2.5 Ensure that the design and layout of the apron and maneuvering area is adequate for the safety of intended operations		
2.6 Ensure that there is adequate provision for aerodrome drainage, particularly of the runway and strip		
2.7 Ensure that appropriate separation distances are provided between runways, taxiways and aprons		
2.8 Calculate appropriate runway declared distances for normal and obstacle restricted operations		
2.9 Ensure variations of GCAR part 24 requirements are kept under review and removed where practicable, and as part of significant changes to aerodrome infrastructure, traffic levels or aircraft types		

Background Knowledge

- Ghana Civil Aviation (Aerodromes) Regulation
- Ghana Civil Aviation Act 678, Amendment Act 906

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- Aerodrome Manual of Standards (MOS)
 - Safety Program
 - Safety Management System
 - Aerodrome certification procedures
 - Visual Aids
 - Runway Friction Classification and Monitoring
 - ICAO Convention , ICAO ANNEX 14 , and related documents.

The relationship between Aerodrome Reference Code and aerodrome physical characteristics:

- Aero plane Reference Field Length
- Application of aerodrome reference code both generally and to runways and taxiways at own aerodrome
- Implications of balanced field lengths
- Purpose of code
- Significance of restrictions with respect to larger aircraft
- Variations due to altitude and mean temperature

The requirement to provide suitable, well laid out Taxiways and Holding Bays:

- Basis of width calculation, taxiway width and code of own aerodrome taxiways
- Bearing strength
- Cleared and Graded Area (CGA)
- Dangers of ingestion of mown grass and other debris
- Function of Rapid Access Taxiways (RAT) and Rapid Exit Taxiways (RET)
- Marking and lighting
- Need for holding areas and other bypass areas and relationship with Obstacle Free Zone (OFZ) and Instrument Landing System (ILS) sensitive areas
- Problems relating to junctions and intersections

The requirement to provide suitable, well laid out taxiways and holding bays The effect of Runway length, width, slope, conditions and obstructions:

- GCAR PART 24 and Aerodrome Manual of Standards (MOS) and related documents (ACs)
- Relationship between runway and stop way in terms of friction characteristics
- Significance of longitudinal and transverse slope
- Significance of runway length, and stop way
- Significance of the difference between instrument and visual runways

The effect of Runway Strip and RESA on Aeroplane Operations:

- Bearing strength
- Need for delethalisation
- Need for Runway End Safety Area (RESA) where appropriate
- Permitted obstacles
- Purpose of CGA and relationship with strip
- Purpose of runway strip and RESA
- Runway codes
- Significance of CGA with respect to the location of Runway Holding Positions

The function of Clearway in respect of Aeroplane Operations:

- Categories of aero plane that can benefit from clearway
- Maximum clearway that can be declared
- Methods of measurement
- The availability of land on/off the aerodrome within the control of aerodrome management
- Type and height of permitted obstacles
- Types of clearway

The effect of Aerodrome surface conditions on the operation of Aircraft:

- Effect on friction/braking action
- Effects of fuel and oil spills on bitumen and methods of alleviation
- Effects of surface spalling
- Foreign Object Damage/Debris (FOD) including loose stones and debris
- Implications of potential contamination from rubber and fuel
- Maximum permitted depth of water/slush
- Significance of surface irregularities
- Surface state descriptions used by Air Traffic Servi

The measurement of Runway Friction for routine monitoring and braking action tests

- Friction trend analysis
- The operation and function of friction measuring devices
- Understanding the difference between routine friction monitoring, braking action tests, and calibration runs

Monitoring of Movement Area pavement conditions:

- Aircraft Classification Number (ACN)/PCN method of pavement classification
- Local reporting procedure
- Local rules governing overload operations
- Pavement Classification Number (PCN) reporting format

Calculation of Runway Declared Distances for normal and obstacle restricted operations:

- Declared distances of own aerodrome and how they are calculated
- Definitions of Take-off Run Available (TORA), Take-off Distance Available (TODA), Accelerate Stop Distance Available (ASDA), and Landing Distance Available (LDA)
- Limitations imposed by Strip Width, Strip End, RESA and aerodrome boundary
- Limiting factors affecting own aerodrome declared distances

3 Airside Safety Management and Flight Safety

Tasks	Specified Post(s)	Named Person(s)
3.1 Develop a safety management system for the control of airside safety risks, including those in relation to staff and passengers		
3.2 Establish systems for the carrying out of safety auditing and operational inspections		
3.3 Analyse feedback from auditing and inspections		
Use feedback from auditing and inspections to make appropriate changes to airside safety management procedures and their implementation		
3.5 Monitor airside planning and development for compliance with aerodrome safety policy		
Manage the interaction of aircraft servicing operations and other activities		
Plan and implement the training of internal and external staff working airside		
Establish systems to assess the safety performance of internal and external staff working airside		
Establish an aerodrome process for the reporting and follow-up of accidents and incidents on the aerodrome and in its local airspace, including closure action		
3.10 Establish and maintain an Airside Safety Committee		

Background Knowledge

€	I ECT."Aerodromes
€	Safety Program
€	Accident Investigation Standards
€	The certification and operation of organizations providing"air traffic service

- Air Traffic Control Operations and Procedures
- Auditing and inspection systems which provide feedback information
- Confidential Human Factors Incident Reporting Programme
- General management systems, procedures and techniques
- Health and Safety legislation and guidelines relating to people and vehicular activity in the workplace
- Low Visibility Procedures (LVPs)
- Mandatory Occurrence Reporting procedures and requirements
- Organizational systems for accident/incident reporting and investigation
- Organizational systems for communicating airside safety rules, regulations and information
- Organizational systems for the use of safety performance standards, their monitoring and reporting
- Plans for disasters and hi-jacks
- Provision and role of an Airside Safety Committee
- Specific safety management systems, including risk assessment, safety cases and their applicability to airside operations

4 Risk Assessment

Tasks	Specified Post(s)	Named Person(s)
4.1 Establish and implement a process for carrying out risk assessments as part of the safety management system		
4.2 Identify hazards		
4.3 Evaluate risks		
4.4 Select and implement appropriate risk control measures, including the elimination of intolerable risks		
4.5 Review assessment of hazard and the effectiveness of risk control methods		
4.6 Plan and implement the training and development of internal and external staff involved in risk assessments		

Background Knowledge

- Aerodromes Regulation
- Safety Program
- Safety Management System
- Knowledge of airside operations and potential hazards
- Organization for co-ordination of airside activities
- Organizational systems for communication and control of airside activities
- The principles of risk evaluation
- Understanding of the definitions of hazard and risk
- Understanding of risk mitigation measures

5 Safety Management and Human Factors

Tasks	Specified Post(s)	Named Person(s)
5.1 Develop, implement and review an integrated safety management system for the aerodrome, taking account of the difference between risks to people and risks to aircraft		
5.2 Integrate safety, project and resource management into strategic decision making		
5.3 Define the work of teams and individuals to achieve objectives with due regard for safety issues		
5.4 Develop productive working relationships		
5.5 Understand the impact of human factors when establishing safety systems and procedures		
5.6 Design systems and procedures taking full account of human factors, to encourage a positive safety culture at all working levels		

Background Knowledge

- Aerodromes Regulation
- Safety Program
- Safety Management System
- Health and Safety at Work Regulations
- Principles of human and organizational factors – problem solving styles, interpersonal communications; role conflicts; stress at work
- Principles of safety management, including systems, staffing and development

6 Airfield Work in Progress

Tasks	Specified Post(s)	Named Person(s)
6.1 Undertake risk and resource assessments, to ensure safe operations		
6.2 Monitor and maintain aerodrome status systems and equipment according to laid down procedures		
6.3 Promulgate and record information about aerodrome status and condition		
6.4 Inspect and monitor work in progress		
6.5 Ensure that adequate systems, procedures and resources are in place for the planning, co-ordination, control and oversight of work in progress		
6.6 Ensure that contingency plans are drawn up to manage breakdowns in operating systems		
6.7 Revise declared runway distances and other aerodrome operational limitations as appropriate		
6.8 Ensure that airside safety briefings are provided for external contractors and work areas are controlled to maintain safe operations		

Background Knowledge

- Operation safety on airports during construction

Adverse weather, day and night operations

- Air Traffic Control operations and practices
- Aircraft performance – landing and take-off
- Aerodrome cleaning and sweeping Programme
- Aerodrome power supply and standby systems
- Aerodrome systems and procedures – aerodrome signs, markings and lighting systems
 - Assessment of temporary obstacles
- Bird control procedures
- Environmental procedures, including methods of controlling aircraft and work noise
- Implications of work permits, contractors briefings, NOTAMs, Air Traffic Information Service (ATIS), operational safety notices, organizational safety policy for outside works
- Inspection, recording, reporting and other documentation systems
- Legislation related to standard safety and working practices
- LVPs
- National Aviation Security Programme
- Navigation and landing systems
- Procedures for temporary marking and lighting of work areas
- Regulatory and organizational inspection/audit systems
- Regulatory and organizational standards and objectives
- Standard aircraft and ATC procedures and operations
- Standard engineering practices and procedures, work methods and temporary repair options
- Temporary methods of signing, marking and lighting
- Work access and provision of Rescue and Fire Fighting Service (RFFS) cover

7 Aerodrome Safeguarding

Tasks	Specified Post(s)	Named Person(s)
7.1 Ensure that developments both on and off the aerodrome meet appropriate aerodrome operation, planning and other legislation, in particular where the safety of operations may be affected		
7.2 Establish and maintain contact on safeguarding issues with the local planning authorities		
7.3 Assess proposed development against safeguarding criteria. This should include aerodrome operation requirements, Public Safety Zones policy, the safeguarding of aids to navigation and lines of sight from the Visual Control Room to aerodrome operational areas.		
7.4 Monitor immediate airport environs for safeguarding purposes, including temporary obstacles		
7.5 When appropriate carry out risk assessments to underpin safeguarding plans		
7.6 Monitor and review safeguarding policy and practice and amend if appropriate		

Background Knowledge

- Aerodromes
- Safety Program
- Control of Obstacles
- Ghana Civil Aviation Act 678 and Amended Act, Act 906
- Aerodrome documents for on-aerodrome developments
- Local Planning law, including circulars and associated documents
- Principles and methods of risk assessment
- Safety management systems for on-aerodrome developments
- Topographical, aviation and planning maps and charts

8 Aircraft Operations and Loading

Tasks	Specified Post(s)	Named Person(s)
8.1 Take account of aircraft performance requirements with regard to runway declared distances and reduced declared distances, other runway physical characteristics, obstacle criteria and the effects of crosswind, weather and contaminated runways		
8.2 Establish procedures for normal and dangerous cargo and be aware of load requirements for aircraft		
8.3 For aerodromes that undertake their own airside ground handling, ensure that aircraft are loaded in accordance with airline/operators' requirements, whilst meeting other safety requirements		
8.4 Where relevant ensure that internal and external staff are trained in aircraft loading		

Background Knowledge

- Aerodrome Regulation
- Safety Program
- Aircraft operating limitations
- Aircraft Performance Groups
- Basis of aircraft performance calculations for the various performance groups
- Dangerous cargo regulations
- Effect on aircraft performance of runway contamination and runway condition
- Obstacle limitations
- Principles of aircraft weight and balance calculations, and aircraft loading limitations

9 Security procedures

Airside Vehicle Operations

Tasks	Specified Post(s)	Named Person(s)
9.1 Establish and monitor systems for the issue of Airside Driving Permits and Airside Vehicle Permits		
9.2 Ensure that procedures for auditing driver training and vehicle maintenance programmes are to established standards		
9.3 Ensure that airside vehicle accidents and incidents are recorded, investigated and closed by appropriate action, and ensure a system is established for the reporting of vehicle faults, documented according to laid down procedures		
9.4 Ensure that vehicles are operated in accordance with standard operating procedures and with regard to other airside users, traffic rules, signs and markings		
9.5 Ensure that audits are undertaken to ensure compliance with procedures and practices which contribute to the safety of airside traffic and apron operations		
9.6 Ensure that the Airside Safety Committee considers and reviews all the above requirements		

Background Knowledge

- Aerodrome Regulation
- Safety Program
- Certification And Operation Of Aircraft Ground Handling Service Provider
- Safety Management System

Visual Aids

Manual of Surface Movement Guidance and Control System (SMGCS)

- Accident reporting and investigation procedures
- Adverse weather operations LVPs and their effect on airside driving

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- Aircraft hazards, blast, ingestion, propellers etc.
 - Airport Bylaws
 - Airport layout, road systems, aprons
 - Airside safety audits and inspections
 - Airside security requirements
 - Appreciation of aerodrome and operating companies' driver training programmes for general and specialist vehicles
 - Appreciation of operating companies' vehicle maintenance programmes
 - Communication of airside safety rules, regulations and information including Airside Safety Committee
 - Defect reporting systems
 - General driving rules on roads, aprons, taxiways and runways
 - Interaction of aircraft servicing operations and related vehicles, procedures, hazards, accidents and incidents.
 - Organizational and regulatory standards for driver training
 - Procedures for reporting spillages and removing Foreign Object Debris
 - Rules of the Air relevant to ground movement
 - Standards for vehicle maintenance and operation
 - Systems for road signs, markings and lights
 - Systems for traffic control, speed limits and parking

10 - Runway Surface Friction

Tasks	Specified Post(s)	Named Person(s)
10.1 Ensure that runway surface friction measurement conforms to organizational, national and ICAO standards, taking account of prevailing weather conditions and trends		
10.2 Ensure that essential equipment for runway friction measurement and reporting is provided		
10.3 Make adequate provision for the storage, calibration and care of runway surface friction measurement and reporting equipment		
10.4 Monitor runway surface friction measurement and reporting to ensure equipment is used according to established procedures		
10.5 Ensure that staff are trained in the use of runway surface friction measurement, and analysing and reporting results		
10.6 Establish a system for the recording and retrieval of runway surface friction data		
10.7 Ensure that there are procedures for the analysis and interpretation of data collected by runway surface friction measurement		
10.8 Take account of the effect of work-in-progress on runway surface friction and ensure that the necessary procedures and promulgation action is taken		

Background Knowledge

- Aerodrome. Regulation
- Safety Program
- Determination of friction characteristics of wet paved runways
- Safety Management System
- Pavement Surface Condition
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- Procedures for Runway Friction Classification and Monitoring .
- Aircraft operating limitations.
- pavement surface conditions .
- Definitions of surface contaminants
- Friction calibration tests
- Friction classification
- Health and Safety procedures for operators
- Interpretation of test results
- Obtaining information on weather conditions and trends
- Operating instructions for runway surface friction measuring equipment
- Procedures relating to night and low visibility operations
- Procedures relating to periodic friction monitoring
- Promulgated aerodrome information
- Runway surface construction and friction characteristics
- The effect of painted surface on friction

11 Runway Contamination

Tasks	Specified Post(s)	Named Person(s)
11.1 Understand the effects of the contamination on: <ul style="list-style-type: none"> • aircraft operations • runways and pavements, and devise and implement an appropriate care programme 		
2 Ensure that essential equipment for, measuring, recording and reporting of runway surface conditions is available		
11.3 Make adequate provision for the storage, calibration and care of, measuring, recording and reporting equipment		
11.4 Provide procedures to monitor: <ul style="list-style-type: none"> • current and forecast weather • water contamination, and its clearance and/or dispersal • recording and reporting of contamination 		
11.5 Promulgate information on the surface state of the maneuvering area, aprons, and runways, clearance operations and runway, taxiway and apron availability		

6 Establish clearance plan with air traffic services, engineering and operations staff		
7 Plan and implement the training of staff involved in measuring, recording and reporting		

Background Knowledge

- Aerodromes Regulation.
- Safety Program
- Safety Management System
- Pavements characteristics
- Determining and expressing the friction characteristics of paved surface

- Aircraft operating limitations
- Definitions of surface contaminants
- Evaluation of extent and type of runway contamination
- Friction co-efficient or braking action presentation, reporting and analysis
- Interpretation of meteorological data
- Methods relating to use of meteorological equipment such as ceilometer, temperature and pressure equipment
- Obtaining information on weather conditions and trends
- Operational Meteorological (Information) (OPMET) reporting
- Procedures relating to night and low visibility operations
- Runway and lighting markers
- Runway surface construction and friction characteristics
- Significant changes in runway conditions
- The effect of painted surfaces on friction
- Types of surface deposits
- Use of sand and grit on pavements

12- Wildlife Control and bird hazard control

Tasks	Specified Post(s)	Named Person(s)
12.1 Establish a bird hazard control plan, including habitat management, and assess relevant areas for bird strike hazards using all available information sources		
12.2 Communicate information about bird strike hazards to all relevant parties		
12.3 Initiate and review appropriate bird dispersal action according to local circumstances and aerodrome characteristics		
12.4 Keep appropriate records in relation to bird hazard, bird strikes and bird dispersal		
12.5 Ensure that training and development for internal and external staff is given in the use of bird control measures		

Background Knowledge

- Aerodrome Regulation
- Safety Program
- Safety Management System
- Bird Control and Reduction

- Bird activity and behavior

- Bird identification
- Effects of bird strikes
- Major bird attractants and habitat management techniques, involving:
 1. principles and methods of maintaining environments unattractive to birds, including long grass technique and agriculture practices
 2. principles and methods relating to the safe use of equipment, dispersal techniques, including distress calls, shell crackers and visual scares
 3. principles and methods relating to the safe use of equipment to disperse birds, including distress call equipment, firearms and pyrotechnics
- Policies concerning the grant and exercise of firearms licenses
- Reporting, collation, recording and analysis of bird-strike and other data on bird activity

13 Local Airspace Management

Tasks	Specified Post(s)	Named Person(s)
13.1 Ensure the local airspace is operated safely in all weather conditions		
13.2 Ensure that an appropriate Air Traffic Control or other radio communication service is provided and maintained		
13.3 Ensure that procedures are in force to provide maximum protection for the safe arrival, departure and transit of aircraft		
13.4 Promulgate information about procedures		
13.5 Plan and implement the training of staff involved with local airspace and air traffic management		

Background Knowledge

- Aerodrome Regulation.
- Safety Program
- Certification of equipment and their maintenance facilities
- The certification and operation of organizations providing air traffic service in the Ghanaian flight information region
- Certification and operation of organizations providing aeronautical information service in Ghana
- Certification and operation of Ghanaian organizations providing aeronautical telecommunication services,
- Safety Management System
- Aerodrome control
- Air/Ground (A/G) Radio Operators Certificate
- Air Traffic Services (ATS)
- Approach control
- Aerodrome lighting
- ATC clearances
- ATC computer operations, ATIS
- ATC procedures
- ILS CAT I, II, or III
- LVPs

- Met. Reporting
- Navigational aids
- Night operations
- Primary Radar
- Aerodrome Radiotelephony (RTF)
- Radio fail procedures
- Relevant obstructions
- Relevant pilot licensing requirement
- Secondary Surveillance Radar (SSR)
- Standard Arrival Procedures (STARs), Standard Instrument Departures (SIDs),
- Noise Preferential Routings (NPRs)
- Visual Flight Rules (VFR), Instrument Flight Rules (IFR) arrival and departure procedures
- Visual Reference Points (VRPs)
- Weather minima

14 Integration of Mixed Aircraft Operations

Tasks	Specified Post(s)	Named Person(s)
14.1 Formulate appropriate procedures including the separation of traffic for different operating situations		
2 Ensure designated operating area and equipment comply with appropriate legislation and regulations		
14.3 Promulgate information for the resolution of conflicts between different activities, including the integration of activities, priorities and/or restrictions		
14.4 Establish emergency procedures for mixed operations		
14.5 Plan and instigate the training and development of internal and external staff involved in integrating mixed operations		

Background Knowledge

- Aerodrome Regulations
- Safety Program
- The certification and operation of organizations providing air traffic service in the Ghanaian flight information region
- Certification and operation of organizations providing aeronautical information service in Ghana
- Certification and operation of Ghanaian organizations providing aeronautical telecommunication services

- Certification and operations: Heliports
- Standards for manned free Baloons
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- Visual Aids
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- Aeronautical Information Circulars
- Aircraft priority status and rules of the air
- Aviation fuel specifications
- General knowledge of aircraft performance/limitations
- Integration with environment requirements
- LVPs
- Marshalling procedures
- Regulations relating to exhibitions of flying and flying displays
- Requirements of and hazards related to all aerial activities, including: fixed wing; rotary wing; glider flying; banner towing; parachute dropping; flying training; balloon and kite flights; micro lights, fireworks, pyrotechnic and light displays; airship operations; special flight activities including calibration of navigational aids and aerial photography; military training requirements; special tasks and non-deviating flights; Royal, Diplomatic/VIP flights; aircraft formation flying
- RFFS requirements
- Rules for Air Displays, airspace utilization, and unusual aircraft activity
- Safety in the vicinity of propellers
- Specific airfield markings
- VFR/IFR Flight Plans
- VFR/IFR Minima
- Wake turbulence

15 Air Traffic Services

Tasks	Specified Post(s)	Named Person(s)
15.1 Ensure that appropriate and approved equipment is available to ensure the safe and expeditious flow of Air Traffic		
15.2 Ensure that a flight information service and alerting service is provided and maintained		
15.3 Plan and implement the training and development of staff involved with air traffic control		
15.4 Ensure that staff involved with air traffic control are competent and maintain competency for the appropriate control function		

Background Knowledge

- Aerodrome Regulation
- Safety Program.
- Aerodrome certification procedures
- The certification and operation of organizations providing air traffic service in the Ghanaian flight information region
- Certification and operation of organizations providing aeronautical information service in Ghana

- Certification and operation of Ghanaian organizations providing aeronautical telecommunication services
- General operating and flight rules
- Safety Management System (1)
- Visual Aids
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- Rescue and fire fighting services
- Airport Emergency Planning
- Surface Movement Guidance And Control System (SMGCS)
- Approach And Radar Ratings.
- ATS competence scheme.
- Holding and approach to procedures .
- Runway Visual Range/Instrumented Runway Visual Range (RVR/IRVR).
- Navigation aids – types and operational performance and limitations.
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- Primary Radar.
- Radiotelephony (RTF).
- Range of RTF equipment.
- Secondary Radar.
- Training and assessment plans.

16 Radio, Navigation and Approach Aids

Tasks	Specified Post(s)	Named Person(s)
16.1 Provide the most suitable radio, navigation/approach aid for the operational requirement and environment		
16.2 Ensure that radio, navigation/approach aids are sited for maximum effectiveness and in accordance with recommended and mandatory requirements		
16.3 Where appropriate ensure that ground radio services are established		
16.4 Monitor the status, operation and usage of radio and navigation/approach aids and facilities		
16.5 Ensure that radio, navigation/approach aids are provided and approved where appropriate and facilities are adequately maintained		
16.6 Ensure the use of communication protocols and procedures is in accordance with regulations		
16.7 Ensure that any visual approach aids are installed, commissioned and maintained to OPERATION standards		

Background Knowledge

- Aerodrome Regulation
- Safety Program
- Safety Management System
- Visual Aids
- The certification and operation of organizations providing air traffic service in the Ghanaian flight information region
- General operating and flight rules

- Aerodrome operating minima
- Aircraft equipment – basic principles of relevant systems
- Characteristics and accuracy tolerances of navigational aids
- Different types and uses of aids: NDB/VOR/DME/ILS, MLS/VDF/GNSS
- Effect of terrain and buildings on positioning of aids
- Flight checking requirements

Tasks	Specified Post(s)	Named Person(s)
17.1 Make available appropriate and up-to-date information on facilities, equipment status, procedures, obstacles and other information that is considered relevant to flight safety		
17.2 Organize and promulgate information using appropriate information systems		
17.3 Promulgate information to relevant parties in an appropriate format for the safety and expedition of air navigation		

- Frequency bands and allocation procedures
- ICAO Convention, and Annex 10 to the Convention
- ICAO Doc 8168
- ICAO Procedures for Air Navigation – Operations (PANS OPS) procedures,
- obstacle identification surfaces and obstacle clearances
- ILS Categories I, II and III and their operational aspects
- ILS critical/sensitive areas
- Integration with visual navigation aids and aerodrome lighting
- Phraseology/International Standard Phonetic Alphabet
- Precision and non-precision approaches
- Local Instrument Flight Procedures
- Protected Areas

17 Aeronautical Information Systems

Background Knowledge

- Aerodrome Regulation
- Safety Program
- Certification of equipment and their maintenance facilities
- The certification and operation of organizations providing air traffic service in the Ghanaian flight information region
- Certification and operation of organizations providing aeronautical information service in Ghana
- Certification and operation of Ghanaian organizations providing aeronautical telecommunication services.
- Safety Management System

Aeronautical Information Service (AIS), NOTAMs, Aeronautical Information Régulation • ATC equipment and terminology

- Data delivery systems
- Maps and charts

Tasks	Specified Post(s)	Named Person(s)
18.1 Ensure that Aerodrome/Aeronautical Ground Lighting (AGL) and other essential equipment for night operations and Low Visibility Procedures (LVPs) is provided and located in relation to the aerodrome layout and in accordance with regulations		
18.2 Ensure that aerodrome procedures for LVPs are developed in conjunction with Air Traffic Control, Aerodrome Safety and Standards (ASAS) Division of the GCAA/SRD and other relevant parties, where practicable		
18.3 Ensure that LVPs on the aerodrome are monitored to ensure the integrity of procedures		
18.4 Promulgate instructions and guidance relating to aerodrome procedures for LVPs		
18.5 Plan and instigate the training of internal and external staff involved in LVPs		

18 Low Visibility and Night Operations

Background Knowledge

- Aerodrome Regulation
- Safety Program
- Aerodrome operating minima
- Certification of equipment and their maintenance facilities
- The certification and operation of organizations providing air traffic service in the Ghanaian flight information region
- Certification and operation of organizations providing aeronautical information service in Ghana
- Certification and operation of Ghanaian organizations
- Aviation meteorological service organizations —certifications

- Surface Movement Guidance And Control System (SMGCS)

- Visual Aids
- Electrical Systems
- Approach lighting systems
- Safety Management System

- Aerodrome layout in relation to the location of essential equipment for LVPs
- Aerodrome operating minima in relation to CAT II/III weather conditions
- Aerodrome safeguarding procedures for LVPs including the runway and instrument landing systems
- Relationship of holding areas to OFZs and ILS sensitive areas
- Significance of the setting up and monitoring of visual navigation approach aids
- The equipment and operation of RVR/IRVR systems
- The operation and use of aerodrome and approach lighting systems
- The operation and use of aerodrome landing and navigation systems
- Vehicle and airside operations in LVPs
- Weather trends in relation to LVPs

19 Fire and Rescue Operations

Tasks	Specified Post(s)	Named Person(s)
19.1 Ensure emergency fire and rescue facilities are compatible with sizes, types and frequency of aircraft in accordance with company and legislative requirements		
19.2 Ensure that rescue and firefighting polices, procedures and training fulfill the aims of the aerodrome and meet legislative requirements		
19.3 Review policy and procedures as appropriate taking into account legislative changes, accident/incident data and changes to aerodrome layout, buildings and facilities		
19.4 Plan and implement the co-ordination between internal staff and external personnel involved in firefighting and emergency operations		
19.5 Assess the feasibility of continuing aerodrome operations in an emergency situation		
19.6 Establish an aerodrome process for the reporting and follow-up of accidents, incidents and emergencies on the aerodrome		

Background Knowledge

Categorization of Rescue and Firefighting Services (RFFS):

- Aeronautical Information Publication AIP (ARE)
- Aerodrome Regulation
- Safety Program

Rescue and fire fighting services
 Airport Emergency Planning
 Safety Management System (1)

- Temporary depletion

Training:

- Certification of Personnel
- Fire and rescue training practices
- Medical/First Aid training
- Relevant Health and Safety legislation
- The impact of dangerous goods regulations

Policies and procedures for maintaining the adequacy of:

- Additional water supplies
- Communication facilities and procedures
- Difficult terrain/environments
- Emergency access roads
- Equipment performance and functionality
- Equipment testing
- Handling dangerous cargo
- Hazards arising from aircraft construction
- LVPs
- Medical services
- Medical standards
- Response times
- Staffing levels, rosters etc

20 Aviation Fuel Safety

Tasks	Specified Post(s)	Named Person(s)
20.1 Ensure that there is a system to verify that fuelling areas and zones are maintained so as to reduce hazards to aircraft, staff and vehicles		
20.2 Monitor operations involving the receipt and storage of fuel, and the fuelling of aircraft, to ensure that they take place according to regulations and procedures		
20.3 Maintain records of all fuel operations, including receipt and use of fuel and quality tests		
20.4 Ensure that an adequate system exists for the sampling, testing and recording of fuel quality		
20.5 Ensure that an adequate system exists for the inspection of facilities used to transport, store and dispense fuel to ensure it is maintained to appropriate standards		
20.6 Deal with fuel spillage incidents and report to the ASAS, if appropriate		
20.7 Ensure that appropriate account is taken of fire hazard during all fuel related operations		
20.8 Ensure that training and development of internal and external staff is given in the use of aircraft fuelling, fuel storage and quality control		

Background Knowledge

- Aerodrome Regulations.
- Safety Program.
- Safety Management System
- Rescue and fire fighting

- Rescue and fire fighting service
- Airport Emergency Planning
- Apron standards and fuel terminal layouts
- JET A1 Recertification
- Bonding and earthing requirements
- Design requirements for depot facilities
- Documentation and retention period
- Environmental considerations and safeguarding
- Equipment required for fuelling operations
- Hazards from adjacent aircraft operations
- Helicopter fuelling
- Hydrant systems, low point drains, hydrant pits, shut down systems
- Methods of dealing with a fuel spillage
- Methods of sampling and testing fuel
- Need for clear exit paths for fuel vehicles
- Precautions to be taken against fire risk
- Procedures for product release for delivery into operating storage or into aircraft fuelling equipment
- Receipt procedure
- Refueling procedures, including those to be taken when passengers remain on board
- Storage conditions and testing requirements to keep equipment in good working order
- Storage procedures
- Vehicle and hydrant operation

21 Aviation Emergency Procedures

Tasks	Specified Post(s)	Named Person(s)
21.1 Ensure emergency systems, procedures and practices meet organizational safety management, and regulatory requirements including those covering an airborne emergency that involves the aerodrome		
21.2 Promulgate systems, procedures and practices to all personnel as necessary		
21.3 Plan and undertake emergency and contingency planning exercises periodically in accordance with regulatory and organizational safety management and regulatory requirements		
21.4 Ensure that personnel are trained and exercised in the execution of the emergency plan according to their intended role and level of responsibility		

Background Knowledge

- Aerodrome Regulations
- Safety Program
- Safety Management System
- Airport Emergency Planning .
- Rescue and fire fighting services
- Emergency classifications – Aircraft Accident, Full Emergency, Local Standby, etc
- Emergency phases – Uncertainty, Alert, Distress
- Regulatory requirements for airport emergency exercises

- Responsibilities, procedures, and responses of Police, Fire and Rescue, Medical and Ambulance services etc
- Security Threat Categories

22 Environmental Issues and Noise Monitoring

Tasks	Specified Post(s)	Named Person(s)
22.1 Keep up-to-date with environmental and noise issues which affect aerodrome and terminal developments		
22.2 Obtain and collate information on environmental and noise issues affecting aerodrome and terminal development, and if appropriate make the information available to GCAA-ASAS and other relevant parties		
22.3 Ensure that plans for aerodrome and terminal development take into account environmental and noise issues without jeopardizing safety		
22.4 Liaise with the local community and local authority on environmental and noise issues		

Background Knowledge

- Aerodrome Regulations.
- Aircraft Emissions
- Aircraft noise certifications
- Safety Program
- Safety Management System
- Land Use and Environmental Control.
- Airport Strategy Plan
- General knowledge of environmental issues including aircraft noise, Noise Preferential Routes (NPR), vehicle operations, surface water pollution and causes, use of chemicals, air quality, waste management
- ICAO Convention and Standards and Recommended Practices
- Environmental Protection Agency (EPA) Act and Regulations, Town and Country Planning Acts and related plans, including Local Zoning Strategic Plans.

23 Aviation Security

Tasks	Specified Post(s)	Named Person(s)
23.1 Establish, monitor and review security procedures to maintain the safety of passengers, staff, aircraft and aerodrome facilities		
23.2 Promulgate information on security procedures to relevant parties		
23.3 Undertake internal or statutory security testing according to laid down procedures		
23.4 Establish procedures and action in response to a security alert, and ensure the integrity of the restricted areas and access points is maintained at all times		

Background Knowledge

- Aerodrome Regulations
- Airport security
- Safety Program
- Safety Management System
- Aviation security Circulars .
- Classification of information and its protection.
- Dealing with VIPs, diplomats and diplomatic couriers.
- Hi-jack procedures, bomb warnings and suspect baggage/parcels, etc
- Methods of control of access to restricted zones and other sensitive areas
- Methods of control of firearms and other weapons at airports and in aircraft
- National Aviation Security Training requirements
- National and Airport Security Committee procedures
- National Aviation Security Programme
- Planning procedures
- Protocols and methodology of audits, inspections and tests
- Regulatory authority requirements for the treatment of aircraft, passengers and baggage to and from sensitive areas
- Requirements for the recruitment and training of security staff
- Searching and guarding aircraft
- Standards and testing procedures for security equipment
- Standards required and other methods of screening passengers and their baggage
- Suspect baggage/risk assessments and procedures
- Telephone techniques for handling security and bomb warnings

24 Media Relations on Safety Matters

Tasks	Specified Post(s)	Named Person(s)
Establish plans for contact with media on safety matters and for inclusion in Emergency Orders		
Identify appropriate media for subject and locality		
24.3 Establish and maintain working relationships and contact with media		
4 Identify internal staff or spokes-people for specific types of media presentations, interviews and press conferences		
5 Ensure that all relevant staff receive training in dealing with all types of media, initiating and conducting media interviews on appropriate subjects, such as press releases and press conferences		

Background Knowledge

- How to present information to the media in an appropriate format
- Local and national media publications/organizations
- Media mix and contact
- Preparing press releases and statements
- Relevant correspondents to contact

25 Customs, Immigration, Port Police and Port Health Requirements

Tasks	Specified Post(s)	Named Person(s)
1 Ensure that all facilities for Customs, Police, Immigration and Port Health operations meet statutory approval requirements		
Ensure that there are adequate resources to deal with accommodation, search, presentation and examination requirements		
25.3 Communicate and liaise with representatives from relevant parties		
25.4 Plan and instigate the training and development of internal and external staff involved with Customs, Police, Immigration and Port Health operations		

Background Knowledge

- Accommodation, presentation and interview requirements of different Government departments.
- An understanding of the Customs, Immigration, Police, and Ports Health requirements for operations at an international airport
- Customs, Excise and Preventive Service Act
- Customs Examination and approval requirements
- Customs organizational structure
- Immigration organizational structure
- Organizational structure of Airport Police unit
- Passenger exit requirements
- Port Health structure and procedures

Chapter 2
GLOSSARY

Abbreviation	Definition
CAN	Aircraft Classification Number
ADP/AVP	Airside Driving Permit/Airside Vehicle Permit
AFISO	Aerodrome Flight Information Service Officer
AGL	Aerodrome/Aeronautical Ground Lighting
AIRAC	Aeronautical Information Regulation and Control
AIS	Aeronautical Information Service
	Aerodrome Reference Code
ARC	Accelerate Stop Distance Available
ASDA	Air Traffic Control
ATC	Air Traffic Information Service
ATIS	Air Traffic Management
ATM	Air Traffic Services
ATS	Clear Air Turbulence
CAT	Cleared and Graded Area
CGA	Distance Measuring Equipment
DME	Doppler VHF Omni-Range
DVOR	Foreign Object Damage/Debris
FOD	Ground Movement Control
GMC	Global Navigation Satellite System
GNSS	International Civil Aviation Organization
ICAO	Instrument Flight Rules
IFR	Instrument Landing System
ILS	Instrumented Runway Visual Range
LCC	
LDA	Landing Distance Available
LVP	Low Visibility Procedures
MATS	Manual of Air Traffic Services
MLS	Microwave Landing System
MOR	Mandatory Occurrence Report
NDB	Non-Directional Beacon
NOTAM	Notice to Airmen
NPR	Noise Preferential Routings
OFZ	Obstacle Free Zone
OPMET	Operational Meteorological (Information)
PANS Ops	Procedures for Air Navigation – Operations
PCN	Pavement Classification Number

Foreword

Aerodrome operators have demonstrated that their overall level of competence in operational safety matters has been met. This was possible because the large majority of aerodrome managers had gained considerable experience in the aviation industry, mainly through operational roles.

More recently, the advent of privatization and the consequent commercially oriented approach to the management of aerodromes has created significant change: business driven objectives have assumed a higher priority and management structures and skills have shifted towards a more business focused culture. To ensure that as these commercial and other pressures increased there would be no reduction in the priority attached to safety, nor any dilution of the skills available in aviation operations at executive management level, the Airport Operators and the Aerodrome safety and Standards Division of the Ghana Civil Aviation Authority (GCAA) worked together in a joint initiative. This Advisory Circular identifies the key areas of operational safety competence for Ghanaian Aerodrome Operators and details the competences appropriate to various operational tasks.

1- Purpose

The aim of this guidance document is to enable AERODROME OPERATORS to assess the level of operational safety management competence existing within the respective aerodrome, including any areas that are contracted out, and to ensure that they have the necessary expertise, at the appropriate level, to formulate and implement systems to adequately manage safety. Some tasks associated with some topic areas may be including those that are 'contracted out' by the aerodrome OPERATORS. GCAA does herein reiterate that whilst day-to-day operational management is the responsibility of the contractor, the aerodrome OPERATORS continues to have overall responsibility for the safe integration of contracted activities with the rest of the aerodrome operation.

It should be noted that some of the topic areas covered by this document, although an integral part of the aerodrome operation, are not subject to regulation by the GCAA, for example the Competence dealing with Customs and Immigration.

Other areas are subject to specific safety regulation by the GCAA; an example of this is an aerodrome at which an air traffic control unit is established; this is regulated by the Air Navigation Services (ANS) Division of the GCAA.

This document also takes account of the need to accommodate a range of Certificated / Authorised and Registered aerodromes and their varied scope of operations.

- Not all of the tasks listed will be appropriate or necessary for all aerodromes

The document will assist Aerodrome OPERATOR to:

- Be satisfied that persons within the management structure possess the relevant operational safety competence.
- Identify the post and person that have accountability for a specific task.
- Identify gaps that may exist in the areas of competence for their particular aerodrome.
- Develop job specifications, and in recruitment and succession planning.
- Provide, for certified aerodrome operation purposes, the safety assurance sought by the GCAA's Aerodrome Safety and Standards Division on operational safety competence.

2- Terminology

For ease of interpretation, several key terms used throughout this document are defined as follows:

Task – An area of work for which a defined competence is deemed necessary.

Background Knowledge – The collective body of information, gained through experience and training, that people need to have if they are to perform their roles competently. This includes memorized relevant facts, regulations, theories and principles, and knowing where to find such data when it is not necessary to commit them to memory.

Specified Post – A post within an aerodrome management structure which has been identified as having accountability for the management of a specific, safety related task.

Named Person – A person, identified by name, who currently holds a specified post.

Hazard – A physical situation, often following from some initiating event, that can lead to an accident.

Risk – Is the combination of the probability, or frequency of occurrence of a defined hazard and the magnitude of the consequences of the occurrence.

3 Application

Each Aerodrome Accountable Manager is responsible to identify the areas of competence and tasks relevant to their aerodrome. Therefore, this material is prepared in the form of checklists.

The tasks listed in the areas of competence, appropriate to a particular aerodrome, are those that should be vested in a particular ‘specified post’ and ‘named person occupying that post, and annotated in the document against each relevant task. The ‘named persons’ should match the ‘named persons’ in the Aerodrome Manual where relevant and the ‘Specified Posts’ in operation / license schedules where they exist.

It is assumed that the ‘named person’ for each task will have a comprehensive knowledge and understanding of the aerodrome management’s policies and procedures.