



GHANA
CIVIL AVIATION AUTHORITY

ADVISORY CIRCULAR AC-23-006

CNS / ATM FACILITIES APPROVAL AND SURVEILLANCE

SECTION 1 - GENERAL

1. PURPOSE

This Advisory Circular (AC) is issued to provide guidance to ANS providers on requirements on Approval of Communication, Navigation and Surveillance / Air Traffic Management (CNS/ATM) facilities and systems in use in Ghana.

2. STATUS OF THE ADVISORY CIRCULAR

This AC is an original issuance.

3. BACKGROUND

- A. The provisions in the Ghana Civil Aviation (ANS) Directives stipulates that No person shall provide an aeronautical telecommunication services or operate an aeronautical facility except under the authority of, and in accordance with the provisions of, an approval granted by the Authority.
- B. Aeronautical Telecommunication service means:
- i. Aeronautical broadcasting service described in Subpart 23.2.7 of Part 23 of Ghana Civil Aviation Directives;
 - ii. Aeronautical fixed service (AFS) described in Subpart 23.2.4 of Part 23 of Ghana Civil Aviation Regulations;
 - iii. Aeronautical mobile service – Voice and Datalink described in Subparts 23.2.5 and 23.2.8 of Part 23 of Ghana Civil Aviation Directives;
 - iv. Aeronautical Radio Navigation Services as described Subparts 23.1 and 23.2.6 of Part 23 of Ghana Civil Aviation Directives;



- v. Installation, Operation and Maintenance of Communication, Navigation and Surveillance / Air Traffic Management (CNS/ATM) Systems; and
 - vi. Any other telecommunication service provided specifically to support Air Navigation Services.
- C. The approval given by the Authority shall authorize the provision of:
- i. A single aeronautical telecommunication service by means of a single aeronautical telecommunication service units, systems or facilities: or
 - ii. A combination of aeronautical telecommunication services by means of a network of aeronautical telecommunication service providers.

4. APPLICABILITY

This AC is applicable to Air Navigation Service Providers (ANSPs) and Aerodrome Operators providing Aeronautical Telecommunication Services or have installed CNS/ATM facilities and systems in support of Air traffic services within designated aerodromes and airports in Ghana.

5. RELATED DIRECTIVES

- A. This AC is related to the following Parts of the Ghana Civil Aviation (Air Navigation Services) Directives:
- i. Part 23 – Aeronautical Telecommunication (Subpart 23.1 -23.7)
 - ii. Part 24 – Air Traffic Services (ATS)

6. RELATED READING MATERIAL

- A. ICAO Annex 10 – Aeronautical Telecommunications, Volume I–V.
- B. ICAO Annex 11 – Air Traffic Services (ATS)
- C. ICAO DOC 4444 – PANS – ATM
- D. AC-CNS-003 – Availability and Reliability Standards for CNS facilities



7. ACRONYMS

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|------|---|--|
| AC | - | Advisory Circular |
| ANS | - | Air Navigation Service |
| ANSP | - | Air Navigation Service Provider |
| GCAA | - | Ghana Civil Aviation Authority |
| GCAD | - | Ghana Civil Aviation Directives |
| DG | - | Director General |
| CNS | - | Communication, Navigation and Surveillance |
| ATM | - | Air Traffic Management |
| PANS | - | Procedure for Air Navigation Services |

SECTION B - GUIDANCE AND PROCEDURES

8. APPROVAL REQUIREMENTS OF AERONAUTICAL FACILITIES

- A. The Authority shall approve all the CNS/ATM technical facilities, procedures and navigational sites before their installation, operations, decommissioning, upgrading or relocation in the designated airspace and aerodromes within Ghana.
- B. An ANSP or Aerodrome operator shall not introduce any new CNS/ATM system, including equipment, facilities, procedures and ATSEP rating courses related to the CNS/ATM system, without the required regulatory approval prior to commencement of the new CNS/ATM system.
- C. An ANSP or Aerodrome Operator shall ensure that the installation, operation and maintenance of CNS facilities are in accordance with the standards specified in the Ghana Civil Aviation (ANS) Directives and conforms to the applicable system characteristics and specification standards prescribed in the Directives. .
- D. **APPROVAL REQUEST**

An ANSP wishing to obtain an approval for installation, operations, upgrading, commissioning, decommission or relocation of CNS/ATM facilities shall apply to the Authority providing details of the concept of the change (s), including any design, specifications, purpose of introducing

the change and initial safety assessment performed, to facilitate assessment and approval before continuing with the process.

E. ASSESSMENT PROCEDURE

i. EVALUATION:

The document(s) shall be evaluated to ensure its compliance with applicable provisions of the Ghana Civil Aviation Directives and other Regulatory requirements.

ii. EQUIPMENT INSPECTIONS:

1. The Authorities Safety Inspectors (CNS Inspector (s)) shall have unimpeded and unrestricted access to CNS equipment factories, facilities, workshops, training facilities to be approved for the purpose of inspecting it and record therein and for the purpose of testing or observing the operation of such facility.
2. The equipment shall be assessed by the Authority to ensure that they meet the requirements published in the manual of ANS standards. The ANSP shall not conduct any Factory Acceptance Tests (FAT) without the involvement of the Regulator (CNS Inspector(s)). This is to enable the Regulator make appropriate evaluation prior to the acceptance of the equipment to ensure compliance with the Ghana Civil Aviation Directives.

F. INSTALLATION AND COMMISSION REQUIREMENTS

- i. The facility installed and commissioned shall meet the operational specifications;
- ii. The facility shall conform with the applicable system characteristics and specification standards prescribed in Ghana Civil Aviation (ANS) Directives;
- iii. The facility must have been allocated an identification code, frequency or call sign where applicable, in accordance with the Part 23 of Ghana Civil Aviation (ANS) Directives.



- iv. Installation and implementation processes of new CNS/ATM equipment shall be monitored and assessed by the Authority's CNS Safety Inspector(s) to ensure proper procedures are being adhered to for safety assurance.

G. PERFORMANCE REQUIREMENTS OF THE FACILITIES

The facility shall have an acceptable level of operational reliability and an acceptable standard of performance.

H. FLIGHT INSPECTIONS

Information on the details procedures to be used for flight inspections, the time interval between flight inspections, and the identity of the flight inspection organization that will be contracted to carry out the flight inspections should be provided to the Authority in advance before the conduct of the Flight Inspection, if applicable.

I. PROTECTED POWER SUPPLY SYSTEM

- i. Each facility covered under the application shall be installed with suitable power supplies and means to ensure continuity of operation appropriate to the needs of the air traffic service or radio navigation service being supported;
- ii. Standby power supplies and UPS systems of required capacities shall be provided in all the essential units to ensure continuous operation of communication facilities

J. ADEQUATE AND ACCURATE RECORDS

Records of installations, initial testing, commissioning and re-commissioning of the facility shall be prepared by the Installation team and handed over to the station while handing over the facility/equipment to the station.

K. RELIABILITY AND AVAILABILITY

- i. An ANS provider must ensure the availability and reliability of its services meet the requirement in the Ghana Civil Aviation (ANS)

- Directives. Additional guidance is provided in AC-CNS-003 – Availability and Reliability Standards for CNS facilities.
- ii. The inspector shall inspect the following during approval process:
 1. Redundancy of equipment (main & stand by)
 2. The dedicated power supply and Standby power supply/Battery backup
 3. Inherent reliability of equipment
 4. Controlled temperature & humidity
 5. Adequate test equipment
 6. Quality maintenance by trained/skilled personnel
 7. Availability of necessary spares
- L. The ANSP must not conduct any Site Acceptance Tests (SAT) without the involvement of the Regulator (CNS Inspector(s)). This is to enable the Regulator make appropriate evaluation prior to the acceptance of the equipment to ensure compliance with the Ghana Civil Aviation Directives.
- M. Upon completion of the assessment, the ANSP shall receive a written approval from the Authority for the facility. The approval shall be subject to withdrawal at any time the facility fails to meet the aforementioned requirements.
- N. The ANSP shall establish procedures in their operations Manual to ensure the above requirements are met for efficiency, safety and regularity of air navigation.

9. SURVEILLANCE

Upon approval of the facilities, the Authority's CNS Inspector(s)) will carry out post-implementation monitoring by conducting periodic inspections of CNS



facilities to ensure. to ensure acceptable levels of safety are maintained and continued compliance with the Ghana Civil Aviation (ANS).

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