



MEMORANDUM CIRCULAR NO.: 24-16

TO : ALL CONCERNED
FROM : THE DIRECTOR GENERAL
SUBJECT : REVISION OF THE PHILIPPINE CIVIL AVIATION REGULATIONS - AIR NAVIGATION SERVICES (CAR-ANS) CAR-ANS PART 10 AND REPEAL OF CAR-ANS PART 14

REFERENCE:

1. Philippine Civil Aviation Regulations- Air Navigation Services
2. ICAO Annex 10 Volume I, Volume III Parts 1 and 2, and Volume IV
3. ICAO Document 8071 Vol. I Testing of Ground-based Radio Navigational Systems
4. ICAO Document 8071 Vol. II Testing of Satellite-based Radio Navigation Systems
5. ICAO Document 8071 Vol. III Testing of Surveillance Radar Systems
6. Regulations Amendment Procedures
7. Board Resolution No. 2012-054 dated 28 September 2012

Pursuant to the powers vested in me under the Republic Act 9497, otherwise known as the Civil Aviation Authority Act of 2008 and in accordance with the Board Resolution No.: 2012-054 dated 28 September 2012, I hereby approve the incorporation of the following amendments to the Philippine Civil Aviation Regulations – Air Navigation Services (CAR-ANS) Part 10:

ORIGINAL REGULATION:

CAR-ANS PART 10

REGULATORY REQUIREMENTS AND STANDARDS for Operation and Maintenance of CNS Services

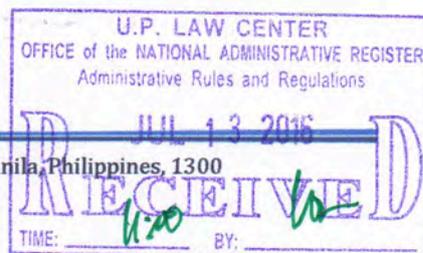
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FOREWORD

Pursuant to the pertinent provisions of Republic Act No. 9497, otherwise known as Civil Aviation Authority Act of 2008, the following provisions are hereby promulgated to provide regulatory requirements dealing with:

- Standards, Practices and Procedures on the establishment, operation, and maintenance of Air Navigation Facilities
- Organization of the Service Provider · General obligations and responsibilities of CNS Service Provider (ANS)
- Operations Manuals (Facility)
- Documentations

"The Future is in the Skies"



- Safety Management System

This CAR-ANS shall be known as REGULATORY REQUIREMENTS AND STANDARDS on the Operation and Maintenance of Communications, Navigation and Surveillance (CNS) Services.

INTRODUCTION

The Civil Aviation Authority of the Philippines (CAAP) is responsible under the Civil Aeronautics Acts (Republic Act No. 776 as amended) and the Act Creating the Civil Aviation Authority of the Philippines (Republic Act No. 9497) for the regulation of civil aviation in the Philippines. The CAAP exercises regulatory oversight by, in part, developing and promulgating appropriate, clear and enforceable aviation safety standards.

This CAR-ANS Part 10, Regulatory Requirements and Standards on the Operation and Maintenance of CNS Services, is one mechanism that CAAP uses to meet the responsibilities of the Republic Acts Nos. 776 and 9497 to ensure safety regulation of air navigation services. This CAR-ANS prescribes the detailed regulatory requirements and standards that have been determined to be necessary for promoting and supporting aviation safety in general.

The responsibility for matters within this Manual of Standards is with the Aerodrome and ANS Safety Oversight Office (AANSOO), CAAP.

10.1 GENERAL

10.1.1 Scope of CAR-ANS

This CAR-ANS specifies the standards and basic regulatory framework for Air Navigation Service (Service Provider) all Communications, Surveillance, Airfield Ground lighting and power systems service providers on the following matters:

1. Established Prescribed Standards and required Practices on the establishment, operation, and maintenance of CNS Service/ air navigation facilities
2. Organization
3. General obligations and responsibilities of CNS Service Provider (CNS)
4. Facility Operation Manual
5. Documentations
6. Safety Management System (Reserved)

10.1.5 Applicability

This Part sets out the requirements for the service provider or organization involved in the:

- a) Establishment, operation and maintenance of one or more ground-based aeronautical telecommunication, radio navigation or surveillance services that supports air traffic service or IFR flight.
- b) Establishment, operation and Maintenance of Airfield Lighting and Power facilities on airports and/or air navigation facilities.

10.1.10 Interpretation

This section contains the definitions of terminology that have specific meaning in relation to this CAR-ANS. The definitions are consistent with those definitions used in, ICAO Annex 10.

Definitions

Accuracy, in relation to a radio navigation service or facility, means the degree to which the value measured or displayed by the service or facility conforms to the true values.

Aeronautical Information Service. A service established within the defined area of coverage responsible for the provision of aeronautical information /data necessary for the safety, regularity, and efficiency of air navigation.

Air Navigation Facilities, the types of aeronautical telecommunication, radio navigation or surveillance (CNS) facilities including Airfield Lighting facility that either soloed, or by their interconnection, provide the electronic capability for the delivery of the defined services.

CNS System Specialist (CNSSS) is a technical person authorized to perform the technical tasks concerning the design, installation, operation, maintenance and repair of aeronautical telecommunication and radio navigation services equipment or systems under CAAP.

Airfield Lighting and Power Technician (ALPT) is technical personnel authorized to perform the technical tasks concerning the design, installation, commissioning, operation, maintenance and repair of airfield lightings and power facilities equipment and systems under CAAP.

Availability, for a telecommunication service, radio navigation service or support service, means the percentage of its operating hours that the service is not interrupted.

CNS means Communication, Navigation, and Surveillance.

CNS Service refers to aeronautical telecommunication, radio navigation and surveillance.

Configuration, in relation to:

- a) a CNS service – means the configuration of each facility and any interconnection between facilities that make up the service; and
- b) A facility – means the configuration of equipment, hardware, software and data, and the interconnections between equipment.

Coverage, in relation to a CNS service, means the volume of airspace within which, or the locations between which, the service is nominally provided.

Functional Specification, for a CNS service or a support service, is a general description of the service, its operating principles and its functions.

Hazard means a source of potential harm to aviation safety.

Integrity, of a CNS service or a support service:

- a) means the likelihood that the information supplied by the service at a particular moment is correct; and
- b) Includes the ability of the service to warn users promptly when the service should not be used.

Manual of Standards means the document called “Manual of Standards (MOS). It comprises specifications (standards) prescribed by CAAP, for uniform application, determined to be necessary for the safety of air navigation. MOS are based on applicable provisions of ICAO SARPS.

Operating Hours, for a telecommunication or radio navigation service, means the times during which the service provider must, under its approval, operate the service.

Operation and Maintenance in the context of this regulation means:

- Placing a facility into operational service; or
- Removing a facility from operational service; or
- Undertaking any functions which affect the operability of a facility while the facility remains in operational service; or
- Undertaking periodic performance inspection, or any maintenance on a facility while the facility remains in operational service; or
- Undertaking any flight test inspection/calibration on a facility for the purpose of compliance with this CAR-ANS.

Operations Manual means a manual that establishes the standards and procedures under which the services will be delivered.

Performance inspection means one or more test that show the accuracy or integrity of a facility.

Radio navigation Service means an aeronautical radio navigation service intended for the benefit and for the safe operation of aircraft.

Recovery time means the period during which a service is interrupted.

Reliability, of a telecommunication service, a radio navigation service or a support service, means the probability that the service will perform its function or functions without failure for a specified period.

Risk means risk to aviation industry.

Safety means aviation safety.

Service Provider means CNS Service Provider (CNSSP) an organization authorized to operate and maintain a CNS service. In this case, ANS is mandated by law (RA 9497) to operate and maintain air navigation facilities.

Technical Specification, for a CNS service or facility, is a detailed description that may use technical terms and concepts, of:

1. The way in which the service or facility operates and performs its functions, and
2. The technical standards to which the service or facility has been designed and manufactured.

10.1.15 Standards for CNS Services

1. Any reference in these regulations relative to CNS Services is a reference to the national and international standards and practices of these services set out in conformance to **ICAO Annex 10** and related documents.
2. The service provider shall comply with the standards, practices and procedures stipulated in the **Manual of Standards (MOS)** for CNS Services, appropriate to the operation and maintenance of such services.

10.1.20 Related Documents

1. CAR-ANS Part 6 (Manual of Standards for Radio Navigational Aids)
2. CAR-ANS Part 7 (Manual of Standards for Aeronautical Telecommunications- Digital Data Communications Systems)
3. CAR-ANS Part 8 (Manual of Standards for Aeronautical Telecommunications- Voice Communications Systems)
4. CAR-ANS Part 9 (Manual of Standards for Surveillance)
5. CAR-ANS Part 14 (Flight Check Manual)
6. Manual of Standards for Aerodrome

10.1.25 Provision of Service without CAAP/ANS Approval

1. Any person or organization disallows the provision of any service defined as CNS service if it is not authorized by CAAP/ANS.

10.1.30 Flight Check Inspection

All visual and radio navigation aids facilities must be subjected to periodic flight check to verify the performance of the facility.

For navigational aids in particular, periodic flight inspections not only entail ground tests on site but also flight inspections at defined time intervals. The time intervals, procedures, standards and equipment used for flight inspections are to provide the final assurance that the signal in space accuracy, integrity, and coverage of the facilities are within tolerances defined in the operational specifications.

10.1.35 Safety inspection/Audit

Section 35 (g), Chapter 7 of RA 9497 (Powers and functions of the Director General), through Aerodrome and Air Navigation Safety Oversight Office (AANSOO), all CNS Services/Air Navigation Facilities are subject to CAAP/Aerodrome and Air Navigation Safety Oversight Office (AANSOO) Audit.

Safety Oversight Auditors/Inspectors shall have full access to all facilities to verify the safety level of the facility. Other airport authorities must provide full access pass to CAAP/AANSOO Auditors for such purpose.

10.1.40 Resolution of Identified Deficiencies

Deficiencies/Findings affecting aviation safety identified by CAAP/AANSOO Auditor shall be resolved on a predetermined time acceptable to both the service provider and AANSOO. Should necessary corrective action not be accomplished within a reasonable time to be specified by the Auditor/Inspector, the matter must be reported to the Director General for a decision regarding possible restriction on operation.

10.1.45 LICENSING (RESERVED)

The following Licenses are issued by CAAP to qualified applicants who satisfactorily accomplished the requirements for the license sought:

1. CNS System Specialist License
2. Airfield Lighting and Power Technician (ALPT) License

10.1.47 AIR NAVIGATION FACILITY CERTIFICATION/RATING (RESERVED)

Pursuant to Section 35 (g), Chapter 7 of RA 9497, as promulgated in Section 27 (The Responsibility and Powers of the Director General) of the IRR, the Director General shall issue an Air Navigation Facility Certification/Rating to air navigation facilities operating within the Philippines to determine the compliance of its operation based on prescribed standards and required practices to assure safety in air navigation.

10.2 OBLIGATIONS AND RESPONSIBILITIES OF THE SERVICE PROVIDER

10.2.1 Administration

Pursuant to Section 33, Chapter VI (Organizational Structure of the Authority), the Air Navigation Service is one of the permanent offices established by the Board under the Aviation Operations Service Group. The Administration of Air Navigation Service shall be the responsibility of the Director of ANS.

10.2.5 Technical Personnel

Technical personnel authorized to operate and maintain CNS services/facilities are the following:

1. CNS Systems Specialist (CNSSS)/ANS Systems Specialists
2. *Airfield Lighting and Power Technician (for Facilities under CAAP)*

The Service Provider must ensure that the technical personnel involved in the operation and maintenance of air navigation facility holds necessary qualification as required. In particular, the service provider must ensure that each CNSS/APT has been appropriately trained.

10.2.10 Qualification Standards and job Descriptions

Refer to the approved Qualification Standards and Job Description of ANS technical personnel attached in the Implementing Rules and Regulations of RA 9497.

10.2.15 (RESERVED) TECHNICAL COMPETENCE CERTIFICATE (TCC)

PROGRAM

The service provider must adopt a system for assessing the competency of technical personnel. The service provider must have an internal certification scheme for technical personnel that establish the technical authorization granted to each personnel.

The certification must be in the form of controlled document provided to each technical personnel that identifies the personnel and the types of aeronautical telecommunication and air navigation facilities for which the personnel has been granted authorization, the operation and maintenance functions authorized in relation to each facility, the date on which each authorization was granted and the date on which the authorization expires or the date on which revalidation or reassessment is due.

10.2.20 Facility-In-Charge

All CNS Services/Facilities shall have a designated Facility-In-Charge as the person responsible for the management and administration of the facility/ies and personnel.

10.2.25 Training Plans and Programs

The service provider must have a training plan and comprehensive program designed to develop skills and knowledge of technical personnel to attain competence and efficiency in the performance of the assigned task.

Technical personnel who carryout functions associated with the operation and maintenance of facilities must be given appropriate, specialized training on the facility type, followed by an on-the-job training and evaluation of their competence.

10.2.3 Distribution of Guidance Material/Information

The service provider must have a procedure for the formulation and distribution of guidance material especially safety critical information to technical personnel to enable them to perform their functions in accordance with the established requirements and in standardized manner.

10.2.35 Post Accident Facility Performance Inspection

1. In this regulation:

Director General has the meaning defined under RA 9497.

Performance inspection means one or more test that show the accuracy or integrity of a facility.

2. This regulation applies if the Director General tells the Service Provider that an air navigation facility may have contributed to an aviation accident or incident.
3. As soon as practicable time, and before any action is taken that could change the facility's performance, a performance inspection must be done.
4. The performance inspection must be:
 - a) Done by a qualified technical personnel in accordance with any instructions given by the Director General; and
 - b) Witnessed by any representative assigned by the Director General.
5. A report of the performance inspection must be prepared by the technical personnel and signed by him and the witness.
6. If the performance inspection shows that the facility contributes to a hazard, the facility must not be used until it is operating within its technical specifications.

10.2.40 Interruption to service

This regulation applies if a CNS service is interrupted or if the Service Provider knows that the service is to be interrupted.

1. If the service is published in an AIP, the Service Provider must tell AIS about the interruption. It requires the service provider to advise AIS (for purpose of issue of a NOTAM) and other users (e.g. ATS) of planned or unplanned interruptions to any service.
2. If it is practicable to do so, the Service Provider must tell the users of the service about the interruption.

10.2.45 Test Equipment

Air Navigation Facility/ies must be tested and maintained using test equipment that is maintained and calibrated in accordance with the accepted standards required.

Service providers must have available the necessary test and measuring equipment for the operation, performance inspection and maintenance of all its facilities. The operating and maintenance instructions for each facility should specify the test equipment requirements for all levels of operation and maintenance undertaken by the service provider.

Standards for the control, calibration and maintenance of test equipment are as follows:

- Service providers are to use documented procedures to control, calibrate and maintain test equipment.
- Calibrated test equipment is use in the maintenance of a service or facility.
- Calibration is carried out at prescribed intervals for each type of test equipment and the calibration is traceable to national measurement standards.
- Records of calibration status of each item of test equipment are retained.
- Each item of test equipment carries a visual identification of its calibration status, the date that the equipment was last calibrated and the prescribed calibration periodicity.
- The validity of previous results is assessed when any item of test equipment is found to be out of calibration.

10.2.50 Allocation of Frequencies, Identification codes/call signs

Those services that radiate electromagnetic signals-in-space must operate on an assigned aeronautical frequency in the relevant aeronautical frequency band. It is the responsibility of the CNS service provider to arrange for their frequency and identification codes/call signs of CNS service equipment before making any transmission, in close coordination with the Air Traffic Service.

10.2.55 Conformance to Flight Check Standard Procedures

Reference to CAR-ANS Part 14 (Flight Inspection Manual) as standard procedure to be adopted during the conduct of Flight Check Inspections.

10.2.60 Request for Commissioning/Special Flight Check

Request for commissioning/special flight check on visual and radio navigation aids shall be initiated by the CNS service provider (Director of ANS), Project Contractor recognized by CAAP or by other airport authority duly approved by the Director General.

10.2.65 Changes/Amendments to Operational Procedures and Standards

The service provider must have an established procedure to assess and authorize any changes/amendments to operational procedures in accordance with the approved document on procedures for the amendments of enabling regulations and standards.

10.2.70 Agreements/Contracts with other Organizations

1. The functional specification of the support service; and
2. Each of the following that relates to the support service and is relevant to the service provided by the service provider:
 - a. Reliability
 - b. Availability
 - c. Accuracy
 - d. Integrity
3. A way in which the service provider is to be notified of any interruption to the service.
4. A way in which the other organization will notify the service provider of any scheduled service interruptions.

10.3 DOCUMENTATIONS

10.3.1 Standard Documents to be maintained

Documents required are the following:

1. Approved Facility Operations Manual
2. ICAO Annex 10 Volumes I to V, (those volumes actually held will depend upon the services provided);
3. ICAO Annex 11 (if the services are in support of ATS)
4. ICAO Annex 14 (for Airfield Lighting and Power Plant Facilities in support of Aeronautical telecommunications and radio navigational aids services)
5. Doc 8071, Volume 1, Manual on Testing of Radio Navigation Aids (if the services are in support of radio navigation aids);
6. Doc 9684 (if the service is in support of Radar Surveillance)
7. CAR-ANS Part 10 and relative MOS.
8. Administrative Order 139 and relative MOS (for ANF with Airports)
9. Manufacturer's equipment handbooks, in particular those volumes that contain the Operation and Maintenance Instructions, the logistics support and spare parts listings, as relevant to each facility, and for each associated item of test equipment used for maintenance.

10.3.5 Records

Records to be kept are the following:

1. Records of as-built drawings, manufacturing, procurement, installation, testing, and commissioning, maintenance, routine operation, modification, and decommissioning;
2. Records of hazard analysis and risk management
3. Records of facility performance and facility maintenance history including performance parameters values, test facilities utilized, identity of authorized technical personnel conducting the operation and maintenance.
4. Records of facility failures and faults;
5. Records of defect reports and associated defect investigations;

6. Records of each technical personnel including details of the personnel's qualification, experience, specialized trainings and Personnel Evaluation.
7. Flight Inspection Data/Commissioning Data

10.3.10 Personnel Evaluation System (PES)

The Service Provider shall adopt a Personnel Evaluation System enunciated under CSC Resolution No. 991792 and CSC MC No. 13 s. 1999 (Revised Policies on Performance Evaluation System).

10.4 FACILITY OPERATIONS MANUAL

10.4.1 Contents of Operations Manual

An operations manual must contain the information in this administrative order that applies to each CNS service and the kind of facility of the service provider (ANS) installed.

10.4.5 Organization Structure of Service Provider

An operations manual must include an approved organization structure of the service provider that shows:

1. Different divisions/sections
2. Functions
3. Actual Duties and Responsibilities of personnel
4. Job Description and Qualification Standards (approved by CSC)

10.4.10 Facility Organizational Chart

The Operations Manual must include a chart of the facility's organizational structure that shows:

1. The names, relevant qualifications, relevant experience and positions of key personnel.
2. Number of technical personnel who will provide each service
3. Hours of Operation
4. Manpower Shifting schedule

10.4.15 Functional Specification and Performance Values of the Services

The operations manual must include the functional specification of each of the service provider's CNS Services. This is a general description of the service, its operating principles and its functions. The values for each of the following that apply to the service are:

1. availability
2. reliability
3. accuracy
4. integrity

The values mentioned must be derived or measured from either or both of the configuration of each service, and the known performance of each service.

For a radio navigation service, the integrity values must be given for each kind of navigational aid facility that forms part of the service.

Refer to MOS Part xx to determine the above-cited values.

10.4.20 Facility Technical Description

An operations manual must describe, for each CNS service, provided:

1. *The type and location of each facility.* The type of facility should be described and the location is the geographic name of the place at which the facility is installed.
2. *The technical specification of each kind of facility.* The technical specification of a facility should include, in technical terms, all inputs and outputs to the facility, and the specification and standards to which the facility has been designed. The technical specification must cover both the hardware and software of the facility. This information is normally provided by the equipment manufacturer. (If that is the case, reference to the relevant content in the manufacturer's documentation is all that is necessary in the Operation Manual).
3. *The interconnection of each facility making up the service; or to any other service to be provided under the Operations Manual.* This should be in the form of a block diagram, each facility representing one of the blocks should be identified and the major signal or data inputs and outputs between facilities or to or from other services shown.
4. *The monitoring system relevant to each facility.* The monitoring system for each facility, or group of facilities, should also be included in the block diagram form, conveying the method of monitoring, parameters monitored, monitoring outputs and the location at which the outputs are presented.

10.4.25 Compliance to Standards

An operations manual must contain a listings of each standard that relates to the design, installation, testing, operation or maintenance that are applicable to each service, and to each facility, which make up the service, and explain how each standard is met.

10.4.30 Safe Operation and Maintenance Procedures

Under this regulation, the service provider is required to document in its operations manual the in-house technical and operational procedures under which the organization shall carry out its service provision functions.

An operations manual must describe the following:

1. The procedures use for the conduct of daily and scheduled preventive maintenance including procedures for repair;
2. The method to be used to specify any changes to a service or facility, and to design, test and implement those changes;
3. The system to be used to maintain a record of the operational performance of a service;
4. The procedure to be used to monitor the performance of each service and facility, and to compare the results with the appropriate technical specification;
5. The procedure to be used if a service fails or a facility fault occurs, including the way in which the failure or fault is to be reported and rectified;
6. The procedure to be used to report deviations from standards any found during operation and maintenance of the facility;
7. The procedure to be used to:
 - a) Detect and correct any latent defects in equipment;
 - b) Change software to adapt to any changes to the configuration of hardware; and
 - c) Change the design of equipment or facilities to adapt to any change to the functional or technical specification.

10.4.35 Safety Standard Procedures on Emergency Situations

The operations manual must contain the approved safety standard procedures on emergency situations in cases such as, natural calamities, terroristic attacks, fire, aircraft accidents, etc. which shall serve as safety preventive measures to protect the personnel and the CNS service facilities and equipment.

10.4.40 Human Factors Consideration

Human Factors principle must be observed in the operation and maintenance of air navigation facilities.

Note: guidance material on Human factors principles can be found in Human Factors training manual (Doc 9863) and Circular 249 (Human Factors Digest No. 11 – Human Factors in CNS/ATM Systems).

10.5 SAFETY MANAGEMENT SYSTEM

10.5.1 Safety Management System

1. A service provider must have, and put into effect, a safety management system that includes the policies, procedures, and practices necessary to safely provide the CNS services.
2. The safety management system must be in accordance with the standards set out in the approved CAAP State Safety Programme.
3. The service provider must keep its safety management system under review and take such corrective action as is necessary to ensure that it operates properly.

10.6 REREALING PROVISIONS

CAR-ANS Part 10 repeals:

Any previous Administrative Orders, Circulars, Rules and Regulations which are inconsistent with the provisions hereof.

CAR-ANS PART 14

FLIGHT INSPECTION MANUAL OF PROCEDURES AND STANDARDS

FLIGHT INSPECTION MANUAL

14.1 INTRODUCTION

14.1.1 PURPOSE. This manual contains the policy, procedures, and criteria for flight inspection and certification of air navigation services, instrument flight procedures, and VFR Aeronautical Charts as mandated under R.A. 9497. The manual applies to the flight inspection of all National Airspace System (NAS) Air Navigation Services and Instrument Flight Procedures in the Flight Information Region of the Philippines in reference to Document 8071 and Annex 10 to the Chicago Convention of International Civil Aviation Organization.

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14.16 TOLERANCES

a) Localizers

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b) Glide Slopes

Parameter	Reference Paragraph	Tolerance/Limit	Inspection	
			C	P
Modulation level	14.13.2.2.1b	78 – 82% 75% - 85%	X	X
...				
Coverage	14.13.2.2.1n	At or greater than: Signal level: 15µV Flag alarm: no flag or indication of invalid signal Fly-up / Fly-down signal: 150µA Clearance and Structure in tolerance Interference must not cause an out of tolerance condition.	X	X
Monitor Reference Value:	14.13.2.2.1m	Within +14.10.0% to -7.5% of the commissioned angle.	X	X
Angle Width		0.9° maximum 0.5° minimum	X	X
RF Power	14.13.2.2.1n	Not less than: Signal level: 15µV Flu-up / Fly-down signal: 150µA Flag alarm: No flag or indication of invalid signal	X	

REVISED REGULATIONS:

CAR-ANS PART 10

REGULATORY REQUIREMENTS on the Operation and Maintenance of Communications, Navigation, Surveillance, Airfield Lighting and Power Systems Services

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FOREWORD

Pursuant to the pertinent provisions of Republic Act No. 9497, the following provisions are hereby promulgated to provide regulatory requirements dealing with:

- Standards, Practices and Procedures on the establishment, operation, and maintenance of Air Navigation Facilities
- Organization of the Air Navigation Service Provider
- General obligations and responsibilities of Air Navigation Service Provider
- Facility Operations Manuals (FOM)
- Documentations
- Safety Management System

This CAR-ANS shall be known as REGULATORY REQUIREMENTS on the Operation and Maintenance of Communications, Navigation and Surveillance (CNS), Airfield Ground Lighting and Power Systems Services.

INTRODUCTION

The Civil Aviation Authority of the Philippines (CAAP) is responsible under Republic Act No. 9497 or known as the Civil Aviation Authority Act of 2008, to formulate and establish rules and regulations governing the civil aviation in the Philippines. The CAAP exercises regulatory oversight by developing and promulgating appropriate, clear and enforceable aviation safety standards.

This CAR-ANS Part 10, Regulatory Requirements for CNS Services, Airfield Ground Lighting and Power systems, is one mechanism that CAAP uses to meet the requirements of the Republic Act No. 9497 in ensuring the safety regulation of air navigation services. This CAR-ANS prescribes the detailed regulatory requirements and standards that have been determined to be necessary for promoting and supporting aviation safety in general.

The responsibility for matters within these regulations is with the Aerodrome and ANS Safety Oversight Office (AANSOO), CAAP.

10.1 GENERAL

10.1.1 Scope of CAR-ANS

This CAR-ANS specifies the standards and basic regulatory framework for Air Navigation Service (Service Provider) all Communications, Surveillance, Airfield Ground lighting and power systems service providers on the following matters:

1. Prescribed Standards and required Practices on the establishment, dissolution, operation, and maintenance of CNS Service/ air navigation facilities to provide allied services.
2. Organization
3. General obligations and responsibilities of CNS Service Providers
4. General obligations and responsibilities of AFL Service Providers
5. Approved Facility Operation Manual
6. Records and Documentations
7. Safety Management System (Reserved)

10.1.2 Applicability

This Part sets out the requirements for the service provider or organization involved in the:

- a) Establishment, operation and maintenance of one or more ground-based aeronautical telecommunication, radio navigation or surveillance services that supports air traffic service;
- b) Establishment, operation and Maintenance of Airfield ground Lighting and Power facilities on airports and/or air navigation facilities;
- c) Establishment, operation and maintenance of flight inspection service and CNS signals-in-space calibration systems.

10.1.3 Definitions for this Part

In this regulation, the terms listed below have the following meanings whenever they appear. The definitions are consistent with those definitions used in R.A. 9497, ICAO Annex 10, Annex 14 and Doc 8071.

AANSOO means Aerodrome and Air Navigation Safety Oversight Office.

Accuracy, in relation to a radio navigation service or facility, means the degree to which the value measured or displayed by the service or facility conforms to the standard values.

Air Navigation Facility refers to any facility used in, available for use in, or designed for use in aid of air navigation, including airports, landing areas, lights, any apparatus or equipment for disseminating weather information, for signalling, for radio directional finding, or for radio or other electromagnetic communication, and any other structure or mechanism having a similar purpose for guiding or controlling flight in the air or the landing and take-off of aircraft.

Air Navigation Service means an aeronautical radio navigation service intended to provide guidance information or position data and for the efficient and safe operation of aircraft supported by one or more radio navigation aids.

Air Navigation Service Provider (ANSP) means a person, an organization or entity authorized to operate and maintain air navigation (CNS) facilities and/or provide air navigation (CNS) service including airfield lighting and associated power systems.

Air Traffic Safety Electronics Personnel (ATSEP) means the technical staff involved with the creation and support of the ground-based electronic hardware and software systems used to support air navigation and Air Traffic Management.

Audit. A systematic, independent and documented process for obtaining compliance status of the facility with mandatory regulatory requirements and standards.

Authority means the Civil Aviation Authority of the Philippines (CAAP).

Availability, for a telecommunication service, radio navigation service or support service, means the percentage of its operating hours that the service is not interrupted.

CAAP means the Civil Aviation Authority of the Philippines.

CNS means Communication, Navigation, and Surveillance.

CNS Service refers to aeronautical radio telecommunication, radio navigation and surveillance service including airfield ground lighting and associated power systems.

CNS Service Provider (CNSSP), see Air Navigation Service Provider (ANSP).

Commissioning, an extensive flight inspection following ground proof-of-performance inspection to establish the validity of the signals-in-space. The results of this inspection should be correlated with the results of the ground inspection. Together they form the basis for certification of the facility.

Configuration, in relation to:

- a) a CNS service – means the configuration of each facility and any interconnection between facilities that make up the service; and
- b) A facility – means the configuration of equipment, hardware, software and data, and the interconnections between equipment.

Coverage, in relation to a CNS service, means the volume of airspace within which, or the locations between which, the service is nominally provided.

Director General has the meaning defined under RA 9497.

Down time means the period during which a service is interrupted.

Functional Specification for a CNS service or a support service, is a general description of the service, its operating principles and its functions.

Hazard means a source of potential harm to aviation safety.

In relation to CNS service, it refers to condition, object or activity with the potential of causing injuries to personnel, damage to equipment or structures, loss of material, or reduction to ability to perform a prescribed function.

Inspection. The basic activity of an audit, which involves examination of the specific element of the safety oversight programme of the State. It may involve a series of tests carried out by a state authority or an organization as authorized by a state to establish the operational classification of the facility.

Integrity, of a CNS service or a support service:

- a) means the likelihood that the information supplied by the service at a particular moment is correct; and
- b) Includes the ability of the service to warn users promptly when the service should not be used.

Manual of Standards (MOS) means the document called “Manual of Standards (MOS) that comprises specifications (standards) prescribed by CAAP, for uniform application, determined to be necessary for the safety of air navigation. MOS are based on applicable provisions of ICAO SARPS.

Operating Hours for a telecommunication or radio navigation service, means the times during which the service provider must, under its approval, operate the service.

Operation and Maintenance in the context of this regulation means:

- Placing a facility into operational service; or
- Removing a facility from operational service; or
- Any undertaking which may affect the operability of a facility while the facility remains in operational service; or
- Any undertaking involving periodic performance inspection, or maintenance on a facility while the facility remains in standard operational service; or
- Any undertaking related to flight inspection/calibration on a facility for the purpose of compliance with this CAR-ANS.
- Any undertaking for the purpose of restoring the facility into operational service.

Operations Manual means a manual that establishes the policies, arrangements standards and procedures under which the services will be delivered. This manual serves as the bases of all undertakings relative to the facility and the service being provided.

Periodic Performance Inspection means one or more test in accordance with the manufacturers handbook or facility operations manual performed on a specified interval that show the accuracy or integrity of a facility.

Reliability, of a telecommunication service, a radio navigation service or a support service, means the probability that the service will perform its function or functions without failure for a specified period.

Risk means risk to aviation industry. The predicted probability and severity of the consequences or outcomes of a hazard.

Safety means aviation safety. Freedom from danger or risk.

Service Provider means CNS Service Provider (CNSSP).

Technical Specification, for a CNS service or facility, is a detailed description that may use technical terms and concepts, of:

1. The way in which the service or facility operates and performs its functions, and
2. The technical standards to which the service or facility has been designed and manufactured.

10.1.4 Prohibition

10.1.4.1 Any person, organization or entity is prohibited to provide any service defined as air navigation service if it is not authorized by CAAP.

10.1.4.2. Any facility within which the flight inspection certification has lapsed shall not be used for air navigation and/or aircraft operation unless certified by authorised technical personnel for its integrity and accuracy as provided for in this regulation.

10.2 Standards for CNS Services

10.2.1. Any reference in these regulations relative to CNS Services is a reference to the national and international standards and acceptable practices set out in conformance to **ICAO Annex 10**, Annex 14, and the applicable CAR related documents.

10.2.1 GROUND TESTING

10.2.1.1. Ground Tests for Radio Navigation Aids

All Radio Navigation Aids facilities must be subject to periodic ground testing using the procedures provided by the ICAO Doc. 8071, Vol. I (Manual on Testing of Radio Navigation Aids) and/or equipment manufacturer's manual.

10.2.1.2. Ground Test for Airfield Lighting and Power Systems

All airfield Lighting Installations and power systems must be subject to earth ground testing at least once every year using the procedures as provided in ICAO Annex 14, ICAO Doc. 8071, and Test equipment Manual.

10.2.1.3 Ground Tests for Visual Approach Slope Indicators

All Visual Approach Slope Indicators (VASI) must be subject to periodic ground test using the procedures specified in the equipment manufacturer's handbook/manual.

10.2.2 COMMISSIONING

10.2.2.1 Radio Navigation Aids

As specified under Sub-part, 10.1.4.1, a newly established radio navigation aids must be authorized before it can be placed into operational service. As such, all newly installed radio navigation aids must be subject to commissioning in accordance with the Flight Inspection Manual of Procedures approved by CAAP and/or ICAO Doc. 8071, Vol. 1 (Manual on Testing of Radio Navigation Aids).

10.2.2.2 Visual Aids and Associated power system

All newly installed visual aids with the associated power systems must be subject to commissioning before it can be placed into operation using the procedures and standards specified in the flight inspection manual of procedures approved by CAAP and/or ICAO Doc. 8071 (Manual on Testing of Radio Navigation Aids, ICAO Doc. 9157 (Aerodrome Design Manual - Part 4).

10.2.2.3 Aeronautical Surveillance System

All newly installed Aeronautical Surveillance Systems must be subject to commissioning using the procedures and standards specified in the Flight Inspection Manual of procedures approved by CAAP and/or ICAO Doc 8071, Vol. 3 (Testing of Radio Navigation Aids).

10.2.2.4 Satellite augmentation and communication systems

All satellite augmentation and communication systems must be subject to commissioning flight Inspection in accordance to the standards and procedures specified in ICAO Doc. 8071, Vol. 2. (Manual on Testing of Radio Navigation Aids)

10.3 Flight Check Inspection

10.3.1 All visual and radio navigation aids facilities must be subject to periodic flight inspection to verify the signal-in-space performance of the facility.

10.3.1.1 Flight inspection must provide a comprehensive report of the accuracy, coverage or any other aspect of the performance of a service or facility conducted by using calibrated test equipment on board an aircraft in flight.

10.3.1.2 Flight inspection of instrument flight procedures is required to assure that the appropriate radio navigation aids adequately support the procedure.

10.3.2 Periodic Performance Inspection

10.3.2.1 For navigational aids in particular,

Periodic performance inspections not only entail ground tests on site but also flight inspections at defined time intervals. The time intervals, procedures, standards and equipment used for flight inspections are to provide the final assurance that the signal in space accuracy, integrity, and coverage of the facilities are within tolerances defined in the operational specifications.

10.3.3 Flight Inspection Standard and Procedures

10.3.3.1 Flight Inspection must be carried using an appropriately equipped aircraft and performed by a qualified flight inspection pilot and appropriately trained flight inspector.

10.3.3.2 Standard and procedures to be adopted during the conduct of Flight Inspections shall conform to the ICAO Doc. 8071 (Testing of Radio Navigation Aids) and Flight Inspection Manual of Standards and Procedures approved by CAAP.

10.3.3.3 Flight inspection interval and periodicity shall conform to the Flight Inspection Manual of Standards as approved by CAAP (Refer to Doc 8071):

- a. Instrument Landing system (ILS) must be flight inspected at least twice (2) in a 360 days period following the last flight inspection certificate validity;

- b. Instrument Landing system (ILS) must be flight inspected at least twice (2) in a 360 days period following the last flight inspection certificate validity;
- c. Visual Ground Slope Indicators (VGSI) must be flight inspected at least once in a 360 days period following the last valid flight inspection certificate;
- d. Instrument Approach Procedure must be inspected at the same interval as the ground based system supporting the procedure i.e. VOR, DME, NDB;
- e. Approach Lighting and Communications Systems must be flight inspected to coincide with the interval of the most critical system supporting aircraft operation
- f. Surveillance systems must be flight inspected at least once every 720 days period following its commissioning as mentioned in this regulations;
- g. Satellite augmentation systems must be flight checked for signal strength and interference to coincide with the flight inspection of ILS systems.

10.3.4 Flight Inspection Requirements

Flight inspection organizations certifying air navigation facilities must comply with the following requirements, as:

10.3.4.1 Aircraft

Must be capable of providing the required inspection procedures and conforms to the flight inspection aircraft requirements as provided in the Flight Inspection Manual of Standards and Procedures approved by CAAP and/or ICAO DOC. 8168.

10.3.4.2 Flight Inspection Crew

Personnel performing flight inspection must;

- a. Have the credentials and authentic certification issued by competent authorities which clearly states the responsibilities of ensuring the satisfactory operation of air navigation facilities, instrument flight procedures, and VFR Aeronautical Chart verification.
- b. Have been granted authorization by the State to conduct flight inspection functions and procedures as specified in this regulation, and related ICAO documents.

10.3.4.3 Aerodrome and Ground Support equipment

- a. Airborne and ground support flight inspection equipment must be calibrated to a standard traceable to the national and international standards and technology or equivalent.
- b. Automated Flight Inspection System (AFIS) must be the primary airborne instrument for conducting flight inspections.
- c. Other Approved Systems (Portable/Utility Class) and Methods (Theodolite, RTT, or Manual) may be used unless prohibited by other guidance for flight inspection. These systems/ methods must not be used solely to bypass the need for facility data of sufficient accuracy.
- d. Portable/Utility class equipment appropriate installed in aircraft having the required parameters in accordance with approved procedures maybe utilized for the purpose of conducting flight inspections, subject to clearance and approval of the Director General.

10.3.5 Periodic Flight Inspection

10.3.5.1 Special Flight inspection must be conducted before an air navigation facility can be put into operational service following a major repair, alteration, modification or changes that may affect its required performance are made.

10.3.5.2 Special flight check on visual and radio navigation aids shall be requested by the air navigation service provider or Project Contractor recognized by CAAP or by other airport authority duly approved by the Director General.

10.4 Safety Inspection/Audit

10.4.1 Periodic safety inspection/audit

- a. Safety Audits and inspection of all Air Navigation facility shall be periodically conducted to ensure compliance to regulations and conformance to prescribed standards and required practices.
- b. Authorized Safety Oversight Auditors/Inspectors shall have full access to all facilities, equipment and procedures when conducting safety inspection/audit to verify the safety level of the facility. Other airport authorities and authorized service providers must provide full access pass to CAAP/AANSOO Auditors for such purpose.

10.5 Resolution of Identified Deficiencies

10.5.1 Deficiencies/Findings affecting aviation safety identified by CAAP/AANSOO Auditor shall be resolved on a predetermined time acceptable to both the service provider and AANSOO.

10.5.2 If and when necessary corrective action are not accomplished within a reasonable time as agreed between the service provider and AANSOO, the matter must be reported to the Director General for a decision regarding possible restriction on operation and/or enforcement action.

10.6 LICENSING

10.6.1 The Authority shall issue license to qualified technical personnel performing operation and maintenance of air navigation facilities as defined under this regulation.

10.6.2 The license is an authorization granted to qualified applicants relative to the requirements of this regulation.

10.6.3 The following Licenses are issued by CAAP to qualified applicants who satisfactorily accomplished the requirements for the license sought:

- a. Air Traffic Safety Electronics Personnel (ATSEP) License

10.7 AIR NAVIGATION FACILITY CERTIFICATION

Pursuant to the provisions of RA 9497, and its Implementing Rules and Regulations (IRR) the Director General shall issue an Air Navigation Facility Certification/Rating to air navigation facilities operating within the Philippines to determine the compliance of its operation based on prescribed standards and required practices to assure safety in air navigation.

10.7.1 The AANSOO, shall implement the Air Navigation Facilities Certification in accordance with the requirements of this regulation.

10.7.2 Certification shall be applicable to all Air Navigation Facilities as defined in R.A. 9497 and this regulation.

10.8 OBLIGATIONS AND RESPONSIBILITIES OF THE SERVICE PROVIDER

10.8.1 The service provider must comply with the required standards, practices and procedures stipulated in this regulation as reference to applicable ICAO annexes and relevant Manual of Standards (MOS) for CNS Services, appropriate to the operation and maintenance of such service.

10.8.2 The Service Provider must ensure that the technical personnel involved in the operation and maintenance of air navigation facility are competent to perform the responsibility and holds necessary qualification as required.

10.8.3 In particular, the service provider must ensure that each CNS Technical personnel has been appropriately trained.

10.8.4 The CNS service provider must provide the necessary tools and equipment considered to be necessary in the delivery of service being provided.

10.8.5 After exhausting all possible effort and the required standards cannot be met, the service provider must provide a mechanism in the context of aeronautical study utilizing the SMS process so as to comply with the requirement for certification.

10.8.6 The service provider shall ensure the integrity by assuring that flight inspection certificate of the CNS equipment are current.

10.9 Technical Personnel

Technical personnel authorized to operate and maintain CNS services/facilities must be:

1. Duly authorized individual holding the necessary license and rating as required from this regulation.
2. Properly trained and with comprehensive records and proof of competence.

10.10 ADMINISTRATION

All CNS Services/Facilities shall have a designated person responsible for the management and administration of the facility/ies and personnel.

10.11 TRAINING PLANS AND PROGRAMS

10.11.1 The service provider must have a comprehensive training program designed to develop skills, knowledge and attitudes of technical personnel to attain competence and efficiency in the performance of the assigned task.

10.11.2 Technical personnel who carryout functions associated with the operation and maintenance of facilities must be given appropriate specialized training on the facility type, followed by on-the-job training (OJT) and periodic evaluation of their competence.

10.12 DISTRIBUTION OF GUIDANCE MATERIAL AND OPERATIONAL INFORMATION

The service provider must have a procedure for the formulation and distribution of guidance material and operational information especially safety critical information to technical personnel utilizing the service to enable them to perform their functions in accordance with the established requirements and in standardized manner.

10.13 TECHNICAL COMPETENCE CERTIFICATE PROGRAM

10.13.1 The service provider must adopt a system for assessing the competency of technical personnel and provide for a periodic evaluation as mentioned in paragraph 10.11.2.

10.13.2 The service provider must have an internal competency certification scheme for technical personnel that establish the basis for authorization granted to each personnel.

10.13.3 The competency certification must be in the form of controlled document that identifies the personnel and the types of aeronautical telecommunication and air navigation facilities for which the personnel has been granted authorization/rating, the operation and maintenance functions authorized in relation to each facility, the date on which each authorization was granted and the date on which the authorization expires or the date on which revalidation or reassessment is due.

10.14 Post-Accident Facility Performance Inspection

This regulation applies if an air navigation facility may have contributed to an aviation accident or incident. The service provider must have a mechanism to ensure that the facility that may have contributed to any aviation accident or incident are secured to subject such facility to performance inspection.

10.14.1 As soon as reasonably practicable time, and before any action is taken that could change the facility's performance, a performance inspection must be done.

10.14.2 The performance inspection must be:

- a. Done by a qualified technical personnel in accordance with any instructions given by the Director General; and
- b. Witnessed by any representative assigned by the Director General.

10.14.3 A report of the performance inspection must be prepared by the technical personnel attested by the witness.

10.14.4 If the performance inspection shows that the facility contributes to a hazard, the facility must not be used until it is cleared and operating within its technical specifications.

10.14.5 Corresponding notification to the users must be promulgated following the procedures as a responsibility of the service provider mentioned in this regulation.

10.15 INTERRUPTION TO SERVICE

This regulation applies if a CNS service is interrupted or if the Service Provider knows that the service is to be interrupted.

10.15.1 If the service is published in an AIP, the Service Provider must tell AIS about the interruption. It requires the service provider to advise AIS (for purpose of issue of a NOTAM) and other users (e.g. ATS) of planned or unplanned interruptions to any service.

10.15.2 The Service Provider must tell the users of the service about the interruption in accordance with the requirement of this regulation.

10.15.3 The Service provider shall provide report for any incident that has the potential to cause significant effect to safety as provided by the service.

10.16 TEST EQUIPMENT

10.16.1 Air Navigation Facility/ies must be tested and maintained using test equipment that is maintained and calibrated in accordance with the accepted standards required.

10.16.2 Service providers must have available the necessary test and measuring equipment for the operation, performance inspection and maintenance of all its facilities. The operating and maintenance instructions for each facility should specify the test equipment requirements for all levels of operation and maintenance undertaken by the service provider.

10.16.3 Standards for the control, calibration and maintenance of test equipment are as follows:

- Service providers are to use documented procedures to control, calibrate and maintain test equipment.
- Calibrated test equipment is use in the maintenance of a service or facility.
- Calibration is carried out at prescribed intervals for each type of test equipment and the calibration is traceable to national measurement standards.
- Records of calibration status of each item of test equipment are retained.
- Each item of test equipment carries a visual identification of its calibration status, the date that the equipment was last calibrated and the prescribed calibration periodicity.

The validity of previous results is assessed when any item of test equipment is found to be out of calibration.

10.17 ALLOCATION OF FREQUENCIES, IDENTIFICATION CODES/CALL SIGNS

10.17.1. No Radio electromagnetic equipment shall radiate without certification allocation of frequencies and identification codes/call signs from proper authorities.

10.17.2 Those services that radiate electromagnetic signals-in-space must operate on an assigned aeronautical frequency in the relevant aeronautical frequency band.

10.17.3 It is the responsibility of the CNS service provider to arrange for their frequency and identification codes/call signs of CNS service equipment before making any transmission.

10.18 CHANGES/AMENDMENTS TO OPERATIONAL PROCEDURES AND STANDARDS

10.18.1 The service provider must have an established procedure to assess and authorize any changes/amendments to operational procedures in operations manual.

10.18.2 The service provider must have a mechanism to effect changes/amendments to standards that is required in this regulation.

10.18.3 The mechanism must be in accordance with the approved document on procedures for the amendments/revision of enabling regulations and standards including filing of difference.

10.19 AGREEMENTS/CONTRACTS WITH OTHER ORGANIZATIONS

Any support services agreement must be in writing and must include the terms about:

1. The functional specification of the support service; and
2. Each of the following that relates to the support service and is relevant to the service provided by the service provider:
 - a. Reliability
 - b. Availability
 - c. Accuracy

d. Integrity

3. An arrangement in which CAAP is to be notified of any interruption of the service.
4. A way in which the other organization will notify the service provider of any scheduled service interruptions.

10.20 DOCUMENTATION

Standard Documents required to be maintained applicable to the service being provided of the ANF are the following:

1. Duly approved Facility Operations Manual
2. CAR-ANS Part 10 and relative MOS
3. ICAO Annex 10 Volumes I to V, (those volumes actually held will depend upon the services provided)
4. ICAO Annex 11 (if the services are in support of ATS)
5. ICAO Annex 14 (for Airfield Lighting and Power Plant facilities in support of aeronautical telecommunications and radio navigational aids services)
6. Doc. 8071, Volume I, Manual on Testing of Radio Navigational Aids (if the services are in support of radio navigation aids)
7. Doc. 9684, Manual on Secondary Surveillance Radar (SSR) and Doc. 9924, Aeronautical Surveillance Manual (if the service is in support of Radar Surveillance)
8. CAR-Aerodromes and relative MOS (for ANF with airports)
9. Manufacturer's equipment handbooks, in particular those volumes that contain the Operation and Maintenance Instructions, the logistics support and spare parts listings, as relevant to each facility, and for each associated item of test equipment used for maintenance

10.21 RECORDS

Records to keep are the following:

1. Records of as-built drawings, manufacturing, procurement, installation, testing, and commissioning, maintenance, routine operation, modification, and decommissioning;
2. Records of hazard analysis and risk management;
3. Records of facility performance and facility maintenance history including performance parameter values, test facilities utilized, identity of authorized technical personnel conducting the operation and maintenance;
4. Records of facility failures and faults;
5. Records of defect reports and analysis and associated corrective actions and/or mitigation;
6. Records of each technical personnel including details of the personnel's qualification, experience, specialized trainings and/or equipment ration as applicable;
7. Flight Inspection Data/Commissioning

10.22 FACILITY OPERATIONS MANUAL

10.22.1 Contents of Operations Manual

An operations manual must contain the information that applies to each CNS service commensurate to the operation and the kind of facility of that the service provider installed.

10.22.2 Organization Structure of Service Provider

An operations manual must include an approved organization structure of the service provider that shows:

- a. Different divisions/sections
- b. Functions
- c. Actual duties and responsibilities of personnel

10.22.3 Facility Organizational Chart

The Operations Manual must include a chart of the facility's organizational structure that shows:

- a. The names, relevant qualifications, relevant experience and positions of key personnel
- b. Number of technical personnel who will provide each service
- c. Hours of operation
- d. Manpower shifting schedule

10.22.4 Functional Specification and Performance Values of the Services

The Operations Manual must include the functional specification of each of the service provider's CNS services. This is a general description of the service, its operating principles and its functions.

The values for each of the following that apply to the service are:

- a. Availability
- b. Reliability
- c. Accuracy
- d. Integrity

The values mentioned must be derived or measured from either or both of the configuration of each service, and the known performance of each service.

For a radio navigation service, the integrity values must be given for each kind of navigational aid facility that forms part of the service.

Refer to Attachment F of CAR-ANS Part 6 for computation to determine the above-cited values.

10.22.5 Facility Technical Description

For each CNS service provided, an operations manual must describe the following:

1. *The type and location of each facility.* The type of facility should be described and the location is the geographic name of the place at which the facility is installed.
2. *The technical specification of each kind of facility.* The technical specification of a facility should include, in technical terms, all inputs and outputs to the facility, and the specification and standards to which the facility has been designed. The technical specification must cover both the hardware and software of the facility. This information is normally provided by the equipment manufacturer. (If that is the case, reference to the relevant content in the manufacturer's documentation is all that is necessary in the Operations Manual).
3. *The interconnection of each facility making up the service; or to any other service to be provided under the Operations Manual.* This should be in the form of a block diagram, each facility representing one of the blocks should be identified and the major signal or data inputs and outputs between facilities or to or from other services shown.

4. The monitoring system relevant to each facility. The monitoring system for each facility, or group of facilities, should also be included in the block diagram form, conveying the method of monitoring, parameters monitored, monitoring outputs and the location at which the outputs are presented.

10.22.6 Compliance to Standards

An Operations Manual must contain a listings of each standard that relates to the design, installation, testing, operation or maintenance that are applicable to each service, and to each facility, which make up the service, and explain how each standard is met.

10.22.7 Safe Operation and Maintenance Procedures

Under this regulation, the service provider is required to document in its Operations Manual the in-house technical and operational procedures under which the organization shall carry out its service provision functions.

An Operations Manual must describe the following:

1. The procedures used for the conduct of daily and scheduled preventive maintenance including procedures for repair;
2. The method to be used to specify any changes to a service or facility, and to design, test and implement those changes;
3. The system to be used to maintain a record of the operational performance of a service;
4. The procedures to be used to monitor the performance of each service and facility, and to compare the results with the appropriate technical specification;
5. The procedure to be used if a service fails or a facility fault occurs, including the way in which the failure or fault is to be reported and rectified;
6. The procedure to be used to report any deviations from standards found during operation and maintenance of the facility;
7. The procedure to be used to:
 - a. Detect and correct any latent defects in equipment;
 - b. Change software to adapt to any changes to the configuration of hardware; and
 - c. Change the design of equipment or facilities to adapt to any change to the functional or technical specification

10.22.8 Safety Standard Procedures on Emergency Situations

- a. The operations manual must contain the approved safety standard procedures on emergency situations in cases such as, natural calamities, terroristic attacks, fire, aircraft accidents, etc. which shall serve as safety preventive measures to protect the personnel and the CNS service facilities and equipment.
- b. The approved safety standard procedures on emergency situation must be in conformity with the aerodrome emergency plan (AEP) for CNS facilities providing services to aerodromes.

10.23 HUMAN FACTORS CONSIDERATIONS

- a. Human Factors principle must be observed in the operation and maintenance of air navigation facilities.

- b. In adherence to this regulation, the service provider must adhere to the guidance material on Human factors principles that can be found in Human Factors training manual (Doc 9863) and Circular 249 (Human Factors Digest No. 11 – Human Factors in CNS/ATM Systems).

10.24 SAFETY MANAGEMENT SYSTEM

10.24.1 A service provider must have, and put into effect, a safety management system.

10.24.2 In compliance to this regulation, the service provider must have an acceptable SMS Manual that includes the policies, procedures, and practices necessary to safely provide the CNS services.

10.24.3 The safety management system must be in accordance with the standards set out in the approved CAAP State Safety Programme.

10.24.4 The service provider must keep its safety management system under review and take such corrective action as is necessary to ensure that it operates properly.

10.25 SURVEILLANCE PROGRAM

10.25.1 Surveillance program shall be undertaken at a regular interval to ensure that Air Navigation (CNS) facility certificate holder continue to meet the established requirements and function at the level of safety and technical personnel competency required by CAAP.

10.25.2 These requirements shall be the subject of the surveillance audit to ascertain that service provider maintains an acceptable level of conformance at the level for which they had been granted certification, license and or authorization.

10.25.3 Surveillance audit shall be carried out in accordance with the established process and procedures in the approved CNS inspector's handbook.

10.25.4 Surveillance audit, in accordance with paragraph 10.25.1 shall be conducted once every twelve months thereafter following the issuance of the certification as appropriate.

10.26 REPEALING PROVISIONS

Any previous Administrative Orders, Circulars, Rules and Regulations which are inconsistent with the provisions hereof are repealed, modified and/or superseded accordingly.

CAR-ANS PART 14 *deleted in toto.*

EFFECTIVITY CLAUSE:

This amendment shall be added to the Philippine CAR-ANS Part 10, and shall take effect immediately after publication in a requisite single newspaper of general circulation or the Official Gazette and a copy filed with the U.P. Law Center - Office of the National Administrative Register. This Memorandum Circular shall supersede any orders and/or memoranda in conflict herewith.

So ordered. Signed this 11 day of JULY 2016, CAAP, Pasay City.


CAPT ANTONIO G BUENDIA, JR.
Director General

