



MEMORANDUM CIRCULAR NO. 045-2025

TO : ALL CONCERNED

FROM : DIRECTOR GENERAL

SUBJECT : AMENDMENT TO CAR-ANS PART 7 AERONAUTICAL TELECOMMUNICATIONS GOVERNING DIGITAL COMMUNICATION SYSTEMS AND CAR-ANS PART 8 AERONAUTICAL TELECOMMUNICATIONS GOVERNING VOICE COMMUNICATION SYSTEMS ADOPTING AMENDMENT 93 TO ICAO ANNEX 10 VOL. III

REFERENCES

- 1) CAR-ANS Part 7 (Aeronautical Telecommunications Governing Digital Communication Systems)
- 2) CAR-ANS Part 8 (Aeronautical Telecommunications Governing Voice Communication Systems)
- 3) Amendment 93 to ICAO Annex 10 Vol. III
- 4) CAAP Regulations and Standards Management Manual
- 5) CAAP Board Resolution No. 2025-33 dated 28 May 2025

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 Regulations Amendment Procedure with Board Resolution No. 2025-33 dated 28 May 2025, I hereby approve the adoption of ICAO Annex 10 Vol. III Amendment 93 to Philippine Civil Aviation Regulations – Air Navigation Services (CAR-ANS) Parts 7 and 8.

ORIGINAL REGULATIONS SUBJECT FOR REVIEW AND REVISION:

CIVIL AVIATION REGULATIONS AIR NAVIGATION SERVICES PART 7 AERONAUTICAL TELECOMMUNICATIONS GOVERNING DIGITAL COMMUNICATION SYSTEMS

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7.1 DEFINITIONS

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Intermediate system (IS). A system which performs relaying and routing functions and comprises the lowest three layers of the OSI reference model.

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Multilink. The ability to use more than one available air-ground subnetworks in order to provide the required performance.

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Router. A router is a node that forwards Internet protocol (IP) packets not explicitly addressed to itself. A router manages the relaying and routing of data while in transit.



from an originating end system to a destination end system.

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7.3 AERONAUTICAL TELECOMMUNICATION NETWORK

Note 1 — Detailed technical specifications for ATN/OSI applications are contained in the Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI standards and protocols (Doc 9880) and in the Manual of Technical Provisions for the Aeronautical Telecommunication Network (ATN) (Doc 9705).

Note 2 — Detailed technical specifications for ATN/IPS applications are contained in the Manual for on the Aeronautical Telecommunication Network (ATN) using Internet Protocol Suite (IPS) Standards and Protocols (Document 9896) (available electronically on the ICAO-Net).

Note 3. — ATN requirements specified in this Annex, apply for both ATN/OSI and ATN/IPS.

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7.3.2 INTRODUCTION

7.3.2.1 The ATN is specifically and exclusively intended to provide digital voice and data communications services to air traffic service provider organizations and aircraft operating agencies operators in support of:

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7.3.4 GENERAL REQUIREMENTS

7.3.4.1 The ATN shall either use International Organization for Standardization (ISO) communication standards for open systems interconnection (OSI) or use the Internet Society (ISOC) communications standards for the Internet Protocol Suite (IPS).

Note 1. — Interoperability between interconnecting OSI/IPS networks is expected to be arranged prior to implementation.

Note 2. - Guidance material on interoperability between ATN/OSI and ATN/IPS is contained in Manual on the Aeronautical Telecommunication Network (ATN) using Internet Protocol Suite (IPS) Standards and Protocols (Document 9896).

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~~7.3.4.3 An authorized path(s) shall be defined on the basis of a predefined routing policy.~~

~~7.3.4.4 The ATN shall transmit, relay, and deliver messages in accordance with the priority classifications and without discrimination or undue delay. QoS required for the ATN operation.~~

~~7.3.4.4 The ATN shall transmit, relay and deliver messages in accordance with the applicable security policy.~~

7.3.4.5 The ATN shall transmit, relay and deliver messages in accordance with the applicable routing policy.

Note. — The QoS as well as the applicable security and routing policies are predetermined and agreed by the entity responsible (such as air traffic services provider and/or aircraft operator) for the specific traffic types.

7.3.4.5 The ATN shall provide means to define data communications that can be carried only over authorized paths for the traffic type and category specified by the user.

7.3.4.6 The ATN shall provide communication in accordance with the prescribed required communication performance (RCP) specification and the required surveillance performance (RSP) specification.

Note - The Manual on Required Communication Performance (RCP) For more guidance on RCP and RSP specifications, refer to the Performance-based Communication and Surveillance (PBCS) Manual (Document 9869) contains the necessary information on RCP.

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7.3.4.8 The ATN shall enable exchange of application information when one or more authorized paths exist.

7.3.4.9 The ATN shall notify the appropriate application(s) processes when no authorized path exists. If a message cannot be successfully delivered.

Note. — It is the responsibility of the ATN upper layer communications services, such as a dialogue service, to determine the successful delivery of a message to the communicating peer and to notify a delivery failure event to the message originator and associated application in the absence of a delivery confirmation from the peer.

7.3.4.10 The ATN shall make provisions for the efficient use of limited bandwidth subnetworks.

7.3.4.10 ATN/IPS shall be capable of supporting multilink.

Note 1 — For guidance, refer to the Manual on the Aeronautical Telecommunication Network (ATN) using Internet Protocol Suite (IPS) Standards and Protocol (Doc 9896).

Note 2 — ATN/OSI may also be used to support multilink. For relevant guidance, refer to Technical Specifications for ATN using ISO/OSI Standards and Protocols (Doc 9880).

7.3.4.11 The ATN shall enable an aircraft intermediate system (router) to connect to a ground intermediate system (router) via different subnetworks.

7.3.4.12 The ATN shall enable an aircraft intermediate system (router) to connect to different ground intermediate systems (routers).

7.3.4.13 The ATN shall enable the exchange of address information between applications.

7.3.4.14¹¹ Where the absolute time of day is used within the ATN, it shall be accurate to within 1 second of coordinated universal time (UTC).

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7.3.5 ATN APPLICATIONS REQUIREMENTS

7.3.5.1 System applications

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7.3.5.1.1 The ATN shall support the data link initiation capability (DLIC) applications when air-ground data links are implemented.

Note - The Manual of Air-Traffic Services Data-Link Applications (Doc 9694, Part I) Global Operational Data Link (GOLD) Manual (Document 10037) defines provides guidance on the use of the data link initiation capability (DLIC) application.

7.3.5.1.2 The ATN/OSI-end-system shall support the following directory services (DIR) application functions when ATSMHS and/or security protocols are is implemented:

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Note. — DIR can also be used when security protocols are implemented.

7.3.5.2 Air-ground applications

7.3.5.2.1 The ATN shall be capable of supporting one or more of the following applications:

- a) ADS-C; and
- b) CPDLC; and
- c) FIS (including ATIS and METAR).

Note - See the Manual of Air-Traffic Services Data-Link Applications (Doc 9694). The Global Operational Data Link (GOLD) Manual (Doc 10037) provides guidance on the use of ADS-C and CPDLC.

7.3.5.3 Ground-ground applications

7.3.5.3.1 The ATN shall be capable of supporting the following applications:

- a) ATS interfacility data communication (AIDC); and
- b) ATS message handling services applications (ATSMHS)

c) aeronautical voice communications; and

d) system-wide information management (SWIM)-enabled applications.

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7.3.6 ATN COMMUNICATIONS SERVICE REQUIREMENTS

7.3.6.1 ATN/IPS upper layer communications service

7.3.6.1.1 An ATN host* shall be capable of supporting the ATN/IPS upper layers including an application layer.

7.3.6.2 ATN/OSI upper layer communications service

7.3.6.2.1 An ATN/OSI end-system (ES) * shall be capable of supporting the OSI upper layer communications service (ULCS) including session, presentation, and application layers.

7.3.6.3 ATN/IPS communications service

7.3.6.3.1 An ATN host shall be capable of supporting the ATN/IPS including the:

- a) transport layer in accordance with RFC 793 (TCP) and RFC 768 (UDP); and
- b) network layer in accordance with RFC 2460 (IPv6).

7.3.6.3.2 An IPS router shall support the ATN network layer in accordance with RFC 2460 (IPv6) and RFC 4271 (BGP), and RFC 2858 (BGP multiprotocol extensions).

7.3.6.4 ATN/OSI communications service

7.3.6.4.1 An ATN/OSI end-system shall be capable of supporting the ATN including the:

- a) transport layer in accordance with ISO/IEC 8073 (TP4) and optionally ISO/IEC 8602 (CLTP); and
- b) network layer in accordance with ISO/IEC 8473 (CLNP).

7.3.6.4.2 An ATN intermediate system (IS) shall support the ATN network layer in accordance with ISO/IEC 8473 (CLNP) and ISO/IEC 10747 (IDRP).

* An ATN host is an ATN end-system in OSI terminology; an ATN end-system is an ATN host in IPS terminology.

7.3.7 ATN NAMING AND ADDRESSING REQUIREMENTS

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7.3.7.1 7.3.6.1 The ATN shall provide provisions for unambiguous application identification.

7.3.7.2 7.3.6.2 The ATN shall provide provisions for unambiguous addressing; have the capability to uniquely identify source and destination entities.

7.3.7.3 7.3.6.3 The ATN shall provide means to unambiguously uniquely address all ATN end-systems (hosts) and intermediate systems (routers).

Note. — An ATN end-system is an ATN host in IPS terminology; An ATN host is an ATN end-system in OSI terminology.

7.3.7.4 7.3.6.4 The ATN addressing and naming plans shall allow States and organizations to assign addresses and names within their own administrative domains.

7.3.8 7.3.7 ATN SECURITY REQUIREMENTS

7.3.8.1 7.3.7.1 The ATN shall make provisions whereby only the controlling ATS unit shall provide ATC instructions to aircraft operating in its airspace

Note — This is achieved through the current and next data authority aspects of the controller-pilot data link communications (CPDLC) application.

7.3.8.2 7.3.7.2 The ATN shall enable the recipient of a message to identify the originator of that message.

7.3.8.3 7.3.7.3 ATN end-systems supporting ATN security services shall be capable of authenticating the identity of peer end-systems, authenticating the source of messages and ensuring the data integrity of the messages.

Note - The use of security is the default; however, its implementation is based on local policy. capability to authenticate the identity of peer end-systems is intended to provide protection against spoofing, "phantom controllers" or "phantom aircraft".

7.3.8.4 7.3.7.4 The ATN services shall be protected against service attacks to a level consistent with the application service requirements and to a level commensurate with security risks and applicable security policy.

Note. — Detailed information on security risks and applicable policy for ATN and their mitigation are provided in the Manual of Security Risk Assessment (SRA) for Aeronautical Communications (Doc 10145).

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CIVIL AVIATION REGULATIONS AIR NAVIGATION SERVICES PART 8 AERONAUTICAL TELECOMMUNICATIONS GOVERNING VOICE COMMUNICATION SYSTEMS

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8.4 AERONAUTICAL SPEECH CIRCUITS

8.4.1 TECHNICAL PROVISIONS RELATING TO INTERNATIONAL AERONAUTICAL SPEECH CIRCUIT SWITCHING AND SIGNALLING VOICE COMMUNICATIONS FOR GROUND- GROUND APPLICATIONS

Note 1.— Detailed specifications and Guidance material on the implementation of aeronautical speech circuit switching and signalling Voice over Internet Protocol (VoIP) communications for ground-ground applications is are contained in the Manual on Air Traffic Services (ATS) Ground-Ground Voice Switching and Signalling (Doc 9804). Manual on the Aeronautical Telecommunication Network (ATN) using Internet Protocol Suite (IPS) Standards and Protocols (Doc 9896). The material includes explanation of terms, performance parameters, guidance on basic call types and additional functions, references to appropriate ISO/IEC international standards and ITU-T recommendations, guidance on the use of signalling systems, details of the recommended numbering scheme and guidance on migration to future schemes. Aeronautical VoIP communications for ground-ground applications include inter-ATS unit telephony and radio air-ground applications on the ground component between the ATS unit and the air-ground control radio station, which is responsible for handling communications pertaining to the operation and control of aircraft in a given area.

Note 2.— Guidance material on the implementation of the speech circuits supported by air traffic services (ATS) ground-ground voice switching and signalling is contained in the Manual on Air Traffic Services (ATS) Ground-Ground Voice Switching and Signalling (Doc 9804).

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8.4.1.3 The operation of dedicated aeronautical VoIP communications for ground-ground applications to interconnect ATS units shall be performed based on an agreement between the administrations concerned.

8.4.1.4 Implementation of aeronautical VoIP communications for ground-ground applications shall be made on the basis of a regional agreement.

8.4.1.35 The ATC communication requirements defined in CAR-ANS Part 11, 11.6.2 shall be met by implementation of one or more of the following basic three call types:

- a) instantaneous access;
- b) direct access; and
- c) indirect access.

Note.— Guidance on call types can be found in the Manual on the Aeronautical Telecommunication Network (ATN) using Internet Protocol Suite (IPS) Standards and Protocols (Doc 9896).

8.4.1.4~~6~~ In addition to the ability to make basic telephone calls, the following functions shall be provided in order to meet the requirements set out in CAR-ANS Part 11:

- a) means of indicating the calling/called party identity;
- b) means of initiating urgent/priority calls; and
- c) conference capabilities.

~~8.4.1.5 The characteristics of the circuits used in aeronautical speech circuit switching and signalling shall conform to appropriate ISO/IEC international standards and ITU-T recommendations.~~

~~8.4.1.6 Digital signalling systems shall be used wherever their use can be justified in terms of any of the following:~~

- a) improved quality of service;
- b) improved user facilities; or
- c) reduced costs where quality of service is maintained.

~~8.4.1.7 The characteristics of supervisory tones to be used (such as ringing, busy, number unobtainable) shall conform to appropriate ITU-T recommendations.~~

8.4.1.8~~7~~ To take advantage of the benefits of interconnecting regional and national aeronautical speech **legacy voice** networks, the **an** international aeronautical telephone network numbering scheme shall be used.

NEW / AMENDED REGULATIONS:

CIVIL AVIATION REGULATIONS AIR NAVIGATION SERVICES PART 7 AERONAUTICAL TELECOMMUNICATIONS GOVERNING DIGITAL COMMUNICATION SYSTEMS

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7.1 DEFINITIONS

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from an originating end system to a destination end system.

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Note 2 — Detailed technical specifications for ATN/IPS applications are contained in the Manual on the Aeronautical Telecommunication Network (ATN) using Internet Protocol Suite (IPS) Standards and Protocols (Doc 9896).

Note 3. — ATN requirements specified in this Annex, apply for both ATN/OSI and ATN/IPS.

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Note. — It is the responsibility of the ATN upper layer communications services, such as a dialogue service, to determine the successful delivery of a message to the communicating peer and to notify a delivery failure event to the message originator and associated application in the absence of a delivery confirmation from the peer.

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7.3.4.10 ATN/IPS shall be capable of supporting multilink.

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7.3.4.11 Where the absolute time of day is used within the ATN, it shall be accurate to within 1 second of coordinated universal time (UTC).

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Note - The Global Operational Data Link (GOLD) Manual (Document 10037) provides guidance on the use of the data link initiation capability (DLIC) application.

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Note - The Global Operational Data Link (GOLD) Manual (Doc 10037) provides guidance on the use of ADS-C and CPDLC.

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Note - The capability to authenticate the identity of peer end-systems is intended to provide protection against spoofing, "phantom controllers" or "phantom aircraft".

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CIVIL AVIATION REGULATIONS AIR NAVIGATION SERVICES PART 8 AERONAUTICAL TELECOMMUNICATIONS GOVERNING VOICE COMMUNICATION SYSTEMS

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8.4 AERONAUTICAL SPEECH CIRCUITS

8.4.1 TECHNICAL PROVISIONS RELATING TO AERONAUTICAL VOICE COMMUNICATIONS FOR GROUND-GROUND APPLICATIONS

Note 1.— Detailed specifications and guidance material on the implementation of aeronautical Voice over Internet Protocol (VoIP) communications for ground-ground applications are contained in the. Manual on the Aeronautical Telecommunication Network (ATN) using Internet Protocol Suite (IPS) Standards and Protocols (Doc 9896). Aeronautical VoIP communications for ground-ground applications include inter-ATS unit telephony and radio air-ground applications on the ground component between the ATS unit and the air-ground control radio station, which is responsible for handling communications pertaining to the operation and control of aircraft in a given area.

Note 2.— Guidance material on the implementation of the speech circuits supported by air traffic services (ATS) ground-ground voice switching and signalling is contained in the Manual on Air Traffic Services (ATS) Ground-Ground Voice Switching and Signalling (Doc 9804).

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8.4.1.3 The operation of dedicated aeronautical VoIP communications for ground-ground applications to interconnect ATS units shall be performed based on an agreement between the administrations concerned.

8.4.1.4 Implementation of aeronautical VoIP communications for ground-ground applications shall be made on the basis of a regional agreement.

8.4.1.5 The ATC communication requirements defined in CAR-ANS Part 11, 11.6.2 shall be met by implementation of one or more of the following basic three call types:

- a) instantaneous access;
- b) direct access; and
- c) indirect access.

Note.— *Guidance on call types can be found in the Manual on the Aeronautical Telecommunication Network (ATN) using Internet Protocol Suite (IPS) Standards and Protocols (Doc 9896).*

8.4.1.6 In addition to the ability to make basic telephone calls, the following functions shall be provided in order to meet the requirements set out in CAR-ANS Part 11:

- a) means of indicating the calling/called party identity;
- b) means of initiating urgent/priority calls; and
- c) conference capabilities.

8.4.1.7 To take advantage of the benefits of interconnecting regional and national aeronautical legacy voice networks, an international aeronautical telephone network numbering scheme shall be used.

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"End of Amendment"

Separability Clause. - If for any reason, any provision of this Memorandum Circular is declared invalid or unconstitutional, the other part or parts thereof which are not affected thereby shall continue to be in full force and effect.

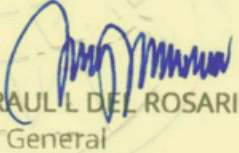
Repealing Clause. - All orders, rules, regulations, and issuances, or parts thereof which are inconsistent with this Memorandum Circular are hereby repealed, superseded, or modified accordingly.

Determination of changes. - To highlight the amendments and/or revisions in the Memorandum Circular, the deleted text shall be shown with strikethrough and the newly inserted text shall be highlighted with grey shading, as illustrated below:

1. Text deleted: Text to be deleted is shown with a line through it.
2. New text inserted: New text is highlighted with grey shading.
3. New text replacing existing text: Text to be deleted is shown with a line through it followed by the replacement text which is highlighted with grey shading.

Effectivity Clause. - This Memorandum Circular shall take effect fifteen (15) days following completion of its publication in a newspaper of general circulation or the Official Gazette and a copy filed with the U.P. Law Center - Office of the National Administrative Register. These amendments shall be incorporated into the Philippine Civil Aviation Regulations - Air Navigation Services (CAR-ANS) Parts 7 and 8.

Signed this 15 day of OCT 2025, at the Civil Aviation Authority of the Philippines, MIA Road, Pasay City.


LTGEN RAUL L DEL ROSARIO AFP (RET)
Director General