



**MEMORANDUM CIRCULAR NO.:** 15-15

**TO :** ALL CONCERNED

**FROM :** THE DIRECTOR GENERAL

**SUBJECT :** AMENDMENT TO PHILIPPINE CIVIL AVIATION REGULATIONS – AIR NAVIGATION SERVICES (CAR-ANS) PART 7 INCORPORATING AMENDMENT 88A TO ICAO ANNEX 10 VOLUME III

**REFERENCE:**

1. Philippine Civil Aviation Regulations- Air Navigation Services Part 7
2. ICAO Annex 10 Volume III
3. ICAO State Letter AN 7/1.1.48-13/12 Adoption of Amendment 88 to Annex 10
4. Regulations Amendment Procedures
5. 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 ICAO Annex 10 Volume III Amendment No. 88A to the Philippine Civil Aviation Regulations – Air Navigation Services.

**ORIGINAL REGULATION:**

**CAR-ANS PART 7**

**GOVERNING DIGITAL DATA COMMUNICATION SYSTEMS**

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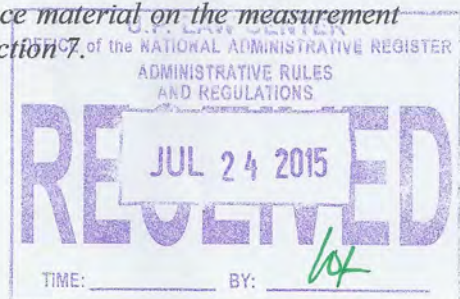
**7.6 AFTN NETWORK**

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**7.6.3.5.3.1** The receiving function of all new installations of VDL shall satisfy the specified error rate with a desired signal field strength of not more than 40 microvolts per metre (minus 114 dBW/m<sup>2</sup>) and with an undesired VHF DSB-AM, D8PSK or GFSK signal at least 60 dB higher than the desired signal on any assignable channel 100 kHz or more away from the assigned channel of the desired signal.

*Note — This level of interference immunity performance provides a receiver performance consistent with the influence of the VDL RF spectrum mask as specified in 7.6.3.4 with an effective isolation transmitter/receiver isolation of 69 dB. Better transmitter and receiver performance could result in less isolation required. Guidance material on the measurement technique is included in CAR-ANS Part 13, Attachment A, section 7.*

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### 7.6.9.2 VDL Mode 4 radio channels

#### 7.6.9.2.1 VDL MODE 4 STATION FREQUENCY RANGE

**7.6.9.2.1.1 Transmitter/receiver tuning range.** A VDL Mode 4 transmitter/receiver shall be capable of tuning to any of the 25 kHz channels from 117.975 MHz through 137 MHz. The transmitter shall have a means for the tuning range to be restricted to a narrower range.

*Note - Operational conditions or certain applications may require the equipment to be operated in a narrower frequency range.*

**7.6.9.2.1.2** VDL Mode 4 transmitter/receiver shall be capable of tuning to any of the 25 kHz channels from 108 to 117.975 MHz.

*Note. — The band 108–117.975 MHz may be utilized in accordance with the relevant provisions of the ITU Radio Regulations.*

**7.6.9.2.1.3** Simultaneous reception. A VDL Mode 4 station shall be capable of receiving two channels simultaneously.

**7.6.9.2.1.4** A VDL Mode 4 station shall be capable of receiving additional channels simultaneously as required by operational services.

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#### 7.6.9.3 System capabilities

**7.6.9.3.1 ATN compatibility.** The VDL Mode 4 system shall support ATN/IPS-compliant subnetwork services for surveillance applications.

*Note. — VDL Mode 4 provides a seamless transfer of data between ATN/IPS ground networks and ATN/IPS aircraft networks. Interoperability with ATN/OSI networks, where required, is expected to be arranged prior to implementation. VDL Modes 2 and 3 provide ATN/OSI-compliant subnetworks.*

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### TABLES FOR CAR-ANS 7.6

**Table 7.6-1 Modes 2 and 3 data encoding**

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**Table 7.6-2 Modes 2 and 3 modulation stability**

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**Table 7.6-3 Scrambler functions**

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**Table 7.6-4 Physical services system parameters**

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**Table 7.6-5 VDL Mode 4 operating on frequencies between 108.0–117.975 MHz**

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**Table 7.6-6 VDL Mode 4 operating on frequencies between 112.0–117.975 MHz**

Frequency (Mhz)	Maximum level of unwanted signal at receiver input (dBm)
88-104	+ 15
106	+10
107	+5
107.9	0

### FIGURES FOR CAR-ANS 7.6

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## **AMENDED REGULATION:**

### **CAR-ANS PART 7**

#### **GOVERNING DIGITAL DATA COMMUNICATION SYSTEMS**

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**7.6.3.5.3.1** The receiving function of all new installations of VDL shall satisfy the specified error rate with a desired signal field strength of not more than 40 microvolts per metre (minus 114 dBW/m<sup>2</sup>) and with an undesired VHF DSB-AM, D8PSK or GFSK signal at least 60 dB higher than the desired signal on any assignable channel 100 kHz or more away from the assigned channel of the desired signal.

*Note — This level of interference immunity performance provides a receiver performance consistent with the influence of the VDL RF spectrum mask as specified in 7.6.3.4 with an effective isolation transmitter/receiver isolation of 69 dB. Better transmitter and receiver performance could result in less isolation required. Guidance material on the measurement technique is included in the ICAO Handbook on Radio Frequency Spectrum Requirements for Civil Aviation including statement of approved ICAO policies (Doc 9718).*

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#### **7.6.9.2 VDL Mode 4 radio channels**

##### **7.6.9.2.1 VDL MODE 4 STATION FREQUENCY RANGE**

**7.6.9.2.1.1 Transmitter/receiver tuning range.** A VDL Mode 4 transmitter/receiver shall be capable of tuning to any of the 25 kHz channels from 112 MHz to 137 MHz.

*Note - Operational conditions or certain applications may require the equipment to be operated in a narrower frequency range.*

**7.6.9.2.1.2** Simultaneous reception. A VDL Mode 4 station shall be capable of receiving two channels simultaneously.

**7.6.9.2.1.3** A VDL Mode 4 station shall be capable of receiving additional channels simultaneously as required by operational services.

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#### **7.6.9.3 System capabilities**

**7.6.9.3.1 ATN compatibility.** The VDL Mode 4 system shall support ATN/IPS-compliant subnetwork services.

*Note. — VDL Mode 4 provides a seamless transfer of data between ATN/IPS ground networks and ATN/IPS aircraft networks. Interoperability with ATN/OSI networks, where required, is expected to be arranged prior to implementation. VDL Modes 2 and 3 provide ATN/OSI-compliant subnetworks.*

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88-104	+ 15
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107	+5
107.9	0

**FIGURES FOR CAR-ANS 7.6**

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**EFFECTIVITY CLAUSE:**

This amendment shall be added to the Philippine CAR-ANS Part 7, series of 2015 and shall take effect immediately and shall supersede any other memoranda, regulations, and directives in conflict with this provision after publication thereof in the Official Gazette or in a newspaper of general circulation and a copy filed with the University of the Philippines Law Center - Office of the National Administrative Register (UP-ONAR).

So ordered. Signed this 14 day of JUL 2015, CAAP, Pasay City.

**LT GEN WILLIAM K HOTCHKISS III AFP (Ret)**

