Republic of the Philippines
CIVIL AVIATION AUTHORITY OF THE PHILIPPINES

MEMORANDUM CIRCULAR NO. 027-2022

TO : **ALL CONCERNED**

FROM : **THE ACTING DIRECTOR GENERAL**

SUBJECT : **AMENDMENT TO PHILIPPINE CIVIL AVIATION REGULATIONS - AIR NAVIGATION SERVICES (CAR-ANS) PART 13 INCORPORATING AMENDMENT 90 TO ICAO ANNEX 10 VOLUME V**

REFERENCES

1) Philippine Civil Aviation Regulations- Air Navigation Services Part 13, Aeronautical Telecommunications governing Aeronautical Radio Frequency Spectrum Utilization
2) ICAO Annex 10 Volume V; Amendment 90
3) CAAP Regulations Amendment Procedures
4) 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 V Amendment No. 90 to the Philippine Civil Aviation Regulations - Air Navigation Services (CAR-ANS) Part 13.

ORIGINAL REGULATION SUBJECT FOR REVIEW AND REVISION:

CAR-ANS Part 13 Aeronautical Telecommunications Governing Aeronautical Radio Frequency Spectrum Utilization

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FOREWORD

The Civil Aviation Regulations - Air Navigation Services (CAR-ANS) Part 13 "*Aeronautical Telecommunications Governing Aeronautical Radio Frequency Spectrum Utilization*" was formulated in accordance with Republic Act No. 9497 otherwise known as the Civil Aviation Authority Act of 2008 and issued by the Civil Aviation Authority of the Philippines (CAAP), ~~of the Department of Transportation and Communications, Republic of the Philippines~~ providing ~~guidelines governing the administrative procedure~~ rules and regulations applicable to the operating facilities of the air ~~Region (FIR)~~ airspace jurisdiction of the Philippines. ~~It is envisioned~~ and to assist Air Navigation Services (ANS) personnel in the efficient and effective management of their respective facilities.

This CAR-ANS Part 13 was developed based on the Standards and Recommended Practices prescribed by the International Civil Aviation Organization (ICAO) as contained in Annex 10 Volume V – Aeronautical Radio Frequency Spectrum Utilization which was first adopted by the council on 30 May 1949 pursuant to the provisions of Article 37 of the Convention on International Civil Aviation (Chicago 1944), and became effective on 1 March

1950.~~comprises the basic principles in aeronautical telecommunications and aimed particularly as a guidance Air Navigation Services (ANS) personnel in their respective facilities as well as aircraft operators management including crews.~~

The ~~procedures~~ rules and regulations embodied herein are used by authority of the Director General of the CAAP and will be complied with by all concerned.

~~As used in this Civil Aviation Regulations-Air Navigation Services Part13, "Appropriated Authority" means the Director General of the Civil Aviation Authority of the Philippines.~~

The responsibility on matters within this CAR-ANS rests with the CAAP, and any inconsistencies, errors, omissions observed and suggestions for the improvement of the material should be addressed to the Chief, AANSOO of CAAP.

. . .

13.1 DEFINITIONS

. . .

Alternative means of communication. A means of communication provided with equal status, and in addition to the primary means.

C2 Link. The data link between the remotely piloted aircraft and the remote pilot station for the purposes of managing the flight.

. . .

Primary means of communication. The means of communication to be adopted normally by aircraft and ground stations as a first choice where alternative means of communication exist.

Remote pilot station (RPS). The component of the remotely piloted aircraft system containing the equipment used to pilot the remotely piloted aircraft.

Remotely piloted aircraft (RPA). An unmanned aircraft which is piloted from a remote pilot station.

Remotely piloted aircraft system (RPAS). A remotely piloted aircraft, its associated remote pilot station(s), the required C2 Link(s) and any other component as specified in the type design.

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13.2 DISTRESS FREQUENCIES

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13.2.2 Search and rescue frequencies

. . .

13.2.2.2 Where specific frequencies are required for communication between rescue coordination ~~centres~~ centers and aircraft engaged in search and rescue operations, they shall be selected from the appropriate aeronautical mobile frequency bands in light of the nature of the provisions made for the establishment of search and rescue aircraft.

Note.— Where civil commercial aircraft take part in search and rescue operations, they will normally communicate on the appropriate en-route channels with the flight information ~~centre~~ center associated with the rescue coordination ~~centre~~ center concerned.

13.3 UTILIZATION OF FREQUENCIES BELOW 30 MHz

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13.3.1 Method of Operations

…

13.3.1.3.1 Worldwide frequencies for aeronautical operational control communications are required to enable aircraft operating agencies to meet the obligations prescribed in the Philippine Civil Aviation Regulations (PCAR) Part 8. Assignment of these frequencies shall be in accordance with the following provisions of Appendix 27:

…

Note 2.- Guidance materials on the assignment of worldwide frequencies is contained in Attachment 13B.

. . .

13.3.2 NDB frequency management

13.3.2.1 NDB frequency management shall take into account the following:

. . .

Note 1.- Guidance material to assist in determining the application of the foregoing is given in Attachment 13A.

. . .

13.3.2.2 To alleviate frequency congestion problems at locations where two separate ILS facilities serve opposite ends of a single runway, the assignment of a common frequency to both of the outer locators shall be permitted, and the assignment of a common frequency to both of the inner locators shall be permitted, provided that:

. . .

Note.- ~~The Standard in ICAO Annex 10 Volume l, 3.4.4.4,~~ CAR-ANS Part 6, 6.3.4.4, specifies the equipment arrangements to be made.

13.4 UTILIZATION OF FREQUENCIES ABOVE 30MHz

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13.4.1 Utilization in the band 117.975-137 MHz

13.4.1.1 General frequencies band 117.95 – 137 MHz

Note 1.- The plan includes a general Allotment Table that subdivides the complete frequency band 117.975- 137.000 MHz, the chief subdivisions being the frequency bands allocated to both national and international services, and the frequency bands allocated to national services. Observance of this general subdivision should keep to a minimum the problem of coordinating national and international application.

Note 2.— As of 26 November 2026, subject to the conditions stated in 13.5.2.1, the frequency 136.925 MHz may be used for the provision of remotely piloted aircraft systems (RPAS) C2 Link communication services described in CAR-ANS Part 13, 13.5.

. . .

13.4.1.3.1.6 The emergency channel (121,500 MHz) shall be available only with the characteristics as contained in CAR-ANS Part 8.

Table 13.4-1 (bis). Chanelling/frequency pairing

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* Time slot indication is for VDL Mode 3 channels/ (Ref. ~~Annex 10 Volume III, Part I Chapter 6~~ CAR-ANS Part 7, 7.6 for characteristics of VDL Mode 3 operations)

…

13.4.1.3.2.2 In remote and oceanic areas out of range of VHF ground stations, the air-to-air VHF communications channel on the frequency 123.450 MHz shall be available only with the characteristics as contained in ~~Annex 10, Volume III, Part II, Chapter 2~~ CAR-ANS Part 8, 8.2 (25 kHz).

. . .

13.4.1.3.4.1 Where a requirement is established for the use of a frequency auxiliary to 121.500 MHz as described in 13.4.1.3.1.1 c), the frequency 123.100 MHz shall be used.

. . .

13.4.1.4.2 For areas where frequency assignment congestion is severe or is anticipated to become severe, the geographical separation between facilities operating on the same frequency shall, except where there is an operational requirement for the use of common frequencies for groups of facilities, be such that the protected service volume of each facility is separated from the protected service volume of the other facility by a distance not less than that required to provide a desired to undesired signal ratio of 14 dB or by a separation distance not less than the sum of the distances to the associated radio horizon of each service volume, whichever is smaller. This provision shall be implemented on the basis of a regional air navigation agreement.

. . .

Note 5. - The criteria contained in 13.4.1.4.1 and 13.4.4.1.2 are applicable in establishing minimum geographical separation between VHF facilities, with the object of avoiding co-channel air-to-air interference. Guidance material relating to the establishment of separation distances between ground stations and between aircraft and ground stations for co-channel operations is contained in the ICAO Handbook on Radio Frequency Spectrum requirements for Civil Aviation including Statement of Approved ICAO Policies (Doc 9718).

. . .

13.4.1.4.7 The geographical separation between VHF VOLMET stations shall be determined regionally and, generally, will be such that operations free from harmful interference are secured at the highest altitude flown by aircraft in the area concerned.

Note. – Guidance material on the interpretation of 13.4.1.4.7 is contained in the ICAO Handbook on Radio Frequency Spectrum Requirements for Civil Aviation including Statement of approved ICAO Policies (Doc 9718).

. . .

13.4.2 Utilization in the band 108 – 117.975 MHz

13.4.2.1 The block allotment of the frequency band 108 – 117.975 MHz shall be as follows:

— Band 108 – 111.975 MHz:

a) ILS in accordance with ~~13.3.2.2 and ICAO Annex 10, Volume I, 3.1.3~~ CAR-ANS Part 6, 6.3.1.3;

b) VOR provided that:

1) no harmful adjacent channel interference is caused to ILS;

2) only frequencies ending in either even tenths or even tenths plus a twentieth of a megahertz are used.

c) GNSS ground-based augmentation system (GBAS) in accordance with CAR-ANS Part 6, 6.3.7.3.5, provided that no harmful interference is caused to ILS and VOR.

Note.— ILS/GBAS geographical separation criteria and geographical separation criteria for GBAS and VHF communication services operating in the 118 – 137 MHz band are under development. Until these criteria are defined and included in the SARPs, it is intended that frequencies in the band 112.050 – 117.900 MHz will be used for GBAS assignments.

— Band 111.975 – 117.975 MHz:

a) VOR; and

b) GNSS ground-based augmentation system (~~GNSS~~ GBAS) in accordance with ~~ICAO Annex 10 Vol 1, 3.7.3.5~~ CAR-ANS Part 6, 6.3.7.3.5 provided that no harmful interference is caused to VOR.

Note .1- Guidance material relating to the distance separating required to prevent harmful interference between ILS and VOR when using the band 108 - 111.975 MHz is found in ~~Section 3 of Attachment C to ICAO Annex 10, Volume I.~~ CAR-ANS Part 6, Attachment 6C, Section 3.

Note 2.— Guidance material relating to the distance separation required to prevent harmful interference between VOR and GBAS when using the band 112.050 – 117.900 MHz is found in CAR-ANS Part 6, Attachment 6D, Section 7.2.1.

Note 3.— As of 26 November 2026, subject to the conditions stated in 13.5.2.1, the frequency 113.250 MHz may be used for the provision of RPAS C2 Link communication services described in CAR-ANS Part 13, 13.5.

. . .

13.4.2.5 *Frequency deployment.* The geographical separation between facilities operating on the same and adjacent frequencies shall be determined regionally and shall be based on the following criteria:

. . .

Note.— ~~The Standards in Annex 10, Volume I, 3.1.2.7.2 and 3.1.3.9~~ CAR-ANS Part 6, 6.3.1.2.7.2 and 6.3.1.3.9 specify the equipment arrangements to be made.

13.4.3 Utilization in the band 960 – 1 215 MHz for DME

Note 1.- Guidance on the frequency planning of channels for DME systems is given in ~~ICAO Annex 10, Volume l, Attachment C, Section 7.~~ CAR-ANS Part 6, Attachment 6C, Section 7.

Note 2.— As of 26 November 2026, subject to the conditions stated in 13.5.2.1, the frequency band 960 – 1 164 MHz may be shared with RPAS C2 Link communication services described in CAR-ANS Part 13, 13.5.

13.4.3.1 DME operating channels bearing the suffix "X" or "Y" in Table A, ~~Chapter 3 of ICAO Annex 10, Volume I~~ of CAR-ANS Part 6, 6.3 shall be chosen on a general basis without restriction.

Note.— The channel pairing plan provides for the use of certain Y channels with either VOR or MLS. The guidance material in ~~ICAO Annex 10, Volume I, Attachment C, Section 7,~~

CAR-ANS Part 6, Attachment 6C, Section 7, includes specific provisions relating to situations where the same, or adjacent channel, is used in the same area for both systems.

13.4.3.2 DME channels bearing the suffix "W" or "Z" in Table A, ~~Chapter 3 of Annex 10, Volume I~~ of CAR-ANS Part 6, 6.3 shall be chosen on the basis of regional agreement when they become applicable in accordance with the following:

. . .

13.4.3.3.1 *Groups 1 to 5.* These DME channels shall be permitted to be used generally. In selecting channels for assignment purposes the following rules are applicable:

a) when an MLS/DME is intended to operate on a runway in association with an ILS, the DME channel, if possible, shall be selected from Group 1 or 2 and paired with the ILS frequency as indicated in the DME channelling and pairing table in Table A ~~of Annex 10, Volume I, Chapter 3~~ of CAR-ANS Part 6, Chapter 6.3. In cases where the composite frequency protection cannot be satisfied for all three components, the MLS channel may be selected from Group 3, 4 or 5;

b) when an MLS/DME is intended to operate on a runway without the coexistence of an ILS, the DME channel to be used shall preferably be selected from Group 3, 4 or 5. ~~4.3.3.2 *Groups 6 to 10.* These DME channels will be permitted to be used on the basis of a regional agreement when they have become applicable in accordance with the conditions specified at 13.3.3.2.~~

13.4.3.3.2 *Groups 6 to 10.* These DME channels shall be permitted to be used on the basis of a regional agreement when they have become applicable in accordance with the conditions specified at ~~13.7.3.2~~ 13.4.3.2.

. . .

13.4.4 Utilization in the band 5 030.4 – 5 150.0 MHz

Note 1.- Guidance material on the frequency protection planning of MLS facilities is contained in ~~Attachment G to ICAO Annex 10, Volume I.~~ CAR-ANS Part 6, Attachment 6G.

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Note 3.— As of 26 November 2026, subject to the conditions stated in 13.5.2.1, this frequency band is shared with RPAS C2 Link terrestrial communication services in the portion 5 030.4 – 5 091 MHz, as described in CAR-ANS Part 13, 13.5.

13.4.4.1 The MLS channels shall be selected from ~~Table A, Chapter 3 of ICAO Annex 10 Volume I.~~ CAR-ANS Part 6, 6.3, Table A.

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13.5 UTILIZATION OF FREQUENCIES FOR RPAS C2 LINK COMMUNICATION SERVICES

Applicable as of 26 November 2026

13.5.1 Satellite-based C2 Link systems

13.5.1.1 Satellite-based RPAS C2 Link systems shall operate in the following frequency bands:

a) frequency bands with an appropriate allocation to aeronautical safety services under the aeronautical mobile satellite (route) service (AMS(R)S). Frequency bands that meet these

criteria and can be used for RPAS C2 Links, subject to the conditions associated with the allocations, are: 1 610 – 1 626.5 MHz and 5 000 – 5 150 MHz;

Note.— The regulations contained in CAR-ANS Part 7, 7.4 and CAR-ANS Part 8, 8.2 address requirements for ATC communications.

b) frequency bands with an allocation to aeronautical safety services under the mobile-satellite service (MSS) where AMS(R)S operations have priority access. Frequency bands that meet these criteria and can be used for RPAS C2 Links are: 1 545 – 1 555 MHz and 1 646.5 – 1 656.5MHz;

Note.— The regulations contained in CAR-ANS Part 7, 7.4 and CAR-ANS Part 8, 8.2 address requirements for ATC communications.

c) frequency bands with an allocation to the fixed satellite service (FSS) where the conditions in ITU Resolution 155 (WRC-15) are met. Frequency bands in which this resolution applies are:

— 10.95 – 11.2 GHz (space-to-Earth);
— 11.45 – 11.7 GHz (space-to-Earth);
— 11.7 – 12.2 GHz (space-to-Earth) in Region 2;
— 12.2 – 12.5 GHz (space-to-Earth) in Region 3;
— 12.5 – 12.75 GHz (space-to-Earth) in Regions 1 and 3;
— 19.7 – 20.2 GHz (space-to-Earth);
— 14.0 – 14.47 GHz (Earth-to-space); and
— 29.5 – 30.0 GHz (Earth-to-space) with an ITU satellite earth station class of "UG".

Note 1.— UG is an earth station on board an unmanned aircraft communicating with a space station of a geostationary-satellite network in the fixed-satellite service for the control and non-payload communications of unmanned aircraft systems in non-segregated airspaces in the frequency bands listed under resolves 1 of ITU Resolution 155 (WRC-15).

Note 2.— Particular note needs to be taken of the timing and order of functions as delineated in ITU Resolution 155 (WRC-15), and in particular the references to necessary actions.

13.5.1.2 Remotely piloted aircraft (RPA) and remote pilot station (RPS) earth stations shall operate within the notified and recorded technical parameters of the associated satellite network, including specific or typical earth stations as published by the ITU.

13.5.1.3 RPA and RPS earth stations operating in accordance with 13.5.1.1 c) shall use FSS assignments that have been successfully coordinated under Article 9 of the ITU Radio Regulations and recorded in the Master International Frequency Register (MIFR) with a favorable finding under Article 11 of the ITU Radio Regulations including Nos. 11.31, 11.32 or 11.32A where applicable, and except those assignments that have not successfully completed coordination procedures under No. 11.32 by applying Appendix 5 paragraph 6.d.i of the ITU Radio Regulations.

13.5.2 Terrestrial C2 Link communication systems

13.5.2.1 Terrestrial RPAS C2 Link systems shall operate in bands allocated to the Aeronautical Mobile (Route) Service (AM(R)S). Frequency bands with such allocations include 113.250 MHz and 136.925 MHz (common signalling frequencies for VDL Mode 4), 960-1164 MHz and 5030-5091 MHz. The operation of the C2 Link within any of these bands shall be implemented so as to be compatible with the systems currently using these allocations. Compatibility shall be ensured through the development and application of necessary SARPs and determined on the basis of regional air navigation agreements.

— END —

NEW/AMENDED REGULATION AFTER REVISION:

CAR-ANS Part 13 Aeronautical Telecommunications Governing Aeronautical Radio Frequency Spectrum

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FOREWORD

The Civil Aviation Regulations - Air Navigation Services (CAR-ANS) Part 13 "*Aeronautical Telecommunications Governing Aeronautical Radio Frequency Spectrum Utilization"* was formulated in accordance with Republic Act No. 9497 otherwise known as the Civil Aviation Authority Act of 2008 and issued by the Civil Aviation Authority of the Philippines (CAAP prescribing rules and regulations applicable to the operating facilities of the air traffic system within the airspace jurisdiction of the Philippines and to assist Air Navigation Services (ANS) personnel in the efficient and effective management of their respective facilities.

This CAR-ANS Part 13 was developed based on the Standards and Recommended Practices prescribed by the International Civil Aviation Organization (ICAO) as contained in Annex 10 Volume V – Aeronautical Radio Frequency Spectrum Utilization which was first adopted by the council on 30 May 1949 pursuant to the provisions of Article 37 of the Convention on International Civil Aviation (Chicago 1944), and became effective on 1 March 1950.

The rules and regulations embodied herein are used by authority of the Director General of the CAAP and will be complied with by all concerned.

The responsibility on matters within this CAR-ANS rests with the CAAP, and any inconsistencies, errors, omissions observed and suggestions for the improvement of the material should be addressed to the Chief, AANSOO of CAAP.

. . .

13.1 DEFINITIONS

. . .

Alternative means of communication. A means of communication provided with equal status, and in addition to the primary means.

C2 Link. The data link between the remotely piloted aircraft and the remote pilot station for the purposes of managing the flight.

. . .

Primary means of communication. The means of communication to be adopted normally by aircraft and ground stations as a first choice where alternative means of communication exist.

Remote pilot station (RPS). The component of the remotely piloted aircraft system containing the equipment used to pilot the remotely piloted aircraft.

Remotely piloted aircraft (RPA). An unmanned aircraft which is piloted from a remote pilot station.

Remotely piloted aircraft system (RPAS). A remotely piloted aircraft, its associated remote pilot station(s), the required C2 Link(s) and any other component as specified in the type design.

. . .

13.2 DISTRESS FREQUENCIES

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13.2.2 Search and rescue frequencies

. . .

13.2.2.2 Where specific frequencies are required for communication between rescue coordination centers and aircraft engaged in search and rescue operations, they shall be selected from the appropriate aeronautical mobile frequency bands in light of the nature of the provisions made for the establishment of search and rescue aircraft.

Note.— Where civil commercial aircraft take part in search and rescue operations, they will normally communicate on the appropriate en-route channels with the flight information center associated with the rescue coordination center concerned.

13.3 UTILIZATION OF FREQUENCIES BELOW 30 MHz

. . .

13.3.1 Method of Operations

. . .

13.3.1.3.1 Worldwide frequencies for aeronautical operational control communications are required to enable aircraft operating agencies to meet the obligations prescribed in the Philippine Civil Aviation Regulations (PCAR) Part 8. Assignment of these frequencies shall be in accordance with the following provisions of Appendix 27:

. . .

Note 2.- Guidance materials on the assignment of worldwide frequencies is contained in Attachment 13B.

. . .

13.3.2 NDB frequency management

13.3.2.1 NDB frequency management shall take into account the following:

. . .

Note 1.- Guidance material to assist in determining the application of the foregoing is given in Attachment 13A.

. . .

13.3.2.2 To alleviate frequency congestion problems at locations where two separate ILS facilities serve opposite ends of a single runway, the assignment of a common frequency to both of the outer locators shall be permitted, and the assignment of a common frequency to both of the inner locators shall be permitted, provided that:

. . .

Note.- CAR-ANS Part 6, 6.3.4.4, specifies the equipment arrangements to be made.

13.4 UTILIZATION OF FREQUENCIES ABOVE 30MHz

. . .

13.4.1 Utilization in the band 117.975-137 MHz

. . .

13.4.1.1 General frequencies band 117.95 – 137 MHz

Note 1.- The plan includes a general Allotment Table that subdivides the complete frequency band 117.975- 137.000 MHz, the chief subdivisions being the frequency bands allocated to both national and international services, and the frequency bands allocated to national services. Observance of this general subdivision should keep to a minimum the problem of coordinating national and international application.

Note 2.— As of 26 November 2026, subject to the conditions stated in 13.5.2.1, the frequency 136.925 MHz may be used for the provision of remotely piloted aircraft systems (RPAS) C2 Link communication services described in CAR-ANS Part 13, 13.5.

. . .

13.4.1.3.1.6 The emergency channel (121,500 MHz) shall be available only with the characteristics as contained in CAR-ANS Part 8.

Table 13.4-1 (bis). Chanelling/frequency pairing

. . .

* Time slot indication is for VDL Mode 3 channels/ (Ref. CAR-ANS Part 7, 7.6 for characteristics of VDL Mode 3 operations).

. . .

13.4.1.3.2.2 In remote and oceanic areas out of range of VHF ground stations, the air-to-air VHF communications channel on the frequency 123.450 MHz shall be available only with the characteristics as contained in CAR-ANS Part 8, 8.2 (25 kHz).

. . .

13.4.1.3.4.1 Where a requirement is established for the use of a frequency auxiliary to 121.500 MHz as described in 13.4.1.3.1.1 c), the frequency 123.100 MHz shall be used.

. . .

13.4.1.4.2 For areas where frequency assignment congestion is severe or is anticipated to become severe, the geographical separation between facilities operating on the same frequency shall, except where there is an operational requirement for the use of common frequencies for groups of facilities, be such that the protected service volume of each facility is separated from the protected service volume of the other facility by a distance not less than that required to provide a desired to undesired signal ratio of 14 dB or by a separation distance not less than the sum of the distances to the associated radio horizon of each service volume, whichever is smaller. This provision shall be implemented on the basis of a regional air navigation agreement.

. . .

Note 5. - The criteria contained in 13.4.1.4.1 and 13.4.4.1.2 are applicable in establishing minimum geographical separation between VHF facilities, with the object of avoiding co-channel air-to-air interference. Guidance material relating to the establishment of separation distances between ground stations and between aircraft and ground stations for co-channel operations is contained in the ICAO Handbook on Radio Frequency Spectrum requirements for Civil Aviation including Statement of Approved ICAO Policies (Doc 9718).

. . .

13.4.1.4.7 The geographical separation between VHF VOLMET stations shall be determined regionally and, generally, will be such that operations free from harmful interference are secured at the highest altitude flown by aircraft in the area concerned.

Note. – Guidance material on the interpretation of 13.4.1.4.7 is contained in the ICAO Handbook on Radio Frequency Spectrum Requirements for Civil Aviation including Statement of approved ICAO Policies (Doc 9718).

. . .

13.4.2 Utilization in the band 108 – 117.975 MHz

13.4.2.1 The block allotment of the frequency band 108 – 117.975 MHz shall be as follows:

— Band 108 – 111.975 MHz:

a) ILS in accordance with CAR-ANS Part 6, 6.3.1.3;

b) VOR provided that:

1) no harmful adjacent channel interference is caused to ILS;

2) only frequencies ending in either even tenths or even tenths plus a twentieth of a megahertz are used.

c) GNSS ground-based augmentation system (GBAS) in accordance with CAR-ANS Part 6, 6.3.7.3.5, provided that no harmful interference is caused to ILS and VOR.

Note.— ILS/GBAS geographical separation criteria and geographical separation criteria for GBAS and VHF communication services operating in the 118 – 137 MHz band are under development. Until these criteria are defined and included in the SARPs, it is intended that frequencies in the band 112.050 – 117.900 MHz will be used for GBAS assignments.

— Band 111.975 – 117.975 MHz

a) VOR; and

b) GNSS ground-based augmentation system (GBAS) in accordance with CAR-ANS Part 6, 6.3.7.3.5 provided that no harmful interference is caused to VOR.

Note 1.— Guidance material relating to the distance separating required to prevent harmful interference between ILS and VOR when using the band 108 - 111.975 MHz is found in CAR-ANS Part 6, Attachment 6C, Section 3.

Note 2.— Guidance material relating to the distance separation required to prevent harmful interference between VOR and GBAS when using the band 112.050 – 117.900 MHz is found in CAR-ANS Part 6, Attachment 6D, Section 7.2.1.

Note 3.— As of 26 November 2026, subject to the conditions stated in 5.2.1, the frequency 113.250 MHz may be used for the provision of RPAS C2 Link communication services described in CAR-ANS Part 13, 13.5.

. . .

13.4.2 Utilization in the band 108 – 117.975 MHz

. . .

13.4.2.5 *Frequency deployment.* The geographical separation between facilities operating on the same and adjacent frequencies shall be determined regionally and shall be based on the following criteria:

. . .

Note. — CAR-ANS Part 6, 6.3.1.2.7.2 and 6.3.1.3.9 specify the equipment arrangements to be made.

13.4.3 Utilization in the band 960 – 1 215 MHz for DME

Note 1. — Guidance on the frequency planning of channels for DME systems is given in CAR-ANS Part 6, Attachment 6C, Section 7.

Note 2. — As of 26 November 2026, subject to the conditions stated in 5.2.1, the frequency band 960 – 1 164 MHz may be shared with RPAS C2 Link communication services described in CAR-ANS Part 13, 13.5.

13.4.3.1 DME operating channels bearing the suffix "X" or "Y" in Table A, of CAR-ANS Part 6, 6.3 shall be chosen on a general basis without restriction.

Note.— The channel pairing plan provides for the use of certain Y channels with either VOR or MLS. The guidance material in, CAR-ANS Part 6, Attachment 6C, Section 7, includes specific provisions relating to situations where the same, or adjacent channel, is used in the same area for both systems.

13.4.3.2 DME channels bearing the suffix "W" or "Z" in Table A, of CAR-ANS Part 6, 6.3 shall be chosen on the basis of regional agreement when they become applicable in accordance with the following:

. . .

13.4.3.3.1 *Groups 1 to 5.* These DME channels shall be permitted to be used generally. In selecting channels for assignment purposes the following rules are applicable:

a) when an MLS/DME is intended to operate on a runway in association with an ILS, the DME channel, if possible, shall be selected from Group 1 or 2 and paired with the ILS frequency as indicated in the DME channelling and pairing table in Table A of CAR-ANS Part 6, Chapter 6.3. In cases where the composite frequency protection cannot be satisfied for all three components, the MLS channel may be selected from Group 3, 4 or 5;

b) when an MLS/DME is intended to operate on a runway without the coexistence of an ILS, the DME channel to be used shall preferably be selected from Group 3, 4 or 5.

13.4.3.3.2 *Groups 6 to 10.* These DME channels shall be permitted to be used on the basis of a regional agreement when they have become applicable in accordance with the conditions specified at 13.4.3.2.

. . .

13.4.4 Utilization in the band 5 030.4 – 5 150.0 MHz

Note 1.- Guidance material on the frequency protection planning of MLS facilities is contained in CAR-ANS Part 6, Attachment 6G.

. . .

Note 3.— As of 26 November 2026, subject to the conditions stated in 13.5.2.1, this frequency band is shared with RPAS C2 Link terrestrial communication services in the portion 5 030.4 – 5 091 MHz, as described in CAR-ANS Part 13, 13.5.

. . .

13.4.4.1 The MLS channels shall be selected from CAR-ANS Part 6,6.3, Table A.

. . .

13.5 UTILIZATION OF FREQUENCIES FOR RPAS C2 LINK COMMUNICATION SERVICES

Applicable as of 26 November 2026

13.5.1 Satellite-based C2 Link systems

13.5.1.1 Satellite-based RPAS C2 Link systems shall operate in the following frequency bands:

a) frequency bands with an appropriate allocation to aeronautical safety services under the aeronautical mobile satellite (route) service (AMS(R)S). Frequency bands that meet these criteria and can be used for RPAS C2 Links, subject to the conditions associated with the allocations, are: 1 610 – 1 626.5 MHz and 5 000 – 5 150 MHz;

Note.— The regulations contained in CAR-ANS Part 7, 7.4 and CAR-ANS Part 8, 8.2 address requirements for ATC communications.

b) frequency bands with an allocation to aeronautical safety services under the mobile-satellite service (MSS) where AMS(R)S operations have priority access. Frequency bands that meet these criteria and can be used for RPAS C2 Links are: 1 545 – 1 555 MHz and 1 646.5 – 1 656.5MHz;

Note.— The regulations contained in CAR-ANS Part 7, 7.4 and CAR-ANS Part 8, 8.2 address requirements for ATC communications.

c) frequency bands with an allocation to the fixed satellite service (FSS) where the conditions in ITU Resolution 155 (WRC-15) are met. Frequency bands in which this resolution applies are:

— 10.95 – 11.2 GHz (space-to-Earth);
— 11.45 – 11.7 GHz (space-to-Earth);
— 11.7 – 12.2 GHz (space-to-Earth) in Region 2;
— 12.2 – 12.5 GHz (space-to-Earth) in Region 3;
— 12.5 – 12.75 GHz (space-to-Earth) in Regions 1 and 3;
— 19.7 – 20.2 GHz (space-to-Earth);
— 14.0 – 14.47 GHz (Earth-to-space); and
— 29.5 – 30.0 GHz (Earth-to-space) with an ITU satellite earth station class of “UG”.

Note 1.— UG is an earth station on board an unmanned aircraft communicating with a space station of a geostationary-satellite network in the fixed-satellite service for the control and non-payload communications of unmanned aircraft systems in non-segregated airspaces in the frequency bands listed under resolves 1 of ITU Resolution 155 (WRC-15).

Note 2.— Particular note needs to be taken of the timing and order of functions as delineated in ITU Resolution 155 (WRC-15), and in particular the references to necessary actions.

13.5.1.2 Remotely piloted aircraft (RPA) and remote pilot station (RPS) earth stations shall operate within the notified and recorded technical parameters of the associated satellite network, including specific or typical earth stations as published by the ITU.

13.5.1.3 RPA and RPS earth stations operating in accordance with 5.1.1 c) shall use FSS assignments that have been successfully coordinated under Article 9 of the ITU Radio Regulations and recorded in the Master International Frequency Register (MIFR) with a favorable finding under Article 11 of the ITU Radio Regulations including Nos. 11.31, 11.32 or 11.32A where applicable, and except those assignments that have not successfully completed coordination procedures under No. 11.32 by applying Appendix 5 paragraph 6.d.i of the ITU Radio Regulations.

13.5.2 Terrestrial C2 Link communication systems

13.5.2.1 Terrestrial RPAS C2 Link systems shall operate in bands allocated to the Aeronautical Mobile (Route) Service (AM(R)S). Frequency bands with such allocations include 113.250 MHz and 136.925 MHz (common signalling frequencies for VDL Mode 4), 960-1164 MHz and 5030-5091 MHz. The operation of the C2 Link within any of these bands shall be implemented so as to be compatible with the systems currently using these allocations. Compatibility shall be ensured through the development and application of necessary SARPs and determined on the basis of regional air navigation agreements.

xxx

"End of Amendment"

i. ***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.

ii. ***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.

iii. ***Determination of changes.*** **–** To highlight the amendments and/or revisions in the Memorandum Circular, the deleted text shall be shown with strikethrough and the new 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.

iv. ***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. The amendment shall be incorporated to Philippine CAR-ANS in the next regular Amendment Cycle.

So Ordered. Signed this 21 day of SEP 2022, at the Civil Aviation Authority of the Philippines, MIA Road, Pasay City, Metro Manila, 1301.

CAPTAIN MANUEL ANTONIO L. TAMAYO
Acting Director General