



ICAO

International Civil Aviation Organization

**TENTH MEETING OF SPECTRUM REVIEW
WORKING GROUP (SRWG/10)**

Bangkok, Thailand, 04 – 06 February 2026

Agenda Item 3: Review Frequency planning requirements for the Asia/Pacific Region

3.1 VHF COM Frequency Allotment Plan for APAC

PROPOSAL FOR IMPROVING THE FREQUENCY UTILIZATION EFFICIENCY OF AOC BAND IN APAC REGION

(Presented by Ad-hoc Group of VHF COM Allotment Plan Research)

SUMMARY

This paper presents the actions taken for improving the utilization of frequency band 117.975 - 137 MHz, with a particular focus on the AOC frequency band.

Based on the analysis of AOC frequency band usage registered in FF and the discussion of Ad-hoc Group of VHF COM Allotment Plan, Suggestions are proposed to improve the efficiency of AOC frequency band utilization.

1. INTRODUCTION

1.1 The VHF COM frequency band 117.975 – 137 MHz has been divided into sub-bands that are to be used for certain aeronautical applications or services such as TWR, ACC, APP, AOC, VOLMET etc. based on regional agreement.

1.2 Simulations of future spectrum requirements in APAC region have shown that certain allotments in the current allotment plan are prone to becoming saturated while other allotments are under-utilized and can provide space for accommodating new requirements. And a discussion about re-allotment of AOC band was raised during SRWG/7 by WP16, which is the reduction of 128.825-132.025 MHz to 129.700-130.875 MHz for AOC, 128.825-129.700 MHz can be re-allotted to VOLMET, ATIS and ACC-L, and 130.875-132.025 MHz can be re-allotted to ACC-U and FIS.

1.3 SRWG/7 invited the Meeting to review the various efforts on improving the utilization of frequency band 117.975 - 137MHz. Subsequently the SRWG/7 agreed to form an ad-hoc expert group with China as the rapporteur and Mr. Robert Witzen as advisor, to study the allotment plan, analyze the actual usage of allotment registered in FF, identify areas for improvement and propose solutions (technical and administrative), explore the potential in reallocating sub-bands/pools, survey the use of TIBA.

1.4 The APANPIRG, when adopting Conclusion APANPIRG/35/8 approved the VHF COM Allotment Table for the APAC Region as was agreed at SRWG/8. However, this proposal did not include a possible reduction of the AOC band. This Table was incorporated in the Report of SRWG/8, Appendix C and **Appendix A** to this paper.

2. DISCUSSION

2.1 AOC service

2.1.1 The definition of Aeronautical Operational Control (AOC) in Annex 6 is “the exercise of authority over a flight’s initiation, continuation, diversion or termination to ensure safety and regularity.” It is a core function of an airline’s operations that involves both pilots and flight dispatchers.

2.1.2 For frequency assignment planning purposes, frequency assignments for AOC are not protected from interference that may be caused by other frequency assignments for AOC. This improves the efficiency in frequency assignment planning. Different operators (normally airlines) can share the same frequency, in particular smaller airlines with relatively few aircraft operations. The main criterium for sharing is the traffic loading on the assigned frequency. Normally large airlines with frequent operations are assigned a single AOC frequency while smaller airlines share the same frequency.

2.1.3 When a frequency has been assigned for AOC, but the same frequency has also been assigned to ATC purposes, the minimum separation between the two DOC areas needs to be the sum of the distance to the radio horizon at the edge and maximum altitude of each DOC. As an example, when an AOC frequency has been assigned with a DOC of 100/100 and the same frequency is used for APP with a DOC of 100/100 the minimum separation between the two facilities is $100+123+123+100 = 446$ NM. When the two frequencies are for AOC, this minimum separation distance can be less. In case the two frequency assignments are for PP with a DOC of 100/100, the minimum separation distance between the two facilities is 446 NM. Frequency assignment in a sub-band exclusively used for AOC is more frequency efficient compared to shared use between frequencies requiring protection and these not requiring protection.

2.2 The Usage of AOC Band in APAC Region

2.2.1 According to Conclusion APANPIRG/35/8, the AOC frequency band in the Asia-Pacific region is 128.900-132.025MHz. Excluding 128.950MHz (TIBA), there are a total of 124 channels (25kHz channel spacing). Based on the analysis of data registered before Dec. 31st ,2025, the frequencies in the AOC band have been assigned 1546 times in Asia-Pacific region, of which 853 times belong to AOC service and 693 times belong to other services. In this paper, the AOC band could be partitioned into three sub-bands, named SB1(128.900 – 129.675MHz), SB2(129.700 – 130.875MHz), and SB3(130.900 – 132.025MHz), in accordance with the specification of Worldwide Utilization in Allotment table 4-1 of Annex 10, Volume 5. The frequency utilization of the above three sub-bands in the Asia-Pacific region is shown in the figure below:

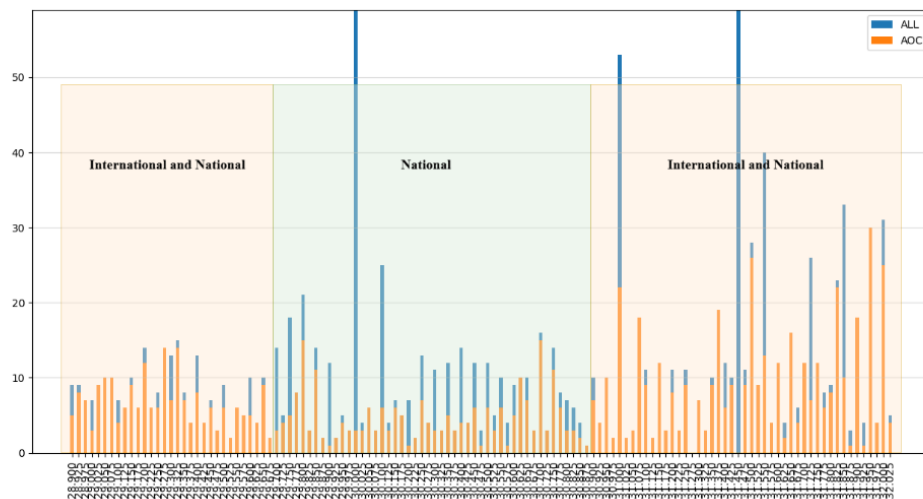


Figure 1. The frequency utilization of the three sub-bands in the Asia-Pacific region

- 128.900 – 129.675 MHz (SB1, International and National AMS): Total number of assigned frequencies in this band was 247, of which 207 times used for AOC services.
- 129.700 – 130.875 MHz (SB2, National AMS): Total number of assigned frequencies in this band was 589, of which 224 times used for AOC services.
- 130.900 – 132.025 MHz (SB3, International and National AMS): Total number of assigned frequencies in this band was 710, of which 422 times used for AOC services.

Note: The cutoff date for the above data is December 31, 2025

2.2.2 Additionally, the use of AOC band in Indonesia was noted. As of August 2025, Indonesia has a total of 1,108 active AOC channel assignments, which utilized for ANSP, heliports, offshore oil rigs, flight operations (FLOPS), ground handling, VHF data link communications, and other related services. Of these, only 226 channels (approximately 20%) have been registered in the ICAO Global Frequency List, while the remaining channels are still under review and will be progressively registered through the Frequency Finder. The above situation means that the number of AOC frequencies registered in FF may vary greatly from the actual situation.

2.3 Ad-hoc Group Meeting

2.3.1 An online meeting of VHF COM Allotment Plan Research Ad Hoc Expert Group was held on Nov 11, 2025, with 19 participants, chaired by Ms. Liu Rui from China. Mr. De Zhang, Regional Officer (CNS), and Ms. Jian Xu, Associate Programme Officer (CNS) Implementation, acted as the meeting secretaries. The Meeting's purpose was to discuss the reallocation of the AOC frequency band in the APAC region. The key issue is whether to reallocate parts of the AOC band to meet the development needs of other services like ACC, TWR, or APP.

2.3.2 Mr. Abdul Aziz introduced Indonesia's Views on the AOC Band Reallocation, and highlighted the challenges Indonesia faced with the proposed reallocation as it could impact operational continuity and future growth. Indonesia was committed to supporting regional decisions but emphasized the need for flexibility in frequency assignments.

2.3.3 Mr. Robert Witzgen, the advisor of the ad-hoc group, elaborated on considerations regarding the use of AOC frequencies, and emphasized that AOC frequencies are typically unprotected, unlike protected ATC frequencies. The current AOC band in APAC is used for various services beyond pure AOC, including ANSP, helicopter operations, oil rig communications, and ground handling. This mix reduces planning efficiency. He suggested reducing the AOC band to a smaller, dedicated segment and reallocate the vacated spectrum on either side of the core AOC band for protected services like helicopter operations.

2.3.4 Ms. Liu Rui proposed a priority-based usage guideline for the three sub-bands (SB1, SB2, SB3). The suggestion was to prioritize using SB3 and SB1 first for new AOC assignments, leaving SB2 as a lower priority, thus creating flexibility for future adjustments. This softer approach minimizes disruption to administrations compared to a mandatory band reduction, while still encouraging more efficient use of frequency.

2.3.5 The meeting discussed the proposed changes and the need for flexibility in frequency assignments. The importance of registering all AOC assignments in the Frequency Finder database for effective coordination was reiterated. The Discussion clarified that services like VDL and POA are considered part of AOC, while helicopter/oil rig communications might be better categorized separately.

2.4 Suggestions

2.4.1 To further enhance the frequency utilization efficiency of the AOC band in APAC Region while avoiding adverse effects on existing frequency assignments and considering future regional coordination needs for other services (such as space-based VHF), the following recommendations are proposed:

a) Encourage States/Administrations to complete the registration information of assigned frequencies in FF database.

b) In future frequency assignments, prioritize the usage of the AOC band in the order of SB3, SB1, SB2 while increasing the reuse times of individual frequency points within the band. This approach will provide operational flexibility for future adjustments to frequency allotment plans.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) endorse the proposal of enhancing the frequency utilization efficiency of the AOC band in paragraph 2.4; and,
- c) discuss any relevant matter as appropriate.

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Appendix A to WP/03

VHF COM Frequency Allotment Plan for APAC Region (March 2024)

Function (revised)	Function	Frequencies (MHz)
TWR 118.000-118.875MHz 124.300-124.375MHz	TWR	118.000 118.025 118.050 118.075 118.100 118.125 118.150 118.175 118.200 118.225 118.250 118.275 118.300 118.325 118.350 118.375 118.400 118.425 118.450 118.475 118.500 118.525 118.550 118.575 118.600 118.625 118.650 118.675 118.700 118.725 118.750 118.775 118.800 118.825 118.850 118.875 124.300 124.325 124.350 124.375
AS 121.550-121.975MHz	AS	121.550 121.575 121.600 121.625 121.650 121.675 121.700 121.725 121.750 121.775 121.800 121.825 121.850 121.875 121.900 121.925 121.950 121.975
APP 119.000-119.275MHz 119.400-120.075MHz 120.200-120.475MHz 120.600-120.675MHz 120.800-120.875MHz 121.000-121.450MHz 123.800-123.875MHz 124.000-124.075MHz 124.200-124.275MHz 124.400-124.475MHz 124.600-124.875MHz 125.000-125.275MHz 125.400-125.675MHz 125.800-125.875MHz 126.000-126.075MHz 126.300-126.375MHz 126.500-126.575MHz 127.700-127.775MHz 127.900-127.975MHz	APP	119.500 119.525 119.550 119.575 119.600 119.625 119.650 119.675 119.800 119.825 119.850 119.875 119.900 119.925 119.950 119.975
	APP-L, APP-I, Also used for APP Direction finding or APP Surveillance radar	119.100 119.125 119.150 119.175 119.200 119.225 119.250 119.275 119.400 119.425 119.450 119.475 119.700 119.725 119.750 119.775 120.000 120.025 120.050 120.075 120.200 120.225 120.250 120.275 120.400 120.425 120.450 120.475 120.600 120.625 120.650 120.675 120.800 120.825 120.850 120.875 121.000 121.025 121.050 121.075 121.100 121.125 121.150 121.175 121.200 121.225 121.250 121.275 121.400 121.425 121.450 123.800 123.825 123.850 123.875 124.000 124.025 124.050 124.075 124.700 124.725 124.750 124.775 125.100 125.125 125.150 125.175 125.500 125.525 125.550 125.575 126.500 126.525 126.550 126.575 127.700 127.725 127.750 127.775 127.900 127.925 127.950 127.975
	APP-U	120.300 120.325 120.350 120.375 121.300 121.325 121.350 121.375 124.200 124.225 124.250 124.275 124.400 124.425 124.450 124.475 124.600 124.625 124.650 124.675 124.800 124.825 124.850 124.875 125.000 125.025 125.050 125.075 125.200 125.225 125.250 125.275 125.400 125.425 125.450 125.475

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		125.600 125.625 125.650 125.675 125.800 125.825 125.850 125.875 126.000 126.025 126.050 126.075 126.300 126.325 126.350 126.375
ACC 118.900-118.975MHz 119.300-119.375MHz 120.500-120.575MHz 120.700-120.775MHz 120.900-120.975MHz 123.700-123.775MHz 124.500-124.575MHz 125.300-125.375MHz 125.700-125.775MHz 125.900-125.975MHz 126.100-126.175MHz 127.500-127.575MHz 128.100-128.175MHz 128.300-128.375MHz 128.700-128.775MHz 132.050-134.575MHz 135.825-135.975MHz	ACC-L Also used for ACC-L Surveillance Radar	126.100 126.125 126.150 126.175 127.500 127.525 127.550 127.575 128.300 128.325 128.350 128.375 128.700 128.725 128.750 128.775
	ACC-U ACC-L	118.900 118.925 118.950 118.975 119.300 119.325 119.350 119.375 120.500 120.525 120.550 120.575 120.700 120.725 120.750 120.775 120.900 120.925 120.950 120.975 123.700 123.725 123.750 123.775 124.500 124.525 124.550 124.575 125.300 125.325 125.350 125.375 125.700 125.725 125.750 125.775 125.900 125.925 125.950 125.975 126.100 126.125 126.150 126.175 127.500 127.525 127.550 127.575 128.100 128.125 128.150 128.175 128.300 128.325 128.350 128.375 128.700 128.725 128.750 128.775 132.050 132.075 132.100 132.125 132.150 132.175 132.200 132.225 132.250 132.275 132.300 132.325 132.350 132.375 132.400 132.425 132.450 132.475 132.500 132.525 132.550 132.575 132.600 132.625 132.650 132.675 132.700 132.725 132.750 132.775 132.800 132.825 132.850 132.875 132.900 132.925 132.950 132.975 133.000 133.025 133.050 133.075 133.100 133.125 133.150 133.175 133.200 133.225 133.250 133.275 133.300 133.325 133.350 133.375 133.400 133.425 133.450 133.475 133.500 133.525 133.550 133.575 133.600 133.625 133.650 133.675 133.700 133.725 133.750 133.775 133.800 133.825 133.850 133.875 133.900 133.925 133.950 133.975 134.000 134.025 134.050 134.075 134.100 134.125 134.150 134.175 134.200 134.225 134.250 134.275 134.300 134.325 134.350 134.375 134.400 134.425 134.450 134.475 134.500 134.525 134.550 134.575 135.825 135.850 135.875 135.900 135.925 135.950 135.975
FIS 120.100-120.175MHz 123.900-123.975MHz 124.100-124.175MHz 124.900-124.975MHz 126.700-126.775MHz	FIS-L FIS-U	120.100 120.125 120.150 120.175 123.900 123.925 123.950 123.975 124.100 124.125 124.150 124.175 124.900 124.925 124.950 124.975 126.700 126.725 126.750 126.775 126.900 126.925 126.950 126.975

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126.900-126.975MHz 127.100-127.175MHz 127.300-127.375MHz 128.500-128.575MHz 134.600-135.800MHz		127.100 127.125 127.150 127.175 127.300 127.325 127.350 127.375 128.500 128.525 128.550 128.575
	FIS-U Also used for General purpose communications	134.600 134.625 134.650 134.675 134.700 134.725 134.750 134.775 134.800 134.825 134.850 134.875 134.900 134.925 134.950 134.975 135.000 135.025 135.050 135.075 135.100 135.125 135.150 135.175 135.200 135.225 135.250 135.275 135.300 135.325 135.350 135.375 135.400 135.425 135.450 135.475 135.500 135.525 135.550 135.575 135.600 135.625 135.650 135.675 135.700 135.725 135.750 135.775 135.800
VOLMET/ATIS 126.200-126.275MHz 126.400-126.475MHz 126.600-126.675MHz 126.800-126.875MHz 127.000-127.075MHz 127.200-127.275MHz 127.400-127.475MHz 127.600-127.675MHz 127.800-127.875MHz 128.000-128.075MHz 128.200-128.275MHz 128.400-128.475MHz 128.600-128.675MHz 128.800-128.875MHz	VOLMET/ATIS	126.200 126.225 126.250 126.275 126.400 126.425 126.450 126.475 126.600 126.625 126.650 126.675 126.800 126.825 126.850 126.875 127.000 127.025 127.050 127.075 127.200 127.225 127.250 127.275 127.400 127.425 127.450 127.475 127.600 127.625 127.650 127.675 127.800 127.825 127.850 127.875 128.000 128.025 128.050 128.075 128.200 128.225 128.250 128.275 128.400 128.425 128.450 128.475 128.600 128.625 128.650 128.675 128.800 128.825 128.850 128.875
AOC	AOC	128.900-132.025(Except 128.950MHz)
DATA LINK	DATA LINK	136.000-136.975
AIR-TO-AIR	AIR-TO-AIR	123.450 128.950 (TIBA)
NOT ALLOTTED	NOT ALLOTTED	122.000-123.675(Except 123.100MHz, 123.450MHz)

Note: The allotment of 12 yellow highlighted frequencies for ACC services has not been included in the Asia-Pacific conference outcomes.