



ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

A UN SPECIALIZED AGENCY

Aeronautical Frequency Management in the APAC Region

WRC-23 Workshop

13-14 February 2023, Bangkok

Presented by the Secretariat

RECONNECTING THE WORLD



Frequency Management requirements in ANP

GENERAL REGIONAL REQUIREMENTS

- Frequency assignment planning in the Region(s) should be carried out in accordance with the provisions of Annex 10 and ICAO **Handbook** on Radio Frequency Spectrum for Civil Aviation (Doc 9718), supplemented, as necessary, by regional recommendations and technical criteria developed for this purpose.

SPECIFIC REGIONAL REQUIREMENTS

- States in the ASIA/PAC Region should coordinate, as necessary, with the ICAO Regional Office all radio frequency assignments for both national and inter-national facilities in the 190--526.50 kHz, 108-117.975 MHz, 960-1215 MHz and 117.975-137 MHz bands.[ASIA/PAC/3, Conc. 11/4, 11/5 and 12/9]



Establishment of APAC practice

- The basic guidance on aeronautical radio spectrum coordination and management were specified in the Report of the Third Asia/Pacific Regional Air Navigation Meeting (Doc 9614, ASIA/PAC/3 (1993)) under Agenda Items 10, 11 and 12 and the updated guidance is provided in the ICAO **Handbook** on radio frequency spectrum requirements for civil aviation, Volume II, Frequency assignment planning criteria for aeronautical radio communication and navigation systems.



Role and function of Regional Office

- Defend ICAO position
 - Participate in APG meetings
 - As WRC decision on Agenda Items will be relying more on regional discussions, it is very important to ensure that the aviation position on various agenda items of WRC-23 is duly reflected in the States' position papers to be submitted to the APG meeting.
 - Promote ICAO position at regional forums
 - ITU Regional Radiocommunication Seminars for APAC
 - Regional Interagency Working Group (IAWG) on Information and Communication Technology (ICT)
 - co-host with APT a Webinar on 5G Implementation and Radio Altimeters
- Aeronautical Frequency Coordination
 - Coordination and selection, Resolution of interference, Frequency Lists, IC code management, SIC/SAC plan



Aeronautical Frequency Coordination

- The Third Asia/Pacific Regional Air Navigation (ASIA/PAC/3 RAN) Meeting (1993) agreed that the frequency lists prepared by the ICAO Asia and Pacific (APAC) Regional Office will be the frequency planning documents for the Regions.
- The ICAO APAC Regional Office was charged to continue to maintain its frequency selection and coordination role, including the maintenance and promulgation of Frequency List Nos. 1, 2 and 3 at appropriate periodic intervals.



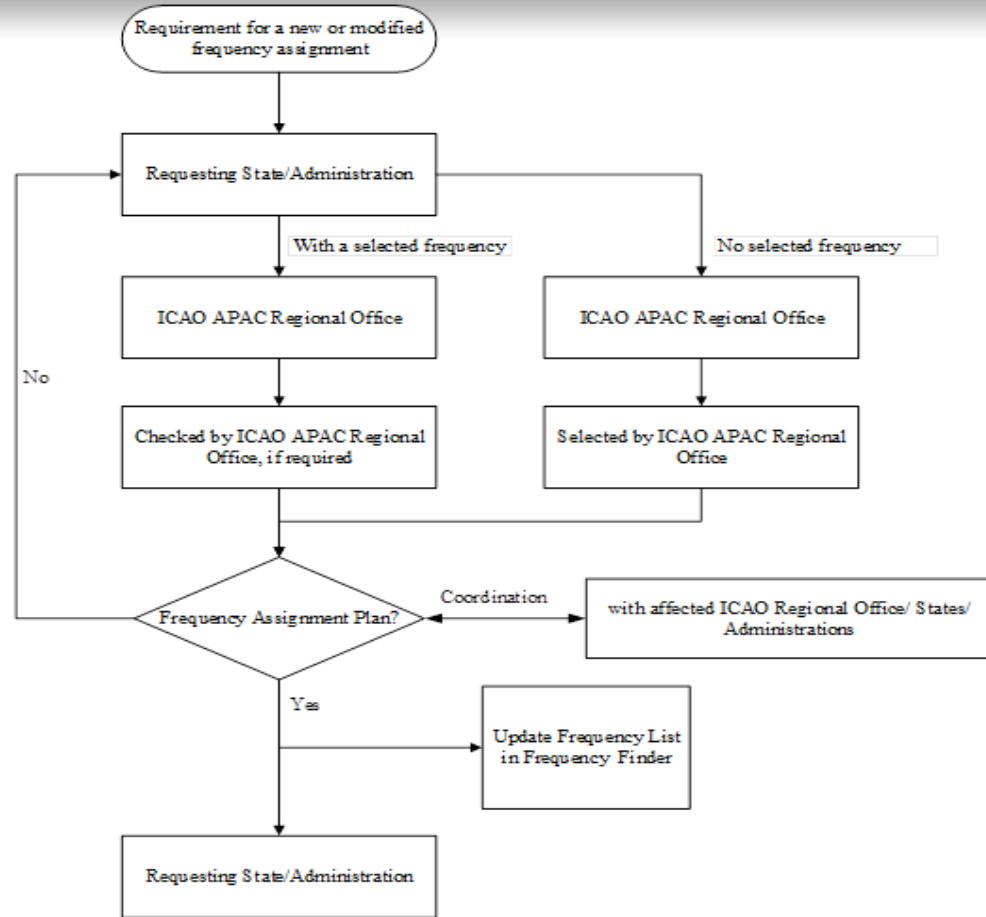
Regional Office is focal point

- The ICAO APAC Regional Office acts as the only centralized portal for aeronautical frequency and IC coordination, providing a one-stop solution for States. The current process has served the APAC community well over the years, minimizing any bureaucracy and overhead when performing the coordination and registration. APAC is expected to do so for the foreseeable future.
- The efficiency and accuracy of the process rely on the support from States to the Regional Office by submitting all frequency and SSR/IC assignments for international coordination in a timely manner.
- In any case, ICAO holds the view that frequency and IC assignments that have been coordinated with ICAO have priority over those that have not been coordinated.



Aeronautical Frequency Coordination procedure

- State Letter
- Emails between RO CNS and POC of States





Regional Efforts

- **Regional Office**
 - **500+** frequencies coordinated and handled by APAC in 2022.

- **Spectrum Review Working Group (SRWG)**
 - VHF COM Projection for 2030
 - ILS and VOR 50kHz Channel Spacing survey
 - Regional Aeronautical Radio Frequency Management Guidance Material
 - VHF COM Allotment plan

State/Administration	Frequencies Handled
China	>100
India	>100
Indonesia	>100
Hong Kong China	10-20
Malaysia	10-20
Pakistan	10-20
Bangladesh	<10
Bhutan	<10
Brunei Darussalam	<10
French Polynesia	<10
Japan	<10
Lao PDR	<10
Nepal	<10
Republic of Korea	<10
Singapore	<10
Sri Lanka	<10
Viet Nam	<10
Grand Total	~530



Computer Tool

- ICAO APAC introduced a standalone computer software Frequency Manager to manage Frequency List 1 (NDB), 2 (NAV), 3(VHF COM), 4(HF) and SSR II code, based on geographical separation standard agreed in RANC/3 in 1993.
- The ICAO tool Frequency Finder, including its global database, was formally introduced to the APAC region in 2015.
 - Consequentially the publication of Frequency List No. 3 (117.975 - 137 MHz) has been discontinued.
 - The ICAO APAC Regional Office continues to update and publish the Frequency List No.1 (190-526.5 kHz – NDB) and Frequency List No.2 (108 - 117.975 MHz and 960 - 1215 MHz; VOR/DME, ILS and VDL Mode 4) every year.
 - Frequency Finder is now being utilized for the management and registration of NAV systems. The publication of Frequency List No. 2 will be discontinued in 2024.



Addressing Interference

- Interference issues have been continuously discussed and shared on regional platforms from time to time
 - APT HF Interference and BSS (Broadcasting Satellite Service) Replanning Meeting in 1998,
 - SRWG, SURICG, CNS SG meetings presented and shared reporting FORM for radio interference, Interference in the Band 117.975 – 137 MHz, VHF Interference caused by MSSR, Potential Interference to Aeronautical Spectrum from LED Products, etc.
- APANPIRG formulated various Conclusions to address radio interference
- The ICAO APAC Regional Office coordinated to resolve VSAT interference issue between two States, VHF COM interferences among six States in 2022.



HF

- ICAO does not coordinate assignments for HF frequencies. Pre-coordination of HF frequencies could be arranged through the ICAO ASIA/PAC Office in Bangkok.
- Despite of the limited role of ICAO in HF assignment coordination, ICAO regional office and PIRGs acted for grouping aeronautical stations among the MWARA frequencies allotments in the Regional Air Navigation Plan.
- ICAO APAC tried to set up Frequency List 4, but the work has suspended for more than 10 years.



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