



*International Civil Aviation Organization*

**SECOND MEETING OF SPECTRUM REVIEW WORKING GROUP (SRWG/2)**

Bangkok, Thailand 12 – 14 May 2015

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**Agenda Item 5: Recommendations for improvement of VHF frequency planning**

**FREQUENCY PLANNING AND PROTECTION OF THE FREQUENCIES  
121.500 MHZ, 123.100 MHZ AND 123.450 MHZ**

(Presented by the Secretariat)

**SUMMARY**

This paper proposes actions to take in the APAC Region regarding the aeronautical emergency frequency (121.500 MHz), the aeronautical auxiliary frequency SAR (123.100 MHz) and the air-to-air frequency (123.450 MHz).

**1. Introduction**

1.1 The SRWG agreed that a further clarification is necessary with regard to the protection and coordination of the aeronautical emergency frequency (121.500 MHz), the aeronautical auxiliary frequency SAR (123.100 MHz) and the air-to-air frequency (123.450 MHz).

1.2 The SRWG requested that particular attention was to be given to the protection and use of the air-to-air frequency 123.450 MHz.

1.3 With regard to the aeronautical emergency frequency (121.500 MHz) the effect of the reduction of the guard band around this frequency also requires action.

**2. The aeronautical emergency frequency 121.500 MHz**

2.1 Provisions for the use and availability of the aeronautical emergency frequency are in Annex 10, Volume V and in particular section 4.1.3.

2.2 With regard to the availability of the aeronautical emergency frequency, Annex 10, Volume V, paragraph 4.1.3.2 stipulates that:

The aeronautical the frequency 121.500 MHz shall be provided at:

- a) All area control centres and flight information centres;
- b) Aerodrome control towers and approach control offices serving international aerodromes and international alternate aerodromes; and

- c) At any additional location designated by the appropriate ATS authority, where the provision of that frequency is considered necessary to ensure immediate reception of distress call or to serve the purposes specified in 4.1.3.1.1

2.3 The implementation of the aeronautical emergency does, from the technical perspective, not require any international coordination. Therefore, for frequency assignment planning, there is no need to introduce in the ICAO COM list 3 stations to which the frequency 121.500 MHz has been assigned and no technical analysis is required on the compatibility of this frequency. Therefore, and in line with the provisions in Annex 10 for the aeronautical emergency frequency, in the APAC COM list, with two exceptions, stations that are using the aeronautical emergency frequency are not listed.

#### 2.4 Reduction of the guard band for the frequency 121.500 MHz

2.4.1 In 2013 Annex 10, Volume V was amended (Amendment 88-A) and reduced the guard band around the aeronautical emergency frequency. While prior to this amendment the guard band included the (25 kHz) channel 121.425, 121.450, 121.475 MHz and 121.525, 121,550 and 121.575 MHz, this guard band has been reduced to include only the frequencies 121.475 MHz and 121,525 MHz. As a result, the frequencies 121.425, 121.450, 121.550 and 121.575 MHz became assignable 25 kHz channels.

2.4.2 Considering the effect of the reduction of the guard band around the frequency 121.500 MHz and the four new channels that can be used for ATC communications, it is proposed to modify the frequency allotment plan for the APAC Region as follows:

Current allotment	Current frequency band	Modified frequency band
APP-I	121.100 – 121.400 MHz	121.100 – 121.450 MHz
AS (aerodrome surface)	121.600 – 121.975 MHz	121.550 – 121.975 MHz

### 3. Aeronautical auxiliary frequency (SAR) 123.100 MHz

3.1 Provision for the implementation of the aeronautical auxiliary frequency for search and rescue (SAR) operations are in Annex 10, Volume V, paragraph 4.1.3.4.

3.2 The implementation of the aeronautical auxiliary frequency for search and rescue (SAR) operations does, from the technical perspective, not require any international coordination. Therefore, for frequency assignment planning, there is no need to introduce in the ICAO COM list 3 stations to which the frequency 123.100 MHz has been assigned and no technical analysis is required on the compatibility of this frequency. Therefore, and in line with the provisions and use of the aeronautical auxiliary frequency for search and rescue (SAR) operations, in the APAC COM list, with one exception, stations that are using the aeronautical emergency frequency are not listed.

3.3 A review of the APAC COM list 3 demonstrates that 33 frequencies are assigned to TWR, APP-L or APP-U services. This use is not in accordance with the provisions of Annex 10 and should be reconsidered.

#### 4. Air-to-air frequency 123.450 MHz

4.1 Provisions for the use of the air-to-air frequency are in Annex 10, Volume V, paragraph 4.1.3.2. These provisions stipulate that the air-to-air communications channel shall be used over remote and oceanic areas where the aircraft is outside the range of VHF ground stations. This paragraph further notes that an aircraft using the air-to-air frequency can cause interference to (and be interfered from) aircraft (and ground stations) that operate on the same frequency. In the APAC COM list 3 some 32 frequency assignments to ground stations are incorporated. The use of the air-to-air frequency needs to secure protection of these stations from harmful interference.

4.2 It may be difficult for pilots to determine whether or not they are within reach of a ground station (any VHF ground station) and in particular a ground station that operates of the frequency 123.450 MHz. In the APAC Region 32 frequency assignments on the frequency 123.450 MHz are in place as shown in Figure 1.

4.3 With regard to the actual use of the frequency 123.450 MHz fir air-to-air communications, States should ensure that this frequency is not used in a manner that can cause harmful interference to ground stations operating on the same frequency. Alternatively, States could decide to use this frequency for non-protected aeronautical applications (e.g. small airfields where no air traffic services are provided, with only local traffic and where interference on the RF channel will not endanger flights.)

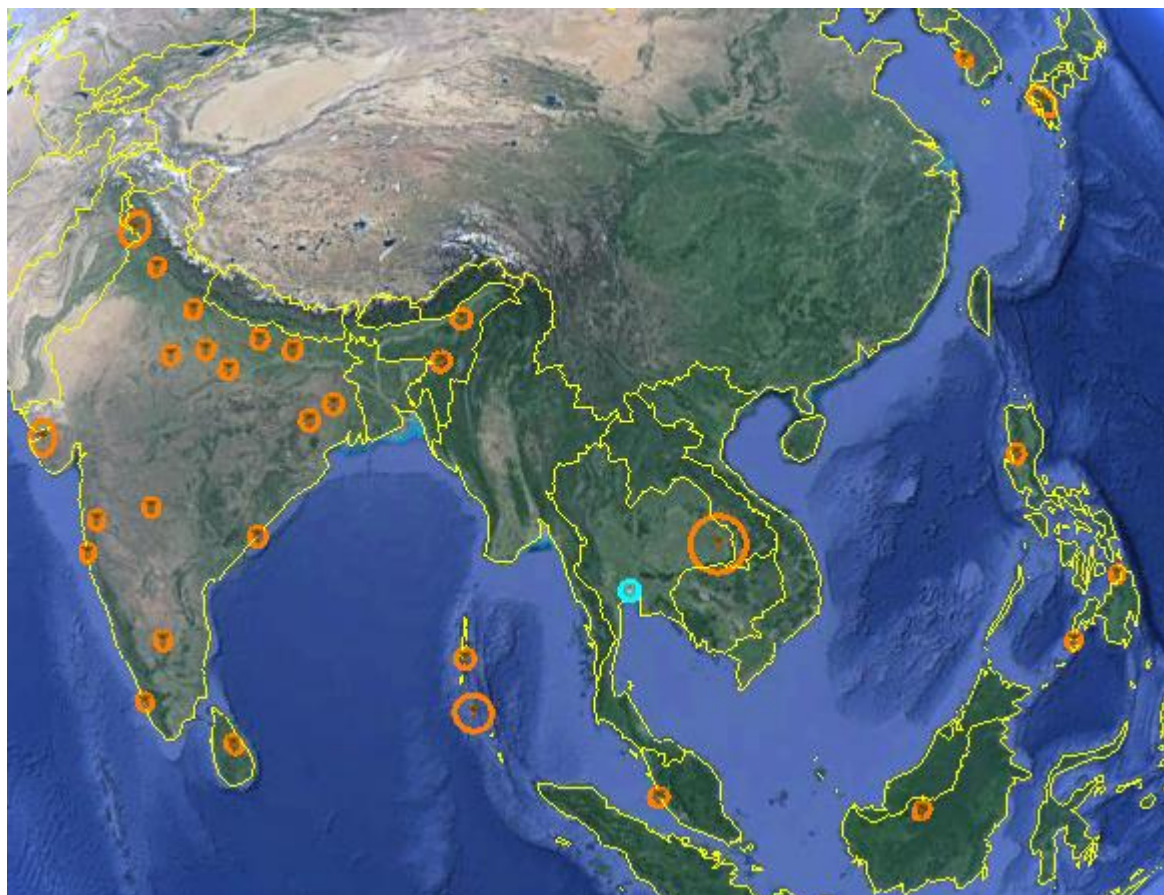


Figure 1 – Frequency assignments in the APAC Region on the frequency 123.450 MHz  
*Note: Frequency assignments in New Zealand not shown.*

**5. Action proposed**

5.1 The meeting is invited:

- a) to note the material contained in this paper;
- b) to recommend amendments to the APAC Regional allotment plan as in paragraph 2.4.2; and
- c) to recommend that States take measures to avoid harmful interference to (ground) stations operating on the frequency 123.450 MHz from air-to-air operations on the same frequency.

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