



International Amateur Radio Union Region 1

Europe, Middle East, Africa and Northern Asia

Founded 1950

The Background to the 144-146 MHz band draft proposal

ATTACHMENT 1

Introduction

At the WRC-19 preparatory meeting in week beginning 17th June 2019, the French administration introduced a paper proposing that the band 144-146 MHz be included in a range of frequencies to be studied for future airborne non-safety applications. The amateur service views with great concern this proposal from France in the primary VHF spectrum. This document sets out IARU's concerns and the technical basis for them.

Overview

The amateur allocations in this band in the Radio Regulations are as follows:

Allocation to services		
Region 1	Region 2	Region 3
144-146	AMATEUR AMATEUR-SATELLITE 5.216	

5.216 *Additional allocation:* in China, the band 144-146 MHz is also allocated to the aeronautical mobile (OR) service on a secondary basis.

The amateur service and amateur satellite service therefore enjoy exclusive access to the 144-146 MHz band. It is the only globally harmonised primary allocation to the amateur services in the VHF range. In addition, Region 2 and 3 have access to 146-148 MHz, which is also included in the proposed spectrum to be studied. The band is highly utilised, with the majority of European amateur population equipped for use of the band in some form or other.

The band supports a range of applications, as follows (typical European allocations):

- Repeater input and output channels. The repeaters are generally installed in high locations with significant range.
- Satellite and space communications.
- Propagation beacons - 24 hours per day.
- Narrow band long distance including earth-moon-earth high power communications.

The rest of the band is used for long range tropospheric communication, digital and machine-to-machine communication, simplex communications and a range of other experimental modes. The recent transatlantic communication on this band is an example of the experimental work under way.

Many amateur stations in this spectrum utilise relatively high power and high gain antennas. EIRPs in excess of 1 kW are not unusual

It should also be noted that the band is extensively used for communication with the ISS. The amateur service is the communications back-up to the ISS and has already been activated twice to be ready to provide this when spacecraft antenna pointing systems failed.

Examination of the Radio Regulations above the 144-146 MHz range suggests that alternative proposals could be developed that could provide further spectrum for aeronautical applications without impacting on amateur service spectrum. There is some 24 MHz of spectrum allocated to the Fixed/Mobile services in 138-174 MHz range which could be released if a restriction on its use for aeronautical purposes is removed.

The French proposal provides no rationale for including the amateur band in the proposed study and IARU believes that sharing with airborne systems will be extremely challenging and will lead to constraints on the development of amateur and amateur satellite services.

Whilst it has been stated that there is no proposal to withdraw the amateur allocation, it seems inevitable, when considering the free space separation distance to ensure co-frequency coexistence, that there could be very significant challenges for the aeronautical systems to avoid receiving interference from or causing interference to the amateur service. This is likely to lead to constraints on the amateur service usage. A basic technical analysis of paths at this frequency range shows this to be the case.

The proposal gives no information about the technical detail of the proposed applications other than that it is needed to provide a "continuous tuning range". In the current technical environment, it is far from clear why a "continuous tuning range" is necessary, given the ready availability of technologies which can provide automatic frequency agility as a common feature of governmental and military communications products. Furthermore, the proposal is a single country proposal with no evidence of broad support from other countries or the aeronautical mobile service elsewhere.

The French proposal has caused an outcry from radio amateurs world-wide, who regard this 2 MHz of spectrum a core band to amateur radio and cannot accept its suggested use for a service that has the potential to have access to many more MHz of spectrum nearby.

If accepted as a WRC-23 Agenda Item, this proposal would require four years of studies by administrations. Considering the challenges with sharing spectrum with aeronautical systems it seems inevitable that the conclusions of such studies would be that sharing with a widely-used part of the amateur spectrum presents too many problems to be viable. For this reason and for the other reasons set out in the document, the amateur service believes that this proposal for a WRC-23 Agenda Item should be rejected unless the 144-148 MHz element is removed.

No action is needed from member societies outside CEPT countries at this stage. This document is simply to provide background information and to answer questions from concerned radio amateurs