



International Amateur Radio Union Region 1

Europe, Middle East, Africa and Northern Asia

Founded 1950

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SUBJECT	500kHz Secondary Allocation		
Society	500 kHz Working Group	Country:	Region 1
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Interest in 500kHz has been actively pursued since the question of Amateur interest was first raised by RSGB at the IARU Region1 conference at San Marino in 2002 with the result that a working group was set up to look into the frequency allocation issues. That working group, which by then had representatives from all three IARU regions, reported back at the 2005 conference in Davos. Whilst no recommendation was requested or made at the conference, delegates noted the progress and the individual approaches of member societies to their respective administrations. Because of Region 2 representation on the 500kHz Working Group, IARU Region 2 has indicated that they would support any recommendation made by Region 1 in respect of 500kHz.

Since Davos three countries (Germany, Sweden and the USA) have been successful in gaining some experimental access for Amateur stations around 500kHz and it is considered timely to move now to seek a firmer status for such experimentation. This is because of two factors, firstly the forthcoming review of the Global Maritime Distress and Safety System (GMDSS) and other related provisions of the Radio Regulations under item 1.14 of the WRC-07. The second is the pressure on regulators from ex-marine operator groups for access to the frequencies for operation of commemorative stations at or near to 500kHz.

Quite apart from the likely experimental opportunities that would avail Amateurs at 500kHz, there is some value in retaining some part of this spectrum for emergency communication that Amateurs could facilitate. This is because calculations¹ show that the combination of aerial gain, surface-wave attenuation and noise level favours frequencies close to 500kHz. Allowing the Amateur Service access at 500kHz would therefore facilitate one or more channels that would provide 24/7 coverage over 200 – 300km without any requirements on ionospheric propagation. The experimental areas for the Amateur are in relation to the combination of ground and sky-wave propagation, compact aerial designs in non-ideal environments, and modulation/signal processing methods. There is a distinct difference between the two nearest Amateur bands – 136kHz and 1.8MHz – which is key to the reason for the Amateur interest.

Currently, the ITU Radio Regulations allocates the frequencies between 405 and the bottom of the broadcast band around 525kHz as shown in figure 1. Apart from the obvious band between 495 and 505kHz, which is largely unused following the replacement of the 500kHz distress/calling frequency with GMDSS, there is scope for worldwide secondary-status in this frequency band as well as in some frequencies immediately above 505kHz.

Whilst the 500kHz distress/calling frequency within GMDSS has been discontinued our own research has confirmed that few nations use or monitor the frequencies (China and Indonesia are still formally listed as users, although there are no signs of activity). With this lack of activity several Aeronautical Radionavigation non-directional beacons (NDBs) have been found encroaching in this 495- 505kHz band, mostly from Eastern Europe and Asia. Others too are looking at making use of the spectrum,

¹ “ARRL 500-kHz experimental license WD2XSH” F. Raab, W1FR. www.500kc.com

Region 1	Region 2	Region 3
405 - 415kHz RADIONAVIGATION 5.76	405 - 495kHz RADIONAVIGATION Aeronautical Radionavigation	
435 - 495kHz MARITIME MOBILE Aeronautical Radionavigation		
495 - 505kHz MOBILE (distress and calling)		
505 - 526.5kHz MARITIME MOBILE Aeronautical Radionavigation	505 - 510kHz MARITIME MOBILE	505 - 526.5kHz MARITIME MOBILE Aeronautical Radionavigation Aeronautical Mobile Land Mobile
	510 - 525kHz Aeronautical Radionavigation	

Figure 1. ITU Radio Regulations frequency assignments.

e.g. the US Coastguard for its upgraded Differential GPS. NAVTEX provides automated distribution of weather and navigation-system information to mariners and currently operates on 490 and 518kHz; It is possible that they may see benefit in making use of part of the spectrum between 495 and 505kHz for an additional service. Groups of ex-maritime operators have been protecting our heritage by maintaining some of the 500kHz stations as “museum stations” and operating them in a commemorative way. Many of these operators are themselves radio amateurs and we should see the synergy between their interests and ours, which for them could legalise their commemorative operations if we were together able to gain a secondary Amateur Service status around 500kHz. Their “museum stations”, far from being antiquated, could act as a foundation for supporting Amateur emergency communications in times of need; A fitting tribute to former purpose of these stations.

In view of the current uses of the MF band between 495 and 510kHz it is proposed that Amateurs could enable spectrum re-use on a worldwide basis, without the need for coordination with the very limited group of existing users of cause interference to systems in adjacent parts of the spectrum.

We need to act now to secure Amateur access to this part of the spectrum, else commercial and other interests will surely take over. Already, as has been pointed out, some un-official use of the spectrum is already occurring and that could increase. Whilst IARU Region 1 needs to support such a move, what would really make a difference is for IARU National Societies to engage with their national administrations to facilitate getting the issue onto the agenda for WRC-10.

Recommendation that Region 1 move to secure an amateur service allocation in the region of 500kHz.. It should do this by seeking national administration support for consideration of a 15kHz wide secondary allocation between 405 and 510kHz on the WRC-10/11 agenda.