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SUBJECT	500kHz Working Group Report		
Society	IARU	Country:	Region 1
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Licensing Position

Amateurs in the US, Germany, UK, Sweden, Belgium and the Czech Republic have been allowed some form of access to frequencies around 500 kHz, with ERP limits set between -10 dBW and +23 dBW. The licenses vary from special experimental licenses (US, Germany, Czech Republic), Notices of Variation to the Amateur License (UK), specific licenses for an individual (Sweden) to general access for all full class (HAREC) license holders (Belgium).

Experiments

Groundwave propagation has been much as expected from the well-documented and understood propagation models. Whilst obviously transmit ERP and receive noise-level related, reliable propagation has been observed typically over 500 km for commonly used modes such as CW and PSK31. Narrow-band receive methods, such as QRSS increases this range. The strong D-layer daytime absorption, especially during summer months, blocks skywave propagation so the groundwave propagation is largely free of fades. This propagation underlines the suitability of the frequency for regional (non line-of-sight) emergency communications.

As with groundwave propagation the coverage for skywave propagation is also closely related to transmit ERP, noise-level at the receiver location, receive bandwidth and processing within the information capture process. Thus, path lengths are somewhat misleading to quote. However, as a datum, for low-noise receive environments and transmit ERPs of 13 dBW distances up to 10000 km are possible for CW in a receive bandwidth of 500 Hz over a sea path. More typically one gets a far less, as the receive noise-floor often masks the weak skywave signals. CW transmissions in the -10 to 0 dBW ERP range can be copied almost every night over distances up to 2000 km.

With skywave propagation fading is one of the main problems encountered during experiments. This is much more pronounced and faster than that at 136 kHz, more akin to that experimented on 160 m.

CEPT / ITU Position

Following strong lobbying by this Working Group, IARU and the several National Administrations, led by the BNetzA, secured discussion of the possibility of an Amateur Band at 500 kHz at the next World Radio Conference. WRC-11 Agenda Item 1.23 was set as:

“to consider an allocation of about 15 kHz in parts of the band 415-526.5 kHz to the Amateur Service on a secondary basis, taking into account the need to protect existing services” on the provisional agenda for WRC-11 (set for 2011).”

Preparation for the next WRC is already underway, although progress is traditionally slow. Currently, a Liaison Statement from ITU WP 5A has been sent to WP 5B providing the characteristics of Amateur systems that might use the band and asking for information on maritime systems to be protected. WP 5A and WP 5B meet in October 2008 to take this matter forward.

Separately, CEPT, through its WG RA2 has sought to understand the licensing arrangements currently being applied by different National Administrations, by its proposal to “investigate the use of the 500 kHz band for the Amateur service in the CEPT countries.” The matter has been referred to WG FM.

Whilst the first part of this paper provided some extremely interesting figures on the skywave DX capabilities of 500 kHz, it needs to be noted that in dealings with CEPT and ITU that this represents extremely favourable propagation conditions and often specialised communication modes or protocols, thus, in most part Amateur transmissions at modest distances, at the transmit ERP levels currently being used, would largely pass un-noticed by any non-Amateur usage on or near to the frequency.

Recommendation

- a) That the 500 kHz Working Group, enhanced with representation from Regions 2 and 3, be re-tasked with work that relates to supporting the proposal and related technical studies required in the preparatory work for WRC-11 Agenda Item 1.23.
- b) That Member Societies consider approaching their Administrations for experimental access to frequencies near to 500 kHz, with a view to supporting the IARU task by familiarising their Administrations on the issues surrounding Agenda Item 1.23