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Subject	134 GHz Operation and Band Plan		
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134 GHz Centre of Activity

Introduction

This paper proposes that an alternative centre for 134 GHz narrowband activity be adopted in the Region 1, reflecting the fact that the current default is proving unpopular on account of its practicality

Background

Following WRC-2000, the former 120 and 145 GHz bands were replaced by allocations at 122 and 134 GHz and the Region 1 band plans for these were adopted at San Marino in 2002. The 134 – 136 GHz band is a Primary allocation and as such is strongly favoured in preference to adjacent secondary allocations at 122 and 136 - 141 GHz. It can also be a potential base to access even higher frequency ranges such as above 275 GHz.

Pioneering activity so far by US, German and most recently UK amateurs has all focussed on various frequencies that are compatible with multiplier/mixer multiples, which is the common practice in lower microwave bands. As far as we are aware none of this has aligned with the 134.001 band plan designation.

In lower microwave bands, such practical considerations have resulted in:-

1 296 (1 152 + 144); 5 760 (1 152 x 5); 10 368 (1 152 x 9); 24 048 (1 152 x 21 - 144); 47 088 (1 152 x 41 - 144); 75 976 (1 152 x 66 - 2 x 28)

Today whilst synthesisers and SDRs, are commonplace, microwaves in the millimetre wave bands would remain dependent on multiplication and IF mixers. We therefore expect the use of 144 or similar IF frequencies to remain common as 134 GHz stations are likely to be portable for the foreseeable future (using FT817s or similar radios at IF)

Key points and proposals

In 2007, a review by Sam Jewell, G4DDK, of the UK Microwave Group proposed that a more suitable centre of activity would be 134.928 - 134.930 MHz (1 152 x 117 + 144), although we are aware that other frequencies have had experiments.

The review also highlighted that frequencies should be chosen such that the IF image frequency should remain within the amateur allocation, as it is difficult to design

narrow 134 GHz filters.

Clearly there may be other alternatives including a more central frequency at 134.640 (1152 x 117 - 144) which would leave greater margin in 135 – 136 GHz for other uses.

Recommendations

Subject to contributions by other societies, we recommend that

- 134 GHz Primary is favoured relative to 122 GHz and other adjacent secondary allocations
- 134.001 GHz is no longer supported and be removed from the band plan
- a more suitable centre of narrowband activity be designated in the band plan instead at one of either 134.640 or 134.928 GHz (or other agreeable/practical combination)