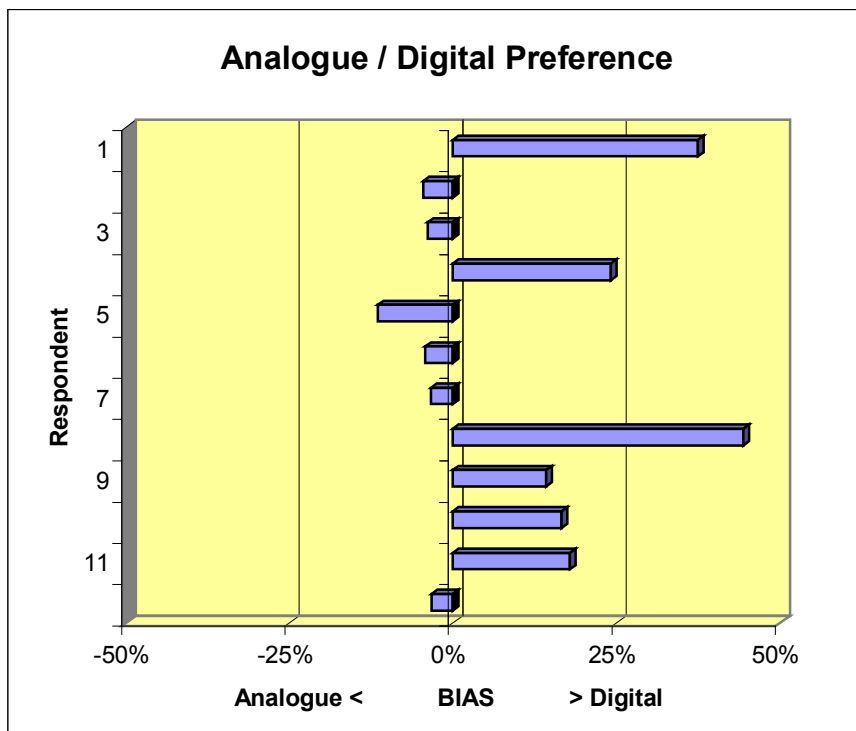


## ANALOGUE / DIGITAL RADIO COMPARISON

During the presentation on Digital Mobile Radio at our 21 June 2009 meeting in Hamilton, Ian ZL1TAT played a series of sound files comparing analogue FM transmissions against various formats of digital mobile radio transmissions. The audience was invited to participate in this evaluation by recording their individual scores for each of nine comparisons played. Digital formats included D-STAR, NXDN, and MotoTRBO, operating under a range of signal strengths from strong to very weak, while stationary and moving with significant flutter. Playback of the weak and fluttery mobile signals revealed all expected noise on analogue and various decoding artefacts on digital, providing a 'real-world' evaluation of conditions found near outer limits of a radio coverage area. Each of the twelve anonymous voting forms were subsequently analysed and results averaged.

Our audience gave the analogue transmissions an overall score of 46.5%, and digital 50.5%, revealing a 4% preference of the digital signals compared with analogue over a range of signal strengths, good to poor. Half those voting were between 3.2 and 11.4% in favour of analogue, while those favouring digital voted between 14.3 and 44.4% in favour of that mode. The distribution of individual scores is shown in the chart below, where a bias towards analogue is left of the centre line, and digital to the right.



Narrow-band digital mobile-radio signals reveal a slightly unnatural and 'metallic' sound (caused by the Vocoder's digitising the audio into a low rate digital stream at the transmitting end, and subsequent decoding at the receiving end), which it appears people adjust to quite quickly. It might have been expected that our audience comprised of amateur radio operators would be more tolerant of noisy and disrupted signals than another audience of general radio users. However, their bias came out very similar to that obtained in similar evaluations done with an audience of non-amateur operators.