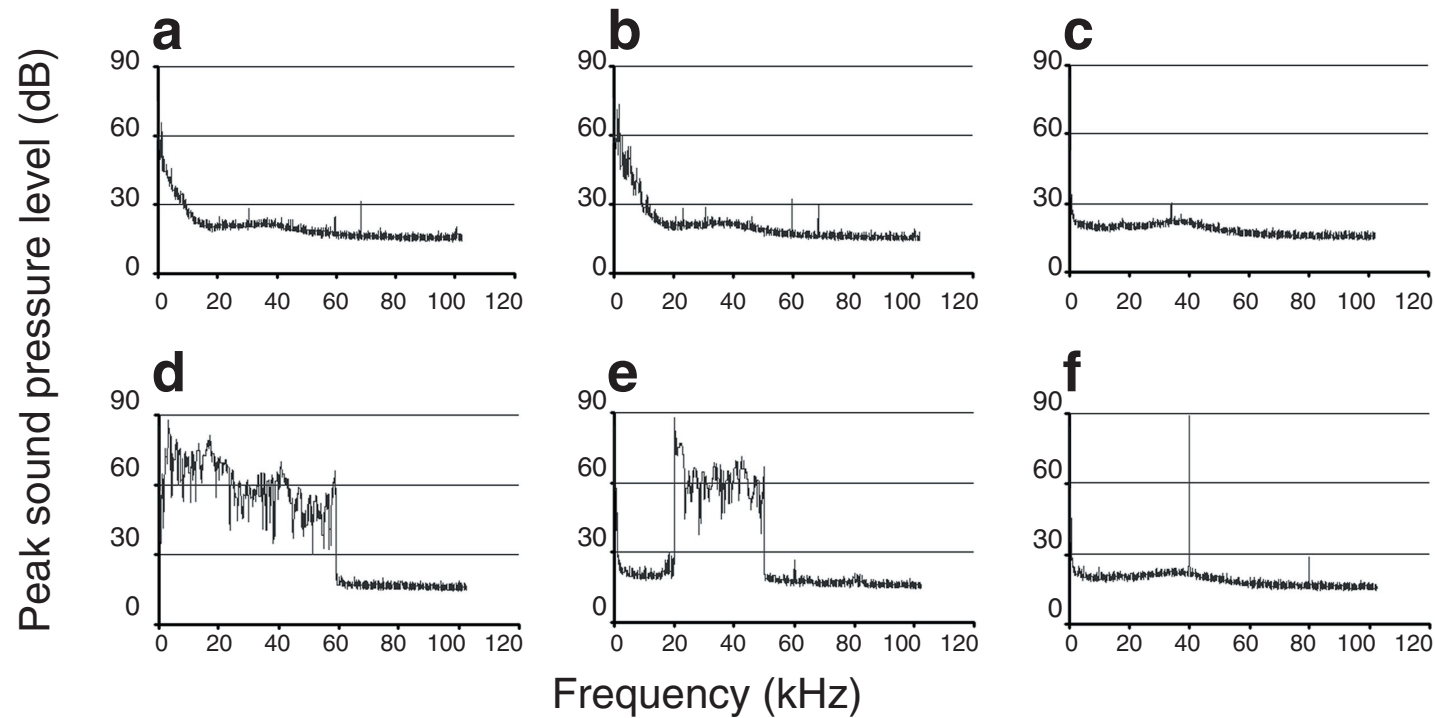


**Supplementary Figure 1** Frequency spectra measured for the MRI scanner and the sound-stimuli used in these MEMRI experiments.



(a) Background noise in the MRI room, with the scanner turned off. (b) Noise measured 2.5-m in front of the magnet bore with the gradient-echo sequence running. (c-f) Noise measured at the center of the cage, inside the acoustic isolation chamber during the presentation of sound stimuli: (c) no stimulation; (d) broadband, 1-59 kHz; (e) High frequency broadband, 20-50 kHz; (f) Pure tone, 40 kHz. In each case, the maximum amplitude by frequency is plotted for a 10-s acquisition period.