Simultaneous reflection masking: dependency on direct sound level and hearing-impairment

Simultaneous reflection masked thresholds (RMTs) were measured for 3 normal-hearing (NH) and 3 hearing-impaired (HI) subjects as a function of reflection delay. All stimuli were presented diotically and dichotically, using a 200 ms long broadband noise (100-50000 Hz) as input signal. For 55 dB-SL direct sound level, NH-listeners showed a binaural suppression effect for delays smaller than 7-10 ms and a binaural enhancement effect for larger delays. When decreasing the direct sound level to 15 dB-SL, the only significant change observed was that the dichotic RMT increased for delays larger than about 7 ms. In consequence, the binaural enhancement effect was strongly reduced, but the binaural suppression effect was unchanged. HI-listeners (at 30 dB-SL) showed a strong binaural suppression effect for delays smaller than about 3 ms and only a very small binaural enhancement effect for larger delays. Hence, in contrast to binaural reflection enhancement, binaural reflection suppression seems to involve mechanisms that are robust to auditory-internal noise-floor and hearing-impairment. Moreover, differences between the RMTs for HI- and NH-listeners were in principle agreement with differences expected from changed auditory filter bandwidth and audibility. However, the stimulus level-dependency of the auditory filters’ bandwidth was not reflected in the SRMT data.