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**A psychophysical test of the Kummer primary-level rule for  
measuring distortion-product otoacoustic emission input/output  
functions**

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The standard procedure for measuring distortion-product otoacoustic emission (DPOAEs) input/output (I/O) curves involves using primaries whose levels conform to the rule of Kummer [Kummer et al. (1998), *J. Acoust. Soc. Am.* 103, 3431-44]. The assumption is that the DP originates at the F2 cochlear site and primaries that conform to this rule produce equal excitation at that site, which maximizes the DP amplitude. These ideas were tested psychophysically by measuring temporal masking curves (TMCs) for masker frequencies equal to the primary frequencies. A TMC-based level rule was obtained by plotting the levels of the F1 masker against those for the F2 one for corresponding masker-probe intervals. DPOAE I/O curves were then measured using the Kummer rule, the TMC-based rule, and primary levels optimized individually to maximize DP amplitude. DPOAEs for the TMC-based and the Kummer rule had statistically similar amplitudes, but they were both lower than those measured with individually-optimized levels. This undermines the assumption that maximum DP responses occur for primaries that produce equal excitation at the F2 cochlear site. Individually-optimized levels showed that L1 should be higher than prescribed by the Kummer rule. [Work supported by IMSERSO-131/06, PROFIT-CIT-390000-2005-4, and MEC-BFU-2006-07536, and The Oticon Foundation].