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**Role of peripheral nonlinearities in across-frequency processing of
envelope fluctuations in normal hearing and hearing impaired
listeners**

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A psychoacoustical phenomenon related to the ability of the auditory system to compare information across frequency is comodulation masking release (CMR). CMR describes the effect that signal detectability of a sinusoidal signal embedded in a masker at the signal frequency can be improved by simultaneously presenting additional maskers in off-frequency regions if the additional maskers and the on-frequency masker (OFM) component have the same temporal envelope. Recently it was proposed that peripheral nonlinear processes such as suppression may account for large proportions of the CMR in conditions with a large spectral distance between the masker components. The aim of the present study was to test this hypothesis by measuring suppression and CMR within the same subjects for various frequency-level combinations of the off-frequency masker component. Average data for normal hearing listeners show a large overlap between the existence regions for suppression and CMR. The hearing impaired subjects with a sensorineural hearing loss show a negligible suppression and CMR. The data support the hypothesis that peripheral nonlinearities play an important role in CMR experiments with large spectral distances and large level differences between the masker components.