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**Quantifying and modeling the acoustic effects of compression on  
speech in noise**

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In this presentation a method is proposed that is able to separate a speech signal out of a noise signal after processing of the signal through wide-dynamic-range compression (WDRC). This technique reconstructs the speech signal and noise signal sample by sample separately using the gain factor of the WDRC, and can be used to quantify the acoustic effects of WDRC in noise. It will be shown that this technique is more accurate than a frequently used inversion technique, because the method is not affected by phase shifts that introduce distortion products in the reconstructed speech signal. As a result, the acoustic effects of WDRC can be measured more accurately. In addition, this reconstruction method allows modeling the speech intelligibility after non-linear signal processing in the Speech Intelligibility Index. With the aid of Speech Reception Threshold data it will be shown that this approach can give a good account for most existing data.