Evaluating the sensation of envelopment arising from 5-channel surround sound recordings

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Abstract
This paper discusses a series of listening tests conducted in the UK and Denmark to evaluate the perceived envelopment of surround audio recordings. The listening tests were designed to overcome some drawbacks (such as range equalization bias) present in the scores of a listening test based on ITU-R BS.1534-1 Recommendation (MUSHRA) [1], [2]. In this method the listeners were asked to evaluate the envelopment of 5-channel surround sound recordings using a 100-point continuous scale. In order to calibrate the scale, two anchor recordings were used to define points 15 and 85 on the scale. The anchor recordings were selected by means of a formal listening test and interviews with the listeners. According to the obtained results, the proposed method provides repeatable results.

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[1] George S, Zielinski S, Rumsey F. "Feature Extraction for the Prediction of Multichannel Spatial Audio Fidelity", IEEE Trans. on Audio, Speech, and Language Processing, Vol. 14, No. 6, pp. 1994-2005 (November, 2006).

[2] ITU-R BS.1534 Recommendation (2001) Method for the subjective assessment of intermediate audio quality. International Telecommunication Union, Geneva.