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Swept Sine against MLS in room acoustics with music signals as background noise

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The Swept Sine and the MLS techniques are very popular in room acoustic measurement set-ups. Advantages and disadvantages of both methods have been well investigated and can be found in the literature. However, information regarding the performance of these techniques in the presence of high background music levels is scarce. Since the estimation of the room impulse response is based on the correlation between signals, the likelihood between the test signal and the music contents has an important role on the results accuracy. This paper explores these issues by taking into account the semantic information of the music signals when used as disturbance. The method used for the assessment of the gain between the two techniques consists on splitting each frame in segments and applying a weighting function depending on a likelihood function. The features used for the likelihood function are the rms value of each segment, spectral energy envelope relation, bandwidth and harmonic structure. Several examples are presented for comparison of the performance of the Swept Sine and the MLS techniques. Advantages and disadvantages of each technique are discussed for music signals as noise.