QESTRAL (Part 4): Test signals, combining metrics and the prediction of overall spatial quality

Martin Dewhirst, Robert Conetta, Francis Rumsey, Philip Jackson, Slawomir Zielinski, Sunish George, Søren Bech and David Meares

Abstract

The QESTRAL project has developed an artificial listener that compares the perceived quality of a spatial audio reproduction to a reference reproduction. Test signals designed to identify distortions in both the foreground and background audio streams are created for both the reference and the impaired reproduction systems. Metrics are calculated from these test signals and are then combined using a regression model to give a measure of the overall perceived spatial quality of the impaired reproduction compared to the reference reproduction. The results of the model are shown to match closely the results obtained in listening tests. Consequently, the model can be used as an alternative to listening tests when evaluating the perceived spatial quality of a given reproduction system, thus saving time and expense.