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Distribution of Speech Intelligibility Metrics in Classrooms with Varied Signal to Noise (S/N) Ratios

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In a classroom to provide adequate speech intelligibility is vital especially when young children are concerned. Room acoustical characteristics of classrooms like reverberation times and background noise mainly define the speech intelligibility in classrooms. Excessive background noise deteriorates the signal to noise ratio (S/N) and leads to reduction in learning efficiency. An extensive measurements study is being used in Istanbul Elementary Schools as part of a project. This paper explains the results of the investigation of the influence of varying signal to noise ratios on different speech intelligibility metrics. Background noise are includes external noises such as outdoor traffic noise, noise from playground or noise from adjacent classrooms. STI, RASTI, Alcon(%) values of 20 different classrooms in 20 different schools are measured in 9 different positions. The measurements were repeated in each classroom while windows were open and closed respectively. The object of the work was to systematically study the influence of the S/N ratio variations and reverberation time on the different speech intelligibility metrics. Finally to elucidate the effects of different absorption treatments achieving recommended reverberations on the measured speech metrics are also discussed.