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## An improved narrowband active noise control system without secondary path modelling based on the time domain (Article)

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### Abstract

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Several secondary path, acoustic noise cancellation modelling causes the problems to increase the complexity of ANC implementation, reduction of performance caused by modelling error and requirement of auxiliary noise for secondary path modelling. The acoustic noise generated is further compounded by using secondary path identification which makes the system complex. There are several available ANC algorithms that do not require secondary path estimation for modifying the FxLMS algorithms. Due to drawbacks such as slow convergence speed and, complexity of the phase shift mechanism, a novel approach with no secondary path modelling is adopted, in which the adaptation stability is guaranteed by switching the sign of the step size. It is combined with the online tuneable delay of the reference signal to significantly improve the adaptation convergence properties of the algorithm. A new mathematical modelling has been proposed to reduce the acoustic noise that increases the convergence criteria. Copyright © 2019 Inderscience Enterprises Ltd.

### SciVal Topic Prominence ⓘ

Topic: Active Noise Control | Least Mean Square | Noise Cancellation

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### Author keywords

All-pass filtered x LMS ANC Delay LMS Secondary path modelling Time domain

### Indexed keywords

Engineering controlled terms: Acoustic variables control Active noise control

Engineering uncontrolled terms: Convergence criterion Convergence properties FxLMS algorithms Narrowband active noise control systems Noise cancellation Reference signals Secondary path estimation Slow convergences

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