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Investigated Optimization of Davidson Path Loss Model for Digital Terrestrial Television (DTTV) Propagation in Urban Area

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Abstract : This paper presents an investigation on the efficiency of the optimized Davison path loss model in order to look for a suitable path loss model to design and planning DTTV propagation for small and medium urban areas in southern Thailand. Hadyai City in Songkla Province is chosen as the case study to collect the analytical data on the electric field strength. The optimization is conducted through the least square method while the efficiency index is through the statistical value of relative error (RE). The result of the least square method is the offset and slop of the frequency to be used in the optimized process. The statistical result shows that RE of the old Davidson model is at the least when being compared with the optimized Davison and the Hata models. Thus, the old Davison path loss model is the most accurate that further becomes the most optimized for the plan on the propagation network design.

Keywords : DTTV propagation, path loss model, Davidson model, least square method
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