The Lightning Risk Evaluation for Railway Signalling Systems based on Observation of Lightning Overvoltage

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Effective and economical lightning protection measures are necessary for railway signalling systems because suspended operation or train delays due to lightning damage may cause social disruption. The authors measured lightning overvoltage on railway signalling cables laid at ground surface, overhead power lines and rails in the field to enable quantitative analysis of the frequency of lightning overvoltage occurrence. Moreover, we investigated the correlation of lightning overvoltage on signalling cables, power lines and rails with lightning conditions, such as the stroke current and the strike position. This paper describes the lightning risk evaluation for railway signalling systems against lightning conditions.