

EVALUATION PARAMETERS OF IMPACT SOUNDING SIGNALS FOR INTERFACE CONDITION ASSESSMENT OF CONCRETE BRIDGE DECKS

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ABSTRACT

An impact sounding method is used to detect damages of materials subjectively based on sound characteristics such as intensity. This paper proposed an objective approach to distinguish between damaged and undamaged interface of pavement systems by analyzing impact signal and its frequency spectra. Two parameters, skewness and β -parameter were proposed to quantify the level of damage. The skewness value and β -parameter of the frequency spectra of bonded interface is less than 1.5 and less than 2.0 respectively. On the other hand, the unbonded interface frequency spectra have skewness value and β -parameter of greater 1.5 and greater than 5.0 respectively. Using the proposed evaluation parameters, levels of interface damages of concrete bridge deck pavement could be identified in the field.