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Non-destructive testing of cover concrete using spectral analysis of ultrasonic surface waves

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Abstract : Concrete cover evaluation with NDT technique is a critical issue in the diagnosis of structures service life. Ultrasonic NDT technique is one of the most efficient techniques for concrete strength evaluation. This paper presents the use of spectral analysis of ultrasonic surface waves for the non destructive evaluation of concrete cover in laboratory. The procedure consists in generation and reception of surface waves using the time of flight diffraction method. After extraction of the lateral wave in the received signal using the matching pursuit method, the phase velocity dispersion characteristic is determined, and concrete cover is characterized.

Keywords : Time of flight diffraction, matching pursuit, concrete cover