

HHT와 연속스캐닝 진동계를 이용한 평판 구조물의 모달 분석 Modal Identification of a randomly excited plate using CSLDV and HHT

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Key Words : LDV(레이저 도플러 진동계), continuous scan(연속 스캐닝), Hilbert-Huang Transform Approach(힐버트 변환)

ABSTRACT

For the vibration analysis with a continuous scanning laser Doppler vibrometer, many engineers have developed excellent methodologies; from the typical Fourier method to the Hilbert methodology for the harmonic excitation. For a random excitation, however, a new algorithm was needed. The Hilbert-Huang transform technology is capable of analyzing nonlinear and nonstationary signals. Therefore, this technology is widely used in speech communication applications. Hilbert-Huang transform was suggested in order to obtain natural frequencies, damping ratios, and mode shapes of a randomly excited 1-D structure at the previous work. In this paper, HHT will be extended to more general structures, and this technique will be verified by some simulations and experiments.