

전달손실계수 측정시스템에 대하여

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On the Transmission Loss Measurement System

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Key Words : Transmission Loss Coefficient, SEA(Statistics Energy Analysis) Method

Abstract : The transmission loss coefficient is very important acoustic property in parallel with absorption and acoustic impedance categorizing the acoustical materials, which can control the acoustical problems. At the same time, the transmission loss coefficient is a key parameter to choose the optimum material for the analysis of acoustical characteristics of material using SEA(Statistical Energy Analysis). In this paper, the transmission loss coefficient measurement system using 4-microphone impedance tube is proposed, based on the idea calculating the full transfer matrix of the acoustical sample to test. The theoretical background and measurement system are introduced, and finally the measurement results are verified.

KSR-III 로켓의 액체 연료 탱크 내에서 발생하는 슬로싱 현상의 배플에 의한 감쇄율 측정

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Measurment of Damping Ratio of Fuel Sloshing in Baffled Liquid Propellant Tank of KSR-III Rocket

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Key Words : 슬로싱(Sloshing), 배플(Baffles), 감쇄율(Damping ratio)

Abstract : Sloshing of fuel in a liquid propellant tank is an important part of the dynamic and the stability analysis of the rocket. Baffles are installed in a propellant tank to reduce the instability due to sloshing. Multi degree of spring-mass-damper model was used to model sloshing of fuel in an axisymmetric tank. The natural frequencies and damping ratios are estimated. In order to verify the estimated natural frequencies and damping ratios, tests are performed for the real propellant tank of KSR-III with single ring baffle. Results of fuel sloshing analysis are compared with those of tests.