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Flight Data from an Airworthy Structural Health Monitoring System for an Unmanned Air Vehicle Using Integrally Embedded Fiber Optic Sensors

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This paper presents an airworthy, Fiber Bragg Gratings (FBG) based, Structural Health monitoring System (SHM) system for an Unmanned Aerial Vehicles (UAV). Various design issues pertaining to sensors location, embedment, integration of interrogation system instrumentation and online data re-cording are addressed. FBG data were processed to identify both loads and vibration modes using low pass filtering and artificial neural network algorithms. Results of an actual flight test conducted indicate that this sensor network can track the vibration and loads signature during all flight conditions, making this system a candidate for real time UAVs structural airworthy assessment.

Ключевые слова:

Содержание.

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