



HELICOPTER BLADE MONITORING

The advancement of Fiber Optic Sensing Networks for load and vibration monitoring presents important possibilities for helicopter rotor health and usage monitoring. While main rotor blades account for the main source of lift for helicopters, rotor induced vibration establishes an important source for understanding the rotor performance and blade condition.

Since December 2017 Technobis FBG Interrogator systems are being Flight Tested on a helicopter with an Integrated Photonics based Multi-Channel Miniature fiber sensing device called *HeliGator*, directly mounted on the root of the helicopter blade. Measurement data was recorded and wirelessly transmitted to a central processing CPU located in the avionics area.

The objective of these Flight tests is to demonstrate that the main rotor loads (bending moments, torsion and axial strain) recorded by the FBG sensor data system to be correlated by an existing strain gage data system. With this effort the system will achieve high TRL, constituting full functional prototype demonstrated airworthiness in a real operational flight environment.

HeliGator



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