



FIELD VIBRATION TESTING

VIBREC500 Field Recorder

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History

In the late 1950s, AFL began a program to obtain the design data and vibration fatigue damage history on a large number of overhead transmission lines across the United States. AFL partnered with electric utilities to conduct comprehensive inspections on their lines and completed field vibration recording sessions on notable areas of concern. The information included conductor size and tension, ruling spans, tower type, support hardware, type of vibration protection and extent of vibration damage if any.

From this information, along with data from indoor/outdoor test laboratories and theoretical considerations, AFL was able to develop a series of guidelines that can be used to determine the level of vibration protection required for any transmission line. This work continues to this day and is of great importance in ensuring AFL offers accurate recommendations for vibration protection.





The Vibration Recorder

AFL uses a vibration recorder which works by measuring the amplitude of the vibrations and correlating that to bending stress. Bending stress caused by vibrations will be at its highest at the suspension clamp. Large amounts of this stress can lead to hardware issues, conductor fatigue failures and/or over worked dampers. Understanding the exact conditions affecting your transmission lines is crucial to maintaining optimal performance.



VIBREC500 Field Recorder



Any Line, Anywhere, Any Time

Using proven technology, AFL is able to install recorders on a wide range of diameters from the smallest Overhead Shield Wire (OHSW) to the largest transmission conductor. The recorder is mounted directly on to the pre-existing suspension hardware (standard suspension shoe, formed wire, etc.) for easy installation. The recorder can operate at conditions down to -40°F and up to 176°F. AFL's engineers are able to assist with the full process of recorder set up, installation and equipment removal.





Results and Testing

With the collected data, AFL's Test Lab then takes the information and performs a range of tests to recreate the conditions seen in the field. Our Test Lab is well equipped and includes multiple systems such as a horizontal test bed, vibrational efficiency span, aeolian fatigue span and many more. All of these can be used to offer a damping scheme and recommendation specifically tailored for the conditions of the line that has been field-recorded. AFL provides a detailed report of the findings along with specific recommendations to assist in further protection of the transmission system.



Contact your local AFL representative today for more information.



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