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Nota di contenuto	<p>AMBIENT VIBRATION MONITORING; Contents; PREFACE; ACKNOWLEDGEMENTS; SUMMARY; 1 INTRODUCTION; 1.1 Scope of Applications; 1.2 Laws and Regulations; 1.3 Theories on the Development of the AVM; 2 OBJECTIVES OF APPLICATIONS; 2.1 System Identification; 2.1.1 Eigenfrequencies and Mode Shapes; 2.1.2 Damping; 2.1.3 Deformations and Displacements; 2.1.4 Vibration Intensity; 2.1.5 Trend Cards; 2.2 Stress Test; 2.2.1 Determination of Static and Dynamic Stresses; 2.2.2 Determination of the Vibration Elements; 2.2.3 Stress of Individual Structural Members; 2.2.4 Determination of Forces in Tendons and Cables</p> <p>2.3 Assessment of Stresses2.3.1 Structural Safety; 2.3.2 Structural Member Safety; 2.3.3 Maintenance Requirements and Intervals; 2.3.4 Remaining Operational Lifetime; 2.4 Load Observation (Determination of External Influences); 2.4.1 Load Collective; 2.4.2 Stress Characteristic; 2.4.3 Verification of Load Models; 2.4.4 Determination of Environmental Influences; 2.4.5 Determination of Specific Measures; 2.4.6 Check on the Success of Rehabilitation Measures; 2.4.7 Dynamic Effects on Cables and Tendons; 2.4.8 Parametric Excitation; 2.5</p>

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### Sommario/riassunto

In-operation vibration monitoring for complex mechanical structures and rotating machines is of key importance in many industrial areas such as aeronautics (wings and other structures subject to strength), automobile (gearbox mounting with a sports car body), rail transportation, power engineering (rotating machines, core and pipes of nuclear power plants), and civil engineering (large buildings subject to hurricanes or earthquakes, bridges, dams, offshore structures). Tools for the detection and the diagnosis of small changes in vibratory characteristics are particularly useful to set up a pr