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Foreword

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This document was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicle*, Subcommittee SC 14, *Space systems and operations*.

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Introduction

Vibration testing is one of the most important test items of space systems. The primary goals of vibration testing are to verify the design and to detect manufacturing issues of spacecraft, subsystems and units that could result in in-flight failures. In design, material selection, manufacture, assembly and integration phase, the test aims on exposing defects and non-conformances existing and eliminating potential quality problems. With regard to the launch phase, it also serves to prevent structural failure of a space system, loosening of fasteners and connectors, failure of electronic components, leakage of sealing elements or malfunction of mechanical system.

During vibration testing, over-testing can result in unnecessary destruction of the test specimen. In the 1990s, at the Jet Propulsion Laboratory, Mr. Terry Scharton elaborated the methodology of force notching for qualification of satellites and spacecraft to mitigate unnecessary over-testing. Since then, several attempts have been made to establish this methodology for a broader range of application. This document includes the methodology of force-based testing.