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

This first edition cancels and replaces ISO/TS 20991:2018, which has been technically revised.

The main changes are as follows:

— reorganized Introduction and Scope to clarify the target;

— changed the wordings referring to contractual requirement, or legal or statutory requirements in 5.1, 5.3.3 and 5.5;

— changed the wordings to focus on the specification process of the applicable minimum requirements in the project, in 5.1, 5.2, 5.3.2, 5.3.3, 5.3.4 and 5.3.5;

— added 5.10 and 5.11;

— removed the wording of “In the event of any conflict regarding requirements between ISO 17770 and this document, the requirements in this document supersedes.” from 5.8;

— added ISO 17981 as a normative reference.

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Since 2013, the number of small spacecraft built and launched has shown explosive growth. These small spacecraft are often built by universities, or by newcomers to the space sector, employing untraditional development and management philosophy that manages risks in cost and time effective manner to achieve low-cost and fast-delivery. Because of the risk taking approach, small spacecraft often fails in orbit. But the replacement spacecraft is quickly built and launched reflecting the lessons obtained in the previous spacecraft. As the launch cost depends on either the spacecraft size or mass, or both, the spacecraft size becomes “small”.

These spacecraft projects are usually budget-limited or mass-limited, which makes a single (exclusive) launch unaffordable. Therefore, small spacecraft is very often launched either with a main payload or in a grapple, which implies specific requirements.

Besides requirements regarding mission success or other goals, which are beyond the scope of this document, there are minimum requirements that apply to every small spacecraft regardless of its size, mission, value, capability or any other nature. The purpose of this document is to clearly state those minimum requirements. In that sense, this document serves as the top document to cover the minimum requirements for various stages of small spacecraft system life-cycle – with emphasis on design, launch, deployment, operation, and disposal phases. In this way, the following aspects are ensured:

a) safety;

b) harmlessness to co-passengers and launch vehicle;

c) debris mitigation.

This document provides references to existing standards and documents that elaborate on those requirements, especially for the benefit of those who are entering the space sector through small spacecraft development and utilization.