



SLOVENSKI STANDARD
SIST-TP CEN ISO/ASTM/TR 52917:2023
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Aditivna proizvodnja - Krožno preskušanje - Splošne smernice (ISO/ASTM TR 52917:2022)

Additive manufacturing - Round robin testing - General guidelines (ISO/ASTM TR 52917:2022)

Additive Fertigung - Ringversuche - Allgemeine Leitlinien (ISO/ASTM TR 52917:2022)

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52917

October 2022

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English Version

Additive manufacturing - Round robin testing - General
guidelines (ISO/ASTM TR 52917:2022)

Fabrication additive - Essais interlaboratoires - Lignes
directrices générales (ISO/ASTM TR 52917:2022)

Additive Fertigung - Ringversuche - Leitfaden zur
Durchführung von Ringversuchen (ISO/ASTM TR
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Contents	Page
European foreword.....	3

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European foreword

This document (CEN ISO/ASTM/TR 52917:2022) has been prepared by Technical Committee ISO/TC 261 "Additive manufacturing" in collaboration with Technical Committee CEN/TC 438 "Additive Manufacturing" the secretariat of which is held by AFNOR.

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*Fabrication additive — Essais interlaboratoires — Lignes directrices
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Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 RRS task force and RRS manager	1
5 Develop a round robin study	2
5.1 Suggested steps to develop a round robin study	2
5.2 Identify the goal of the study and select the round robin task force	2
5.3 Prepare scope of round robin study.....	2
5.4 Develop a manufacturing plan	3
5.5 Process control document.....	5
6 Develop a measurement and testing plan	5
7 Solicit participants	5
8 Send the manufacturing plan to participants	5
9 Execute a pilot run with select participants	6
10 Execute a full scale production run	6
11 Data handling	7
12 Prepare study report	7
13 Record keeping	7
Bibliography	8

ISO/ASTM TR 52917:2022(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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This document was prepared by ISO/TC 261, *Additive manufacturing*, in cooperation with ASTM Committee F42, *Additive Manufacturing Technologies*, on the basis of a partnership agreement between ISO and ASTM International with the aim to create a common set of ISO/ASTM standards on additive manufacturing, and in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 438, *Additive manufacturing*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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Introduction

This document outlines the steps with regard to aspects of design to conduct and run a round robin study (RRS) to assess the degree of variability in an additive manufacturing material or process.

The RRS can be used to study variations arising from the AM production process including feedstock, machine operation, process control, and post processing. The RRS plan can identify various aspects of the AM process to be considered to execute the study so that it is possible to maximize the consistency of the results based on the objective of the study.

Additive manufacturing is still a developing technology and round robin studies play an important role to help generate the information needed to populate materials engineering databases, determine design allowables, and improve processing and post-processing consistency in order to drive maturation.

The result of the RRS is a qualitative or quantitative assessment of the material used or the process variability, rather than the assessment of accuracy and precision of a specific test method from an inter-laboratory study. Additionally, RRS can involve other entities besides laboratories.

Round robin studies differ from normal research studies by having different participants, each trying to undertake a nominally identical process. The aim is to determine the effect of the desired variables on the process outcome. The output can be used for different applications such as the demonstration of process robustness or for derivation of material property data. A well-conducted RSS does not guarantee small variability, but ensures that any observed variability is indicative of the material or process, not poor study design.

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