

# ISO/ASTM 52902:2023-08 (E)

## Additive manufacturing - Test artefacts - Geometric capability assessment of additive manufacturing systems

<b>Contents</b>		<b>Page</b>
Foreword.....		v
<b>1</b>	<b>Scope</b> .....	<b>1</b>
<b>2</b>	<b>Normative references</b> .....	<b>1</b>
<b>3</b>	<b>Terms and definitions</b> .....	<b>1</b>
<b>4</b>	<b>Significance and use</b> .....	<b>1</b>
	4.1 General.....	1
	4.2 Comparing results from one machine.....	2
<b>5</b>	<b>General principles for producing test artefacts</b> .....	<b>2</b>
	5.1 General.....	2
	5.2 Need to use feedstock conforming to a material specification.....	2
	5.3 Need to undertake artefact building according to a documented process specification.....	2
	5.4 File formats and preparation.....	3
	5.5 Download files.....	3
	5.6 Discussion of file conversion.....	3
	5.7 AMF preferred (with conversion instructions/ resolutions).....	3
	5.8 Need for test specification and test process.....	3
	5.9 Quantity of test artefacts.....	3
	5.10 Position and orientation of test artefacts.....	4
	5.11 Considerations for orientation.....	4
	5.12 Labelling.....	4
	5.13 Coverage.....	4
	5.14 Arrays.....	4
	5.15 Part consolidation.....	4
	5.16 Supports and post processing.....	5
<b>6</b>	<b>General principles for measuring artefacts</b> .....	<b>5</b>
	6.1 General.....	5
	6.2 Measure parts as built.....	5
	6.3 Measurement strategy.....	5
	6.4 Measurement uncertainty.....	6
<b>7</b>	<b>Artefact geometries</b> .....	<b>6</b>
	7.1 General.....	6
	7.2 Accuracy.....	6
	7.2.1 Linear artefact.....	6
	7.2.2 Circular artefact.....	8
	7.2.3 Z-axis artefact.....	10
	7.3 Resolution.....	13
	7.3.1 Resolution pins.....	13
	7.3.2 Resolution holes.....	14
	7.3.3 Resolution rib.....	16
	7.3.4 Resolution slot.....	18
	7.4 Surface texture.....	20
	7.4.1 Purpose.....	20
	7.4.2 Geometry.....	20
	7.4.3 Measurement.....	21
	7.4.4 Reporting.....	22
	7.4.5 Considerations.....	22

7.5	Labelling.....	23
7.5.1	Purpose.....	23
7.5.2	Geometry.....	23
7.5.3	Considerations.....	24
<b>Annex A</b>	<b>(informative) Example artefact configurations .....</b>	<b>25</b>
<b>Annex B</b>	<b>(informative) Measurement techniques.....</b>	<b>27</b>
<b>Annex C</b>	<b>(informative) Measurement procedures.....</b>	<b>31</b>
<b>Annex D</b>	<b>(informative) List of specimen names and sizes .....</b>	<b>38</b>
<b>Bibliography</b>	<b>.....</b>	<b>40</b>