MEASUREMENT SYSTEM ANALYSIS

Gage R&R Study (ANOVA Method) · AIAG MSA 4th Edition

My Metrology Laboratory

Study No:
GRR-2026-0001

Date: 2026-05-22

INSTRUMENT	CHARACTERISTIC	PART
MIC-001	Length	Gauge Block 25mm

PARTS	OPERATORS	TRIALS
5	3 (Operator A, Operator B, Operator C)	2

ANOVA TABLE

Source	SS	df	MS
Parts	0.0032	4	0.0008
Operators	0.0000	2	0.0000
Part × Operator	0.0000	8	0.0000
Equipment (Repeat.)	0.0000	15	0.0000
Total	0.0032	29	

VARIANCE COMPONENTS & GAGE R&R

Source	Variance	Std Dev	% Contribution	% Study Var
Repeatability (EV)	8.333e-7	9.129e-4	0.62%	7.86%
Reproducibility (AV)	3.250e-7	5.701e-4	0.24%	4.91%
Total Gage R&R	**1.158e-6**	**0.001076**	**0.86%**	**9.27%**
Part-to-Part (PV)	1.337e-4	0.011563	99.14%	99.57%
Total Variation	1.349e-4	0.011613	100%	100%

% GAGE R&R (Study Variation): 9.27%

NDC: 15

% Tolerance: 12.92%

ACCEPTABLE

Measurement system is acceptable.

Acceptance criteria (AIAG MSA): %GRR "d 10% acceptable; 10–30% conditionally acceptable; > 30% unacceptable. NDC "e 5 indicates the system can adequately distinguish parts. % Study Variation uses 6<2à