

First part: Analyzing the calibration grid structure

GRID [#Measurement]	step height [nm]	step width [µm]	angle [°]
TGZ02 OLD #1	104,40	3028,35	24,56
TGZ02 OLD #2	103,30	2913,77	19,30
TGZ02 OLD #3	101,00	2995,61	21,34
TGZ02 OLD #4	102,50	3011,98	21,78
TGZ02 OLD #5	101,70	2995,61	20,19
TGZ02 OLD #6	97,40	2897,40	24,87
TGZ02 OLD #7	103,30	2930,14	23,44
TGZ02 OLD #8	103,50	2979,24	23,85
TGZ02 OLD #9	103,20	3028,35	24,84
TGZ02 OLD #10	101,70	2913,77	21,17
mean value	102,20	2969,42	22,53
standard deviation	1,97	50,72	2,03

GRID [#Measurement]	step height [nm]	step width [µm]	angle [°]
TGZ01 OLD #1	21,70	3077,46	14,41
TGZ01 OLD #2	19,90	3110,20	13,31
TGZ01 OLD #3	20,40	3028,35	12,07
TGZ01 OLD #4	21,60	3061,09	8,84
TGZ01 OLD #5	21,40	3061,09	10,72
TGZ01 OLD #6	20,00	3077,46	8,67
TGZ01 OLD #7	19,90	3093,83	9,36
TGZ01 OLD #8	19,30	3061,09	9,05
TGZ01 OLD #9	21,30	3093,83	9,59
TGZ01 OLD #10	22,00	3061,09	13,68
mean value	20,75	3069,28	10,97
standard deviation	0,95	23,21	2,21

GRID [#Measurement]	step height [nm]	step width [µm]	angle [°]
TGZ01 NEW #1	20,10	3126,57	10,07
TGZ01 NEW #2	19,20	3093,83	12,52
TGZ01 NEW #3	19,30	3044,72	12,73
TGZ01 NEW #4	19,90	3126,57	13,72
TGZ01 NEW #5	20,30	3028,35	14,82
TGZ01 NEW #6	20,60	3077,46	14,26
TGZ01 NEW #7	19,20	2995,61	15,66
TGZ01 NEW #8	18,30	2962,87	12,05
TGZ01 NEW #9	19,90	3011,98	13,75
TGZ01 NEW #10	19,00	3175,68	14,41
mean value	19,58	3064,37	13,40
standard deviation	0,70	67,18	1,61

Values from manufacturer

GRID	step height [nm]	step width [µm]	angle [°]
TGZ01	18 +/- 1	3.0 +/- 0.1	-
TGZ02	102 +/- 1	3.0 +/- 0.1	-

Analyzed surface	deflection δ in minimum [V] EXTEND	deflection δ in minimum [V] RETRACT	deflection δ in const. part [V] EXTEND	deflection δ in const. part [V] RETRACT	$\Delta \delta$ EXTEND [V]	$\Delta \delta$ RETRACT [V]	sensitivity [nm/V]	force constant [N/m] (from script)	Force F [μ N] EXTEND	Force F [μ N] RETRACT
MICA old	0,2440	0,2590	0,3801	0,3900	0,1361	0,1310	28,1400	29,0000	0,1111	0,1069
ERRORS	0,0488	0,0518	0,0760	0,0780	0,0903	0,0936	-	1,0000	0,0738	0,0765

MICA cleaned	-0,1658	-0,0993	0,0211	0,0082	0,1869	0,1075	27,2100	29,0000	0,1475	0,0849
ERRORS	-0,0332	-0,0199	0,0042	0,0016	0,0334	0,0199	-	1,0000	0,0269	0,0160

Fourth part: Nanomechanical Imaging

Differences	blue - green	blue-yellow	yellow-green
adhesion [μ N]	1,836	2,168	0,266
adhesion error [μ N]	0,032	0,339	0,145
height [nm]	56,415	57,990	22,303
height error [nm]	4,352	7,735	3,780