

Result of performances Testing for SX100

24/09/1997

n° QD / 09 / 0099 / 002

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iso/document/sxresu

In order to verify that the instrument has been properly checked and is conforming to published specifications, the following performance tests shall be satisfactorily completed at CAMECA before shipping.

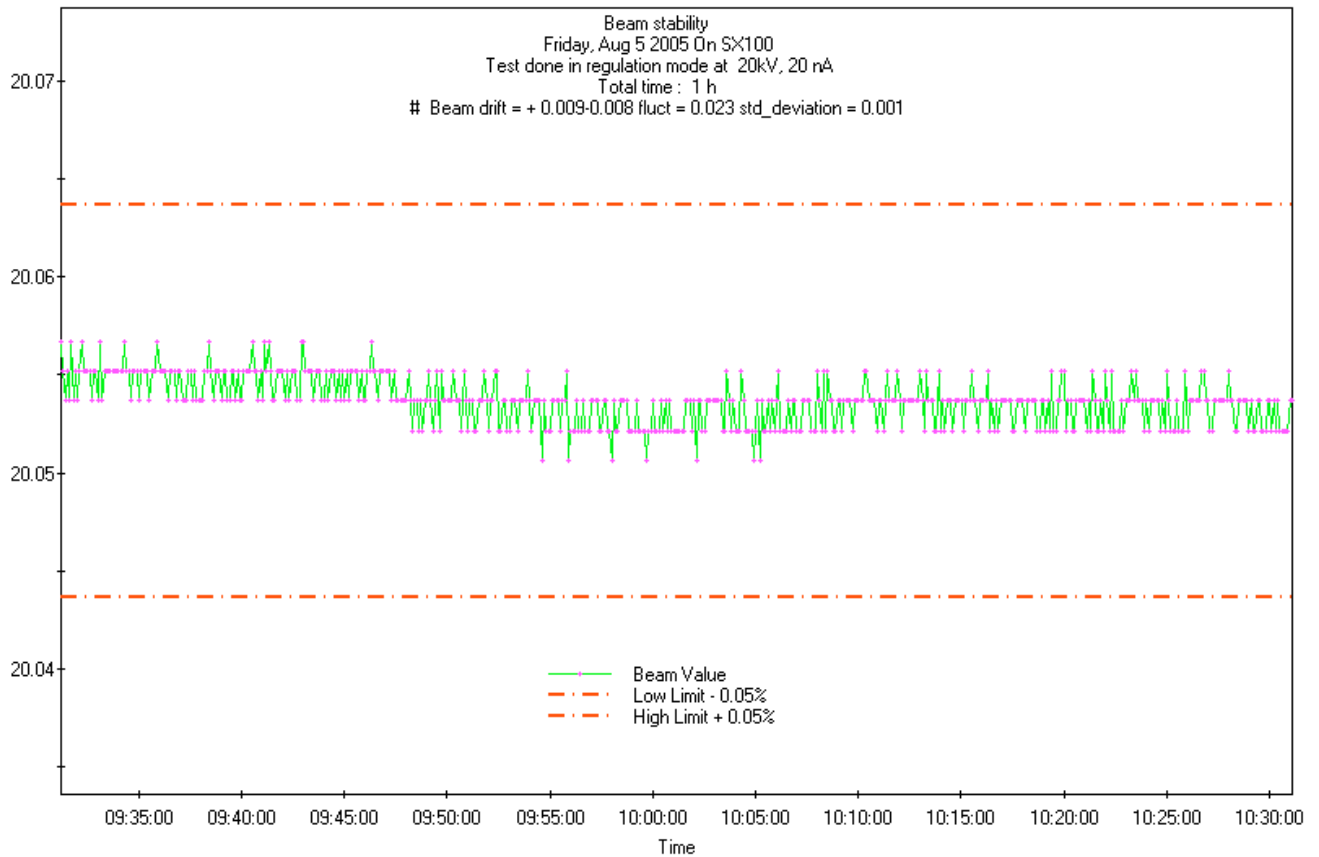
BEAM CURRENT STABILITY

Test REF A 5

Description: monitor beam current measured with the column Faraday cup

This test follows instruction 'use of sx100 test programs' QI / 09 / 0161.

1 hour, 20 kV, 20 nA



Result: + 0.009 % - 0.008 % (drift should be < ±0.05%)

The program computes automatically mean value and drift relative to that mean value.

Approvals:

For SX100 Engineer: N. Boutron
(Name printed)

.....
(Signature)

For Customer: J. Donovan
(Name printed)

Date: 7/11/2005

.....
(Signature)

Result of performances Testing for SX100

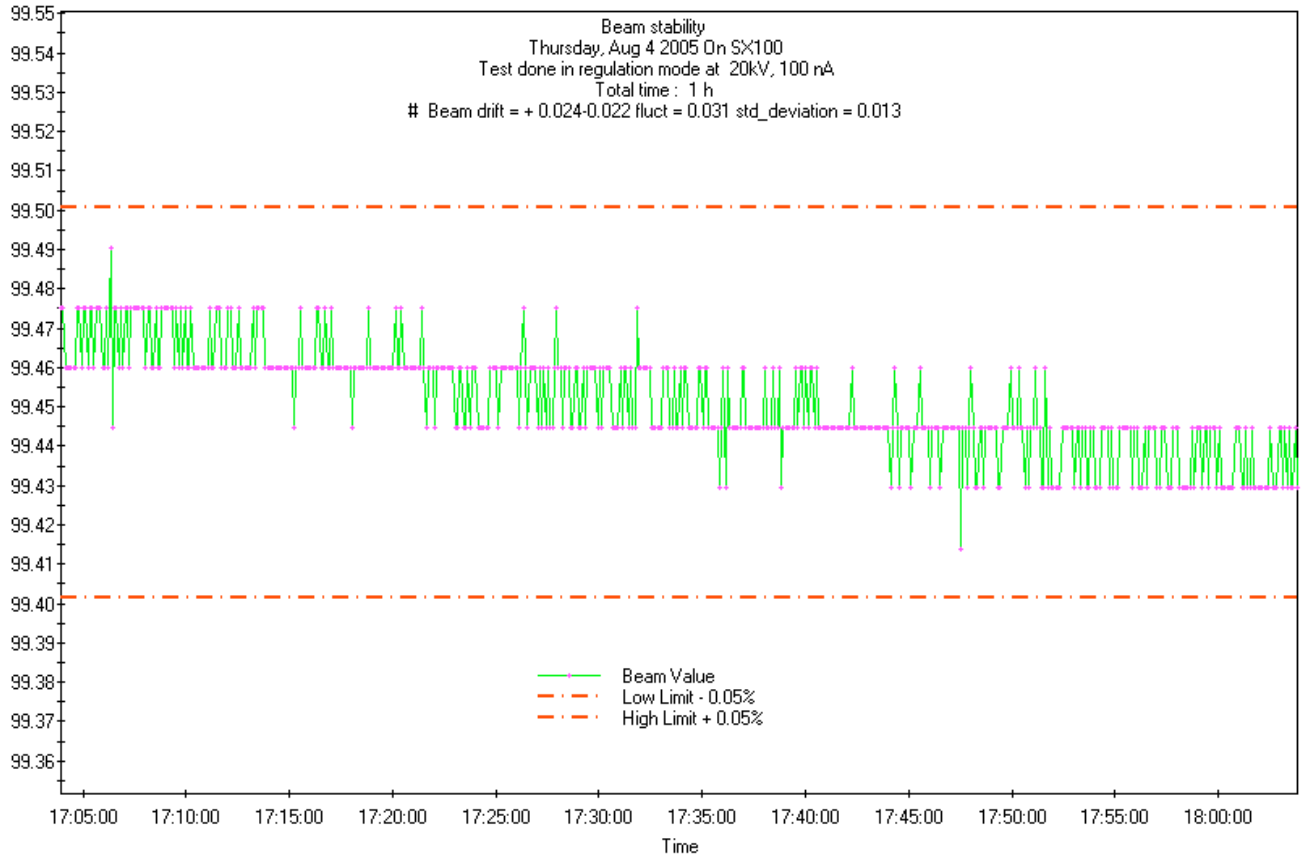
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1 hour, 20 kV, 100 nA



Result: + 0.024 % - 0.022% (drift should be < ±0.05%)

The program computes automatically mean value and drift relative to that mean value.

Approvals:

For SX100 Engineer: N. Boutron
(Name printed)

.....
(Signature)

For Customer: J. Donovan **Date: 7/11/2005**
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.....
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Result of performances Testing for SX100

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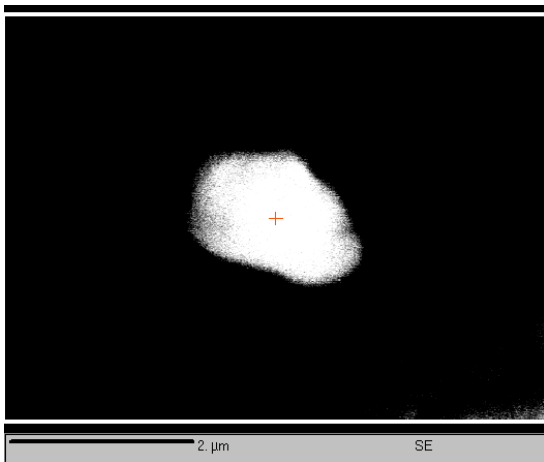
iso/document/sxresu

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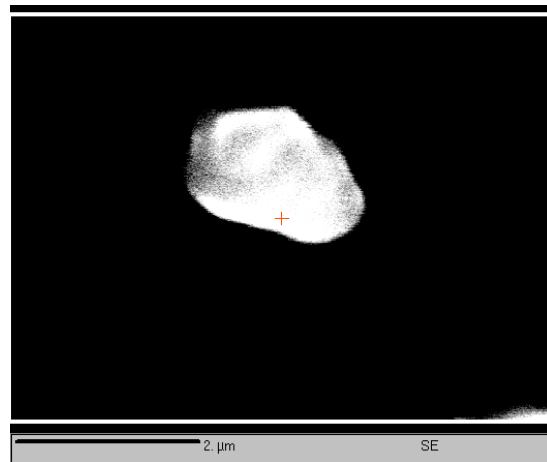
BEAM POSITION VARIATION

Test REF A 12

Description: test made at 15 kV on a video image with a probe marker for 1 hour.
This test follow instruction 'test description 1' QI / 09 / 0221



Reference Image



After 1 hour Image

Result: $\pm 0.45 \mu\text{m}$ (should be $< \pm 0.5 \mu\text{m}$)

Approvals:

For SX100 Engineer: N. Boutron
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.....
(Signature)

For Customer: J. Donovan **Date: 7/11/2005**
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.....
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In order to verify that the instrument has been properly checked and is conforming to published specifications, the following performance tests shall be satisfactorily completed at CAMECA before shipping.

ASTIGMATISM AMPLITUDE

Test REF BX 1

Description: Test made on a standard specimen at 25 kV and 10 pA
This test follow instruction 'test description 1' QI / 09 / 0221

With the beam regulation aperture in place



Result = 327 (should be < 512)

With the 70 μ aperture in place



Result = 320 (should be < 512)

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Result of performances Testing for SX100

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In order to verify that the instrument has been properly checked and is conforming to published specifications, the following performance tests shall be satisfactorily completed at CAMECA before shipping.

ALIGNMENT TEST

Test REF BX 2

Description: Auto alignment done at 2 different high voltages.
This test follow instruction 'column alignment' QI / 09 / 0222

Test at 10 kV

Test:

Test at 30 kV

Test:

Approvals:

For SX100 Engineer: N. Boutron
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(Signature)

For Customer: J. Donovan **Date: 7/11/2005**
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Result of performances Testing for SX100

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In order to verify that the instrument has been properly checked and is conforming to published specifications, the following performance tests shall be satisfactorily completed at CAMECA before shipping.

BEAM SHIFT VS HIGH VOLTAGE

Test REF BX 3

Description: beam shift between 10 kV and 30 kV after alignment
This test follow instruction 'column alignment' QI / 09 / 0222

Without Shift compensation in Beam setup

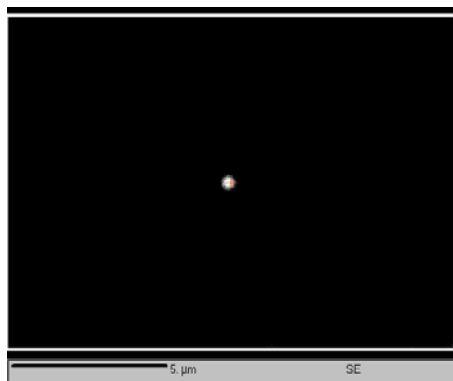


Image at 10 kV

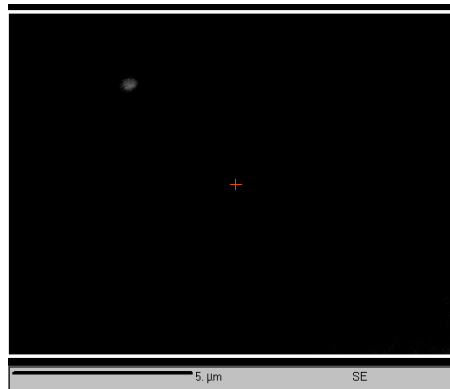


Image at 30 kV

Result = 4 µm

With Shift compensation in Beam setup

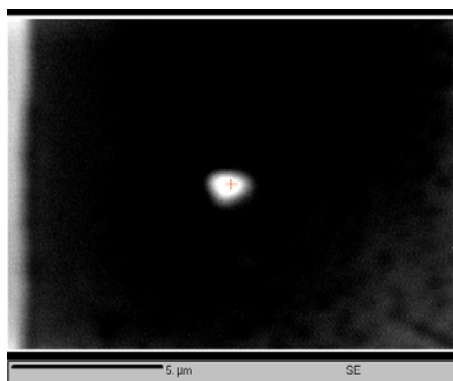


Image at 10 kV

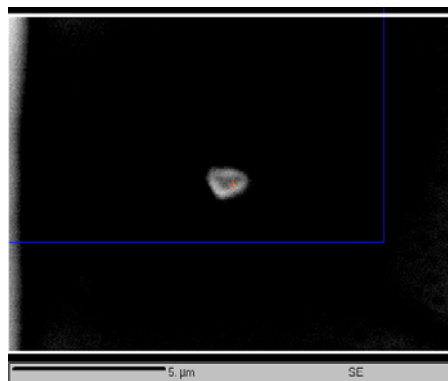


Image at 30 kV

Result = 0.2 µm
(should be < 1µm)

Approvals:

For SX100 Engineer: N. Boutron
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For Customer: J. Donovan
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Date: 7/11/2005

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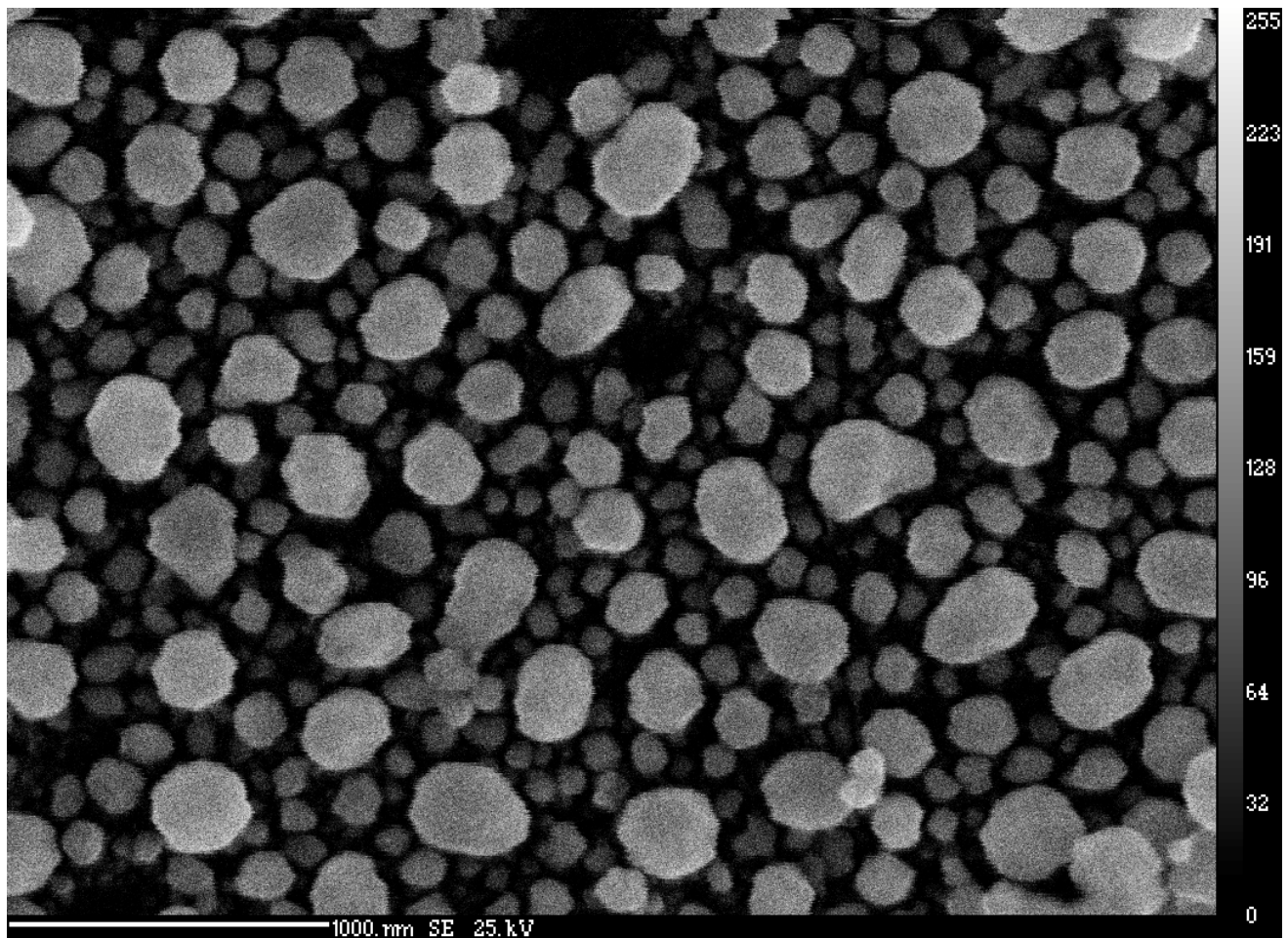
In order to verify that the instrument has been properly checked and is conforming to published specifications, the following performance tests shall be satisfactorily completed at CAMECA before shipping.

SE RESOLUTION

Test REF C 3

Description: Secondary electron image resolution using gold on carbon test specimen at 25 kV

This test follow instruction 'image resolution' QI / 09 / 0166



Result = 6 nm (should be < 6 nm)

Approvals:

For SX100 Engineer: N. Boutron
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.....
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For Customer: J. Donovan **Date: 7/11/2005**
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.....
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Result of performances Testing for SX100

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DISTANCE MEASUREMENT

Test REF C 5

Description: Test done on a grid sample (25.6 μ step size) at 2 different raster lengths (600 μ and 60 μ) with 25 KV, 100 pA

This test follow instruction 'adjustment of scanning board' 39245352 065

Raster length 600 μ

Result = ± 1.9 % (should be $< \pm 2.5$ %)

Raster length 60 μ

Result = ± 1.5 % (should be $< \pm 2.5$ %)

DISTORTION MEASUREMENT

Test REF C 6

Description: Test done on a grid sample (same conditions as Test REF C 5) measurement of grid linearity.

This test follow instruction 'test description 2' QI / 09 / 0224

Raster length 600 μ

Result = 0.3 % (should be < 3 %)

Raster length 60 μ

Result = 0.2 % (should be < 1.5 %)

ORTHOGONALITY MEASUREMENT

Test REF CX 1

Description: Ratio of 2 diagonals on a square test grid sample. (Same conditions as Test REF C 5)

This test follow instruction 'test description 2' QI / 09 / 0224

Result = 0.65 % (should be < 2 %)

Approvals:

For SX100 Engineer: N. Boutron
(Name printed)

.....
(Signature)

For Customer: J. Donovan
(Name printed)

Date: 7/11/2005

.....
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Result of performances Testing for SX100

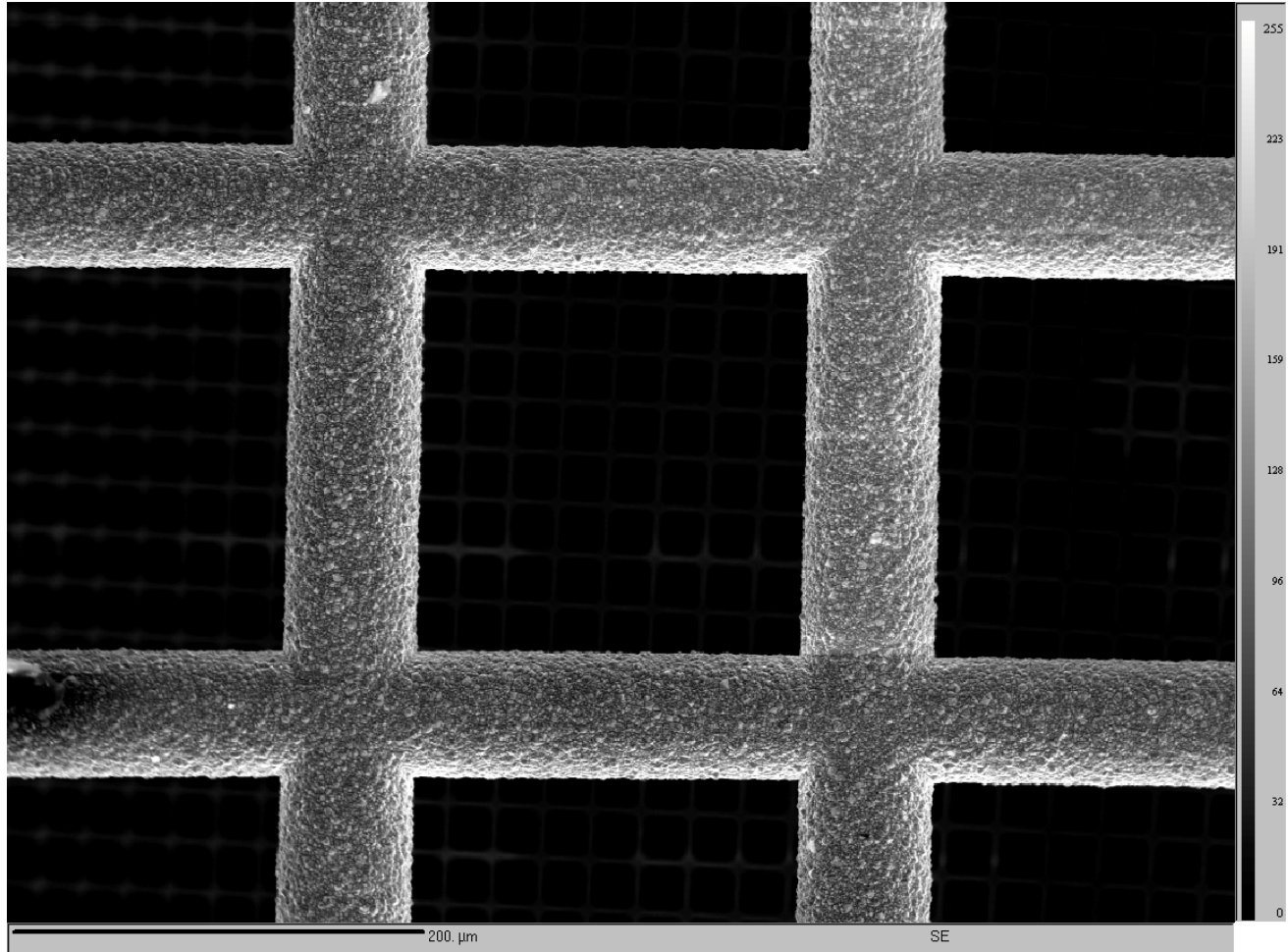
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600µm raster length



Approvals:

For SX100 Engineer: N. Boutron
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.....
(Signature)

For Customer: J. Donovan **Date: 7/11/2005**
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.....
(Signature)

Result of performances Testing for SX100

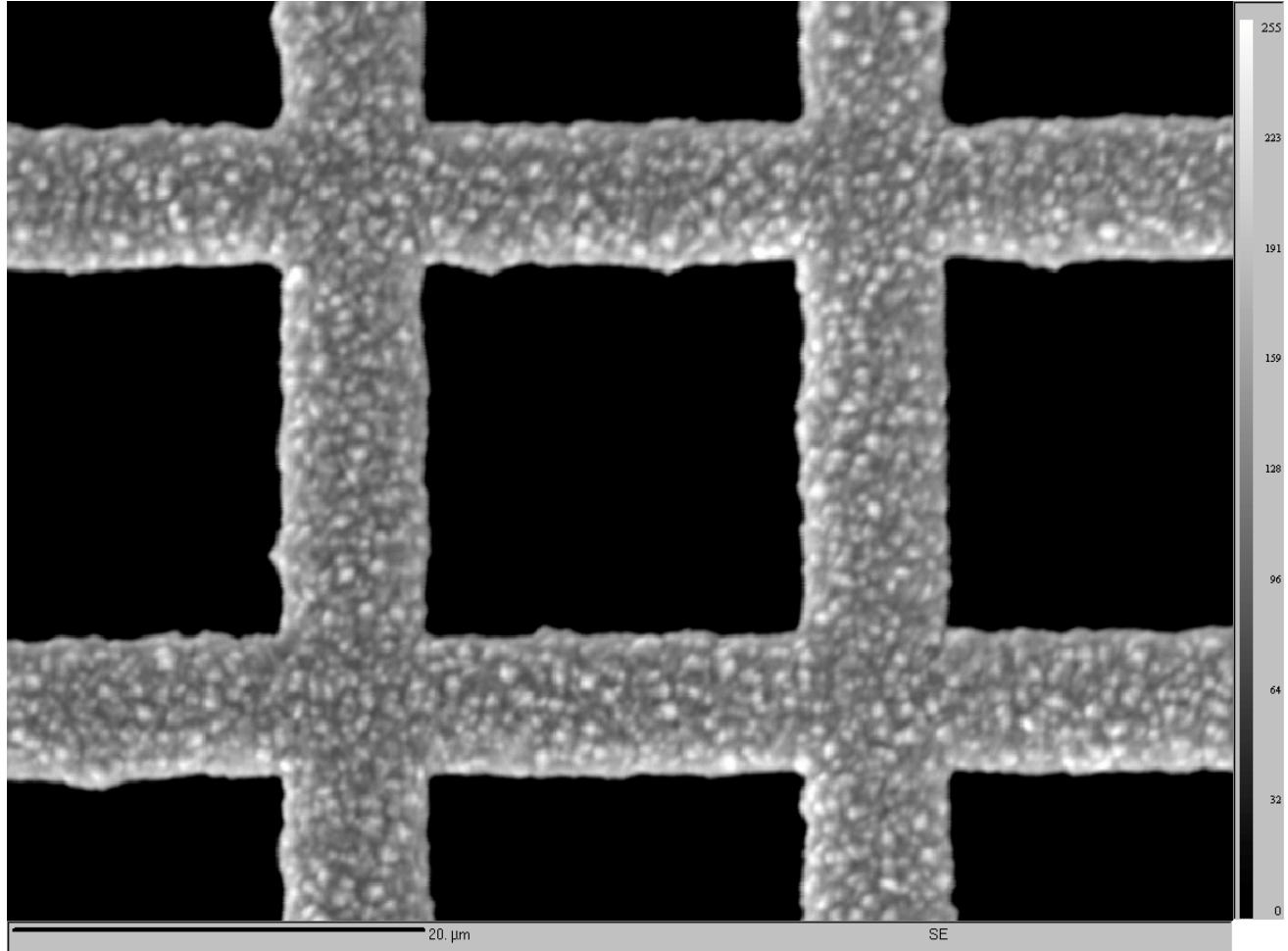
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60µm raster length



Approvals:

For SX100 Engineer: N. Boutron
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(Signature)

For Customer: J. Donovan **Date: 7/11/2005**
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Result of performances Testing for SX100

24/09/1997

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In order to verify that the instrument has been properly checked and is conforming to published specifications, the following performance tests shall be satisfactorily completed at CAMECA before shipping.

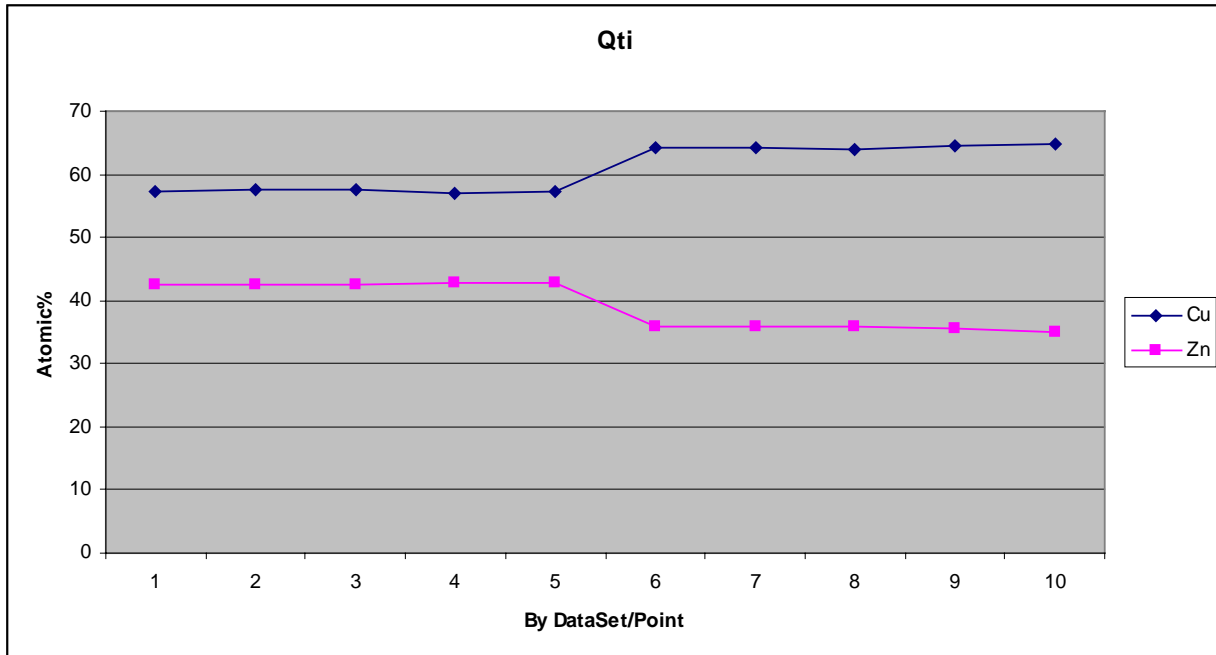
BACK SCATTERED ELECTRON (BSE) ATOMIC RESOLUTION

Test REF D 2

Description: BSE atomic resolution using Cu/Zn test sample at 20 kV 15 nA

This test follow instruction 'test description 2' QI / 09 / 0224

Point	Cu	Zn	Total	X	Y	Z	Beam X	Beam Y
1	57.3825	42.6175	100	8473	-25055	403	-9.07	-9.21
2	57.5768	42.4232	100	8473	-25055	403	-8.14	-8.43
3	57.5406	42.4594	100	8473	-25055	403	-7.21	-7.64
4	57.0897	42.9103	100	8473	-25055	403	-6.29	-6.86
5	57.2811	42.7189	100	8473	-25055	403	-5.36	-6.07
6	64.2335	35.7665	100	8473	-25055	403	-1.64	-2.93
7	64.2667	35.7333	100	8473	-25055	403	-0.71	-2.14
8	64.0654	35.9346	100	8473	-25055	403	0.21	-1.36
9	64.4539	35.5461	100	8473	-25055	403	1.14	-0.57
10	64.9229	35.0771	100	8473	-25055	403	2.07	0.21



Approvals:

For SX100 Engineer: N. Boutron
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.....
(Signature)

For Customer: J. Donovan
(Name printed)

Date: 7/11/2005

.....
(Signature)

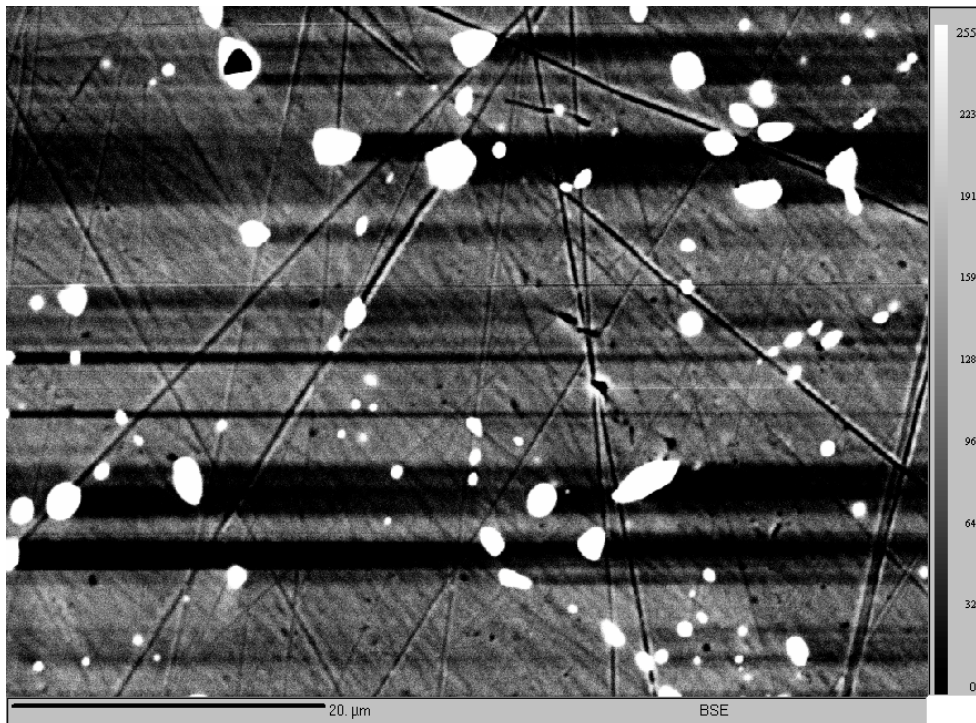
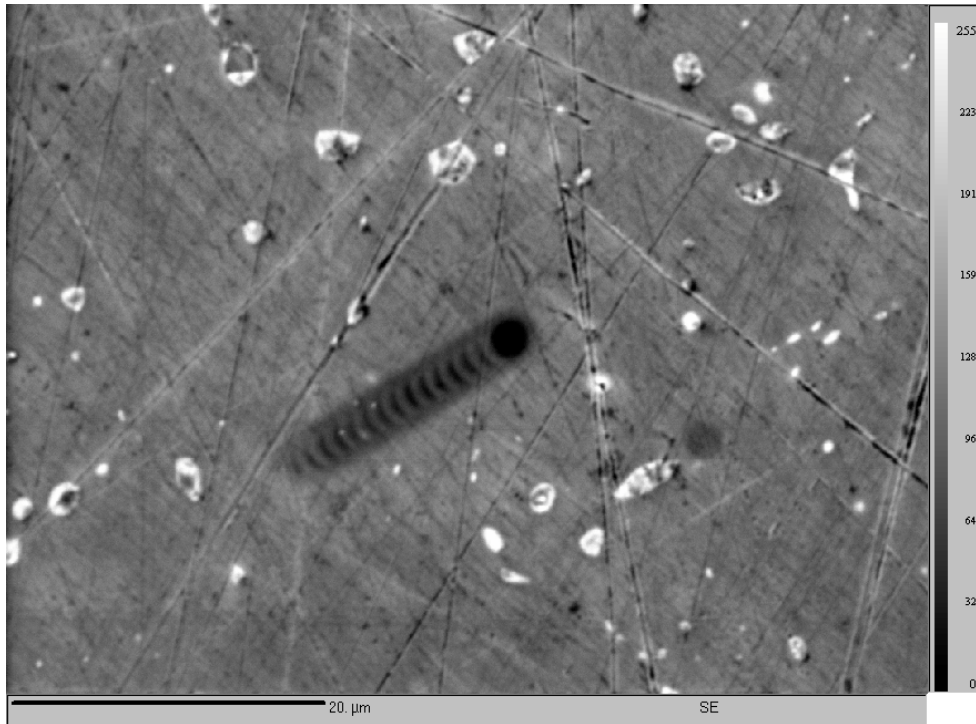
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Approvals:

For SX100 Engineer: N. Boutron
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(Signature)

For Customer: J. Donovan **Date: 7/11/2005**
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.....
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Result of performances Testing for SX100

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BSE ATOMIC RESOLUTION

Point	Comment	Cu	Zn	Total
1	phase 1	57.3825	42.6175	100
2	phase 1	57.5768	42.4232	100
3	phase 1	57.5406	42.4594	100
4	phase 1	57.0897	42.9103	100
5	phase 1	57.2811	42.7189	100
6	phase 2	64.2335	35.7665	100
7	phase 2	64.2667	35.7333	100
8	phase 2	64.0654	35.9346	100
9	phase 2	64.4539	35.5461	100
10	phase 2	64.9229	35.0771	100

Average phase 1 on Cu	57.37414	0.5737414
Average phase 1 on Zn	42.62586	0.4262586

Average phase 2 on Cu	64.38848	0.6438848
Average phase 2 on Zn	35.61152	0.3561152

Average Atomic % phase	
1	29.4262586
Average Atomic % phase	
2	29.3561152

Result	0.070143
--------	----------

Approvals:

For SX100 Engineer: N. Boutron
(Name printed) (Signature)

For Customer: J. Donovan **Date: 7/11/2005**
(Name printed) (Signature)

Result of performances Testing for SX100

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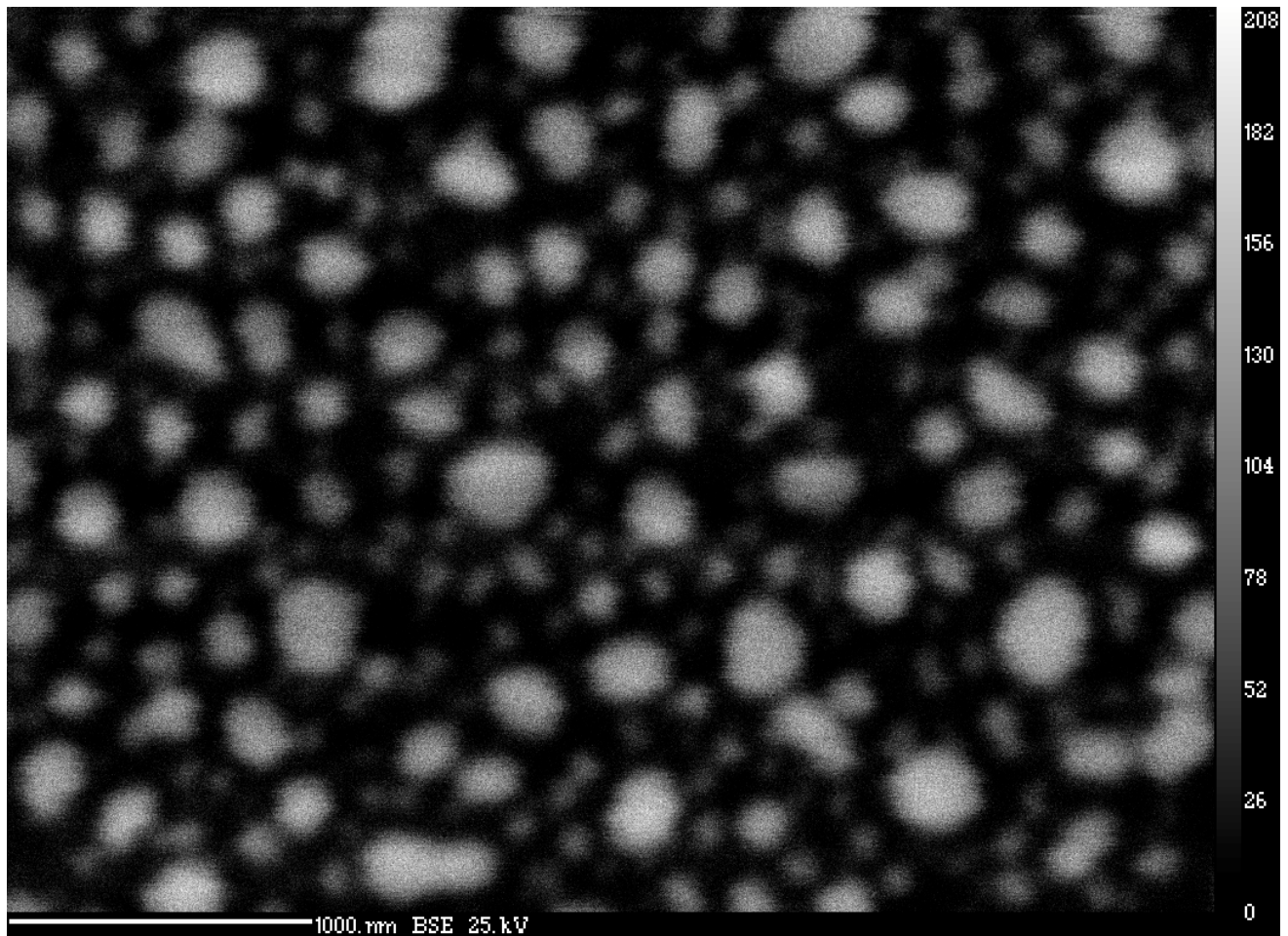
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Result = 0.070143 (should be < 0.1 at Z 29)

BACK SCATTERED ELECTRON (BSE) SPATIAL RESOLUTION

Test REF D 3

Description: BSE spatial resolution using gold on carbon test sample at 25 kV
This test follow instruction 'test description 2' QI / 09 / 0224.



Result = 15 nm (should be < 15 nm)

Approvals:

For SX100 Engineer: N. Boutron
(Name printed)

.....
(Signature)

For Customer: J. Donovan **Date: 7/11/2005**
(Name printed)

.....
(Signature)

Result of performances Testing for SX100

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Approvals:

For SX100 Engineer: N. Boutron
(Name printed)

.....
(Signature)

For Customer: J. Donovan **Date: 7/11/2005**
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.....
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Result of performances Testing for SX100

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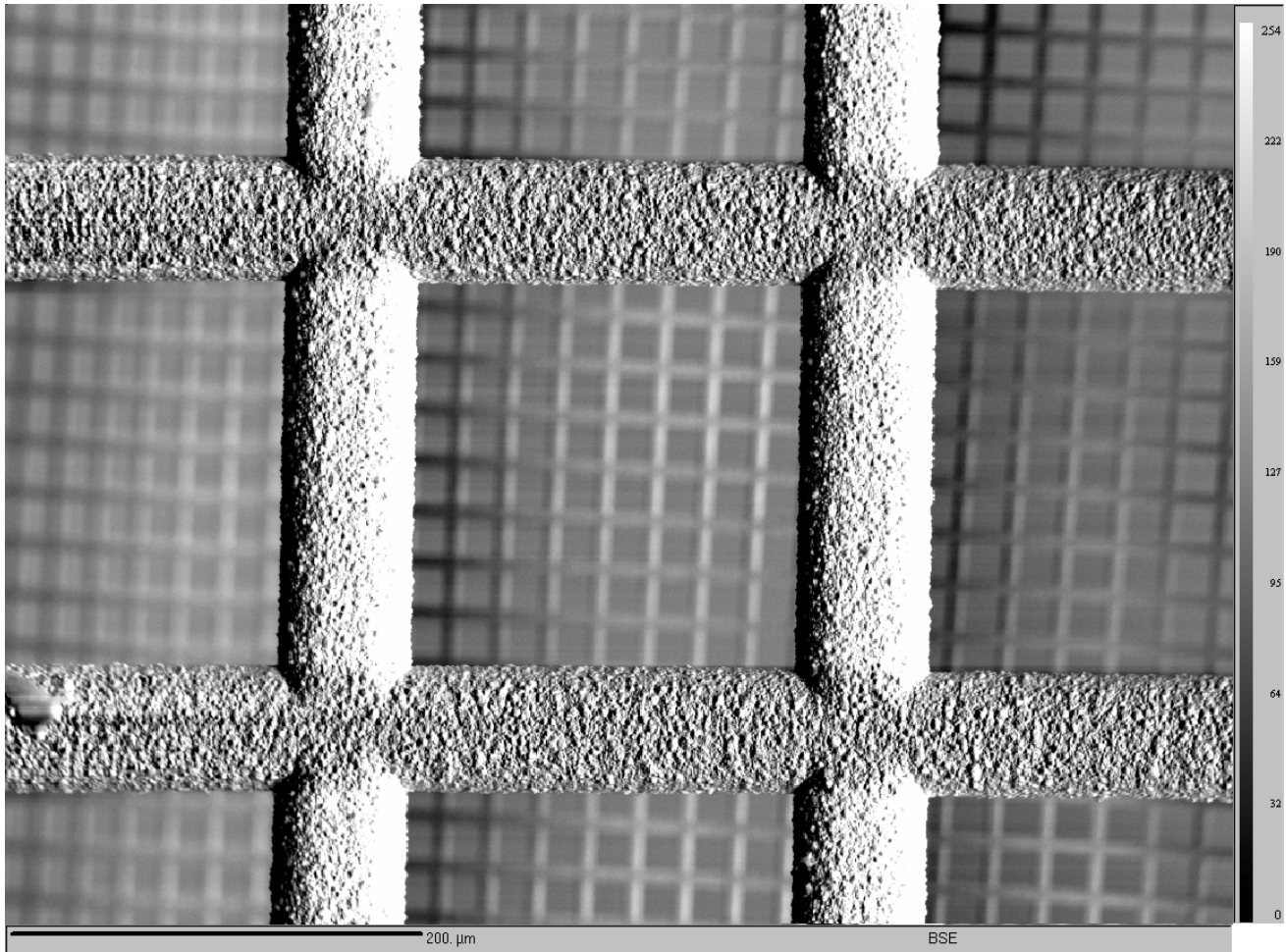
iso/document/sxresu

In order to verify that the instrument has been properly checked and is conforming to published specifications, the following performance tests shall be satisfactorily completed at CAMECA before shipping.

IMAGE TEST

Test REF D X 1

Description: BSE topographic image using a grid test sample
This test follow instruction 'test description 2' QI / 09 / 0224



Approvals:

For SX100 Engineer: N. Boutron
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.....
(Signature)

For Customer: J. Donovan **Date: 7/11/2005**
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Result of performances Testing for SX100

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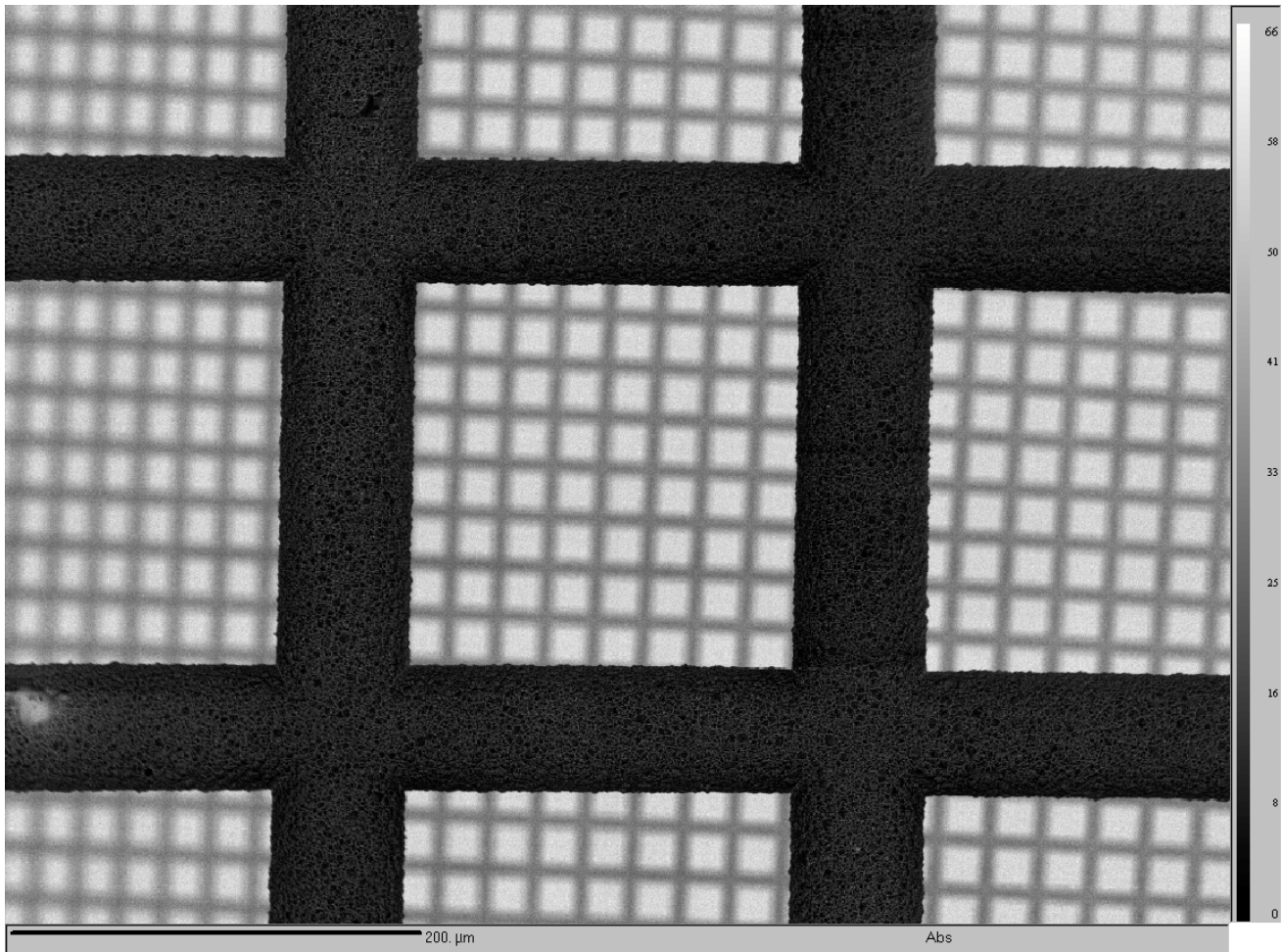
iso/document/sxresu

Test REF D X 2

Description: Absorbed current (ABS) and X-ray images using a grid test sample

This test follow instruction 'test description 2' QI / 09 / 0224

Absorbed current image



X-ray images SP1: PC1 – SP2: LTAP – SP3: LLIF – SP4: PC1 – SP5: LIF For Ni

Approvals:

For SX100 Engineer: N. Boutron
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.....
(Signature)

For Customer: J. Donovan Date: 7/11/2005
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.....
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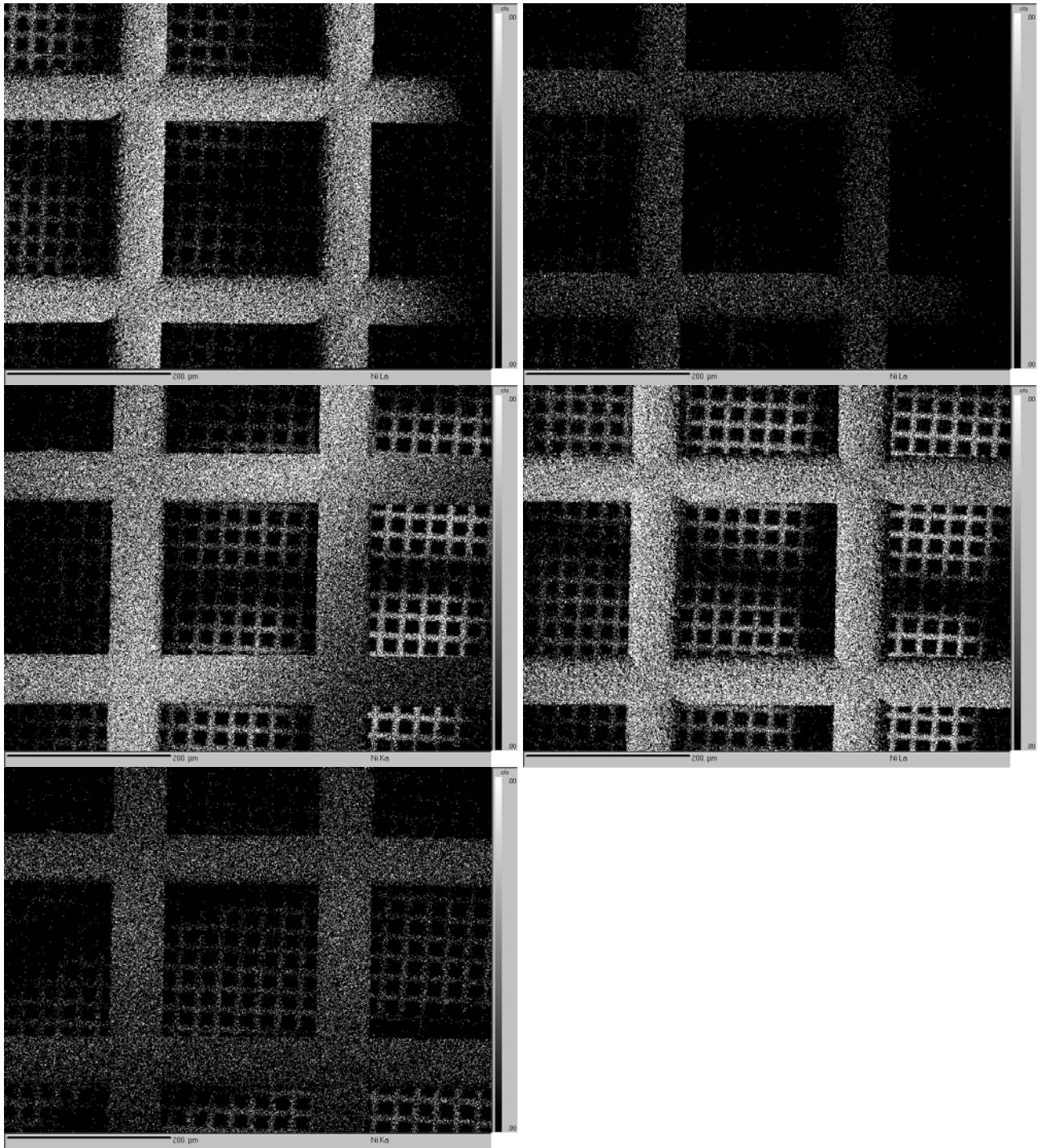
Result of performances Testing for SX100

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Cathodo images on C

Approvals:

For SX100 Engineer: N. Boutron
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(Signature)

For Customer: J. Donovan
(Name printed)

Date: 7/11/2005

.....
(Signature)

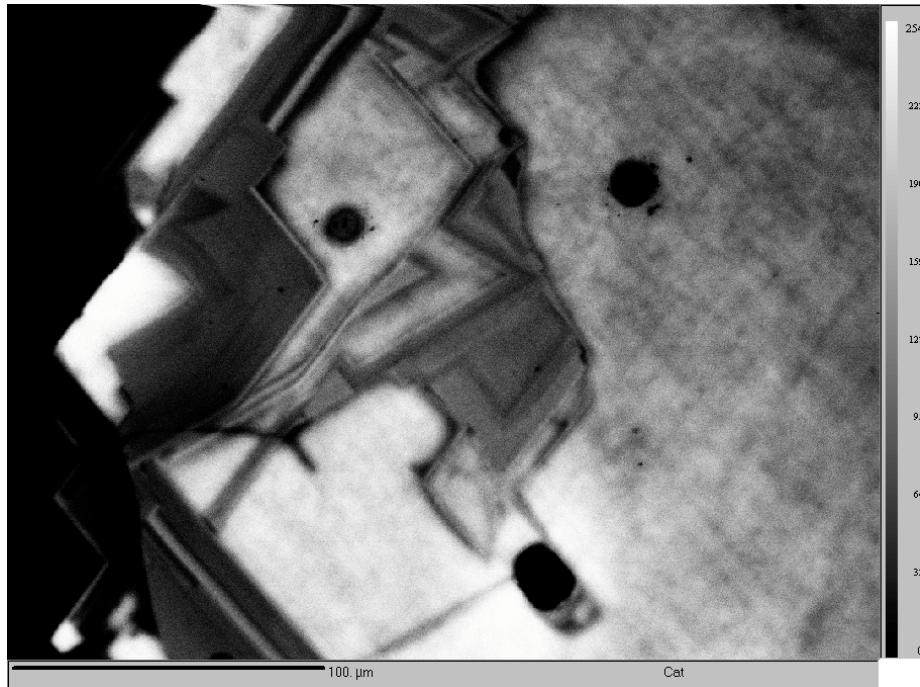
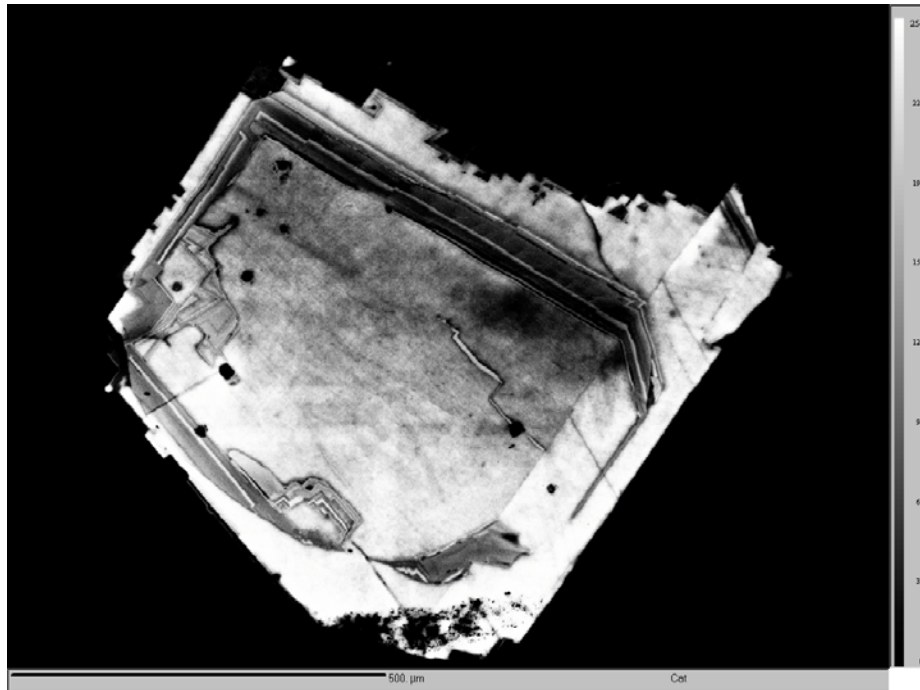
Result of performances Testing for SX100

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Cathodo images on Benitoite

Approvals:

For SX100 Engineer: N. Boutron
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For Customer: J. Donovan **Date: 7/11/2005**
(Name printed)

.....
(Signature)

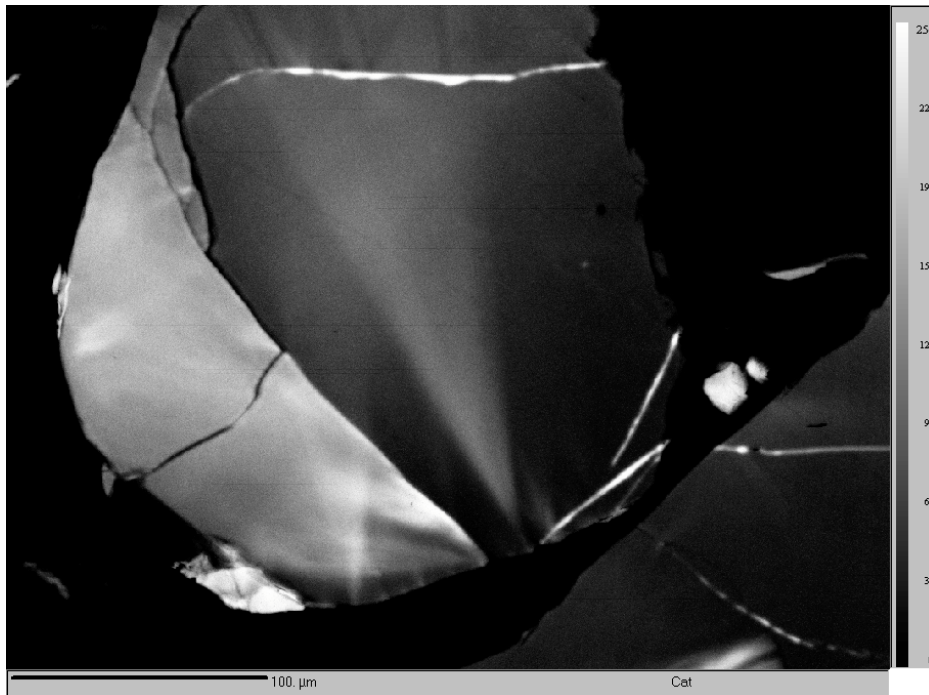
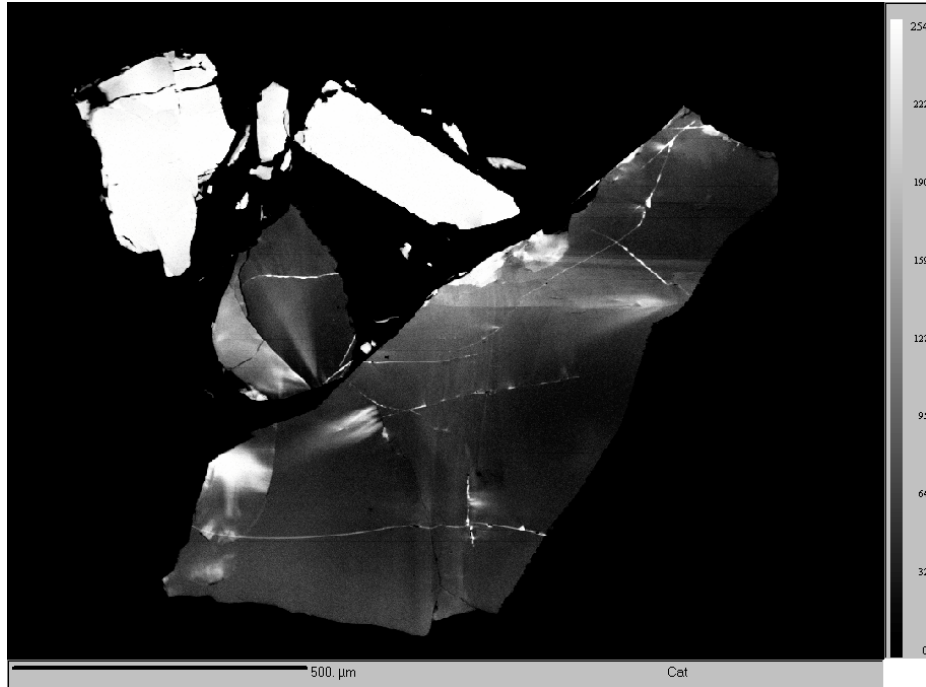
Result of performances Testing for SX100

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Approvals:

For SX100 Engineer: N. Boutron
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For Customer: J. Donovan **Date: 7/11/2005**
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Result of performances Testing for SX100

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In order to verify that the instrument has been properly checked and is conforming to published specifications, the following performance tests shall be satisfactorily completed at CAMECA before shipping.

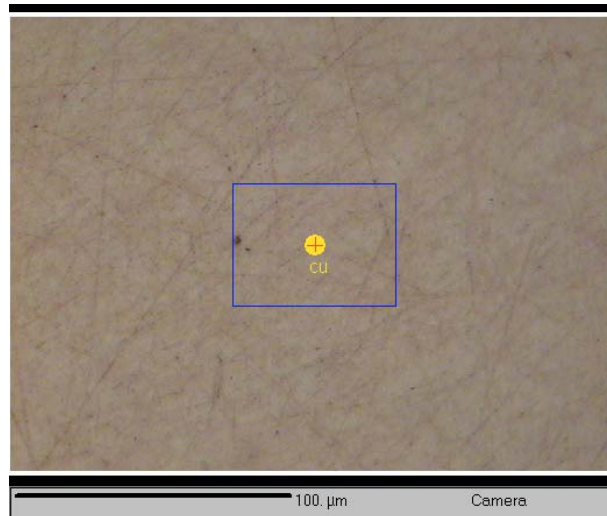
AUTOFOCUS TEST

Test REF E 9

Description: test of the auto focus on copper sample.

Variation over 10 repeat operations

This test follow instruction 'test description 2' QI / 09 / 0224



Z position Reference: 61

Z reading positions (10 times): 61 – 61 – **60** – **60** – 61 – **60** – 61 – 61 – 61 – 61.

Average on Z for 10 times Optical Auto focus = **0.3 µm**

Result = 0.3 µm (should be < ±1 µm)

Approvals:

For SX100 Engineer: N. Boutron
(Name printed)

.....
(Signature)

For Customer: J. Donovan **Date: 7/11/2005**
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.....
(Signature)

Result of performances Testing for SX100

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In order to verify that the instrument has been properly checked and is conforming to published specifications, the following performance tests shall be satisfactorily completed at CAMECA before shipping.

SPECTROMETER PARAMETERS

Test REF F 6

Description: spectrometer limits (limits and offsets)
This test follow instruction 'configuration' QI / 09 / 0225

	Spectro 1	Spectro 2	Spectro 3	Spectro 4	Spectro 5
High limit	84 319	84 296	83 952	83 813	83 918
Low limit	22 215	22 325	22 339	21 728	21 846
Offset	22 213	22 308	22 316	21 730	21 849

Test REF F X 3

Description: crystals configuration
This test follow instruction 'configuration' QI / 09 / 0225.

	Spectro 1	Spectro 2	Spectro 3	Spectro 4	Spectro 5
Xtal 1	PET			PET	LIF
Xtal 2	TAP	LPET	LLIF	TAP	
Xtal 3	PC1			PC1	
Xtal 4	PC2	LTAP	LPET	PC2.5	PET

Approvals:

For SX100 Engineer: N. Boutron
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.....
(Signature)

For Customer: J. Donovan Date: 7/11/2005
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Result of performances Testing for SX100

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In order to verify that the instrument has been properly checked and is conforming to published specifications, the following performance tests shall be satisfactorily completed at CAMECA before shipping.

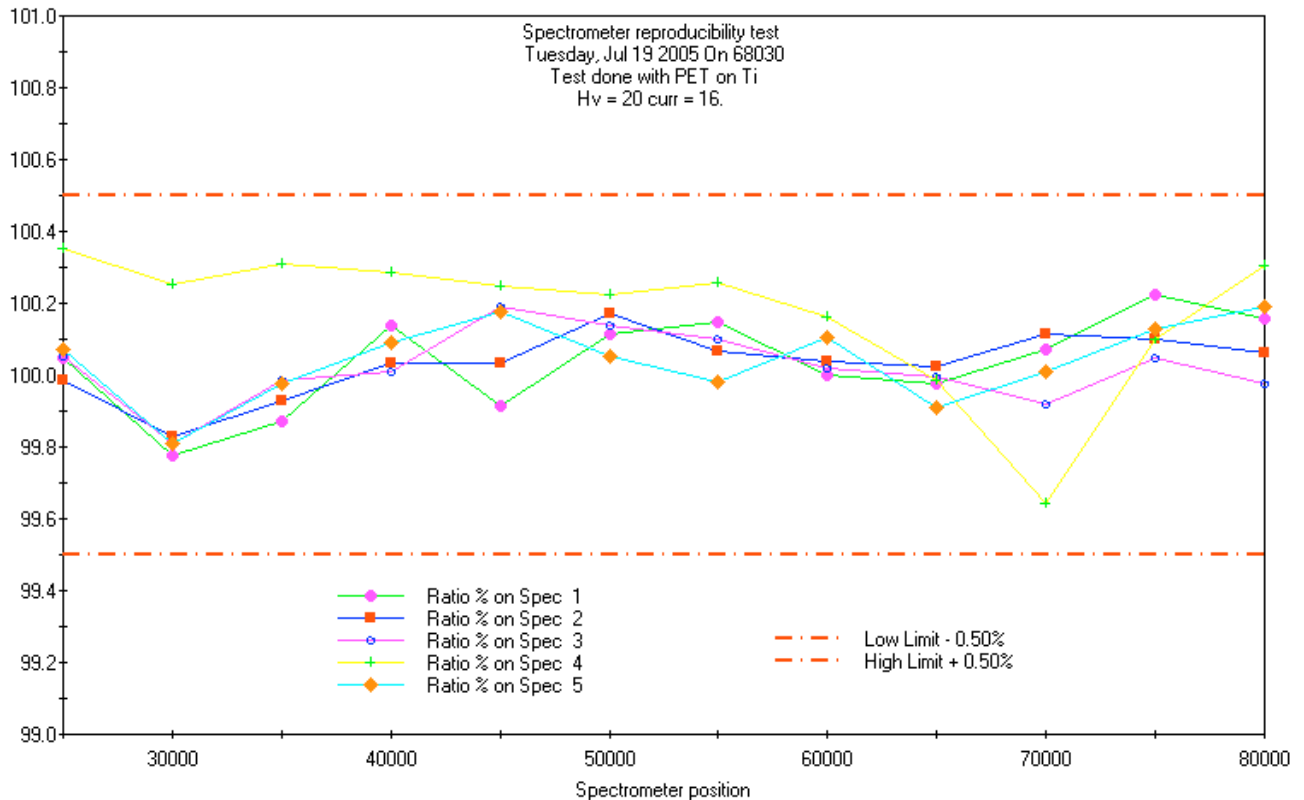
SPECTROMETER REPRODUCIBILITY

Test REF F 16

Description: spectrometer reproducibility

This test follow instruction 'use of sx100 test programs' QI / 09 / 0161

With PET crystals



Approvals:

For SX100 Engineer: N. Boutron
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For Customer: J. Donovan Date: 7/11/2005
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.....
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Result of performances Testing for SX100

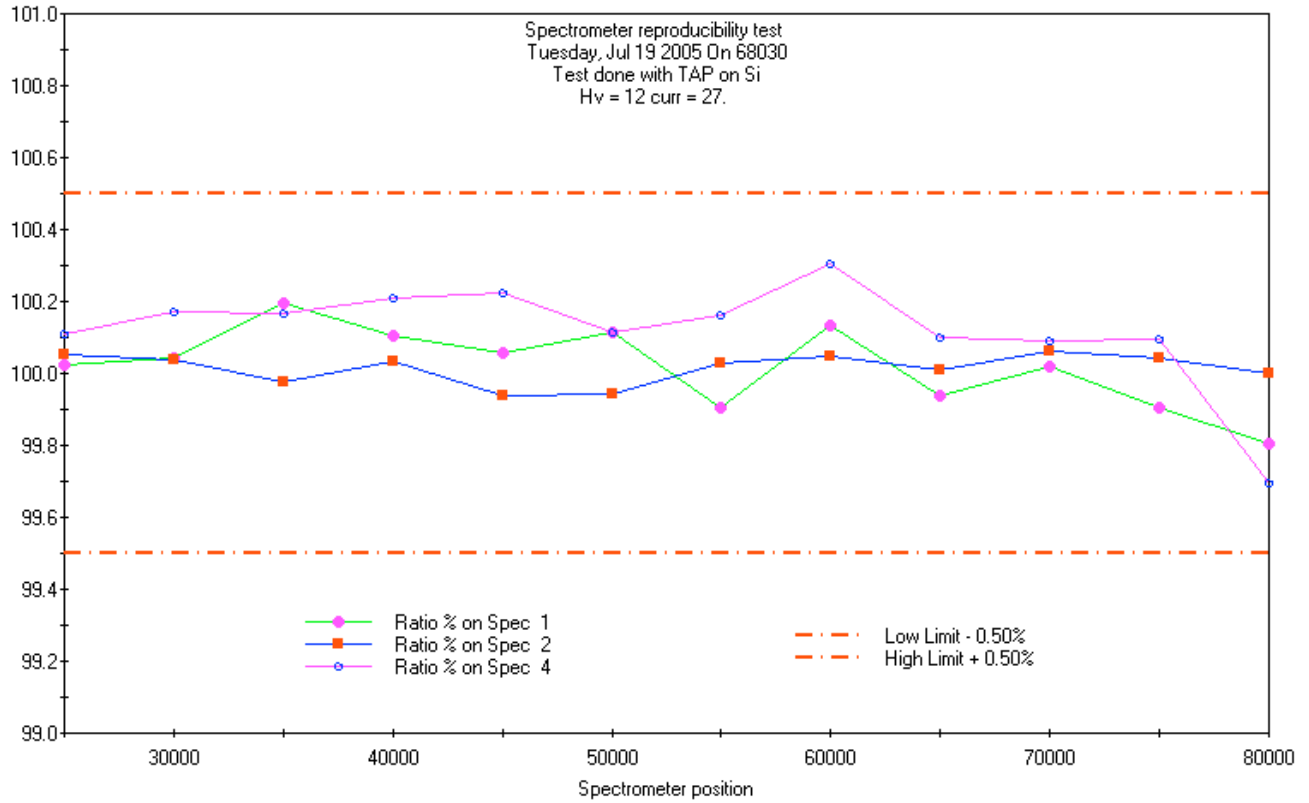
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With TAP crystals



Approvals:

For SX100 Engineer: N. Boutron
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.....
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Result of performances Testing for SX100

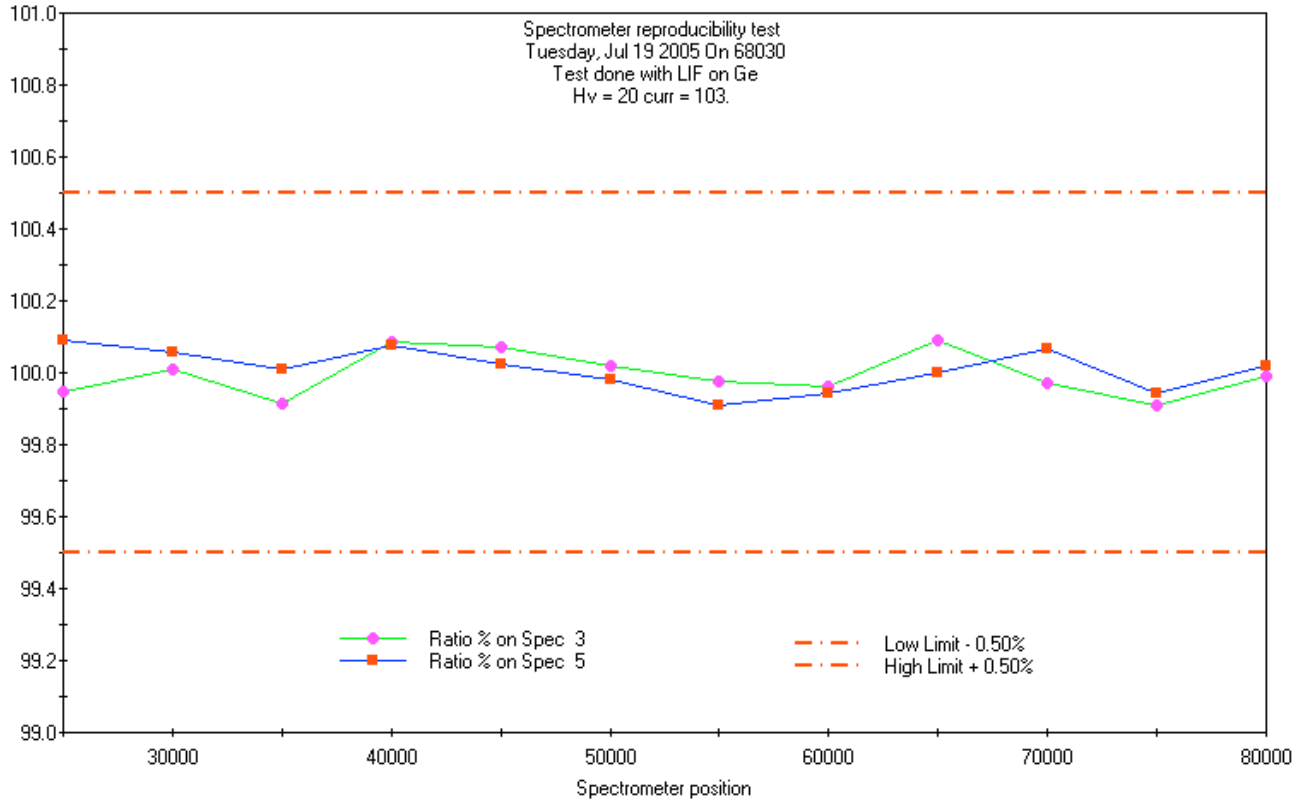
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With LIF crystals



Approvals:

For SX100 Engineer: N. Boutron
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For Customer: J. Donovan **Date: 7/11/2005**
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.....
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Result of performances Testing for SX100

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In order to verify that the instrument has been properly checked and is conforming to published specifications, the following performance tests shall be satisfactorily completed at CAMECA before shipping.

CRYSTALS PERFORMANCES

Test REF F X 1

Description: crystals performances (should be > 80 % of crystals specifications)

This test follow instruction 'use of sx100 test programs' QI / 09 / 0161

Crystals performances test
Monday, Jul 18 2005 On 68030
Test done with TAP

Spec	Xtal Number	Element	Sin Theo	Sin Real	Sin delta	Cs Peak	Cs Back-	Cs Back+	Peak/Back	BaseLine	Wind	Bias	Gain
1	937	Si	27738	27746	-8	34333.	22.4	45.1	1017.	756	4804	1307	2386
1	937	Al	32464	32470	-6	34012.	18.5	42.0	1124.	560	5000	1306	2326
1	937	Mg	38500	38500	0	26446.	29.1	26.4	953.	560	4424	1303	2321
4	916	Si	27738	27737	1	44067.	23.0	48.8	1228.	757	4803	1296	2236
4	916	Al	32464	32453	11	43450.	19.1	43.8	1383.	560	5000	1293	2242
4	916	Mg	38500	38479	21	33062.	28.0	27.9	1182.	560	4425	1291	2221

Crystals performances test
Thursday, Jul 21 2005 On SX100
Test done with LTAP

Spec	Xtal Number	Element	Sin Theo	Sin Real	Sin delta	Cs Peak	Cs Back-	Cs Back+	Peak/Back	BaseLine	Wind	Bias	Gain
2	49	Si	27738	27751	-13	125924.	179.4	199.5	665.	755	4805	1297	2283
2	49	Al	32464	32468	-4	116380.	121.9	172.0	792.	560	5000	1296	2241
2	49	Mg	38500	38500	0	86547.	105.1	116.7	780.	560	4424	1294	2253

Crystals performances test
Monday, Jul 18 2005 On 68030
Test done with LIF

Spec	Xtal Number	Element	Sin Theo	Sin Real	Sin delta	Cs Peak	Cs Back-	Cs Back+	Peak/Back	BaseLine	Wind	Bias	Gain
5	874	Ge	31146	31148	-2	14739.	90.7	86.1	167.	2114	2090	1869	409
5	874	Fe	48085	48088	-3	17944.	34.8	27.9	572.	1235	1688	1861	392
5	874	Ti	68264	68265	-1	5823.	7.1	4.8	981.	756	1416	1851	356

Crystals performances test
Monday, Jul 18 2005 On 68030
Test done with LLIF

Spec	Xtal Number	Element	Sin Theo	Sin Real	Sin delta	Cs Peak	Cs Back-	Cs Back+	Peak/Back	BaseLine	Wind	Bias	Gain
3	153	Ge	31146	31127	19	58382.	377.0	334.1	164.	2116	2090	1900	623
3	153	Fe	48085	48082	3	59105.	108.1	76.7	640.	1235	1688	1898	561
3	153	Ti	68264	68238	26	19984.	19.7	13.1	1218.	757	1416	1873	575

Approvals:

For SX100 Engineer: N. Boutron
(Name printed)

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(Signature)

For Customer: J. Donovan
(Name printed)

Date: 7/11/2005

.....
(Signature)

Result of performances Testing for SX100

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Crystals performances test
Wednesday, Jul 20 2005 On SX100
Test done with PET

Spec	Xtal Number	Element	Sin Theo	Sin Real	Sin delta	Cs Peak	Cs Back-	Cs Back+	Peak/Back	BaseLine	Wind	Bias	Gain
1	940	Cr	26173	26185	-12	18432.	72.8	66.0	266.	2074	3346	1308	804
1	940	Ti	31417	31419	-2	19708.	49.0	44.7	421.	1642	3080	1306	806
1	940	Ag	47488	47477	11	3487.	19.7	16.1	195.	850	2512	1300	782
4	939	Cr	26173	26175	-2	18845.	74.9	66.0	267.	2075	3346	1296	773
4	939	Ti	31417	31408	9	18972.	48.1	43.0	416.	1643	3080	1295	768
4	939	Ag	47488	47464	24	2953.	16.6	13.9	194.	850	2512	1288	740
5	941	Cr	26173	26190	-17	27765.	124.6	100.8	246.	2073	3346	1867	882
5	941	Ti	31417	31422	-5	26086.	70.8	61.1	395.	1642	3080	1865	875
5	941	Ag	47488	47480	8	6407.	36.8	29.7	192.	850	2512	1857	812

Crystals performances test
Monday, Jul 18 2005 On 68030
Test done with LPET

Spec	Xtal Number	Element	Sin Theo	Sin Real	Sin delta	Cs Peak	Cs Back-	Cs Back+	Peak/Back	BaseLine	Wind	Bias	Gain
2	198	Cr	26173	26178	-5	58760.	233.2	179.0	285.	2075	3346	1299	773
2	198	Ti	31417	31423	-6	55698.	129.3	110.4	465.	1642	3080	1297	768
2	198	Ag	47488	47485	3	8277.	40.3	32.4	228.	849	2512	1291	754
3	197	Cr	26173	26145	28	84710.	330.2	279.4	278.	2080	3346	1900	1351
3	197	Ti	31417	31399	18	70069.	180.2	150.6	424.	1644	3080	1900	1305
3	197	Ag	47488	47471	17	16141.	78.3	58.9	235.	850	2512	1891	1221

Crystals performances test
Wednesday, Jul 20 2005 On SX100
Test done with PC1

Spec	Xtal Number	Element	Sin Theo	Sin Real	Sin delta	Cs Peak	Cs Back-	Cs Back+	Peak/Back	BaseLine	Wind	Bias	Gain
1	215	F	30481	31260	-779	19507.	179.4	57.6	165.	560		1497	546
1	215	O	39332	40140	-808	3584.	54.8	14.6	103.	560	5000	1496	539
1	215	C	73547	74669	-1122	830.	5.0	0.0	165.	560	3408	1479	532
4	216	F	30394	31060	-666	21071.	134.0	58.3	219.	560		1479	533
4	216	O	39220	39899	-679	3887.	43.5	15.7	131.	560	5000	1478	536
4	216	C	73337	74363	-1026	788.	2.6	0.0	305.	560	3427	1471	467

Crystals performances test
Wednesday, Jul 27 2005 On SX100
Test done with PC2

Spec	Xtal Number	Element	Sin Theo	Sin Real	Sin delta	Cs Peak	Cs Back-	Cs Back+	Peak/Back	BaseLine	Wind	Bias	Gain
1	280	O	25438	25432	6	5410.	0.0	79.3	68.	560		1506	828
1	280	C	47566	47076	490	22306.	321.5	208.2	84.	560	5000	1498	929
1	280	B	72789	72125	664	2604.	34.5	0.0	76.	560		1504	832

Approvals:

For SX100 Engineer: N. Boutron
(Name printed)

.....
(Signature)

For Customer: J. Donovan
(Name printed)

Date: 7/11/2005

.....
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Result of performances Testing for SX100

24/09/1997

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In order to verify that the instrument has been properly checked and is conforming to published specifications, the following performance tests shall be satisfactorily completed at CAMECA before shipping.

STAGE PARAMETERS

Test REF G 3

Description: stage limits

This test follow instruction 'configuration' QI / 09 / 0225

	X axis	Y axis	Z axis
High limit	24 960	42 489	956
Low limit	- 26 050	- 40 546	- 850

Approvals:

For SX100 Engineer: N. Boutron
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.....
(Signature)

For Customer: J. Donovan **Date: 7/11/2005**
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.....
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Result of performances Testing for SX100

24/09/1997

n° QD / 09 / 0099 / 002

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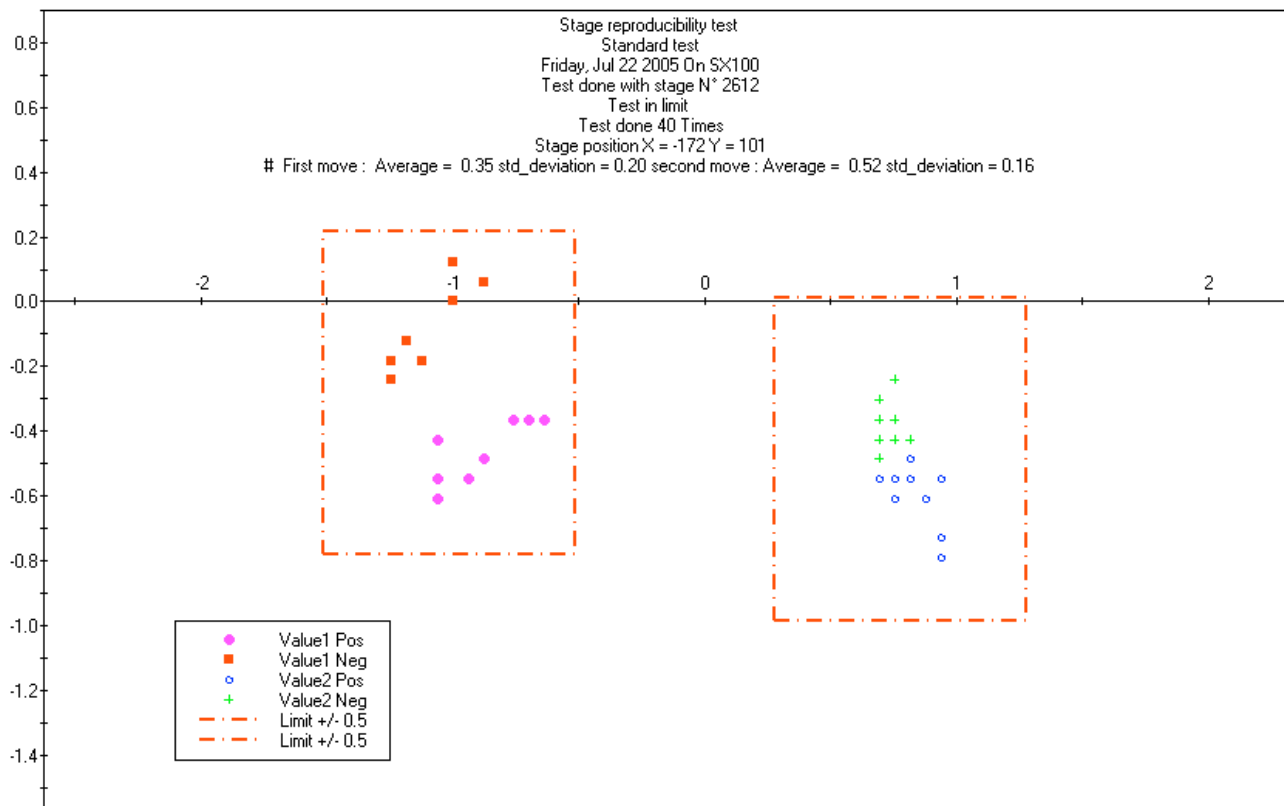
In order to verify that the instrument has been properly checked and is conforming to published specifications, the following performance tests shall be satisfactorily completed at CAMECA before shipping.

STAGE REPRODUCIBILITY

Test REF G 5

Description: stage reproducibility

This test follow instruction 'use of sx100 test programs' QI / 09 / 0161



Approvals:

For SX100 Engineer: N. Boutron
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.....
(Signature)

For Customer: J. Donovan **Date: 7/11/2005**
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Result of performances Testing for SX100

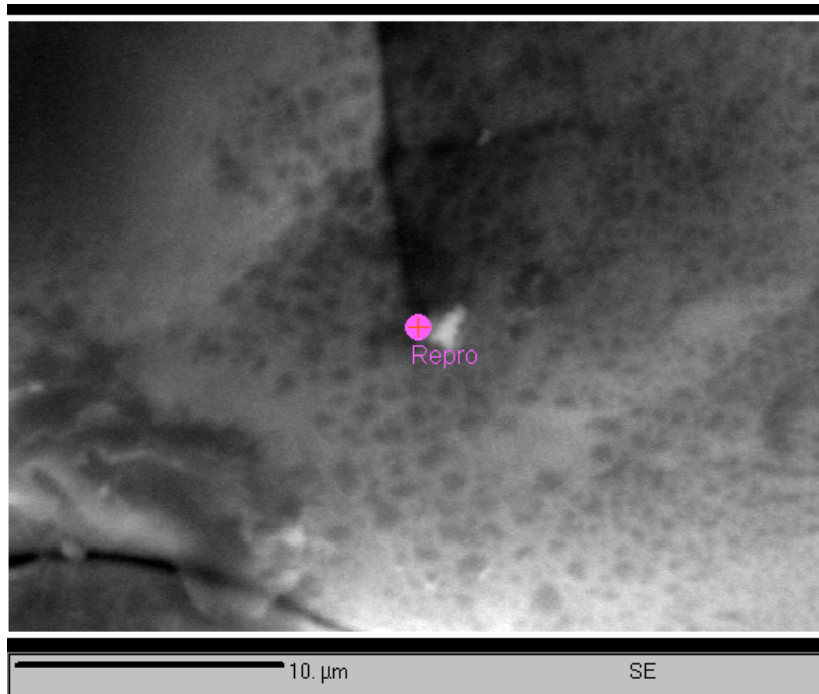
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Point N°	X Pos	Y Pos	Value Pos	X Neg	Y Neg	Value Neg
1	0.36	-0.36	0.52	0.12	0.06	0.14
2	0.30	-0.36	0.48	0.00	0.00	0.00
3	0.24	-0.36	0.44	0.00	0.00	0.00
4	0.12	-0.49	0.50	0.00	0.12	0.12
5	0.06	-0.55	0.55	-0.12	-0.18	0.22
6	-0.06	-0.43	0.43	-0.18	-0.12	0.22
7	-0.06	-0.61	0.61	-0.24	-0.18	0.30
8	-0.06	-0.61	0.61	-0.18	-0.12	0.22
9	-0.06	-0.55	0.55	-0.18	-0.12	0.22
10	-0.06	-0.55	0.55	-0.24	-0.24	0.34
11	-0.24	-0.55	0.60	-0.30	-0.30	0.43
12	-0.30	-0.55	0.63	-0.24	-0.24	0.34
13	-0.18	-0.49	0.52	-0.30	-0.36	0.48
14	-0.18	-0.55	0.58	-0.30	-0.30	0.43
15	-0.12	-0.61	0.62	-0.30	-0.36	0.48
16	-0.06	-0.55	0.55	-0.18	-0.43	0.46
17	-0.06	-0.79	0.79	-0.24	-0.43	0.49
18	-0.24	-0.61	0.66	-0.30	-0.43	0.52
19	-0.06	-0.73	0.73	-0.24	-0.36	0.44
20	-0.24	-0.61	0.66	-0.30	-0.49	0.57



Approvals:

For SX100 Engineer: N. Boutron
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.....
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For Customer: J. Donovan
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Date: 7/11/2005

.....
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Result of performances Testing for SX100

24/09/1997

n° QD / 09 / 0099 / 002

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In order to verify that the instrument has been properly checked and is conforming to published specifications, the following performance tests shall be satisfactorily completed at CAMECA before shipping.

VACUUM MEASUREMENTS

Test REF H 2

Description: ion pump vacuum measurement.
This test follow instruction 'vacuum test' QI / 09 / 0226

Result: 3.10^{-6} Pa (should be $< 10^{-5}$ Pa)

Test REF H 3

Description: stage vacuum measurement.
This test follow instruction 'vacuum test' QI / 09 / 0226

Result: 4.10^{-5} Pa (should be $< 10^{-4}$ Pa)

Test REF H X 1

Description: spectrometer vacuum measurement.
This test follow instruction 'vacuum test' QI / 09 / 0226

Result: 3.0 Pa (should be < 10 Pa)

Test REF H X 2

Description: diffusion pump vacuum measurement.
This test follow instruction 'vacuum test' QI / 09 / 0226

Result: 5.0 Pa (should be < 10 Pa)

Approvals:

For SX100 Engineer: N. Boutron
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.....
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For Customer: J. Donovan **Date: 7/11/2005**
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Result of performances Testing for SX100

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In order to verify that the instrument has been properly checked and is conforming to published specifications, the following performance tests shall be satisfactorily completed at CAMECA before shipping.

ANTICONTAMINATION TEST

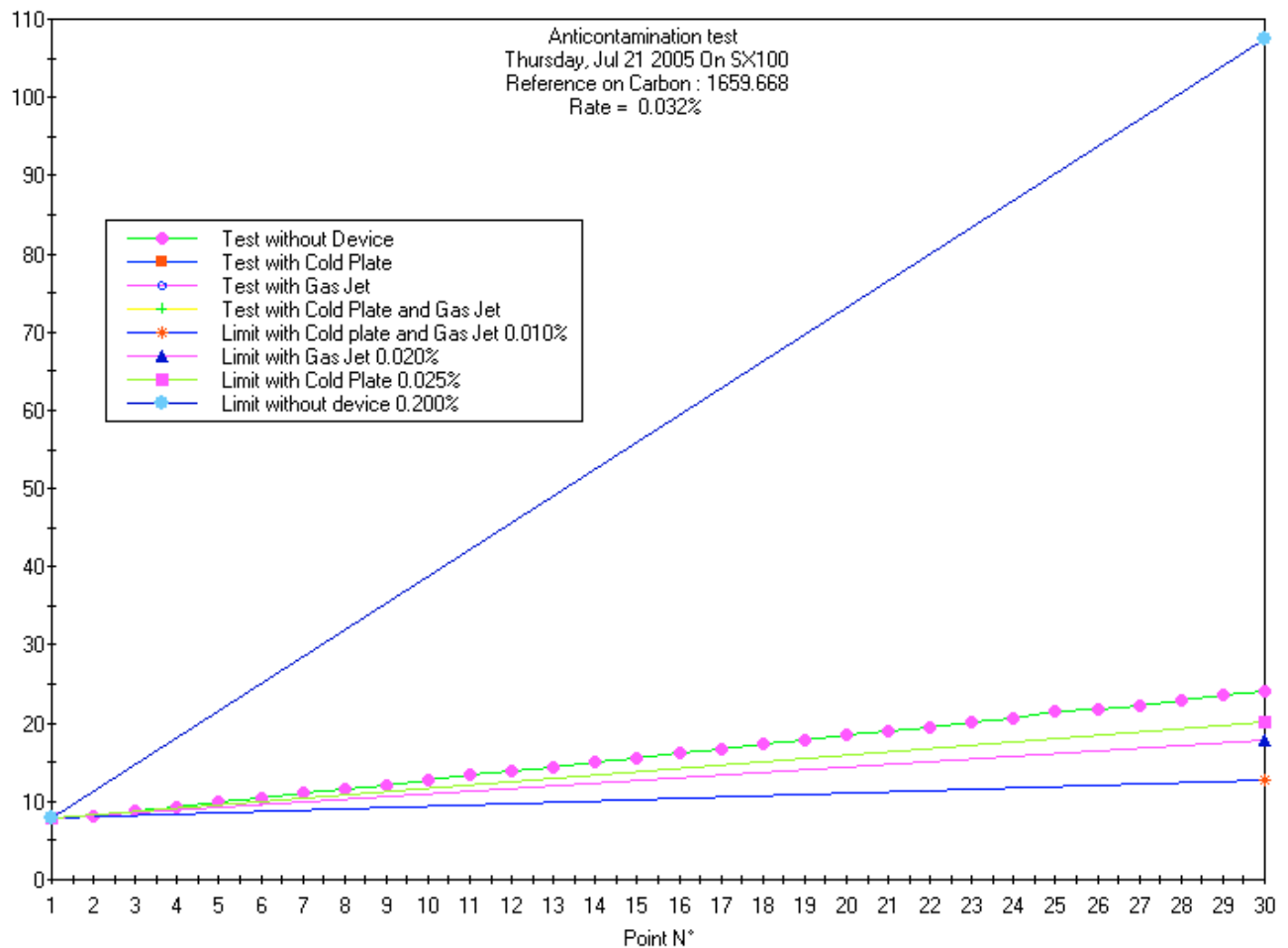
Test REF H 6

Description: test made on pure copper at 10 kV 100 Na

This test follow instruction 'use of sx100 test programs'

QI / 09 / 0161

With Aqua Trap



Approvals:

For SX100 Engineer: N. Boutron
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For Customer: J. Donovan **Date: 7/11/2005**
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Result of performances Testing for SX100

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In order to verify that the instrument has been properly checked and is conforming to published specifications, the following performance tests shall be satisfactorily completed at CAMECA before shipping.

PUMPING TIME (VACUUM)

Test REF H 8

Description: time to change a sample (same sample in and out)
This test follow instruction 'vacuum test' QI / 09 / 0226.

Result: 1 min 50 seconds (should be < 3 min)

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Result of performances Testing for SX100

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In order to verify that the instrument has been properly checked and is conforming to published specifications, the following performance tests shall be satisfactorily completed at CAMECA before shipping.

SOFTWARE TEST

Test REF X 1

Description: setup and attach function (SEM, stage, WDS)

This test follow instruction 'software test' QI / 09 / 0227

Vacuum control:
Column control:
Video control:
Display control:

Test REF X 2

Description: Peak Sight programs (Quali, image, quanti, acquisition)

This test follow instruction 'software test' QI / 09 / 0227

Efficiency acquisition:
Image acquisition in STAGE mode:
Image acquisition in BEAM mode:
Quali acquisition in WDS mode:
Quali acquisition in STAGE mode:
Quali acquisition in BEAM mode :
Quanti acquisition on 100 points :

Hardware Options Test

Zoom test:
Cathodo test:
Polarizer control test:
Wds and Eds acquisition (image):
Eds resolution: (eV)

EDAX Eds not received yet during CAMECA installation

Approvals:

For SX100 Engineer: N. Boutron
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For Customer: J. Donovan **Date: 7/11/2005**
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Result of performances Testing for SX100

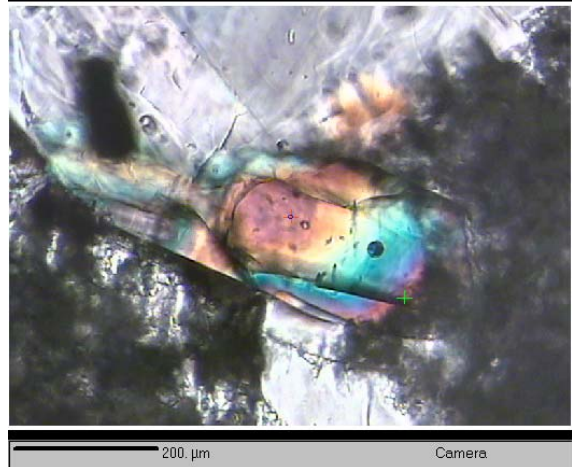
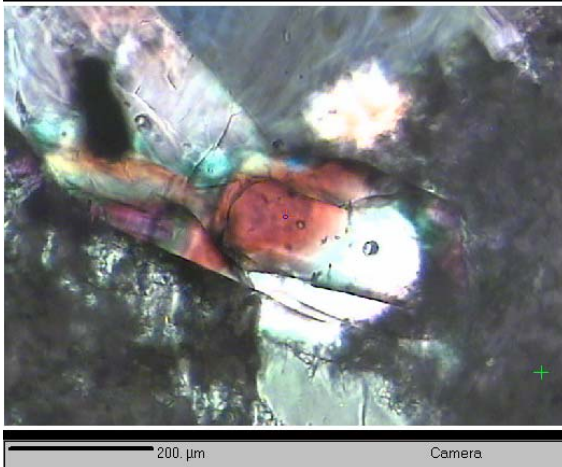
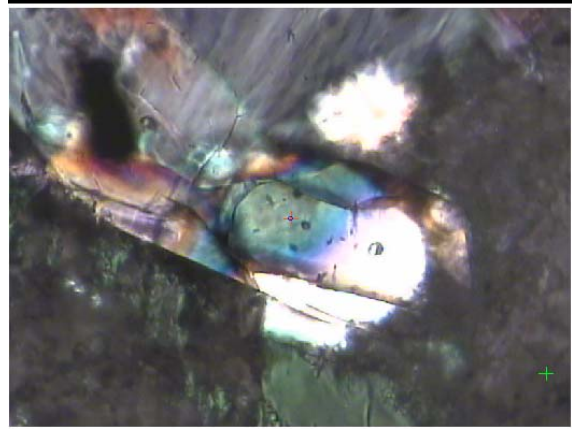
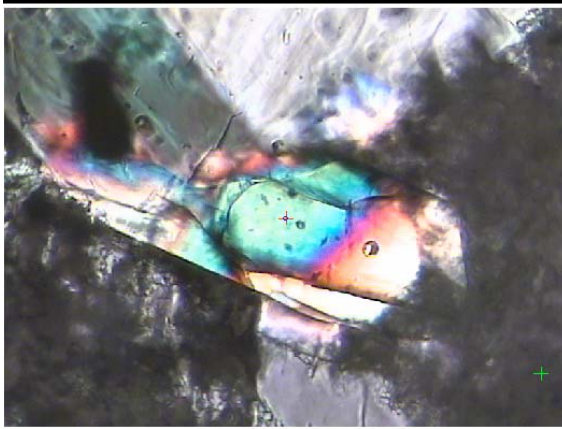
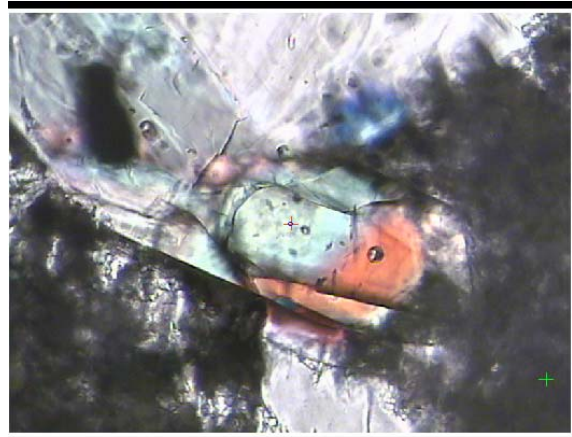
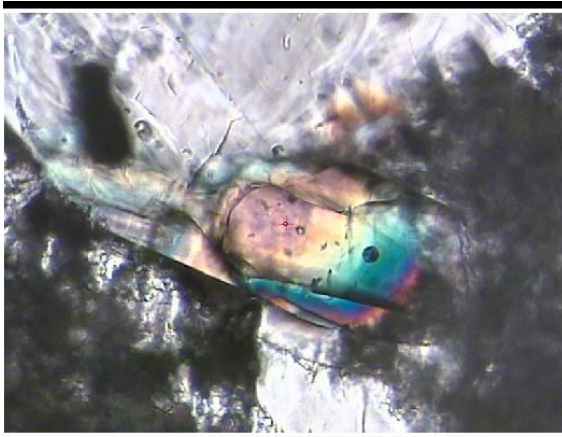
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Polarized images :



Approvals:

For SX100 Engineer: N. Boutron
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For Customer: J. Donovan
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Date: 7/11/2005

.....
(Signature)

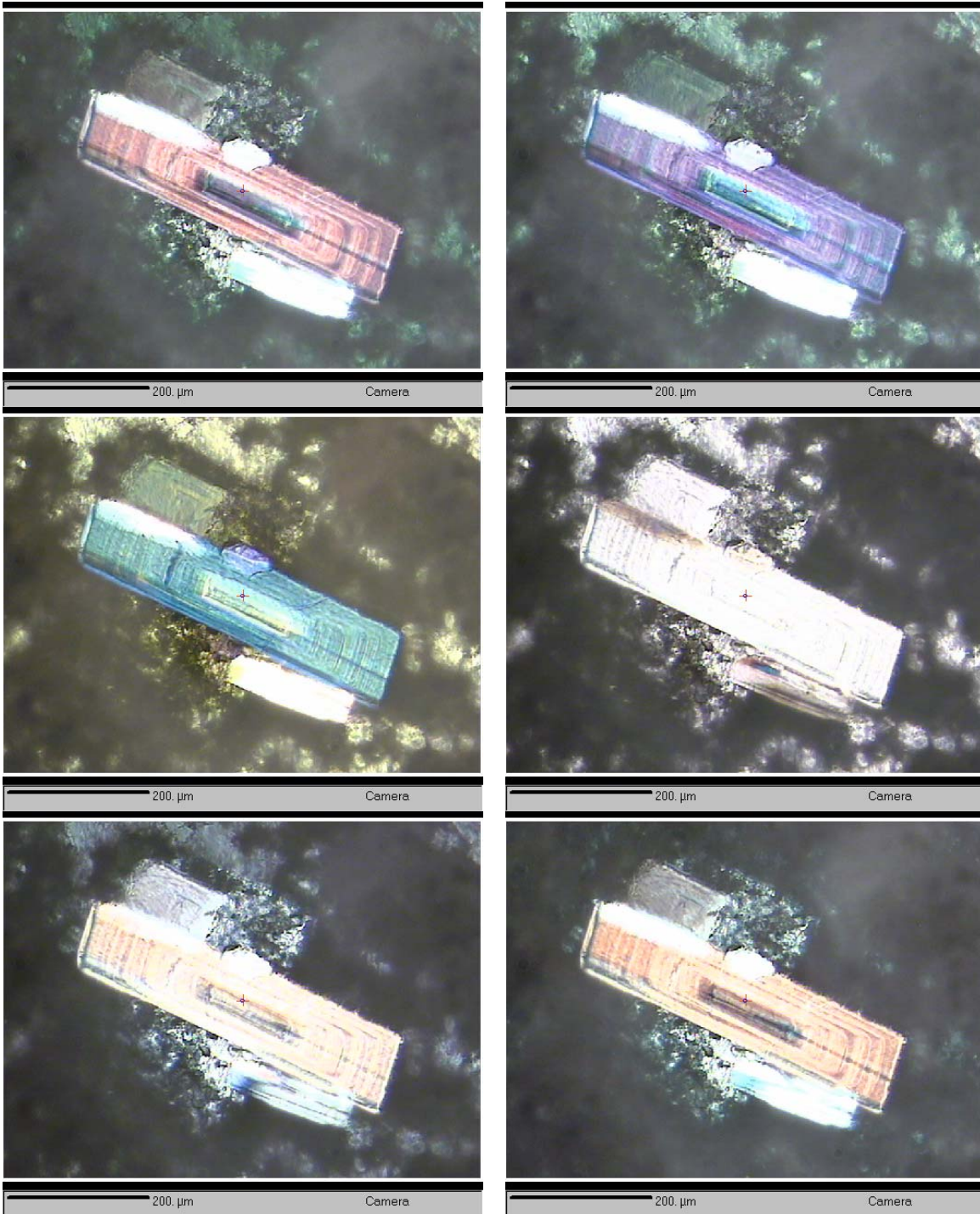
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For SX100 Engineer: N. Boutron
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For Customer: J. Donovan **Date: 7/11/2005**
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Result of performances Testing for SX100

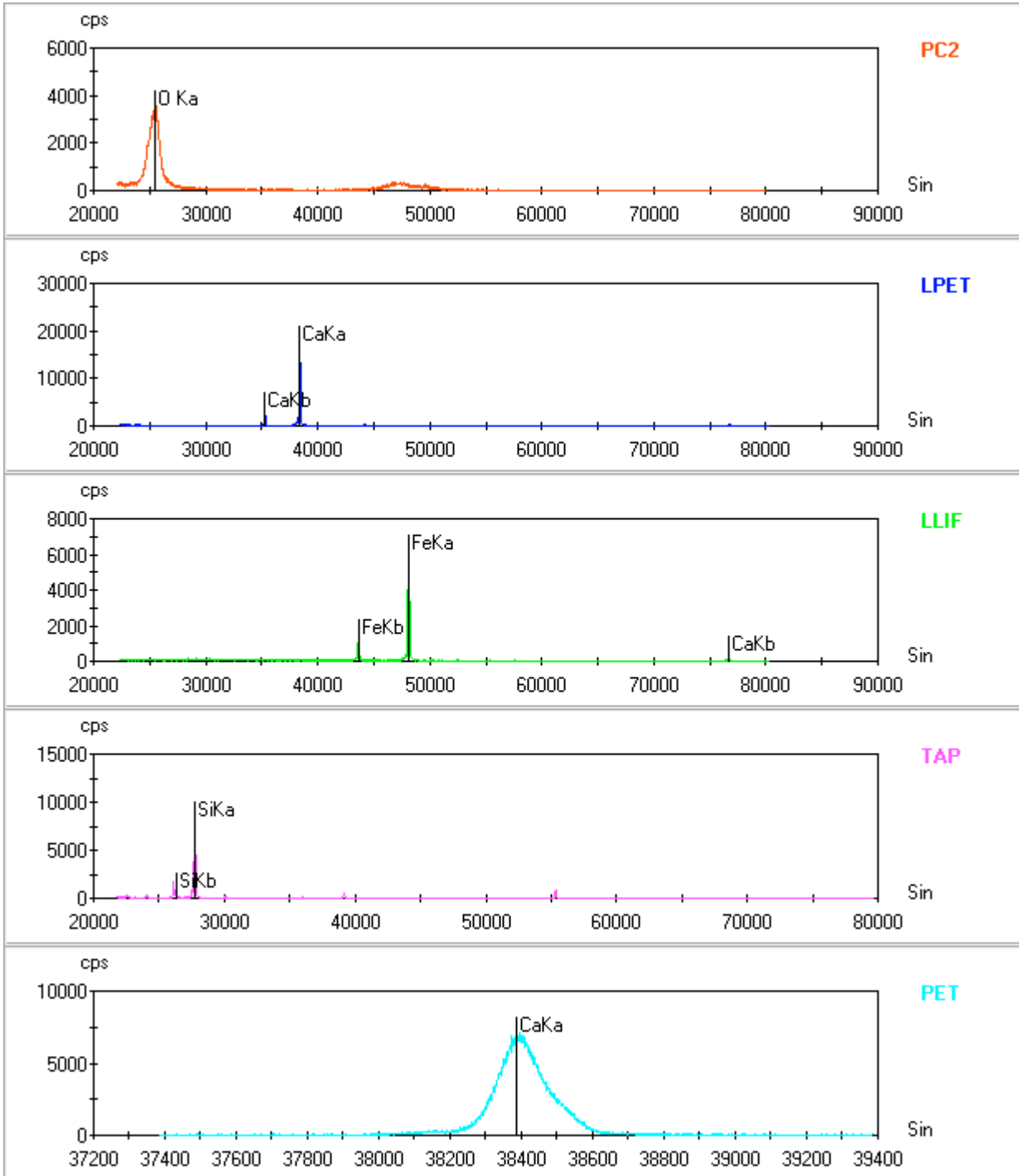
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WDS Spectra Acquisition on Andradite



Approvals:

For SX100 Engineer: N. Boutron
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For Customer: J. Donovan **Date: 7/11/2005**
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Result of performances Testing for SX100

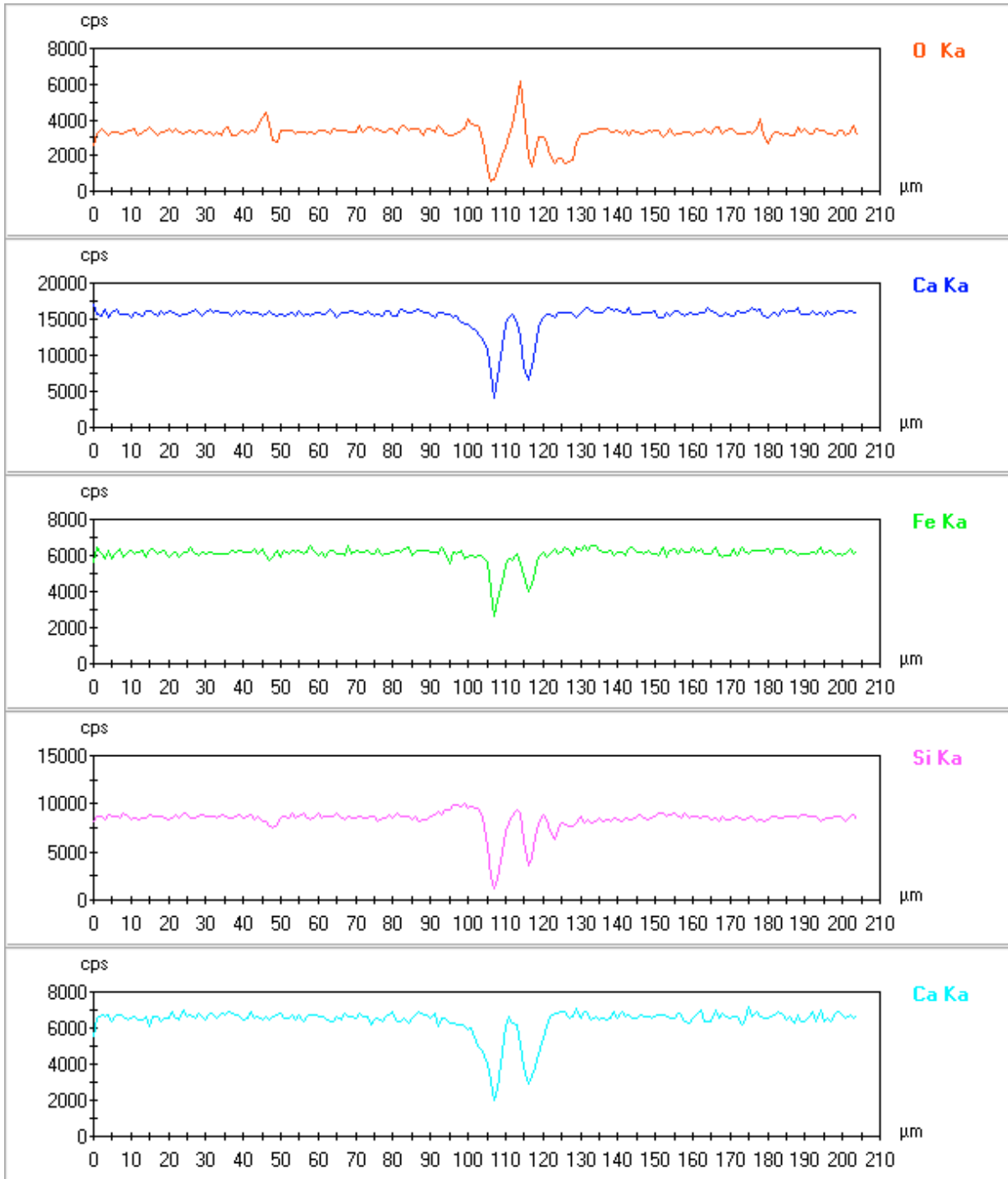
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Profile Acquisition in Stage on Andradite



Approvals:

For SX100 Engineer: N. Boutron
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.....
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For Customer: J. Donovan **Date: 7/11/2005**
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Result of performances Testing for SX100

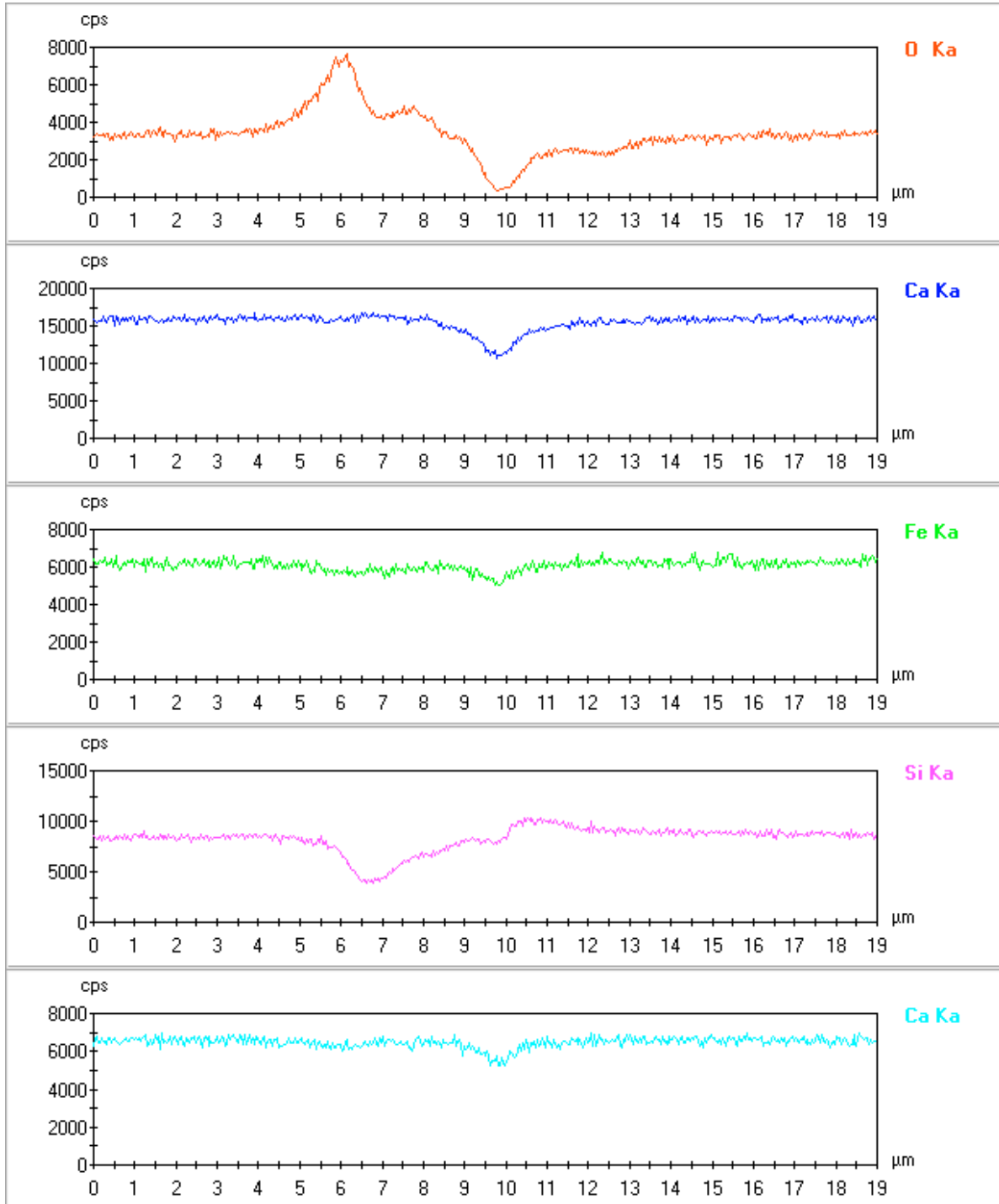
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Profile Acquisition in Beam on Andradite



Approvals:

For SX100 Engineer: N. Boutron
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Result of performances Testing for SX100

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Quanti acquisition on 100 points using L316 sample

Point	Si	Cr	Mn	Fe	Ni	Mo	Total
1	0.5319	17.6522	1.3494	68.024	9.8548	2.0725	99.4847
2	0.5444	17.8604	1.3391	68.2784	10.0212	2.179	100.2226
3	0.5459	17.651	1.3675	68.1438	10.2224	2.1028	100.0335
4	0.5602	17.3351	1.358	67.3725	10.7999	2.107	99.5328
5	0.5786	17.452	1.4109	67.0581	11.3259	2.0689	99.8944
6	0.5961	17.4787	1.4692	66.8006	11.4741	1.9791	99.7978
7	0.5906	17.5434	1.4742	66.2252	11.6636	2.1057	99.6025
8	0.6073	17.4277	1.4829	67.0555	11.4148	2.138	100.1262
9	0.573	17.4151	1.4186	67.5239	11.147	2.0753	100.1529
10	0.5332	17.4701	1.3517	67.4104	10.5201	1.9062	99.1916
11	0.5402	17.8059	1.3352	68.3404	9.5978	2.0001	99.6196
12	0.537	17.7346	1.2876	68.9984	9.5406	1.8254	99.9235
13	0.5376	17.5187	1.3297	68.4335	10.0852	1.7675	99.6721
14	0.546	17.0819	1.4016	67.5151	11.5802	1.9529	100.0776
15	0.5527	17.0266	1.4371	67.0724	11.718	1.7729	99.5796
16	0.5964	17.3809	1.5115	66.4876	11.9012	2.0243	99.902
17	0.6016	17.4972	1.4813	66.7345	12.0723	2.0849	100.4718
18	0.5868	17.5666	1.444	67.0163	11.5732	2.1062	100.2931
19	0.5672	17.6233	1.3911	68	10.7576	1.8879	100.2272
20	0.5586	17.5938	1.4353	67.8507	10.7309	2.071	100.2403
21	0.5822	17.5064	1.431	67.94	10.9265	2.1036	100.4897
22	0.5836	17.4755	1.4509	67.082	11.3352	2.0609	99.9882
23	0.5835	17.2863	1.4288	67.2848	11.7625	2.2785	100.6243
24	0.6292	17.5814	1.5086	65.8002	12.094	2.179	99.7923
25	0.615	17.776	1.4904	66.4189	11.3837	2.2528	99.9368
26	0.5909	17.8167	1.4414	67.0763	10.7445	2.241	99.9108
27	0.5971	17.8291	1.4318	67.154	10.6723	2.4263	100.1106
28	0.5845	17.4814	1.4388	66.815	11.1779	1.9308	99.4284
29	0.5565	17.2508	1.4167	67.3507	11.4718	1.9915	100.0381
30	0.5758	17.2018	1.4718	68.0348	11.4131	1.8862	100.5834
31	0.5909	17.4118	1.4466	67.0159	11.52	2.1928	100.178
32	0.5864	17.3806	1.4925	67.001	11.8896	2.0275	100.3775
33	0.5751	17.3961	1.4475	66.4369	11.4449	2.0588	99.3593
34	0.5563	17.5032	1.4571	67.7476	10.8238	2.0421	100.1302
35	0.5456	17.7036	1.4402	67.6504	10.4392	2.1577	99.9367
36	0.5451	17.6888	1.3394	68.7468	10.1087	1.9122	100.341
37	0.5442	17.8941	1.341	68.3115	9.9597	2.0329	100.0834
38	0.5442	17.5668	1.4012	68.0962	9.9988	1.8225	99.4297
39	0.5216	17.5927	1.7259	68.148	10.0653	2.0459	100.0994
40	0.5359	17.4647	1.3764	68.0986	10.564	2.0587	100.0983

Approvals:

For SX100 Engineer: N. Boutron
(Name printed)

.....
(Signature)

For Customer: J. Donovan
(Name printed)

Date: 7/11/2005

.....
(Signature)

Result of performances Testing for SX100

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41	0.5404	17.3125	1.3874	68.2109	10.8349	1.8421	100.1281
42	0.569	17.4401	1.3671	67.7363	11.2414	1.8147	100.1685
43	0.5575	17.463	1.3511	67.0273	11.2079	2.0313	99.6381
44	0.5403	17.6388	1.4071	67.9235	10.3501	2.1862	100.0459
45	0.5611	17.5645	1.3929	67.9697	10.4303	1.9833	99.9018
46	0.5421	17.7751	1.3659	68.2006	10.0146	2.1258	100.024
47	0.5485	17.662	1.3571	68.1599	10.2467	2.1891	100.1631
48	0.5698	17.3017	1.3854	68.2308	10.7555	2.1557	100.3988
49	0.5665	17.1667	1.3904	67.1822	11.5241	1.8688	99.6985
50	0.565	17.2403	1.4141	67.2652	11.1916	1.9296	99.6059
51	0.5479	17.5046	1.4054	68.0181	10.2783	2.0839	99.8382
52	0.5433	17.511	1.4213	67.9148	10.7465	1.8848	100.0218
53	0.548	17.5532	1.3696	67.3661	10.5654	2.109	99.5113
54	0.5772	17.6517	1.4043	67.6758	10.7648	1.9901	100.0639
55	0.5543	17.5937	1.4158	66.7406	11.4582	2.3045	100.0671
56	0.5849	17.4233	1.4245	67.1157	11.5594	2.0382	100.1459
57	0.5722	17.8794	1.4729	67.2639	10.6112	2.1054	99.905
58	0.5893	17.943	1.4007	68.4049	10.2536	1.9191	100.5106
59	0.5911	17.5441	1.3979	68.5256	10.503	2.2848	100.8465
60	0.5838	17.3922	1.4156	67.815	10.9378	1.7016	99.8459
61	0.5931	17.2935	1.4463	67.0523	11.3999	2.2622	100.0473
62	0.5888	17.2563	1.4273	66.9998	11.6448	2.2434	100.1604
63	0.5883	17.3029	1.4695	66.8307	11.4251	2.1667	99.7833
64	0.6018	17.2215	1.4672	66.8069	11.8125	2.2669	100.1767
65	0.6039	17.4334	1.4555	67.2248	11.9154	1.885	100.5181
66	0.5992	17.4323	1.4532	67.135	11.6955	2.1985	100.5137
67	0.5901	17.4987	1.4081	66.9923	11.4467	2.1129	100.0489
68	0.5977	17.58	1.4538	66.9527	11.2062	2.2863	100.0767
69	0.5819	17.5726	1.4517	67.6621	10.7928	2.1172	100.1783
70	0.5995	17.5505	1.4342	67.5437	11.0895	2.0026	100.22
71	0.5889	17.4218	1.435	67.4543	11.4113	2.1185	100.4298
72	0.5985	17.353	1.4768	66.6868	11.4499	2.0664	99.6315
73	0.594	17.1813	1.5093	67.4833	11.671	2.1515	100.5904
74	0.5839	17.1435	1.4897	66.692	11.6164	2.0241	99.5495
75	0.5933	17.1844	1.4468	66.4613	11.732	1.8376	99.2554
76	0.5856	17.4003	1.5036	67.2764	11.7074	1.9627	100.436
77	0.6128	17.4	1.5069	66.7213	11.6556	2.0729	99.9694
78	0.6127	17.3581	1.4369	66.2915	11.5595	2.1828	99.4414
79	0.584	17.3166	1.4457	66.5648	11.6212	2.024	99.5561
80	0.586	17.3391	1.449	66.6557	11.3659	2.1608	99.5566
81	0.5773	17.4856	1.4994	66.8827	11.2766	2.3115	100.033
82	0.5828	17.3856	1.4965	66.7664	11.1416	2.1831	99.556
83	0.5804	17.6048	1.4436	67.3931	11.1948	2.0335	100.2501

Approvals:

For SX100 Engineer: N. Boutron
(Name printed)

.....
(Signature)

For Customer: J. Donovan
(Name printed)

Date: 7/11/2005

.....
(Signature)

Result of performances Testing for SX100

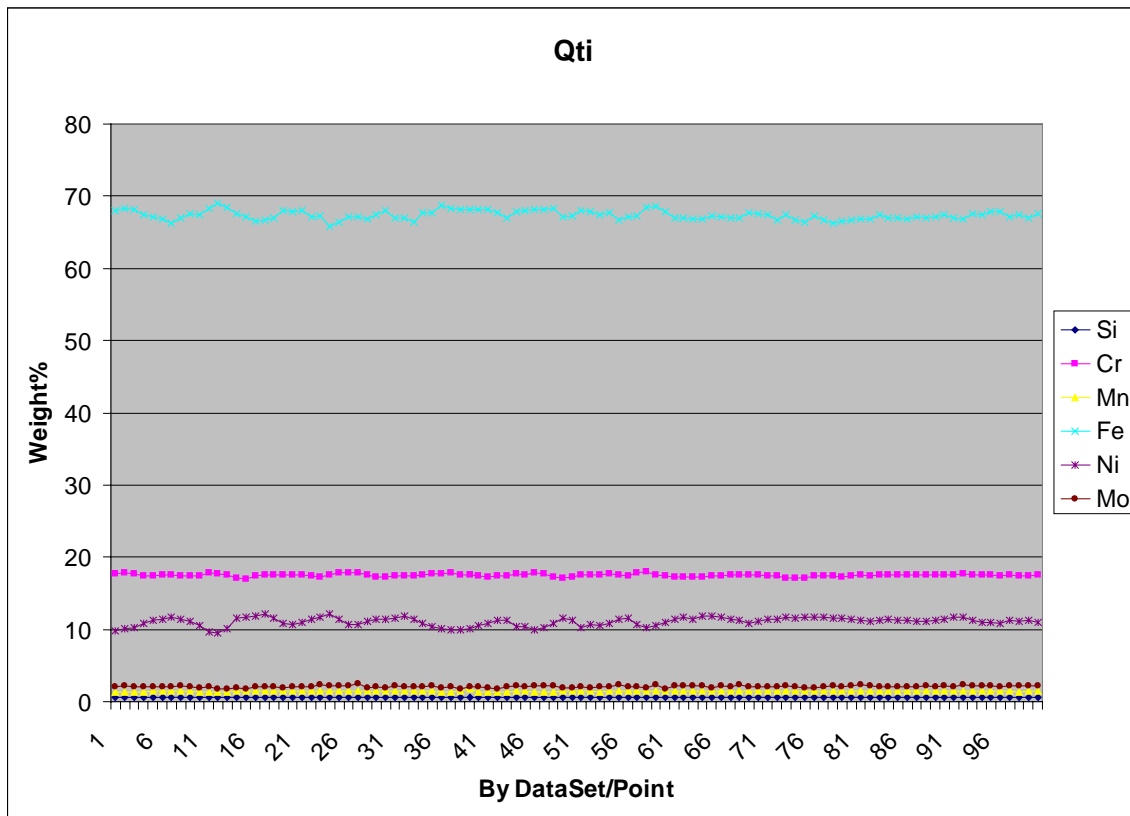
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84	0.5829	17.5308	1.4062	67.0401	11.3479	2.0878	99.9957
85	0.5695	17.5579	1.4884	66.9297	11.249	2.0383	99.8329
86	0.586	17.6218	1.4367	66.8271	11.1907	2.0417	99.704
87	0.6024	17.5968	1.4698	67.1951	11.1322	2.0872	100.0835
88	0.5921	17.5088	1.4107	67.0006	11.16	2.1592	99.8314
89	0.6092	17.5736	1.4354	67.1367	11.1975	2.064	100.0164
90	0.5952	17.5313	1.4276	67.417	11.4425	2.2352	100.6488
91	0.5984	17.4993	1.4471	67.0096	11.7438	2.0239	100.3221
92	0.6012	17.6286	1.4835	66.7853	11.6669	2.2719	100.4374
93	0.5685	17.512	1.4747	67.5035	11.2953	2.1682	100.5222
94	0.5884	17.6173	1.4357	67.3941	10.9896	2.2351	100.2602
95	0.5821	17.5855	1.4392	67.9015	10.9451	2.1261	100.5795
96	0.5546	17.3984	1.4065	67.8588	10.7557	2.0262	100.0001
97	0.5651	17.4836	1.3896	67.178	11.1895	2.1996	100.0053
98	0.5755	17.3753	1.3638	67.4875	11.1565	2.1963	100.1548
99	0.5605	17.4215	1.4254	67.0278	11.2111	2.1237	99.7698
100	0.5744	17.5043	1.427	67.6009	11.0156	2.2554	100.3775



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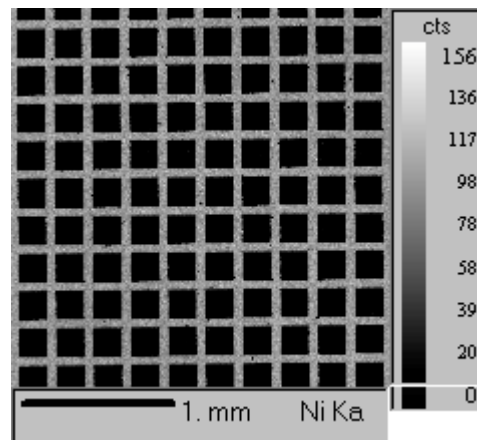
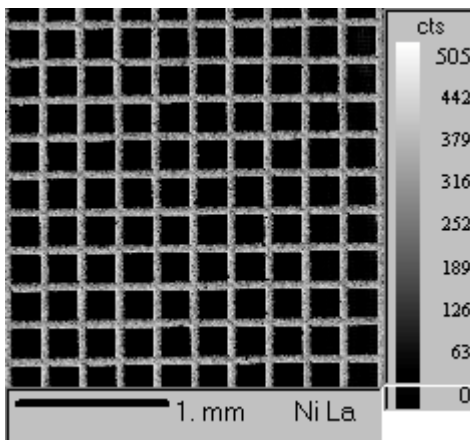
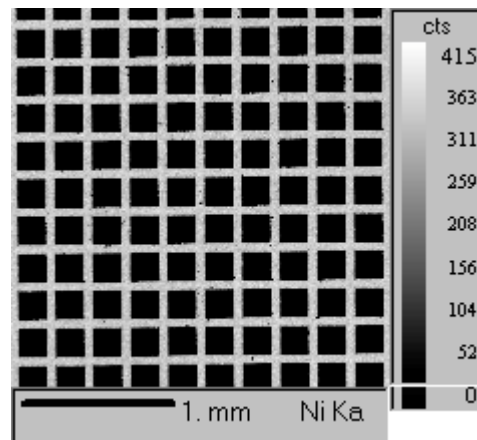
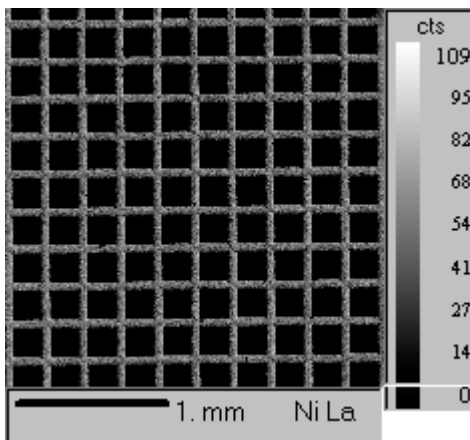
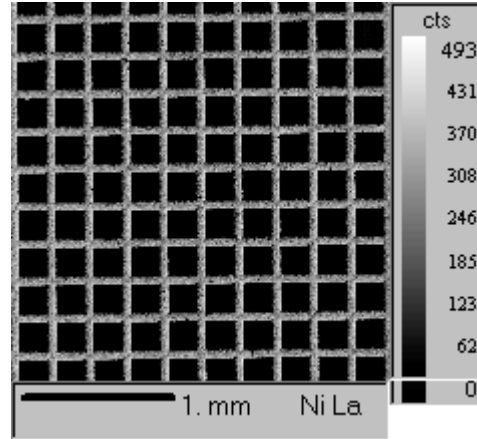
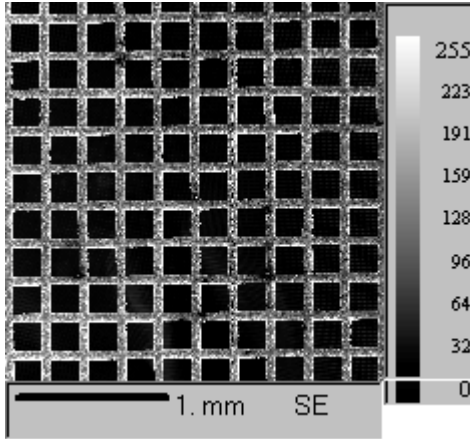
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Mosaic images in Stage :

Signal(s) Used : Vs1 SE, Vs2 BSE Z, Ni La, Ni La, Ni Ka, Ni La, Ni Ka

Spectrometers Conditions: Sp1 PC1, Sp2 LTAP, Sp3 LLIF, Sp4 PC1, Sp5 LIF



Approvals:

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Result of performances Testing for SX100

24/09/1997

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Image Acquisition in Stage Mode

Signal(s) Used : Vs1 Cat, Vs2 BSE Z, C Ka, Mg Ka, Ca Ka, O Ka, Ca Ka

Spectrometers Conditions: Sp1 PC2, Sp2 LTAP, Sp3 LPET, Sp4 PC1, Sp5 PET

Full Spectrometers Conditions : Sp1 PC2(2d= 94.978,K= 0.0216), Sp2 LTAP(2d= 25.745,K= 0.00218), Sp3 LPET(2d= 8.75,K= 0.000144), Sp4 PC1(2d= 60.829,K= 0.00916), Sp5 PET(2d= 8.75,K= 0.000144)

Column Conditions: Cond 1: 20keV 19.9957nA

Date: 27-Jul-2005

Pha Parameters:

	Bias	Gain	Dtime	Blin	Wind	Mode
Sp1 (C Ka)	1480	849	3	560	4153	Inte
Sp2 (Mg Ka)	1292	2253	3	560	4653	Inte
Sp3 (Ca Ka)	1895	1192	3	890	2548	Inte
Sp4 (O Ka)	1471	536	3	560	4062	Inte
Sp5 (Ca Ka)	1857	824	3	890	2548	Inte

Peak Position: Sp1 47003, Sp2 38492, Sp3 38367, Sp4 39925, Sp5 38384

Start: X = -343 Y = -28686 Z = 283

Dwell Time: 0.1 Sec

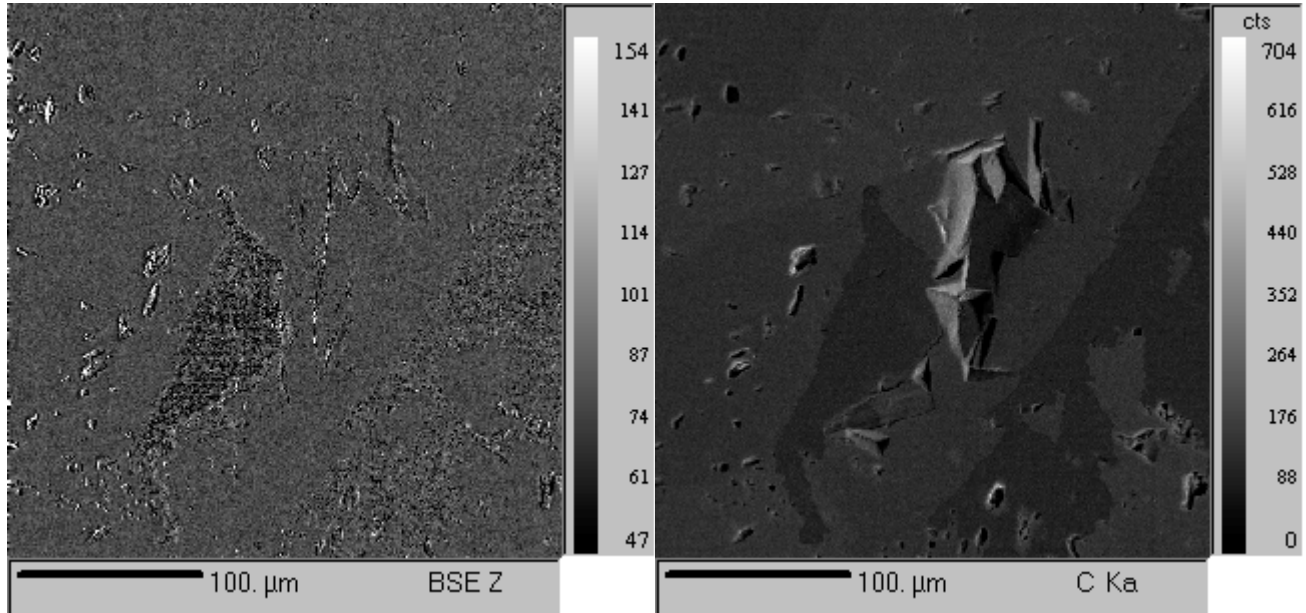
Acquisition type: Stage Grid

Step Number: 512

Line Number: 512

Beam Size: 0 µm

Step Size : .6



Approvals:

For SX100 Engineer: N. Boutron
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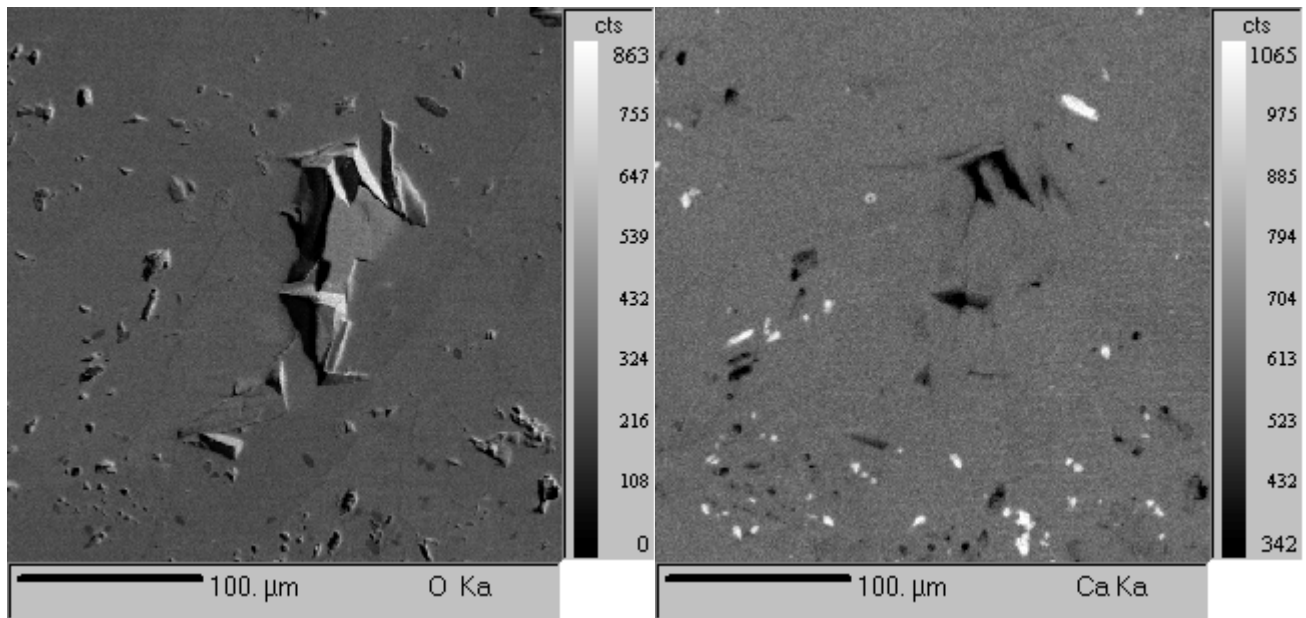
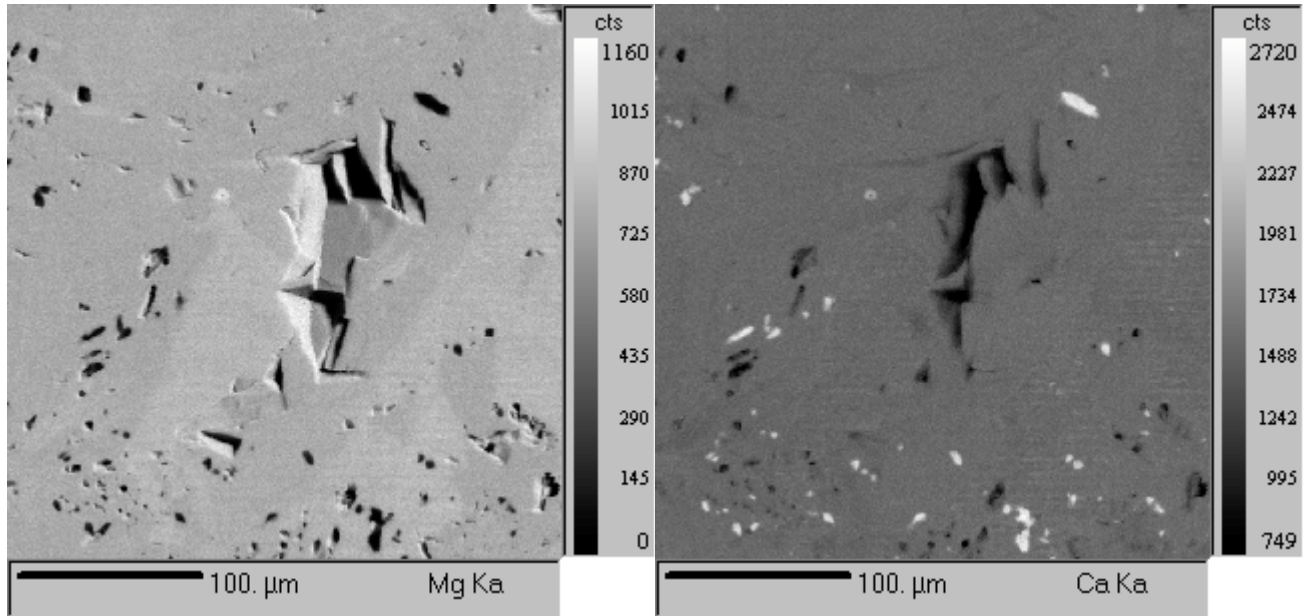
Result of performances Testing for SX100

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For SX100 Engineer: N. Boutron
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Result of performances Testing for SX100

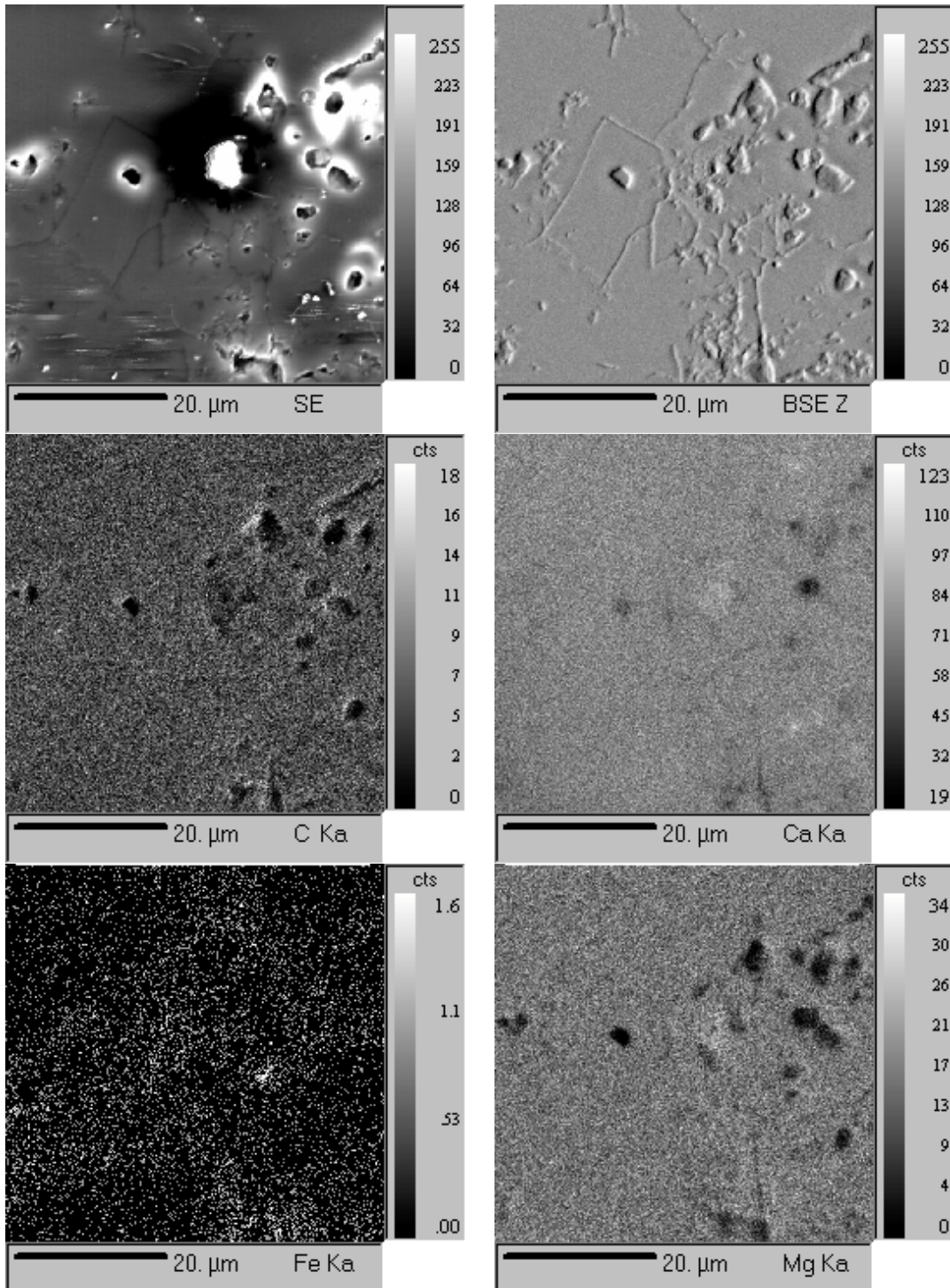
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Image Acquisition Beam Mode



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For SX100 Engineer: N. Boutron
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Result of performances Testing for SX100

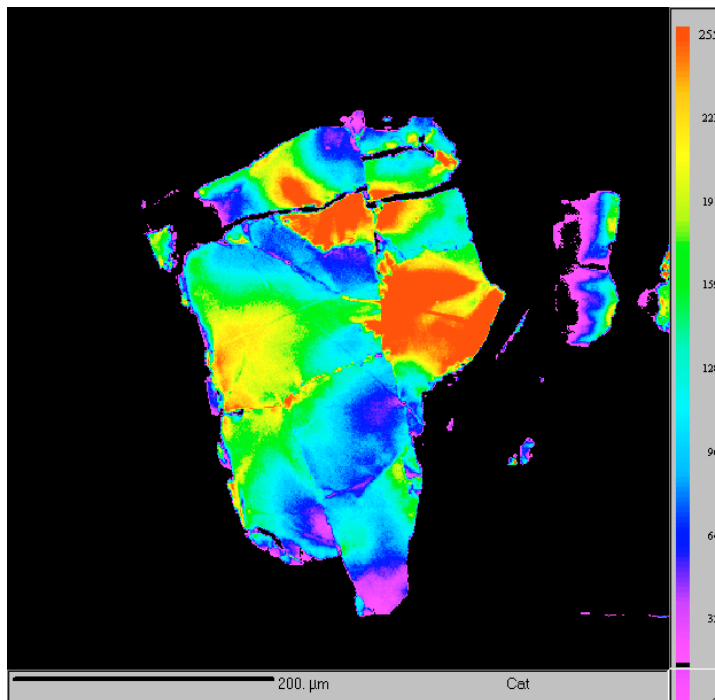
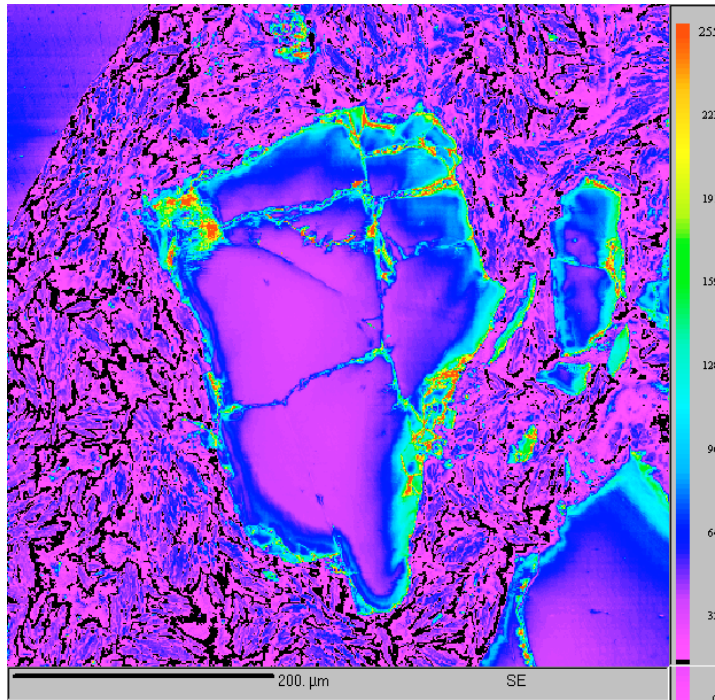
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iso/document/sxresu

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SE and Cathodo Images Acquisition in Stage Mode



Approvals:

For SX100 Engineer: N. Boutron
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Result of performances Testing for SX100

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Quanti Analysis on Dolomite

Point	CO2	MgO	CaO	MnO	FeO	Total
1	32.6071	20.3785	34.1503	0.0525	0.163	87.3515
2	33.7273	20.1164	34.0516	0.0253	0	87.9206
3	32.6679	20.2635	34.0934	0.013	0	87.0377
4	31.6665	19.5352	34.5452	0.0322	0.0288	85.8079
5	28.8449	19.2243	34.6285	0.0506	0	82.7483
6	29.2767	20.1994	34.0879	0.0799	0.8215	84.4652
7	32.6442	20.2285	34.6958	0.046	0	87.6144
8	31.977	19.4948	35.0278	0.0358	0	86.5355
9	32.9359	19.6731	34.8471	0.0074	0.0087	87.4722
10	33.7654	20.0068	34.5904	0.0278	0	88.3905
11	34.7233	20.3023	34.1728	0.0381	0.3045	89.541
12	28.1967	18.0924	34.6637	0.1957	0.4009	81.5493
13	32.3349	19.9675	34.5479	0.0381	0.0016	86.89
14	31.8463	19.4559	35.0635	0.023	0	86.3886
15	31.0685	19.4677	35.3704	0.0441	0	85.9506
16	37.4707	19.9221	33.1429	0.0682	0	90.604
17	33.3985	19.3994	34.7995	0.0626	0	87.66
18	31.9794	19.54	35.2891	0.0354	0	86.8439
19	32.5681	19.8669	34.9234	0.0352	0	87.3936
20	33.3582	19.9862	34.4252	0.0212	0	87.7907
21	32.7638	19.4771	34.0836	0.0626	0.5256	86.9127
22	33.2288	20.4546	34.0477	0.0435	0.4241	88.1986
23	31.9328	19.9132	35.2169	0.035	0.0216	87.1194
24	30.2501	18.8858	35.4458	0.0251	0	84.6067
25	30.617	19.2028	35.47	0.0632	0	85.353
26	36.4949	19.8466	32.9006	0.0501	0	89.2922
27	28.6186	20.0705	34.2471	0.0499	0	82.9861
28	31.6779	19.3606	35.2306	0.0362	0	86.3053
29	33.3756	18.331	35.1272	0.0248	0	86.8586
30	31.8426	19.9413	35.1158	0.0299	0	86.9296
31	34.3403	19.9745	34.3683	0.0293	0	88.7123
32	33.7436	19.9708	34.5072	0.0447	0	88.2663
33	33.4693	19.4999	34.9093	0.0385	0	87.917
34	32.0459	19.4333	35.1081	0.0241	0	86.6113
35	31.6996	19.5231	35.198	0.0343	0	86.455
36	31.406	19.7905	34.8674	0.0282	0	86.0921
37	29.3214	20.2767	34.6467	0.0359	0	84.2806
38	30.708	18.4871	35.9756	0.0166	0	85.1873
39	30.8057	19.6456	35.5202	0.0352	0	86.0066
40	30.0114	20.0061	34.7136	0.0517	0.0008	84.7835
41	33.5968	20.7813	34.8612	0.0376	0	89.2769

Approvals:

For SX100 Engineer: N. Boutron
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.....
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For Customer: J. Donovan **Date: 7/11/2005**
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Result of performances Testing for SX100

24/09/1997

n° QD / 09 / 0099 / 002

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42	39.2293	19.0594	34.8506	0.0138	0	93.1531
43	33.2575	19.3076	35.2472	0.0379	0.0062	87.8564
44	32.6664	19.5364	35.1715	0.0272	0.0017	87.4032
45	31.0134	19.288	35.5608	0.0262	0	85.8883
46	31.1655	18.8972	35.5023	0.0281	0	85.593
47	31.3066	18.9582	35.584	0.0228	0	85.8715
48	30.7811	19.7699	35.5756	0.059	0	86.1856
49	30.1547	19.5842	35.5198	0.0536	0	85.3124
50	31.4529	20.0311	35.2736	0.0686	0	86.8262
51	33.8639	19.3892	35.1638	0.0395	0	88.4565
52	34.4439	19.8132	34.4116	0.0199	0	88.6886
53	33.8038	20.3006	34.0237	0.0377	0	88.1658
54	32.9325	19.622	35.1074	0.0448	0	87.7066
55	30.4755	19.8518	35.1605	0.0356	0.0008	85.5243
56	30.8851	19.7394	35.3165	0.0304	0	85.9714
57	29.8085	19.2597	35.7968	0.0316	0.0008	84.8974
58	30.5745	19.5766	35.3073	0.061	0	85.5195
59	30.5626	19.6305	35.1977	0.0631	0.0069	85.4608
60	30.68	20.5134	34.5845	0.0753	0.7541	86.6073
61	31.9355	19.701	34.9356	0.0399	0	86.6121
62	31.4359	19.5934	35.3467	0.054	0	86.4301
63	32.341	20.2279	33.9663	0.0264	0	86.5616
64	38.0413	19.1033	34.6183	0.0281	0	91.791
65	31.4074	20.0835	35.1239	0.0336	0	86.6483
66	30.6872	19.5894	35.3973	0.037	0	85.7109
67	30.2195	19.468	35.527	0.05	0	85.2644
68	30.3872	19.8916	35.1235	0.0609	0.5424	86.0057
69	30.6091	19.9977	35.1001	0.1076	0.0859	85.9003
70	29.5177	19.4428	34.9487	0.1001	0.1055	84.1147
71	29.1679	19.9335	35.3167	0.0371	0	84.4552
72	39.1686	18.6487	34.6309	0.0298	0	92.478
73	33.0494	19.2777	35.3369	0.0426	0	87.7067
74	28.7858	19.4296	35.4349	0.0444	0	83.6947
75	30.3161	19.9433	35.3387	0.0565	0	85.6546
76	30.9256	19.9393	35.2369	0.0476	0.1484	86.2978
77	30.1735	19.633	35.4884	0.051	0.0897	85.4355
78	29.7103	19.402	35.2416	0.1614	0.2643	84.7796
79	30.2583	19.5281	35.4695	0.0409	0	85.2968
80	30.6535	19.3706	35.5702	0.0589	0	85.6531
81	28.5594	19.8147	35.208	0.0586	0.1781	83.8187
82	32.424	19.7038	34.8687	0.0428	0.013	87.0523
83	31.7678	19.1728	35.1828	0.0305	0	86.1539
84	31.7528	19.2602	34.847	0.0301	0	85.8901

Approvals:

For SX100 Engineer: N. Boutron
(Name printed)

.....
(Signature)

For Customer: J. Donovan **Date: 7/11/2005**
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.....
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Result of performances Testing for SX100

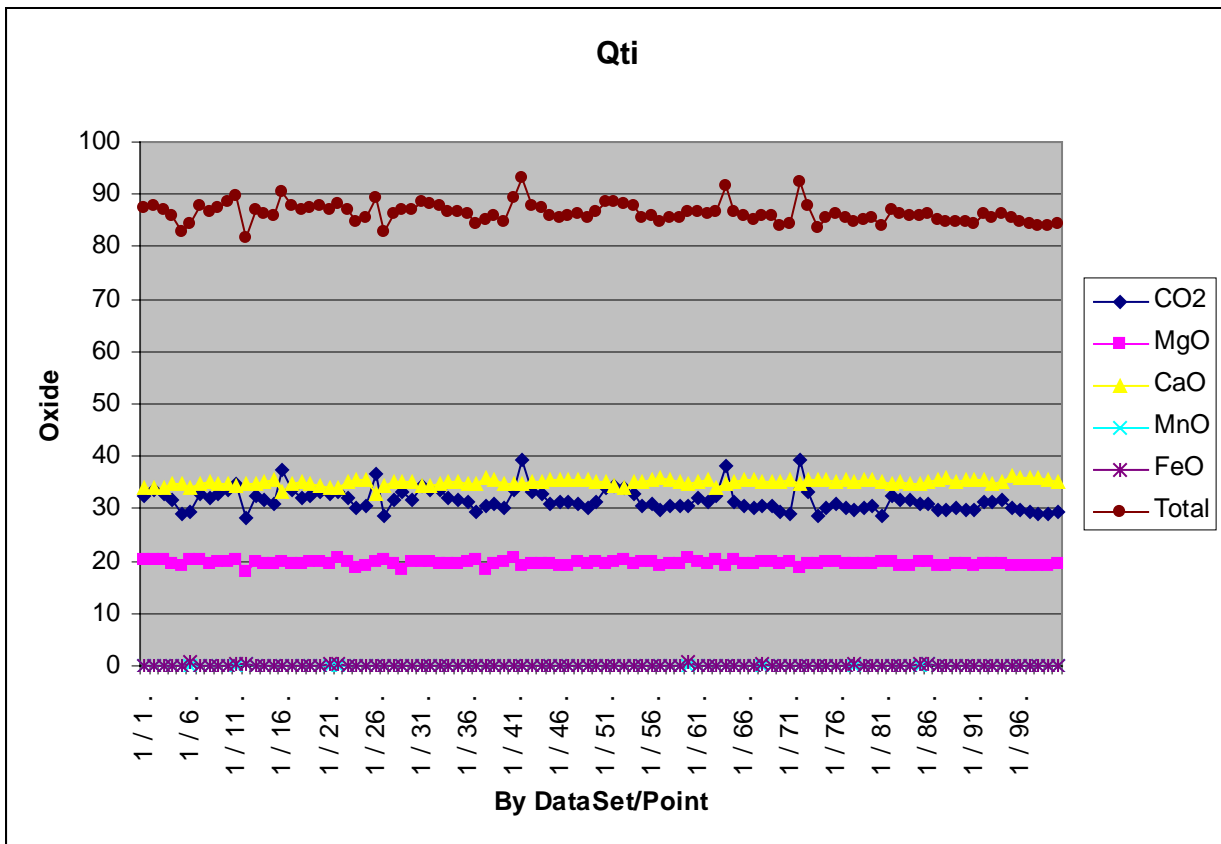
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86	30.8032	19.9799	34.9269	0.2741	0.2154	86.1994
87	29.9531	19.269	35.6664	0.0352	0.005	84.9288
88	29.6813	19.0287	36.0433	0.027	0	84.7802
89	30.1667	19.3291	35.1959	0.1331	0.0764	84.9012
90	29.9348	19.4612	35.3069	0.1419	0.043	84.8877
91	29.7031	18.9712	35.6307	0.0606	0	84.3655
92	31.306	19.3762	35.4715	0.0521	0	86.2058
93	31.3213	19.464	34.8114	0.0489	0	85.6456
94	31.6927	19.5373	35.1544	0.0464	0	86.4308
95	30.2529	19.1245	36.1092	0.0587	0.0181	85.5634
96	29.7593	18.9858	35.7091	0.0997	0	84.5538
97	29.5211	19.0408	35.7854	0.089	0.0357	84.4721
98	28.9923	19.1322	35.7127	0.1794	0.0426	84.0592
99	29.0749	19.2159	35.6436	0.115	0.0007	84.0501
100	29.2944	19.4133	35.259	0.1102	0.0863	84.1631



Approvals:

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