ULSAN NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY

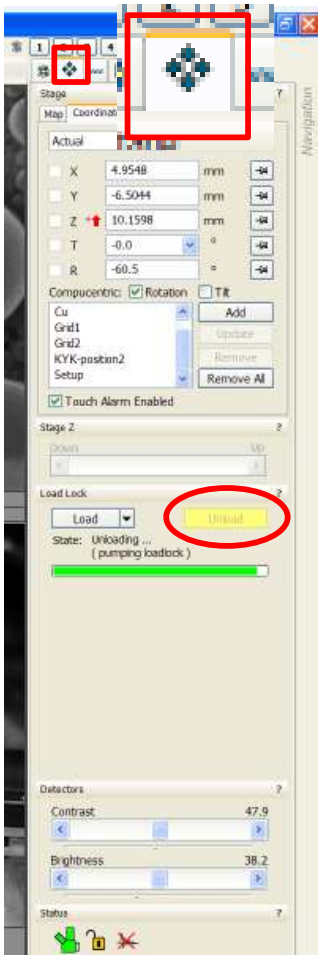
Dual Beam FIB

-Helios FIB-

Unload

1) Ion Beam 확인 – Beam On 두번 클릭
2) Navigation-Load lock- Unload 클릭
3) Clamp & Release 램프에 불이 둘 다 들어오면 뚜껑 열고, 3-1) Release 눌러서 clamp 해지
4) Holder 제거 후 샘플 준비(샘플 준비 할 때는 꼭 뚜껑 닫기)
5) Holder를 올리면 Clamp&Load 램프에 불이 들어오고 홀더가 잘 장착 되었는지 가운데 눌러서 확인 후 버튼을 눌러 clamp진행
6) 뚜껑을 닫으면 램프 두군데 불이 들어오고 Clamp&Load 버튼을 누른다(Chamber안으로 샘플 로딩)

2)



3)

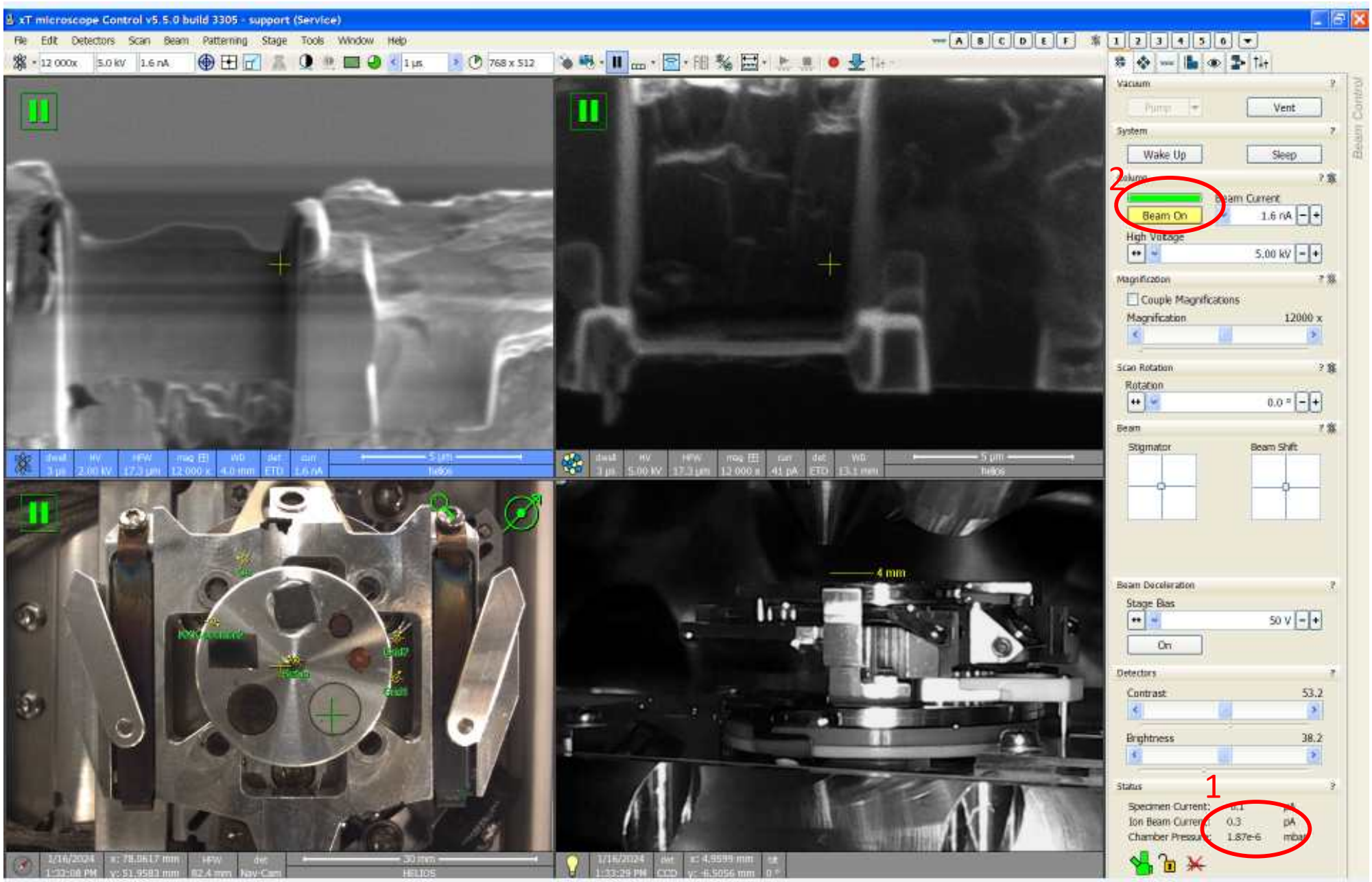
3-1)

5)

6)

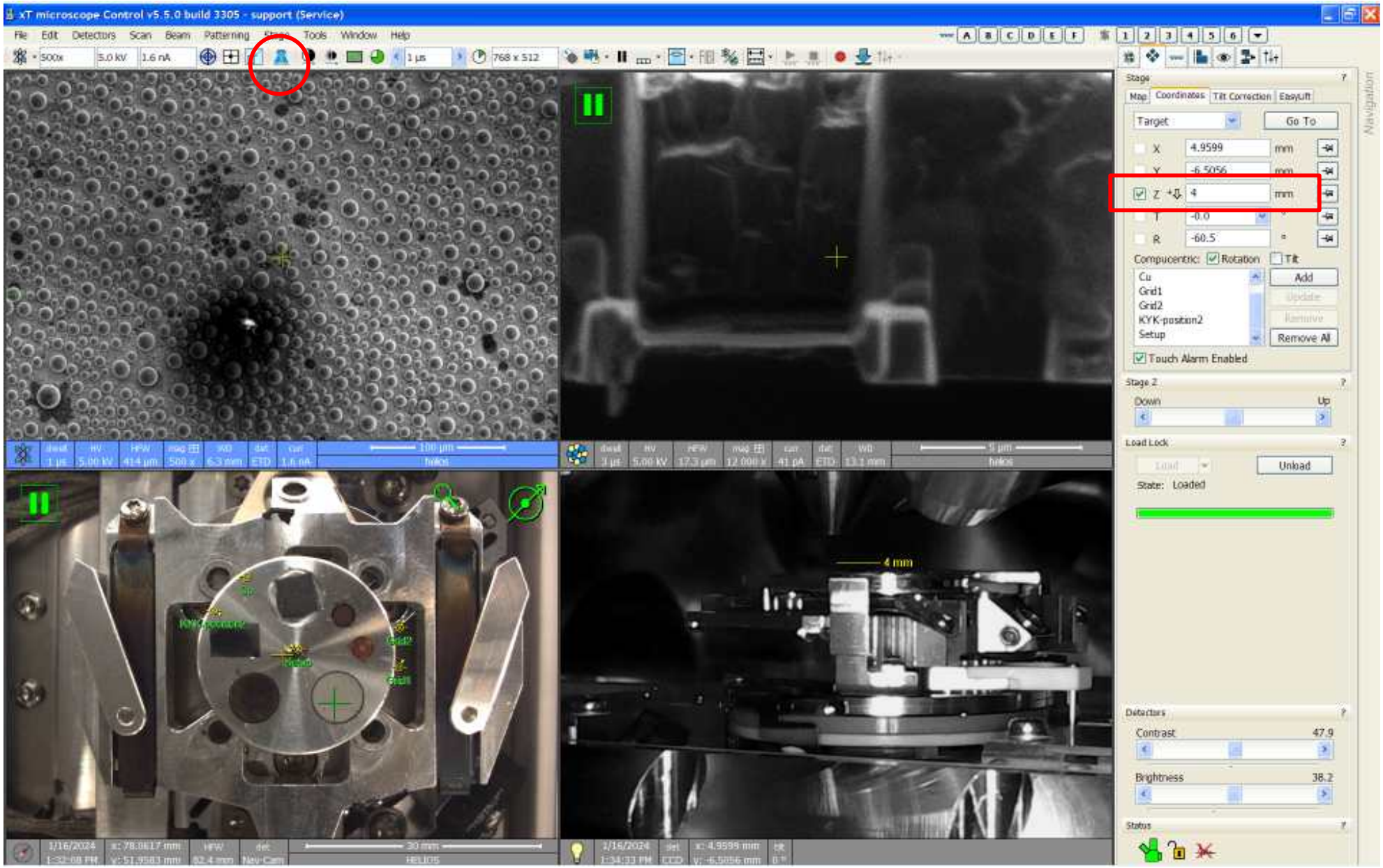
Sample loading

1) 진공도 -6 mbar까지 떨어지면 E&I display Beam on



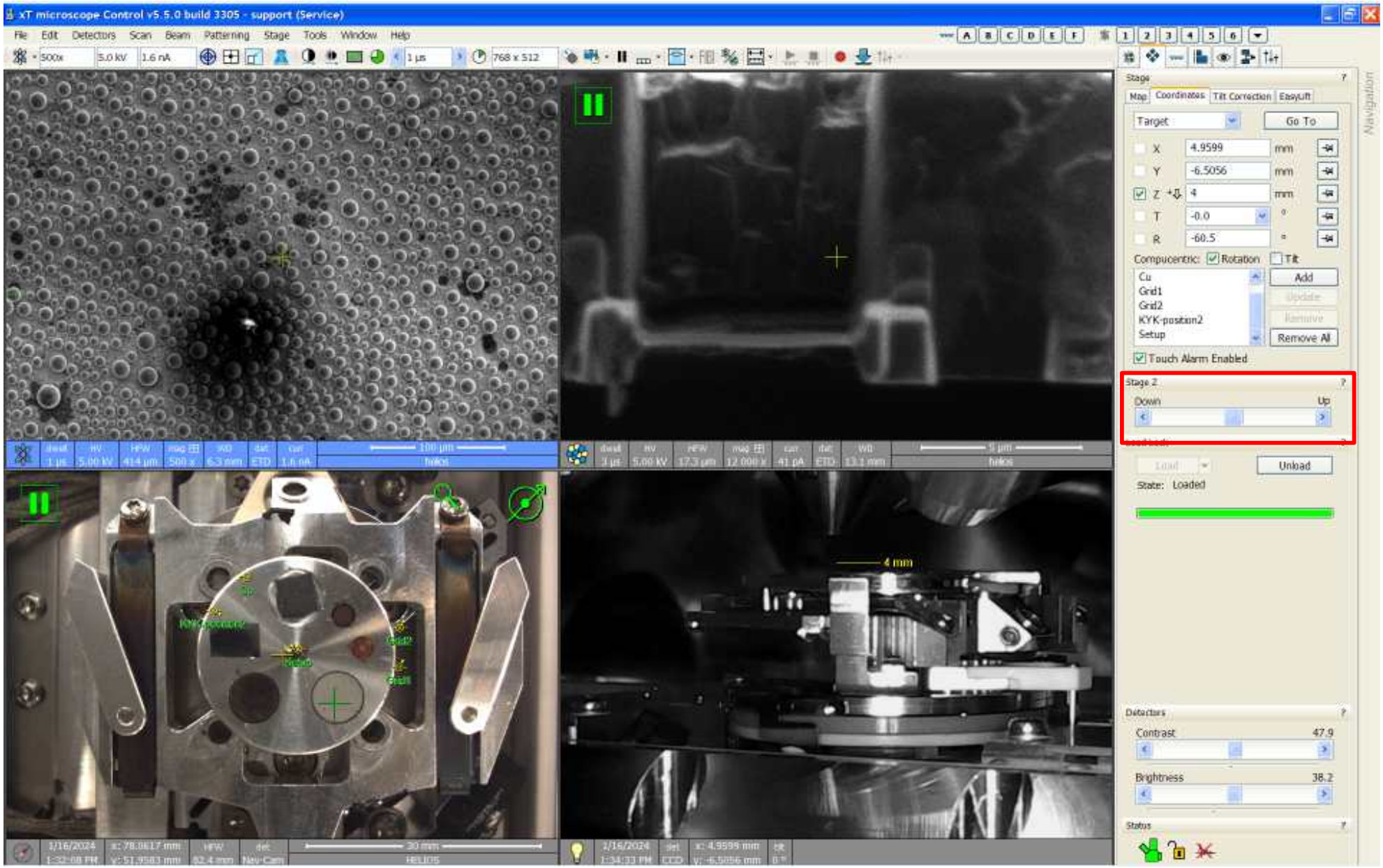
WD 확인

1) 배율 x3000 이상에서 focus 후 Link Z 누르고 Z값에 4mm입력



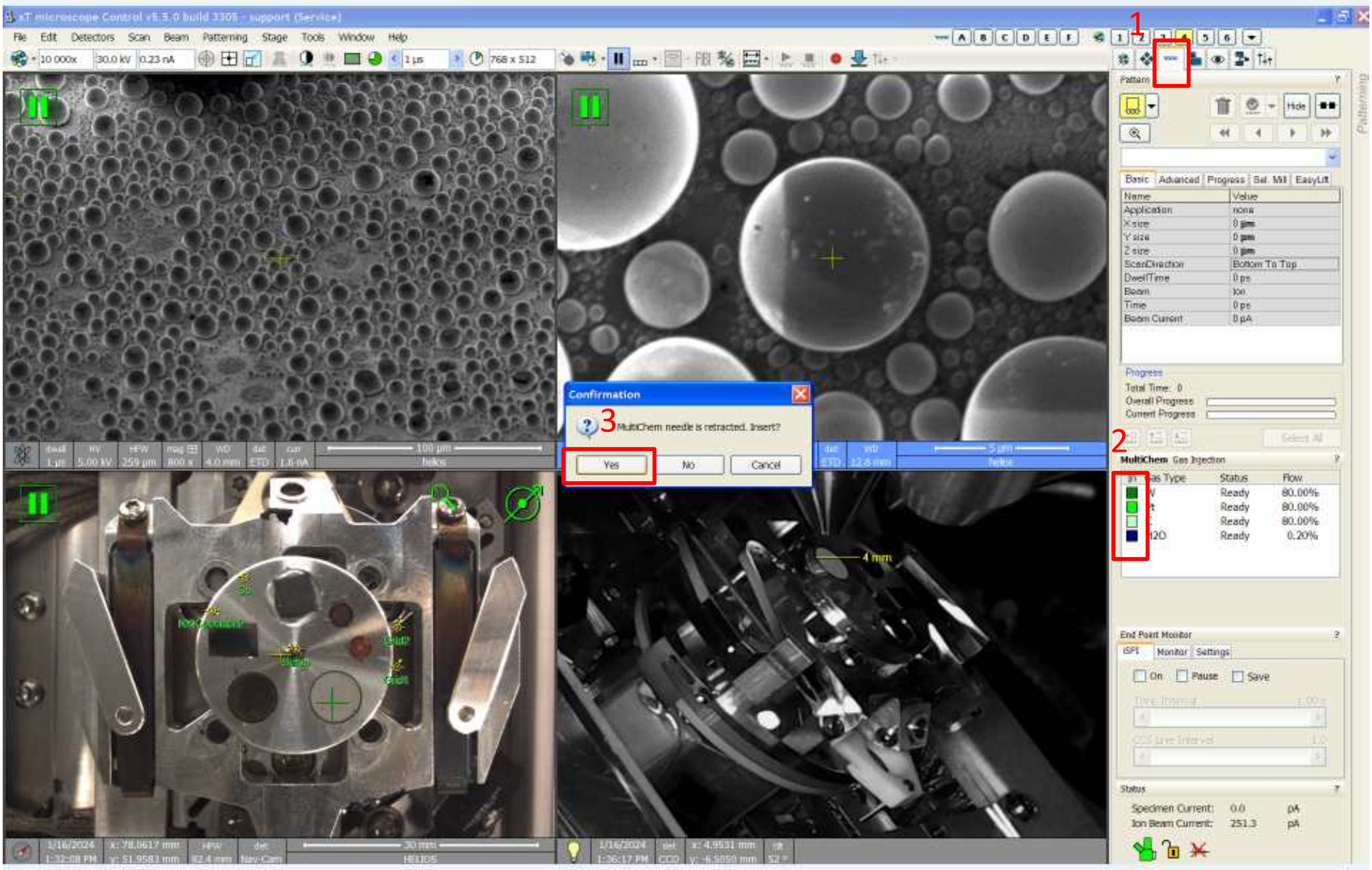
Eucentric position

1) T: 0° - 52° stage Z에서 마우스로 Up- Down을 눌러서 처음 위치로 이동



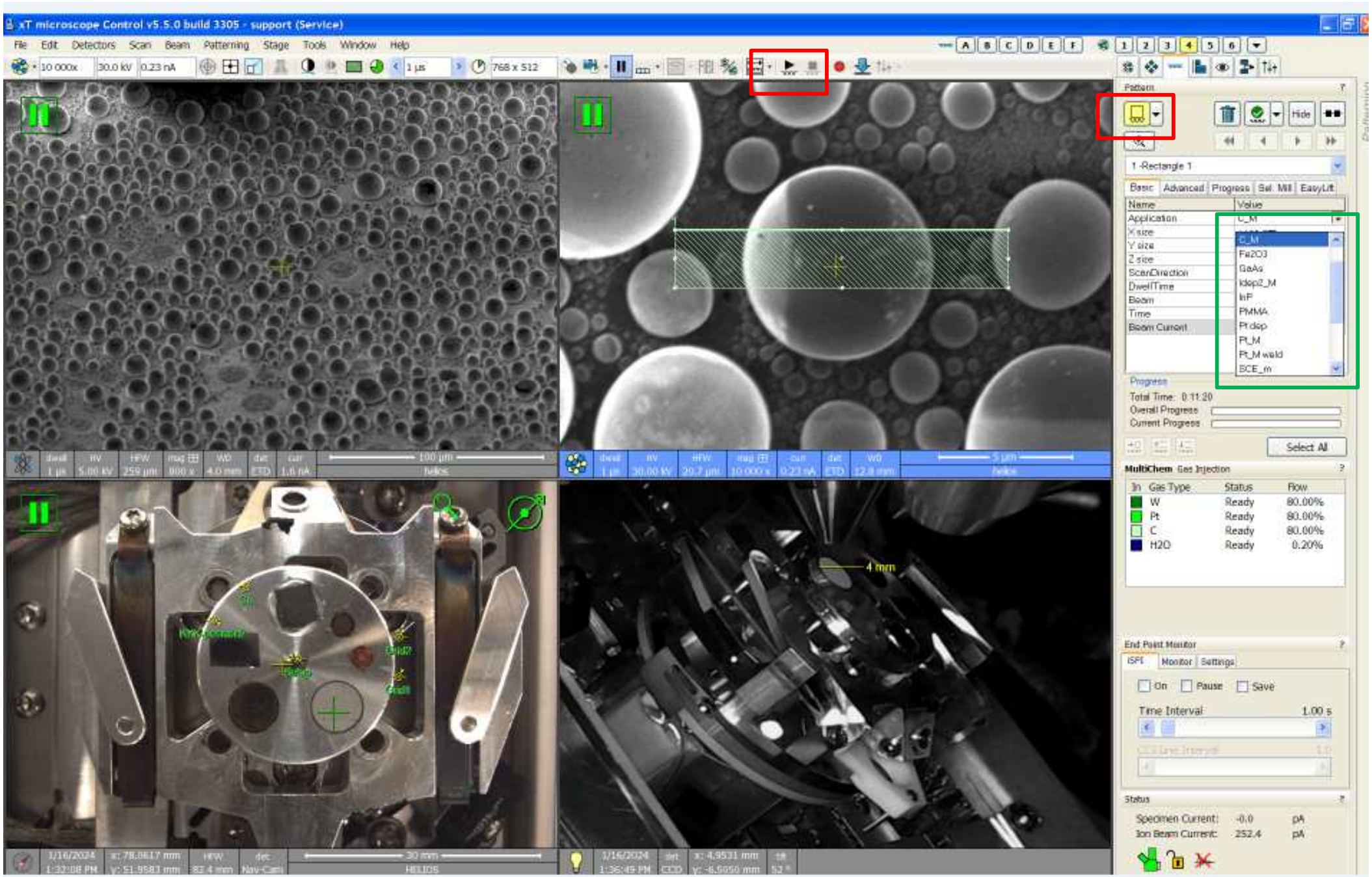
Deposition

1) Pattern-MultiChem체크-Insert(Yes)



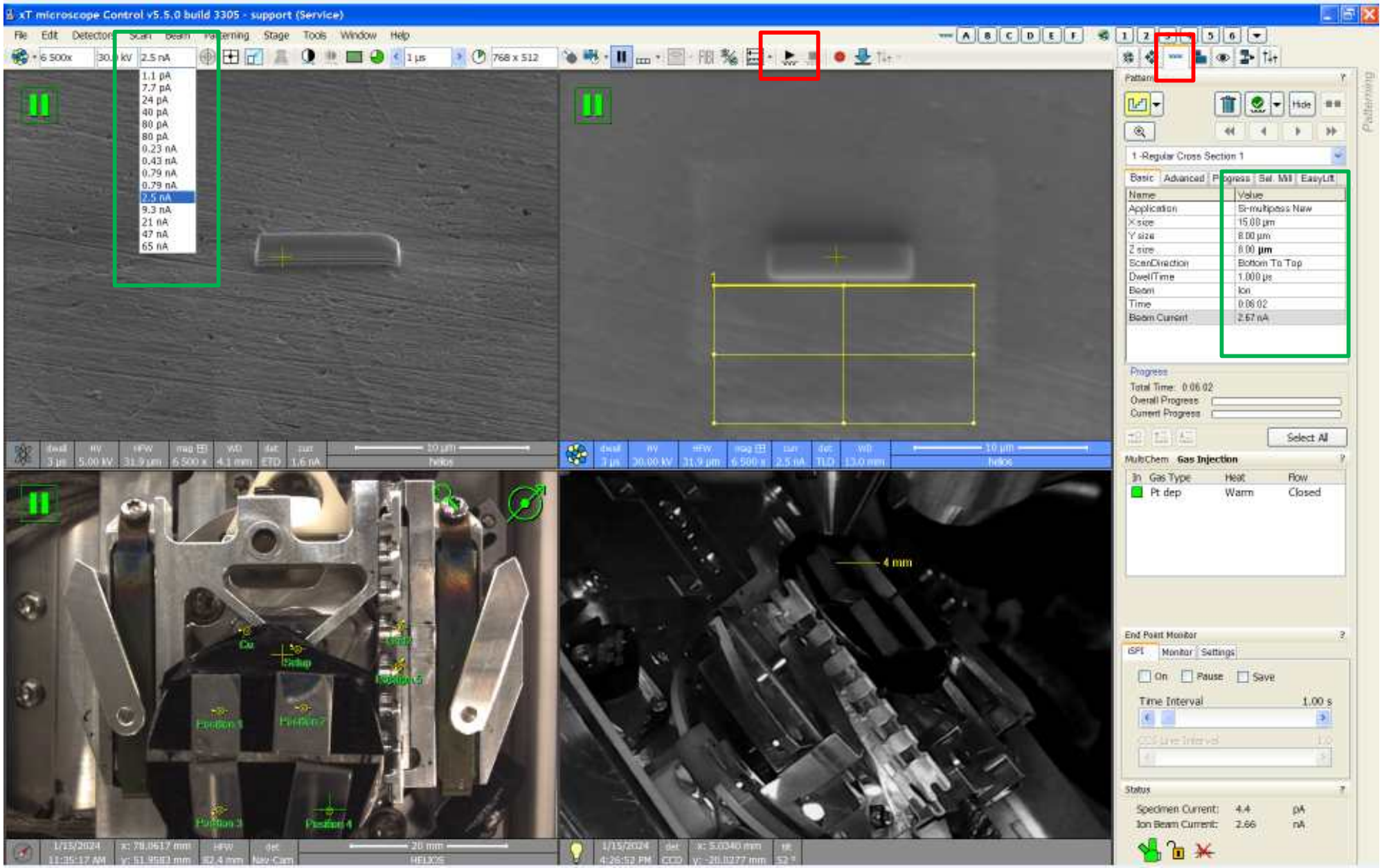
Deposition

1) Pattern – Basic - Size



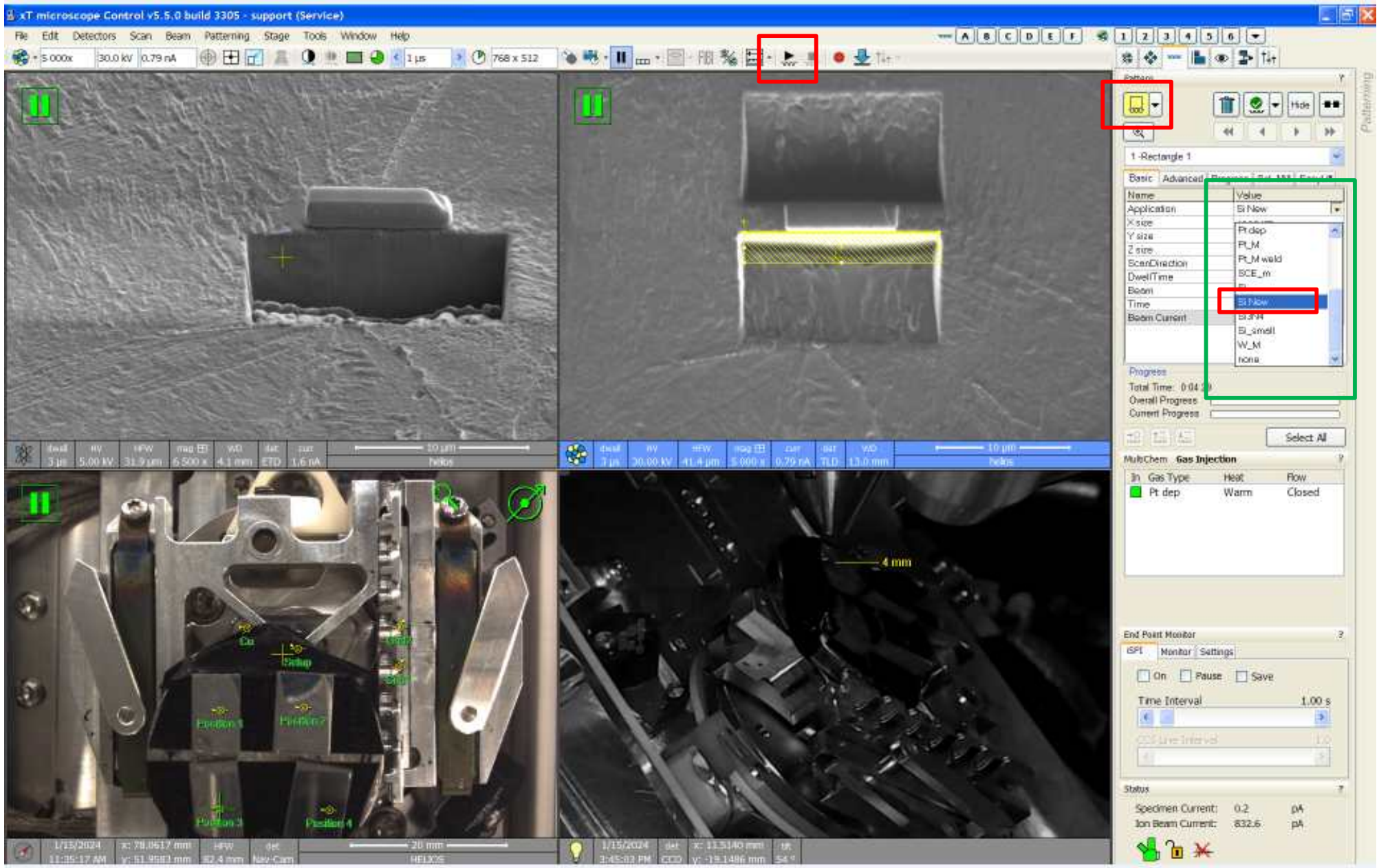
Milling

1) Patterning – Basic - Size



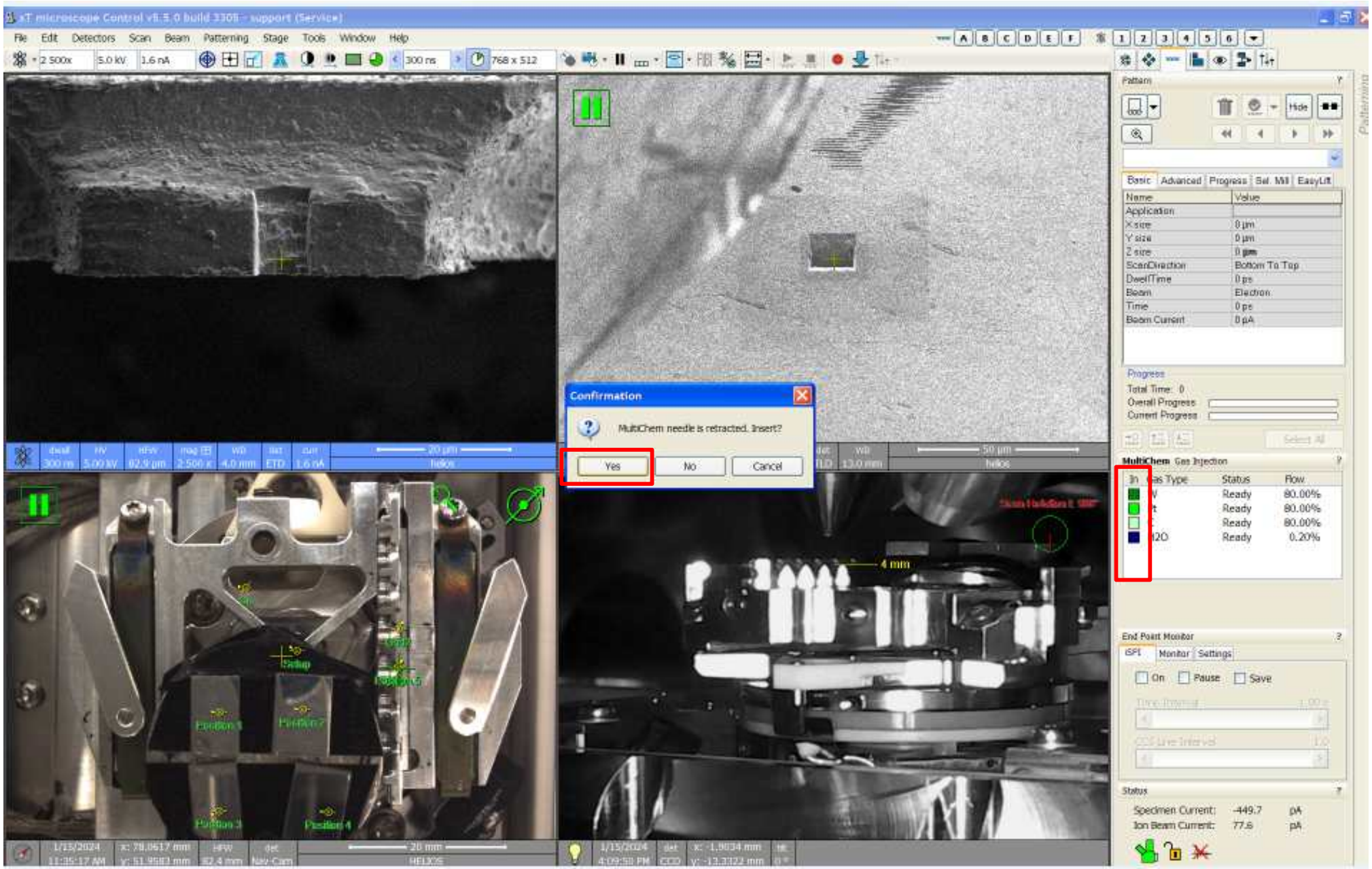
Milling

1) Patterning – Basic - Size



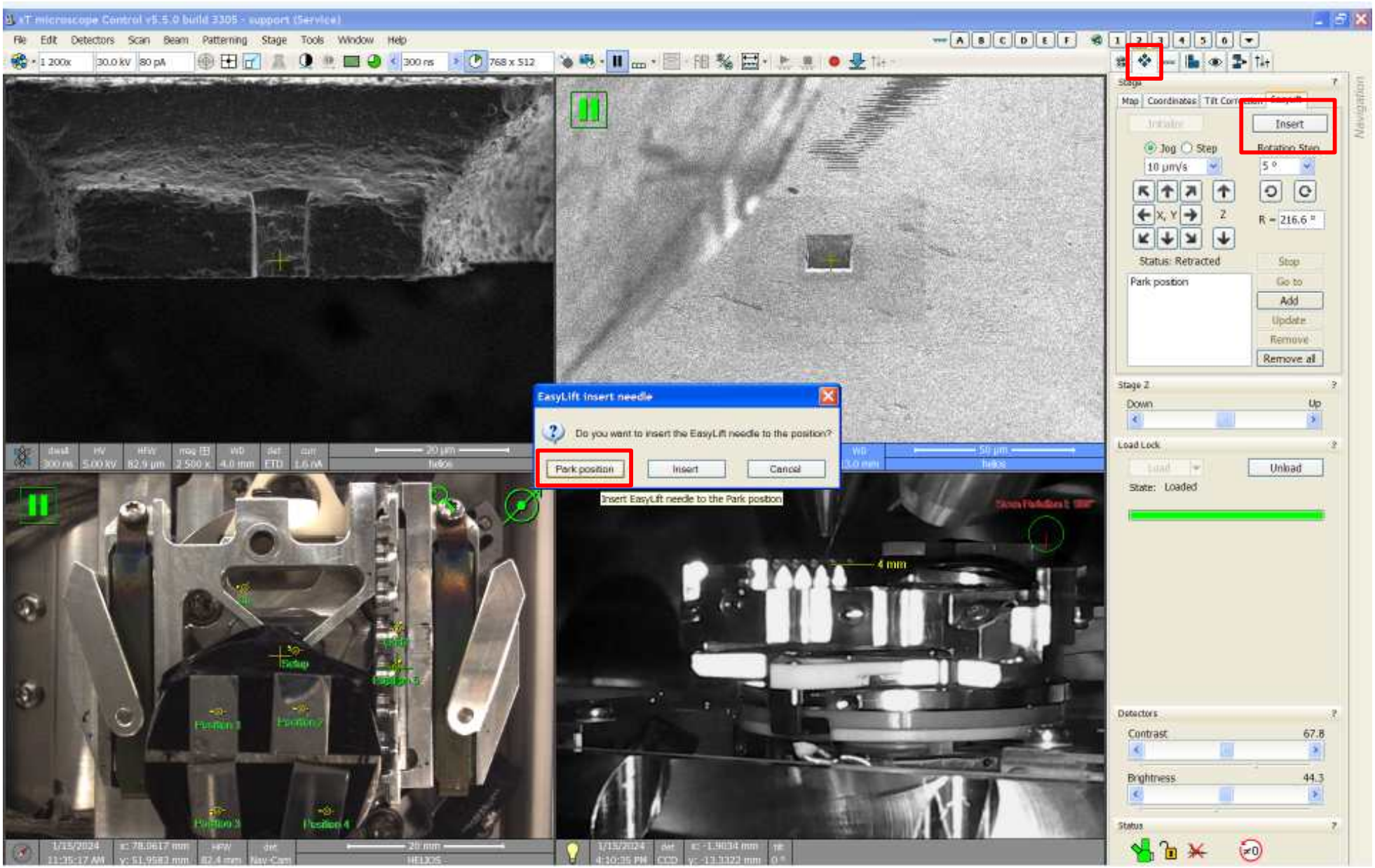
Easy lift

1) Patterning – Multichem – Insert(Yes)



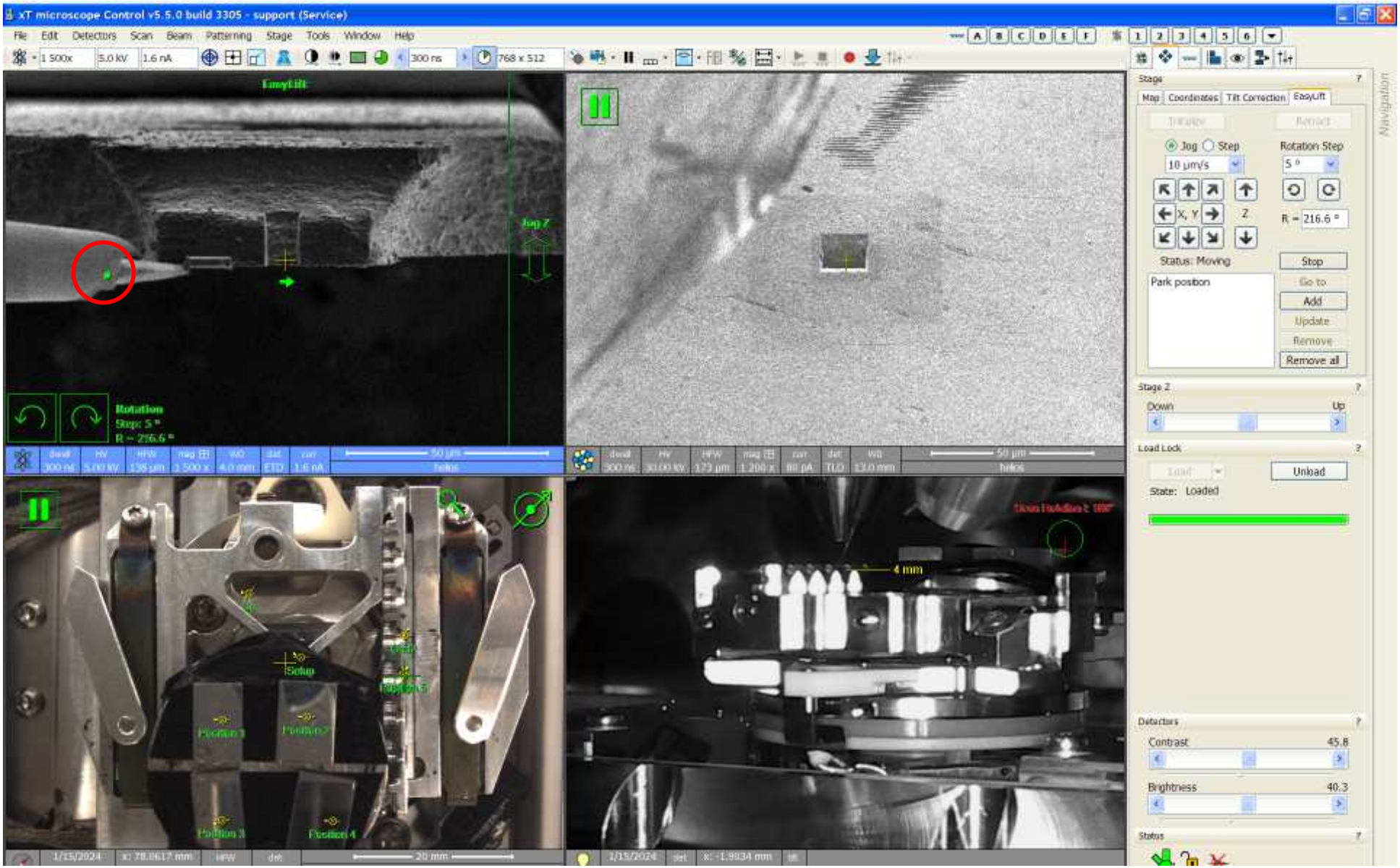
Easy lift

1) Navigation – EasyLift – Insert – Park position



Easy lift

1) Navigation – EasyLift – Insert – Park position
2) 마우스로 이동

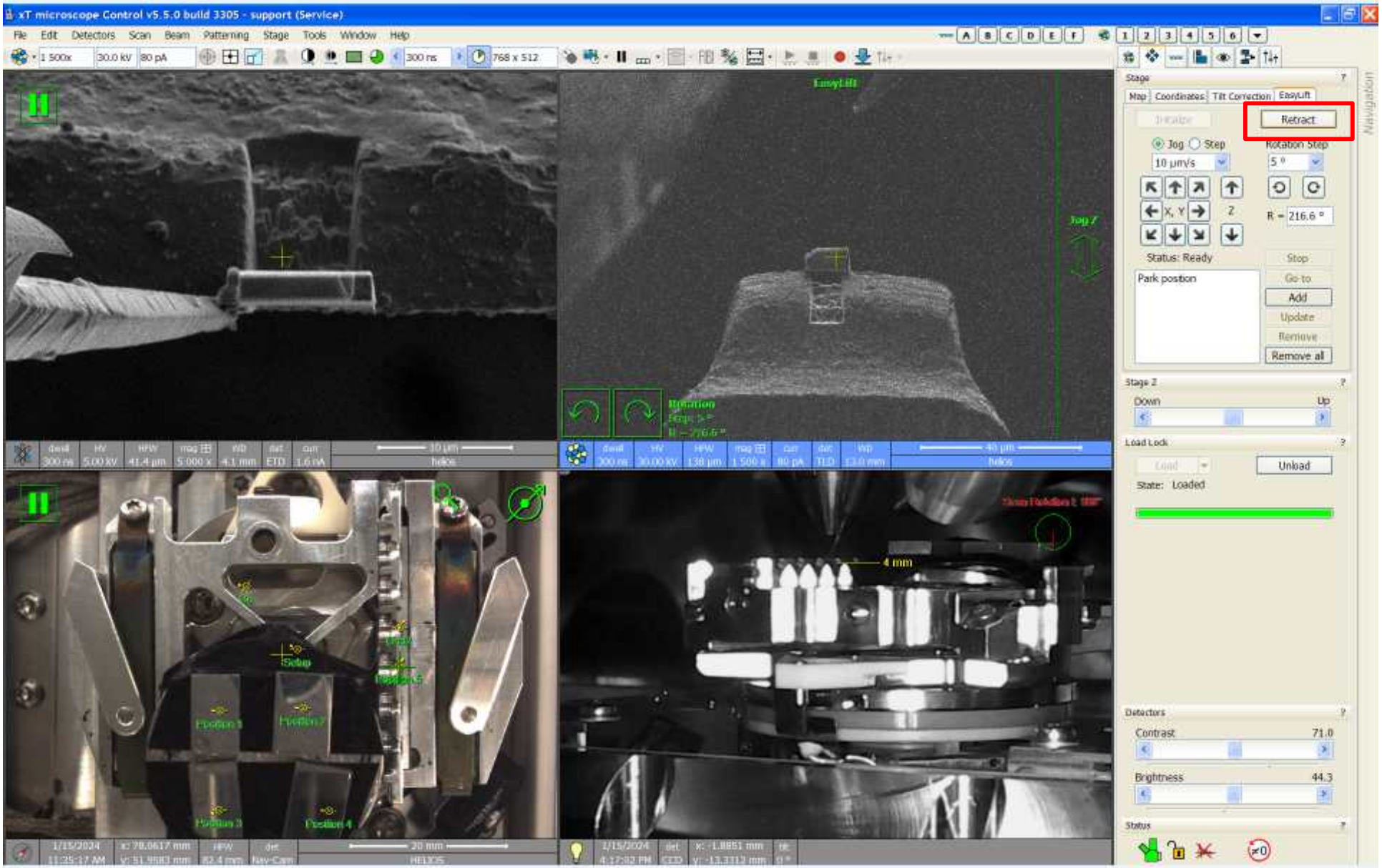


Easy lift

1) Navigation – EasyLift – Insert – Park position
2) 마우스로 이동
3) EasyLift 상태가 좋지 않으면 rotation해서 깍아서 사용

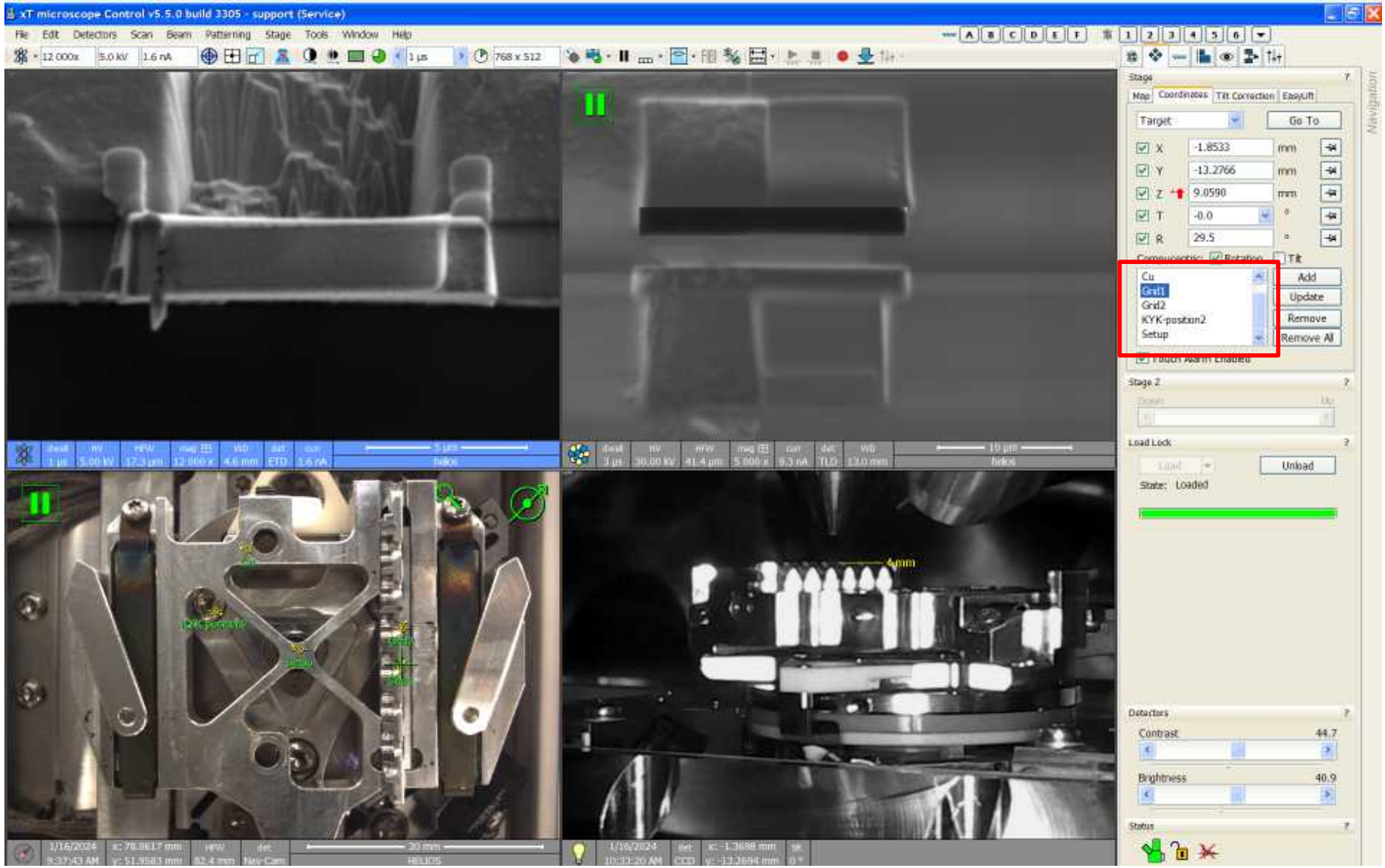
Easy lift

1) 제거 –Z로 EasyLift를 올리고 - Retract
2) MultiChem 체크 - 제거

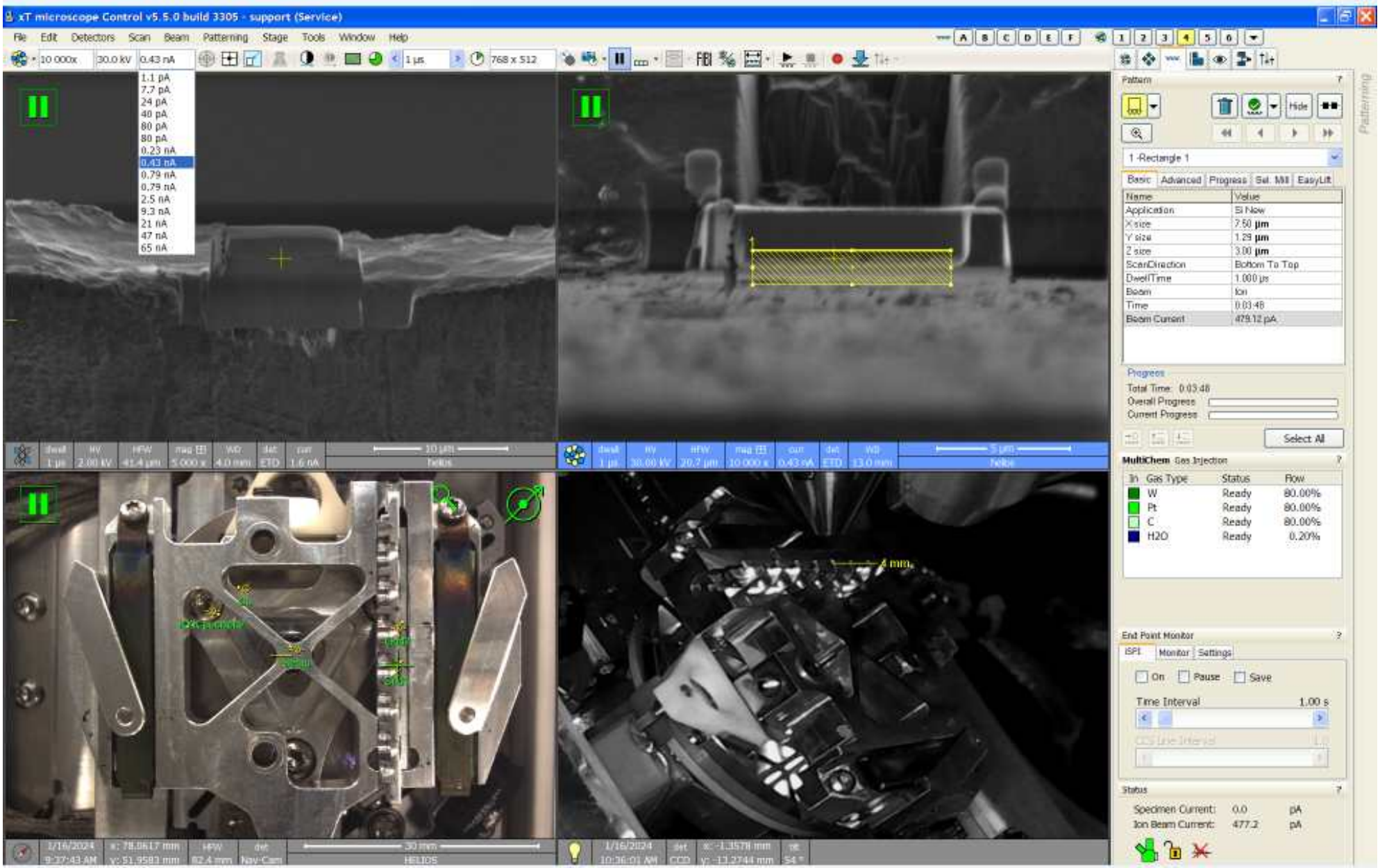


Grid 이동

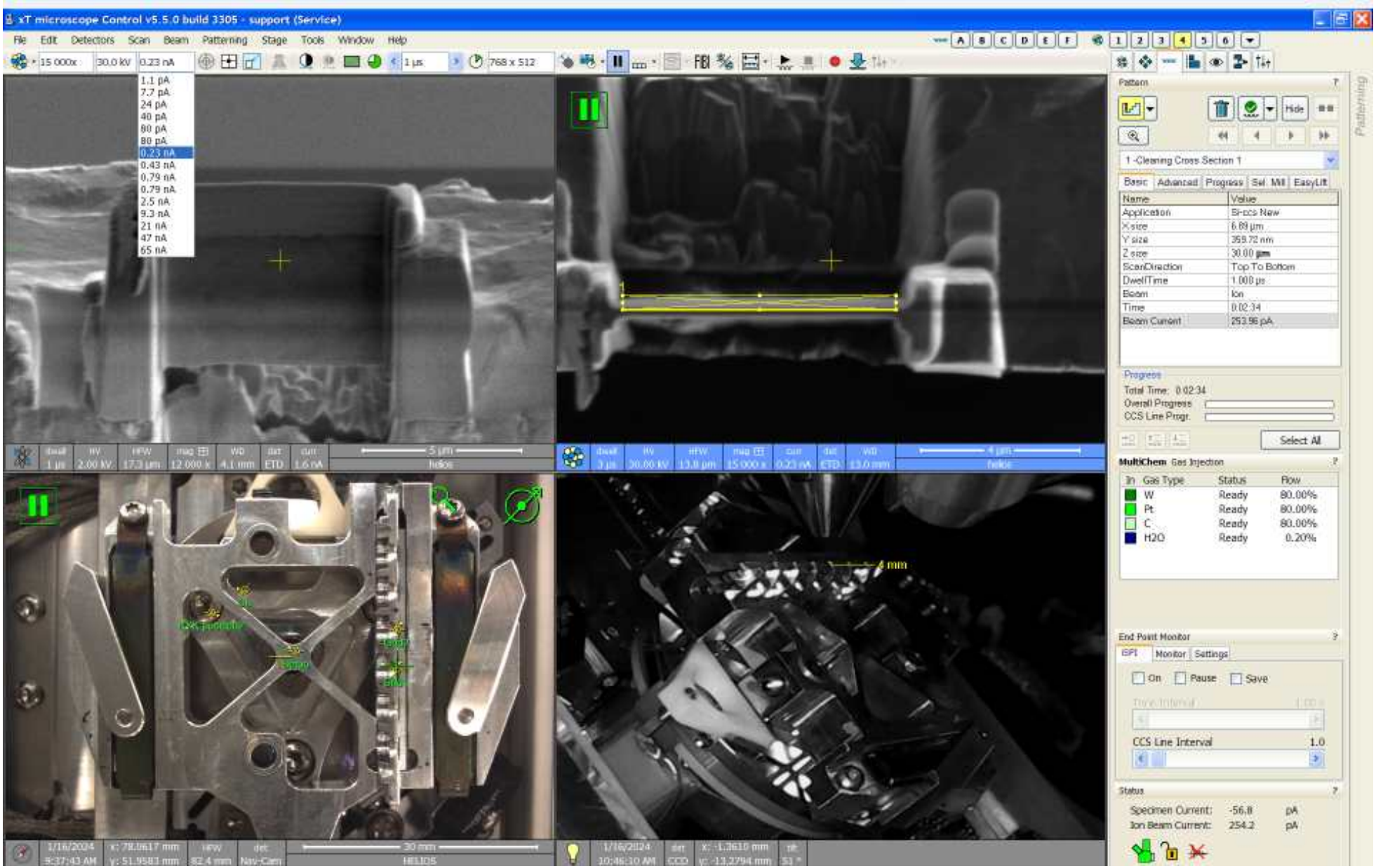
1) Navigation – Coordinates- 저장된 position Grid 클릭



Fine mill


xT microscope Control v5.5.0 build 3305 - support (Service)
File Edit Detectors Scan Beam Patterning Stage Tools Window Help
1.1 pA
7.7 pA
24 pA
40 pA
80 pA
80 pA
0.23 nA
0.43 nA
0.79 nA
0.79 nA
2.5 nA
9.3 nA
21 nA
47 nA
65 nA
Pattern
1 -Rectangle 1
Basic Advanced Progress Sel. Mill EasyLift
Name Value
Application Si New
X size 7.50 µm
Y size 1.29 µm
Z size 3.00 µm
ScanDirection Bottom To Top
DwellTime 1.000 µs
Beam Ion
Time 0:03:48
Beam Current 479.12 pA
Progress
Total Time 0:03:48
Overall Progress
Current Progress
Select All
MultiChem Gas Injection
In Gas Type Status Flow
W Ready 80.00%
Pt Ready 80.00%
C Ready 80.00%
H2O Ready 0.20%
End Point Monitor
ISP1 Monitor Settings
On Pause Save
Time Interval 1.00 s
Status
Specimen Current: 0.0 pA
Ion Beam Current: 477.2 pA

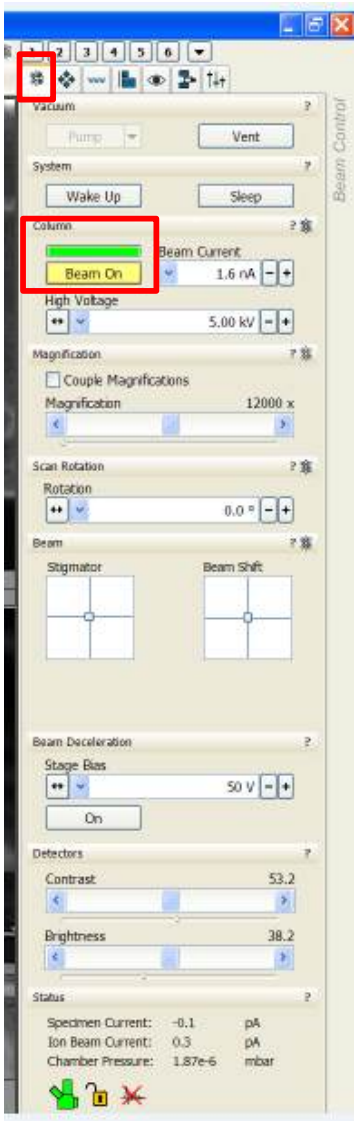
Fine mill


xT microscope Control v5.5.0 build 3305 - support (Service)
File Edit Detectors Scan Beam Patterning Stage Tools Window Help
1.1 pA
7.7 pA
24 pA
40 pA
80 pA
80 pA
0.23 nA
0.43 nA
0.79 nA
0.79 nA
2.5 nA
9.3 nA
21 nA
47 nA
65 nA
1 -Cleaning Cross Section 1
Basic Advanced Progress Sel. Mill EasyLift
Name Value
Application Si-ccs New
X size 6.89 µm
Y size 359.72 nm
Z size 30.00 µm
ScanDirection Top To Bottom
DwellTime 1.000 µs
Beam Ion
Time 0:02:34
Beam Current 253.96 pA
Progress
Total Time: 0:02:34
Overall Progress
CCS Line Progr.
Select All
MultiChem Gas Injection
In Gas Type Status Flow
W Ready 80.00%
Pt Ready 80.00%
C Ready 80.00%
H2O Ready 0.20%
End Point Monitor
EPT Monitor Settings
On Pause Save
CCS Line Interval 1.0
Status
Specimen Current: -56.8 pA
Ion Beam Current: 254.2 pA

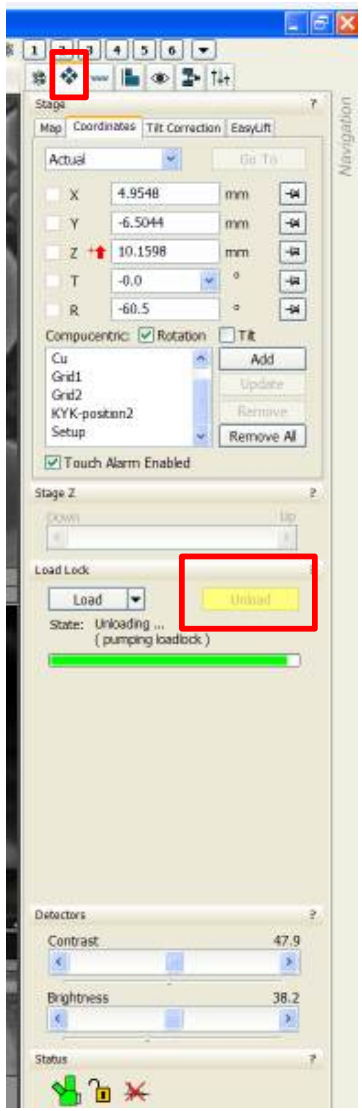
Finish

1) Beam control - E display Beam off, I display Beam off
2) Navigation - Unload

1)



2)



Unload

1) Clamp & Release 램프에 불이 둘 다 들어오면 vent 완료 뚜껑 열고
2) Release 눌러서 clamp 해지
3) 본인 샘플 Holder 제거 후 loadlock 안의 holder 장착
4) Holder를 올리면 Clamp&Load 램프에 불이 들어오고 홀더가 잘 장착 되었는지 가운데 눌러서 확인 후 버튼을 눌러 clamp진행
5) 뚜껑을 닫으면 램프 두 군데 불이 들어오고 Clamp&Load 버튼을 누른다(Chamber안으로 샘플 로딩)

1)

2)

4)

5)