

# 1 120kV

- 1.1 0.20nm
- 1.2 20-120KV( 100V )
- \*1.3
- 1.4
  - X200 X200,000
  - X4,000 X600,000
  - X50 X1,000
- 1.5 X1,000 X40,000 ± 90 15 /
- 1.6
  - 0.2 5.0m 9
  - 0.2 2.0 m 7
- 1.7
  - 0.6 2.0um 5
  - 0.6 1.0 um 5
- 1.8 LaB6
- 1.9 COMS 150fps

TEM

1.10

1.11

3mm

X/Y  $\pm$  1mm(CPU ) Z  $\pm$  0.3mm  $\pm$  70

1.12 2  $\pm$  2.0 4 20 50

100 200  $\mu$  m

1.13 5 1 2 2

$\pm$  3 $\mu$  m

\*1.14

8.0mm

\*1.15

CMOS

CMOS

1500

CMOS

1.16  $\times$  1,000~ $\times$  20,000 7 $\mu$  m  $\times$

10,000

1.17

\*1.18

3D

3D

1.19

2mm

1.20

4 x 4

4

13k x 10k

1.21

1.22

1.23

1.24

300L/s

135L/min

1.25

1.25.1

SDD

FET

SDD

30mm<sup>2</sup>

Mn-Ka

129eV

C-K

57eV

F-K

67eV

1.25.2

,

16.0mm

1.25.3

Be4

Cf98

\*

3.1

\*3.2

\*3.3

5

\*3.4

5

\*3.5

3.6

1

12

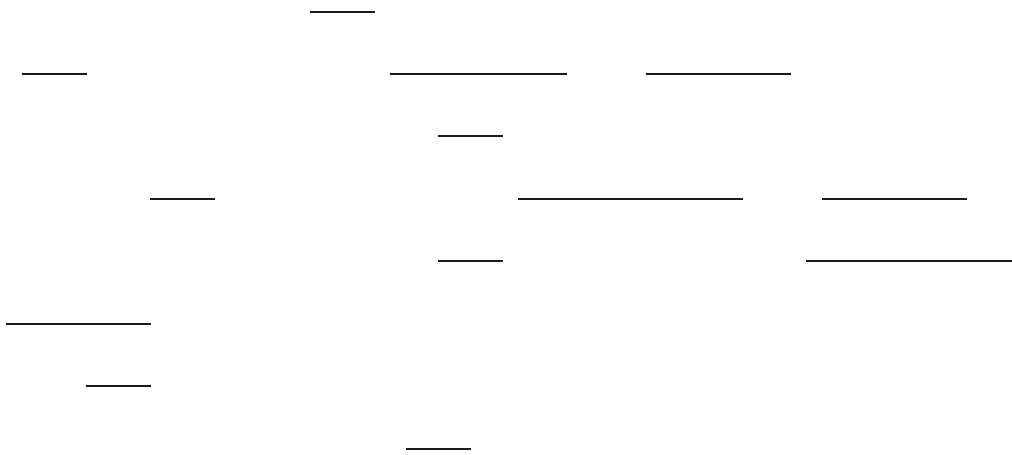
2

3

1

4

5



## 2 200kV

1.1 230V (+6% / -10%) 50Hz (+/-1%)

1.2 18C - 23C

1.3 80% @ 20C

1.4 80 nT p-p, 100 nT p-p

1.5 0.1

1.6

3.1

3.1.1 0.25nm

3.1.2 0.10nm

3.1.3 0.12nm

3.2

3.2.1 20kV-200kV 80kV 200kV

3.2.2

3.2.3 0.8ppm/10min

3.3

3.3.1

$1.8 \times 10^9 \text{ A/cm}^2 \text{ srad (@200KV)}$

3.3.2

3.9

- 3.9.1 5 (x y z, , )
- \*3.9.2 X Y ± 1mm 4 nm Z: 0.375
- mm 36 nm 0.5m (x y) 0.5 (tilt);
- 3.9.4 ± 30
- 3.9.5 ± 90
- 3.9.6 0.5nm/min
- 3.9.7

3.10 (STEM)

- 3.10.1 0.16 nm
- \*3.10.2 16 STEM HAADF ADF ABF BF
- 3.10.3
- 3.10.4 HRTEM HRSTEM
- TEM STEM 10
- 3.10.5 STEM 330x - 230Mx
- 3.10.6 STEM CCD EDS
- 3.10.7

3.11 (EDX)

- \*3.11.1 4
- 3.11.2 120 mm<sup>2</sup>
- 3.11.3 EDX (srad) 0.9
- 3.11.4 136 eV Mn-K 10 kcps
- 3.11.5 EDS 10μ s
- 3.11.6 STEM EDX

3.11.7

EDX

3.12 16M CMOS

3.12.1 16M CMOS 4,096 × 4,096 14um × 14um

3.12.2 512x512 @ 300fps

3.12.3

\*3.12.4 40fps @4kx4k 80fps @2kx2k 150fps @1kx1k

300fps @512x512

3.13

3.13.1 ± 70

3.13.2 0.2

3.13.3

TEM

STEM EDX

3.13.4 X/Y 2um (+/- 70° )

3.13.5 4um (+/- 70° )

3.13.6 400nm ( 3 )

3.13.7

\*3.13.8 TEM (STEM)

EDX

3.14

3.14.1



3.14.2

$2 \times 10^{-5} \text{ Pa}$

$5 \times 10^{-6} \text{ Pa}$

3.14.3

60

3.14.4

3.15

3.15.1

100%

Windows 10 64

3.15.2

3.15.3

3.15.4

3.15.5

10

3.15.6

3.16

3.16.1

3.16.2

\*3.16.3

120kV

4KW

3.16.4		
*3.16.5		
3.16.5.1		
3.16.5.2		
3.16.5.3	SF6	
*3.17		
3.17.1 200KV		1
3.17.2		1
3.17.3	STEM	1
3.17.4		1
3.17.5		2
3.17.6		1
3.17.7		1
3.17.8		1
3.17.9 1600	CMOS	1
3.17.10		1
3.17.11		1
3.17.12		1
3.17.13		1
3.17.14		1
3.17.15		1
3.17.16		1
3.17.17		1

\*3.1

2

3.2

10

\*3.3

1

3.4

10

5

1

12

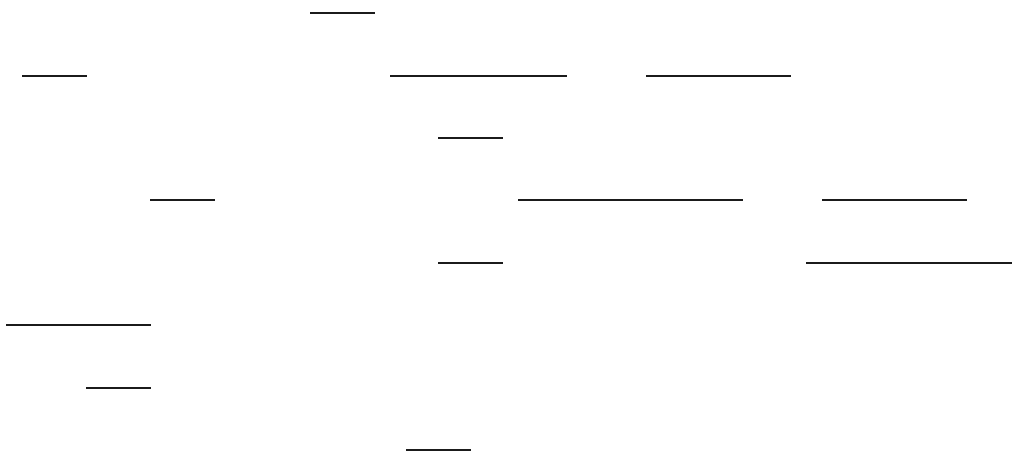
2

3

1

4

5



3

TEM

\*1

2 1000

-

TEM

3

\*4

5

6

7

\*8

1000

9

10

1000

11

$\pm 0.2$

12

$\pm 0.02$

13

100  $\mu$  N

14

X/Y/Z X Y Z  $\pm 2$  mm

0.5  $\mu$  m

15

X/Y/Z X 3  $\mu$  m Y Z 10  $\mu$  m

0.2 nm

\*16

20nN

## TEM

1.

2.

10nm 20nm 30nm

\*3.

0 nl/min 5ul/min

5nL/s

4.

5.

6.

-10V 10V

7.

5nA 1A

8.

10 $\mu$  Hz 1MHz

9.

10.

11.

\*12.

0.2nm 200kV

13.  
 14.  
 15. TEM EDS EELS  
 \*16.  
 17. - -  
 \*18. 150 mW/cm<sup>2</sup>  
 19. - -  
 20. 100~200 nm  
 21. 20mm<sup>2</sup>

TEM

1.  
 2. 5x30um  
 \*3. 0.2nm 200kV  
 4.  
 \*5.  
 6. TEM EDS EELS  
 7. 100  
 8. ± 0.2  
 9. ± 0.02  
 10. 98%  
 11. 20mm<sup>2</sup>  
 12. 100~200 nm  
 13. 10nm 20nm 30nm

\*14. 0 nl/min 5ul/min 5nL/s

15

16. xyz

17. 1Msps

### TEM

1.

2. 20nm

3. 0.5 nm/min

4.  $\pm 20^\circ$   $\pm 20$

5. 1000

6.  $\pm 0.02$

7.  $\pm 0.02$

8. 99%

9.  $\pm 40$  V

10. 100pA~100mA

11. Thermo Fisher/FEI JEOL Hitachi

12.

13.

14.

\*15

16. 1Msps

\*17

### TEM

- 1.
2. 1.5 nm/Min
3. 0.3nm
4. 3 mm
5.  $\pm 25$
6. -160 -
7.  $\pm 0.1$
8. -145
9. 40
10. 175ml
- 11.

## TEM

- 1.
- \*2
3. 3mm
- \*4. 0.5 nm/min
5.  $\pm 25^\circ$
- 6.
7. Thermo Fisher/FEI JEOL Hitachi
8. (HR)TEM/STEM
9. (HR)EDS/EELS/SAED



1

12

2

3

1

4

5

