Configuration & requirement (equipment composition and requirements)

1. Hardware Configuration

No	Item		Specification value
(1)	System	Can transfer defect map from KLA brightfield and dark field wafer inspection tools	Yes
(2)		Defect review and EDX function Yes	
(3)		Monitor	Color LCD
(4)		HD	Normal HDD
(5)		Software	<5.0.0
(6)	Sample stage	Stage Movement-X	0-25mm
(7)		Stage Movement-Y	0-25mm
(8)		Stage Movement-Z	THAT
(9)		Stage Gun Movement-tilt	5-45 eccentric tilt
(10)		Stage Movement-Rotation	0 ÿ,45 ÿ,90 ÿ 180 '
(11)		Sample size	200mm/300mm
(12)		Stage Drive	X/Y are motor drive
(13)			R motor drive
(14)		Stage drive control	X/Y could be manual controlled by trackball
(15)	Electron Optics	Electron gun	Denka Tip
(16)		Accel voltage	0.6-15KV
(17)		Objective aperture	One OBJ coils, could be manual controlled by knob
(18)		Stigmator	Electromagnetic octapole type
(19)		scanning coil	X/Y electromagnetic
(20)	Display system	Imaging signal	Secondary electron image
(21)		Scan mode	Normal scan, Scan rate could be changed by few fixed mode
(22)		LCD	X2
(23)		Frame memory	Not available
(24)		Image processing	auto image brightness control
(25)			auto image contrast control
(26)			Multiple Perspective SEM images (MPSI)
(27)			Auto focus,
(28)		Scan speed viewing (29)	TV,TV/5,fast,slow/frame
		Scan speed recording (30)	TV,TV/5,fast,slow/frame
		Electrical image shift	+/-20um(at 15KV)
(31) Vacuum Control System valve control			Full automatic, pneumatic valve

			control
(32)		Ultimate vacuum sample chamber 10 -7Torr	
(33)		Ultimate vacuum electron gun	10 -10Torr
(34)		Gun pump	ION
(35)		Adapt Pump	
(36)		THAT	
(37)		Vacuum pump TMP	Varian Turbo Pump V250
(38)		Vacuum pump Rotary pump	That
(39)		Vacuum gauge Sample chamber	Full range gauge
(40)		Vacuum gauge Exchange chamber Pirani gauge	

Definitions are based on SEMI standard, and the time is calculated monthly.

NO	Category and	Item	Description	Spec
(1)	Transfer	Mapping test	1. full cassette. 2. wafer on slot1 to slot25.	Wafer info correct
(2)		Run cycle	Run cycle 100 times per Loadport	No error, No alarm
(3)		Particle test	Use Bare Wafer Run cycle 20 times per loadport	Adder<=10(size>0.18um)
(4)		Scratch test	Use Bare Wafer Run cycle 20times per loadport	No scratch
(5)	Empty m	LLK Vacuum	check LLK vacuum	1.00E-04Torr
(6)		Chamber vacuum	Check Chamber Vacuum	1.00E-05 Torr
(7)		Gun Vacuum	Check Gun Vacuum	1.00E-09 Torr
(8)		TMP1,2	Check TMP1,2 status	OK
(9)		IP1	Check IP1 status	OK
(10)	Image system	Mechanical Alignment		Image check OK
(11)		Electrical Alignment		Image check OK
(12)	EDX	*EDX check	Heater resistance value	<240ÿ
(13)		EDX element check		OK
(14)	Other	OM-WITHOUT calibration	Perform OM-SEM Calib	Yes
(15)		EDX calibration	Perform EDX Calib	Yes

2. Process Specification

3.1 Function check

No Item		Specification value
(1)	*Loading mapping Wafer loading position detection	YES
(2) Alignment shift		<1um
(3) OM and SEM picture save		YES
(4) EDX function check in Si/Si02/AL/PR/SIN film		YES
(5) Defect data review function		YES
(6) Marathon test 1000 defect		YES
(7) *Able to save the remark/note into image		THAT..

3.2 Inspection/Measurement Capability

NO	Item	Specification value
(1) The system must have imaging an Optical magnification with 2.5x to 100x with autofocus capability, color CCD.		X2.5, X20, X100
(2) SEM accelerating voltage 600v-15kv (3) SEM		ok
Probe Current 45-55pA (4) SEM image		Ok
resolution: 4.5nm at 1KV (5) *SEM magnification:		Ok
500X-200,000X Scanning electron microscope magnification: 500 to 200,000 times		Ok
(6) SEM autofocus		Ok
(7) *EDX accelerating voltage 1kV to 15kV EDX acceleration voltage: 1kV to 15kV		Ok
(8)	Optical Video Image: color CCD (9)	OK
	Optical Magnification 2.5x, 20x, 100x (10)	Ok
Integrated EDX detector (SEMV OPT3)		D type
(11) *Multi perspective SEM imaging Panoramic SEM image		Ok
(12) *Tilt imaging (column tilt) Tilt image function		Yes
(13) Stage Rotation Imaging: 45, 90deg		OK

(14) Charge Control capability for image optimization(two mode of anti-charging)	That
(15) The system must able to accept Defect file type KLARF	Ok

3.3 Performance Specification

NO	Item	Specification value
(1)	Optical Automatic Defect Redetection (OM ADR) availability	OK
(2)	SEM Automatic Defect Redetection (ADR) availability	OK
(3)	SEM ADR availability in Die to Die mode	ADR on OTW standard wafer is ÿ 500 defects/hour
(4)	SEM ADR availability in Cell to Cell mode If yes, please specify conditions and range of throughput available	Cell to Cell (ADR): * Measured using production wafers and throughput BKMs. The working condition pending layers and sensitivity under the assumption of working in single FOV. - Low sensitivity : 3100defs/hr - Medium sensitivity: 1950defs/hr - High sensitivity: 1600defs/hr Extra high sensitivity: 900defs/hr * Assuming all defects on repetitive pattern area.(foll (follow AMAT BKM)
(5)	SEM ADR with EDX	OK
(6)	SEM ADR availability in normal & tilt mode	OK
(7)	The system SEM ADR success rate must be the following : Please specify applicable conditions	Mention on below
(8)	For Bare Wafer	90% for defects > 0.1 ÿm
(9)	For Pattern Wafer	90% for defects >0.05um
(10)	Redetection Reproducibility	95% for defects >0.05um
(11)	Automatic Process (Discrete) Inspection availability	Yes
(12)	Automatic Defect Classification (ADC)	Accuracy >=75% for defects on OTW wafer
(13)	Reproducibility	>=90% for defects on OTW wafer
(14)	*Stage position accuracy Stage positioning accuracy	+/- 1.0 um
(15)	Tilt Eccentricity	+/- 10 um
(16)	*Tilt: Mechanical choice of tilt Mechanical tilt angle selection	0 ,15,45 degree 0, 15, 45 degrees
(17)	*Mode of rotation Rotation Mode	0, 45, 90, 180 degrees Any angle of 360 deg

(18) Pls specify smallest particle that can be EDX (Target < or = 100nm)	120nm
(19) Energy Dispersive X-ray (EDX) Throughput	6 seconds per defect @ 5 KeV Resolution for Mn:138ev, for F:82ev
(20) EDX sensitivity	120nm
(21) Clear cut Material separation	Materials with unique peaks <10kV

3. 1.Wafer breakage: <1/10,000 wafers

4. 2.particle: <0.05/CM2 (>0.2um)

Main Item

Reliability Performance Specification	
Uptime	ÿ **90%**
MTBF	ÿ 500 hours
MTTR	ÿ 8 hours
Wafer breakage:	**<1/10,000 wafers**