

Contents

	Foreword
	Introduction
1	Scope
2	Normative references
3	Terms and definitions
4	Symbols and abbreviated terms
5	General principles
5.1	Condition setting
5.2	Contrast/brightness setting
5.3	Sample preparation
6	Measurement of image sharpness
7	Measurement of drift and drift-related distortions (imaging repeatability)
7.1	Measurement of image drifts within specified time intervals.
7.1.1	One-minute drift measurement
7.1.2	Ten-minute drift measurement
7.1.3	One-hour drift measurement
7.1.4	Long-term larger than one-hour drift measurement
7.2	Evaluation of the drift and the drift-related distortions by using image overlay
7.3	Evaluation of the drift and the drift-related distortions by using cross-correlation function (CCF)
7.3.1	Measurement of the drifts by using the CCF
7.3.2	Measurement of the distortions by using the CCF
8	Measurement of electron-beam-induced contamination
8.1	Cleaning of the sample surface
8.2	Cleaning of the inner surfaces of the sample chamber
8.3	Measurement method of the contamination
8.3.1	Measurement of the height of the contamination growth
8.3.2	Measurement of relative carbon concentration of the contamination by the X-ray analysis
8.3.3	Measurement of the surface contamination by the change of SEM signal intensities
9	Measurement of the image magnification and linearity
9.1	Measurement of the image magnification
9.2	Measurement of the image linearity
10	Measurement of background noise
10.1	Evaluation methods by using noise profiles and processed images
10.2	Evaluation methods by calculating numerical image properties
11	Measurement of the primary electron beam current
11.1	Ten-minute primary electron beam current measurement
11.2	Long-term primary electron beam current measurement
12	Reporting Form

Annex A (informative) Measurement of image sharpness

Annex B (informative) Measurement of image drift and distortions caused by unintended motions

- B.1 Overview**
- B.2 Measurement of image drifts within specified time intervals**
 - B.2.1 One-minute drift measurement**
 - B.2.2 Ten-minute drift measurement**
 - B.2.3 One-hour drift measurement**
 - B.2.4 Long term (ten-hour) drift measurement**
- B.3 Measurement of image drift and the drift-related distortions by using image overlay**
- B.4 Measurement of the distortions caused by high-frequency motions or stage vibration**
- B.5 Measurement of the drifts and drift-compensated imaging**
- B.6 Measurement of image drifts and distortions by the cross-correlation method**
 - B.6.1 Measurement of the drifts by using the CCF**
 - B.6.2 Measurement of the distortions by using the CCF**

Annex C (informative) Measurement of electron beam-induced contamination

- C.1 Overview**
- C.2 Contamination growths for the unclean sample and the unclean instrument**
- C.3 The effect of the plasma cleaning and the electron beam shower**
- C.4 The quantitative treatments of the image signal**

Annex D (informative) Measurement of the image magnification and linearity

- D.1 Overview**
- D.2 Calibration of the image magnification**

Annex E (informative) Measurement of the primary electron beam current

- E.1 Overview**
- E.2 Electron beam current stabilities for various landing energy**
- E.3 The handcraft of the Faraday cup and the usage**

Page count: 59