ISO 13083:2015-08 (E)

Surface chemical analysis - Scanning probe microscopy - Standards on th e definition and calibration of spatial resolution of electrical scanning probe microscopes (ESPMs) such as SSRM and SCM for 2D-dopant imaging and other purposes

Contents

Page

Foreword iv

Introduction v

1 Scope 1

2 Normative references 1

3 Terms and definitions 1

4 Symbols and abbreviated terms 1

5 General information 2
5.1 Background information 2
5.2 Target 2
5.2.1 Scanning capacitance microscope 2
5.2.2 Scanning spreading resistance microscope 2
5.3 Measurement method for lateral resolution in SCM and SSRM 3
5.4 Key parameters in determining the lateral resolution 5

6 Measurement of lateral resolution of SCM with the sharp-edge method 5
6.1 Background information 5
6.2 Selection of the sample 5
6.3 Setting the parameters before the operation of the instrument 6
6.4 Data collection 6
6.5 Data analysis 6
6.5.1 Obtaining the resolution 6
6.5.2 Random contributions to the resolution value 7
6.6 Recording of the parameters 7

7 Measurement of lateral resolution of SSRM with the sharp-edge method 8
7.1 Background information 8
7.2 Selection of the sample 8
7.3 Setting the parameters before the operation of the instrument 8
7.4 Data collection 8
7.5 Data analysis 8
7.5.1 Obtaining the resolution 8
7.5.2 Random contributions to the resolution value 9
7.6 Recording of the parameters 9

Annex A (informative) An example of the measurement of SCM resolution 10

Annex B (informative) An example of the measurement of SSRM resolution 12

Bibliography 14