Application Brief

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Measuring Solder Bumps

1. Overview

This application brief reports on results of measuring solder bumps.

2. Analysis Conditions

Conditions of analysis are listed in Table 1.

Table 1

Item	Settings
Model	SEA5120
Collimator	0.1 mm
Excite Voltage	50 kV
Tube Current	1000 uA
Chamber Atmosphere	Air
Measurement Time	100 seconds
Effective Time	90 seconds

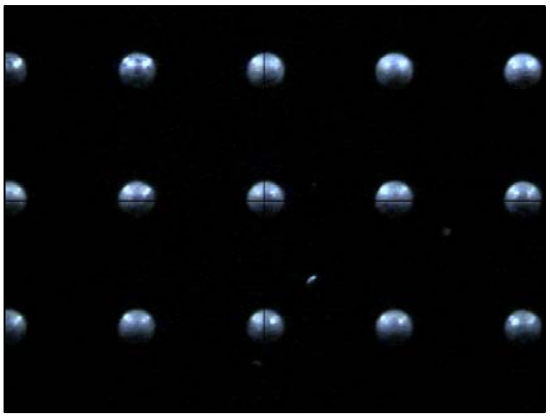

Figure 1 Sample Image
Visual Field: [X, Y], 2.17, 1.57 (mm)

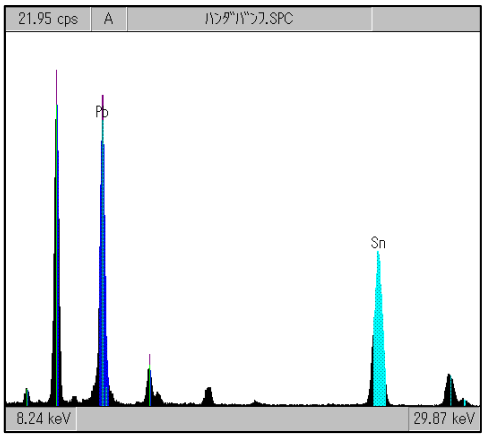

Figure 2 Sample X-ray Spectrum

Measurement Positioning

Measurement positioning is performed using a CCD image such as that in Figure 1. An auto-center position detection function automatically detects the center of a sample with a diameter of about 150 um.

Quantitative Analysis

Quantitative analysis was done by the Fundamental Parameter method.

3. Analysis Results

Table 3 shows the results of 30 measurement repetitions at the same point.

Table 3 Quantitative Results

	Ave (%)	Max (%)	Min (%)	Range (%)	1 sigma (%)
Sn	60.2	61.1	59.0	2.1	0.7

4. Summary

These analysis results were calculated quantitatively by the Fundamental Parameter (FP) Method based on a pure material standard, and therefore, can be considered as semi-quantitative values. Registering a minimum one-point standard sample (One Standard Correction) can increase accuracy. Repeatability can be improved by increasing measurement time. Increasing measurement by 4 times will improve repeatability by 2 times.