

SEMI D77-0618

TEST METHOD FOR MEASUREMENTS OF DIMENSION OF FILMS FOR FPD – CONTOUR MATCHING METHOD

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1 Purpose

1.1 This Standard establishes the method that evaluates with high precision a shape of the polarizing films and other films for FPD, especially non-rectangle shape films.

2 Scope

2.1 This Standard specifies the measurement method of polarizing films and other films for FPD by using contour matching method.

2.2 This Standard can apply to rectangle shapes. Especially non-rectangle shapes are effective. Examples of the other films except polarizing films are retardation films, brightness enhanced films and touch panel.

NOTICE: SEMI Standards and Safety Guidelines do not purport to address all safety issues associated with their use. It is the responsibility of the users of the Documents to establish appropriate safety and health practices, and determine the applicability of regulatory or other limitations prior to use.

3 Referenced Standards and Document

3.1 None.

4 Terminology

4.1 Definitions

4.1.1 *non-rectangle shape* — other shapes except rectangles.

4.1.1.1 For example: Curves, Curved shapes and Polygons (see Figure 1).



Figure 1
Examples of the Non-Rectangle Shapes

5 Summary of Test Method

5.1 Testing Instrument

5.1.1 The measuring instrument has a camera, which moves to XY directions above the flat measurement stage. A camera moves along the specimen's edge and measures the coordinates of the specimen's edge at regular intervals (see Figure 2).

NOTE 1: Set the regular intervals less than one-tenth of the required precision. Additionally, there are other measurement ways to read. For example, one is a way to read the sample shape by shooting a sample with a fixed camera. The other way is to read by using a flatbed type scanner.

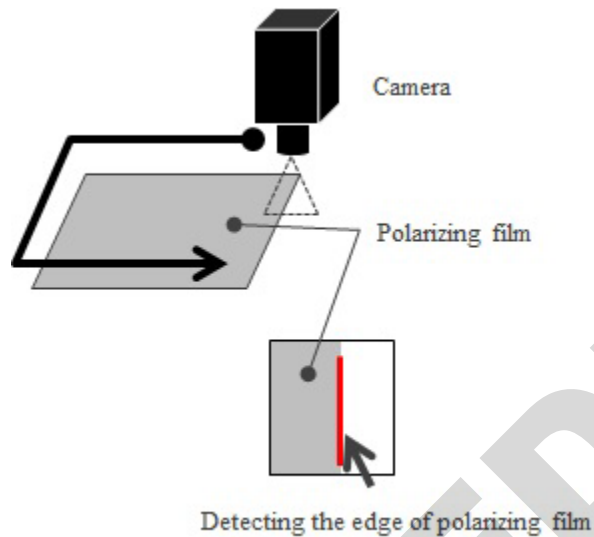


Figure 2
Detection Method of the Specimen's Edge

6 Procedure

6.1 Testing Environment

6.1.1 The environment for this test is as below:

- Temperature: $23.0 \pm 2.0^{\circ}\text{C}$.
- Humidity: $50.0 \pm 10.0\%$.

6.2 Specimen Setting

6.2.1 Set a specimen on the measurement stage, and put a transparent flat and smooth board such as the glass on the specimen.

NOTE 2: It is necessary that there are no scratches and thickness irregularities in the transparent board.

6.3 Setting of the Optical Magnification

6.3.1 It is necessary to optimize the instrument's optical magnification to detect the specimen's edge shape with high precision.

NOTE 3: The optical magnification is decided by required precision.

7 Calculations

7.1 Collation of a Specimen Shape and the CAD Drawing

7.1.1 The origin points in a specimen shape and CAD drawing are decided in order to compare the shapes of the CAD drawing with measured specimen's shapes. They are points or lines optionally decided more than one in a specimen shape and CAD drawing. The origin point in a specimen shape is collated with the origin point in the CAD drawing. The differences between the specimen shape and CAD drawing are shown by normal direction length from CAD drawing edge line (see Figure 3).