

SEMI D69-0314

TEST METHOD OF FPD-BASED STEREOSCOPIC DISPLAY WITH ACTIVE GLASSES

This Standard was technically approved by the Flat Panel Display – Metrology Global Technical Committee.
This edition was approved for publication by the global Audits and Reviews Subcommittee on December 23, 2013. Available at www.semiviews.org and www.semi.org in March 2014.

1 Purpose

1.1 This Standard is provided specifically for the communication between supply channels as well as between manufacturers and consumers.

2 Scope

2.1 This Standard is applied to FPD-based stereoscopic display with active glasses. Test methods for the optical properties of 3D luminance, 3D contrast ratio, system crosstalk and 3D chromaticity are included in this Document.

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 Documents

3.1 SEMI Standards and Safety Guidelines

SEMI D59 — 3D Display Terminology

3.2 ISO Standard¹

ISO 11664-5:2009 (CIE S 014-5/E:2009) — Colorimetry – Part 5: CIE 1976 $L^*u^*v^*$ Colour Space and u' , v' Uniform Chromaticity Scale Diagram

3.3 VESA Standard²

VESA FPD 2.0 — Flat Panel Display Measurements Standard

NOTICE: Unless otherwise indicated, all documents cited shall be the latest published versions..

4 Terminology

4.1 Abbreviations and Acronyms

4.1.1 FPD — flat panel display

4.1.2 $C_{Xi,YZ}(u',v')$ — 'C' means chromaticity; The subscript 'X' (to be L/R) means left or right channel; the subscript 'i' means measured at the location #i on the screen ($i = 0 \sim 8$); the subscript 'Y' (to be w/k/r/g/b) means white, black, red, green or blue pattern for the left channel; the subscript 'Z' (to be w/k/r/g/b) means white, black, red, green or blue pattern for the right channel.

4.1.3 LMD — light measurement device

4.1.4 $L_{Xi,YZ}$ — 'L' means luminance; The subscript 'X' (to be L/R) means left or right channel; the subscript 'i' means measured at the location #i on the screen ($i = 0 \sim 8$); the subscript 'Y' (to be w/k) means white or black pattern for the left channel; the subscript 'Z' (to be w/k) means white or black pattern for the right channel.

4.1.5 P_i — measurement point at the location #i on the screen ($i = 0 \sim 8$).

¹ International Organization for Standardization, ISO Central Secretariat, 1, ch. de la Voie-Creuse, CP 56, CH-1211 Geneva 20, Switzerland; Telephone: 41.22.749.01.11, Fax: 41.22.733.34.30, <http://www.iso.org>

² Video Electronics Standards Association, 39899 Balentine Dr., Suite 125, Newark, CA 94560, USA; Telephone: 510.651.5122, Fax: 510.651.5127, <http://www.vesa.org>

4.2 Definitions

4.2.1 *3D chromaticity* — chromatic performance of a FPD-based stereoscopic display.

4.2.2 *active area* — the area of a display that is useful for viewing.

4.2.3 *system black crosstalk (SBC)* — system crosstalk while the tested channel patterns is full-screen white and the un-tested channel patterns is full-screen black (shown in Figure 2).

4.2.4 *system white crosstalk (SWC)* — system crosstalk while the tested channel patterns is full-screen black and the un-tested channel patterns is full-screen white (shown in Figure 1).

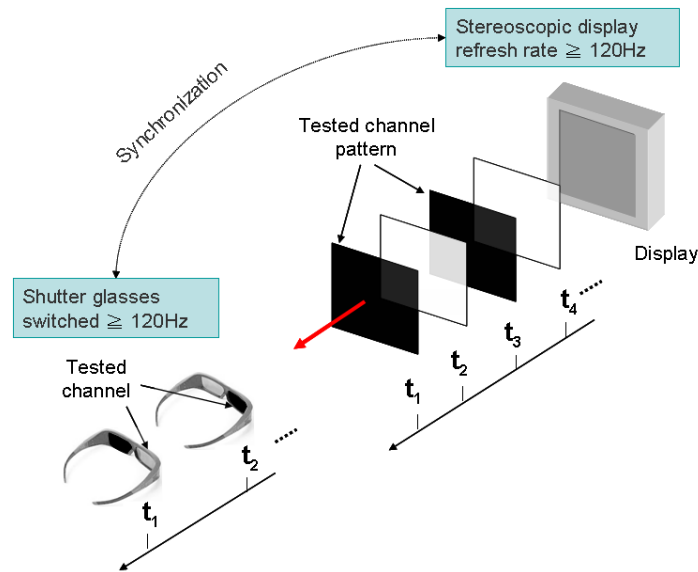


Figure 1
System White Crosstalk

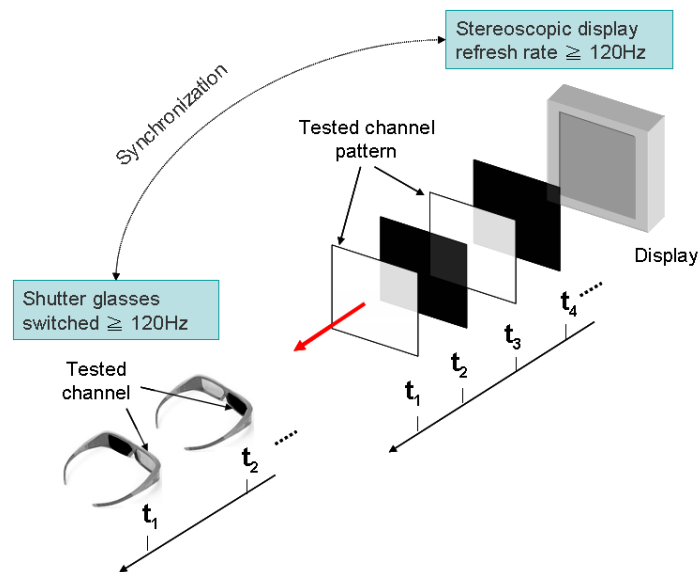


Figure 2
System Black Crosstalk

5 Summary of Method

5.1 Environment Conditions

- Temperature: $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$
- Humidity: 25% to 75% RH
- Illumination of surrounding: dark room ≤ 1 lux

5.2 Measurement Structure

5.2.1 The following installation is a measurement structure for testing the stereoscopic display with active glasses (see Figure 3).

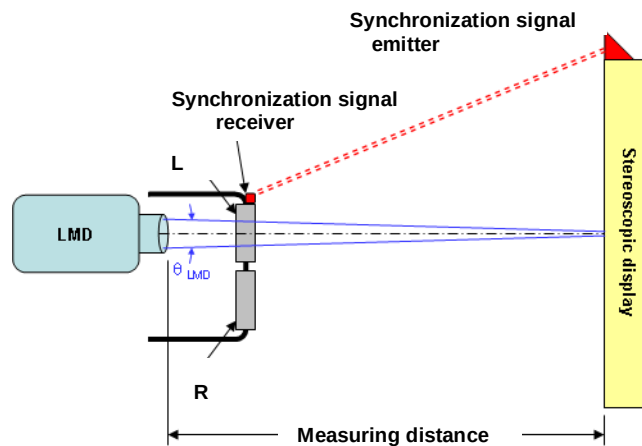
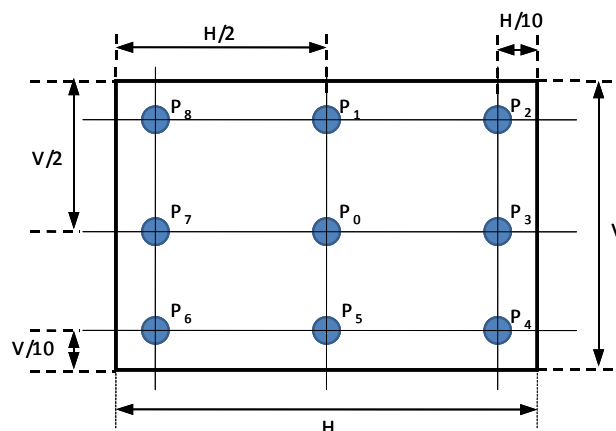


Figure 3

Measurement Structure for Testing Stereoscopic Display with Active Glasses (Top View)

5.2.2 Measuring Points

5.2.2.1 The nine points measurement is proposed in this Test Method Document. The measuring points are shown in Figure 4. The measuring points of nine points measurements are notated from P_0 to P_8 respectively.



H: the width of a display active area
V: the height of a display active area

Figure 4
Measuring Points