

## 6531 (New Standard, Test Method for Viewing Angle of Flat Panel Displays) Cycle 2, 2018

### Reject 1

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<i>Negative</i>	<i>Section</i>	<i>Description</i>	<i>Comment</i>
N1	5.2.2.1	<p>In the case of measuring under the following conditions, the measurement diameter exceeds the window area. It should recommend smaller FOV.</p> <ul style="list-style-type: none"> <li>- Non-contact LMD(Figure1)</li> <li>- FOV: 2 degree (5.2.2.1)</li> <li>- Measuring distance: 3 times of the screen height (5.2.2.2)</li> <li>- Vertical viewing directions (<math>\phi_v</math>): 60° (5.2.3.2)</li> </ul>	<p>Agree.</p> <p>It will be revised that the measuring condition for FOV should include all measuring directions.</p>

### Reject 2

**Name (Company):** Tomioka Satoshi (Sony)

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<i>Negative</i>	<i>Section</i>	<i>Description</i>	<i>Comment</i>
N1	Overall	<p>SEMI Draft Document 5633 relating to “Viewing Angle” has just been established, this draft is mostly composed of the clauses copied from 5633.</p> <p>However, since the described test patterns are different from that of 5633, the user is confused as to which one should be used.</p> <p>Therefore, this is an unnecessary standard</p>	<p>Disagree.</p> <p>This document can be a companion document of the 5633.</p> <p>Firstly, the 5633 is related to how to measure the colors for the relative variation (<math>\Delta E</math>) of deviation within a viewing direction based on the each white. Therefore, <math>\Delta E</math> cannot evaluate nor is not related to the chromaticity difference (<math>\Delta u'v'</math>) between two colors from different two viewing directions.</p> <p>However, this document is related to how to decide 3 kinds of viewing angle specification of displays.</p> <p>Please keep in mind that <math>\Delta E</math> and <math>\Delta u'v'</math> are totally different metric in viewing directional measurement because the criteria of white in <math>\Delta E</math> is changed by viewing direction.</p> <p>The title of this document will be changed to “SPECIFICATION METHOD FOR VIEWING ANGLE OF FLAT PANEL DISPLAYS”. And, the change of the title of document 5633 will be also proceeded to mean “viewing direction” instead of “viewing angle”.</p> <p>The confusion and misuse of the two words was coming from the conventional Korean word where the same word has used for viewing direction and viewing angle.</p>

<i>Negative</i>	<i>Section</i>	<i>Description</i>	<i>Comment</i>
N2	Definitions	4.2.6 wide viewing angle  Regarding “wide viewing angle”, there is no common recognition in the display industry.	Disagree. It is a similar way with the wide color gamut defining how wide color range the display can render. Wide viewing angle is a useful information for common watching condition of displays.

### Reject 3

**Name (Company):** Yoshihiro Nishikawa (KonicaMinolta)

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<i>Negative</i>	<i>Section</i>	<i>Description</i>	<i>Comment</i>
N1		Now IEC is developing the similar standard. (IEC 62977-3-1)  This 6351 contents are a little bit different from current IEC document.  From the user point of view, this situation is confusing. Please wait this document until FDIS of IEC 62977-3-1 has published.	Disagree. IEC 62977-3-1 is about color variation of deviation based on the white of each viewing directional measuring position without gradation and chromaticity difference. It is obviously different from the color chromaticity difference in $\Delta u'v'$ . Viewing angle is an optical spec. of a display based on a threshold. But, there is no threshold to decide the viewing angle in 62977-3-1. This document is to decide the three kinds of viewing angle spec. of the display according to the specified thresholds. Therefore, the useful information for the user is the viewing angle while the viewing directional characteristics is to analyze and develop the display.

### Accept with Comment

**Name (Company):** Myong Young Lee (LG Electronics)

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<i>Comment</i>	<i>Section</i>	<i>Description</i>	<i>Comment</i>
C1	Figure 9	There is no evidence for $\Delta u'v'=0.01$ . Change the chromatic viewing angle threshold to $\Delta u'v'=0.02$ according to ISO 13406-2(page 13).	Agree.