How is the 3D Industry Providing for the Public Health?

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What is the ‘3D Industry’?
3D Eco-System

Visit 3DAtHome.org for the interactive version of this diagram.
3D Eco-System

ST5 HUMAN FACTORS

ST3 EDUCATION & COMMUNICATIONS

ST1 Content Creation

ST2 Distribution & Transmission

Consumer Products

Gaming

3D@Home Consortium
## ST3 -- Comparing Technologies

**Comparison of Active Plasma, Active LCD/LED & Passive Technology 3D HDTVs**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Active Shutter Technology Plasma</th>
<th>Active Shutter Technology LCD/LED</th>
<th>Passive Technology LCD/LED - patterned retarder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lens Shuttering</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Horizontal Viewing Angle</td>
<td>Wide</td>
<td>Wide</td>
<td>Wide</td>
</tr>
<tr>
<td>Vertical Viewing Angle</td>
<td>Wide</td>
<td>Can be an issue</td>
<td>Restricted</td>
</tr>
<tr>
<td>Head tilt</td>
<td>Not an issue</td>
<td>Can be an issue</td>
<td>Can be an issue</td>
</tr>
<tr>
<td>2D image quality</td>
<td>Very Good</td>
<td>Very Good</td>
<td>Slightly compromised</td>
</tr>
<tr>
<td>Ghosting/Crosstalk</td>
<td>Very Good</td>
<td>Very Good</td>
<td>Very Good</td>
</tr>
<tr>
<td>Resolution per eye</td>
<td>Generally 1920x1080*</td>
<td>Generally 1920x1080*</td>
<td>1920x540 maximum*</td>
</tr>
<tr>
<td>Weight of eyewear</td>
<td>Good</td>
<td>Good</td>
<td>Very Good</td>
</tr>
<tr>
<td>Electronics in eyewear</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Battery charging/replacement</td>
<td>Periodic</td>
<td>Periodic</td>
<td>Not necessary</td>
</tr>
<tr>
<td>Eyewear Interoperability</td>
<td>Generally an issue</td>
<td>Generally an issue</td>
<td>Generally not an issue</td>
</tr>
<tr>
<td>Cost of eyewear</td>
<td>From ~$50 per pair – varies by manufacturer</td>
<td>From ~$50 per pair - varies by manufacturer</td>
<td>From ~$3 - price varies by manufacturer/supplier</td>
</tr>
<tr>
<td>Availability of eyewear</td>
<td>Primarily from TV manufacturers in a few styles. Some 3rd party 'universal' glasses</td>
<td>Primarily from TV manufacturers in a few styles. Some 3rd party 'universal' glasses</td>
<td>Primarily from 3rd party suppliers in many styles similar to sunglasses</td>
</tr>
</tbody>
</table>

*May be less with side-by-side broadcast content*
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ST5 HUMAN FACTORS
FRAMEWORK FOR GENERIC, INTERNATIONALLY-APPLICABLE TESTS

Testing Matrix

<table>
<thead>
<tr>
<th>Testing Scenarios</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work with partners</td>
</tr>
<tr>
<td>Procure funding</td>
</tr>
<tr>
<td>Compile output/data</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hardware Types</th>
<th>Content Types</th>
<th>Testing Times</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptable 3D</td>
<td>Live Large</td>
<td>50 min</td>
</tr>
<tr>
<td>LCD TV</td>
<td>Live Medium</td>
<td>40 min</td>
</tr>
<tr>
<td>Dynamic Vision</td>
<td>Live Small</td>
<td>30 min</td>
</tr>
<tr>
<td>Good</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Individual Types

- Create or procure appropriate content for testing
- Motorola
- San Diego, CA
- Dec. 7, 2010

3D Vision & Health Symposium
NEW YORK, NY, June 1-3, 2011
Motorola
San Diego, CA
Dec. 7, 2010
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**ECO-SYSTEM HIGHLIGHTS**

- Educational tools & training available
- Production tools more sophisticated
  - Baseline content available
  - Many channels online
- Alternative content aggregators increasing
- Growing understanding for human factors
  - Technology advancing rapidly
- Compression & encoding mostly understood
  - Installed base rapidly increasing
  - Special interest group coalescing
- Retail sales associates more knowledgeable
  - Educational software developing & being implemented
- Consumers feeling more comfortable with concept
3D Eco-System

CHALLENGES

- Some 3D creators don’t yet understand nuances
- Many producers still want ‘thrill ride’ for every 3D shot
  - Limited programs available
  - Humans all perceive 3D differently
  - Rapid technology advancement difficult to follow
  - Retail experience not optimal
  - Still a lot of misinformation and unsubstantiated rumors in public forums and in retail
Communicating through Web Portals

www.3DatHome.org

www.3DEyeHealth.org

3D Movies Now Have an Added Dimension: Protecting Eye Health

Experts clear up the confusion about 3D viewing and vision health. It is not harmful, and it may help identify otherwise undetected vision problems.

As 3D viewing becomes more commonplace in movie theaters, on television and even in handheld gaming systems, American Optometric Association (AOA) doctors of optometry, together with industry experts from the 3DHome Consortium, reinforce that 3D viewing is not harmful and actually has a distinct benefit of alerting individuals and parents to undercorrected vision disorders and eye diseases that, if caught early, are fully amenable to treatment.

This incudes eye disorders like amblyopia if amblyopia is not detected early and treated, it often causes not only a loss of 3D viewing but lifelong vision impairment and disability.