

3DTV market overview - from the beginning



Dietrich Westerkamp

Overview

- When did 3D start?
- Why is 3DTV now gaining interest? ...again...
- Display Technology is the key
- 3DTV standards are put in place
- Productions are growing in number
-and 3D quality is key to success!

Pictures with depth



- Artists always tried to be as "natural" as they could
- They used the monocular depth cues as good as they could ...
- This mosaic is from the Pergamon Altar dating back to the second century b.c.

The use of Stereopsis for movies started much later

- in the early 50s
- "funny" glasses were mandatory
- But the quality was not as good as to guarantee a success in the market



Anaglyph movies were tried on TV

- Hollywood studios tried to push this technology
 - ...but Hitchcock did not like it.
- Just in August 2010 arte did show a revival
 - ...that revealed all the shortcomings





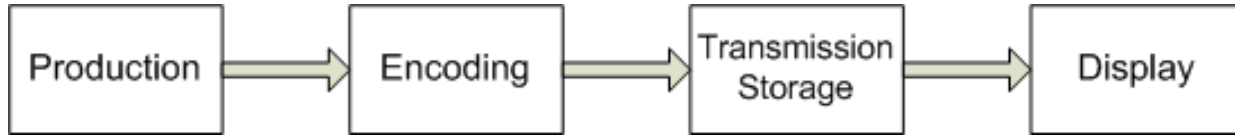
..and a little colour is by no means 3D !!



...what has changed?

- Today's technology allows for stereo-pictures to be displayed
 - No more synchronisation problems
 - Identical geometry is no longer an issue in a raster display
 - Glasses need to be used for both display systems
 - ...but they are no longer bulky
-
- Last but not least, S3D is economic today
 - In fact ALL large CE manufacturers offer 3D as an additional feature in their top-end range of displays for the living-room
-
- ..well, now the images need to be produced and transmitted

What standards are needed ?



Blu-ray -3D

- BDA 3D standard released December 25th 2009
- MPEG-MVC based
 - 1920x1080 @24P to both eyes, frame packing
 - Specification enable 2D playback of Blu-ray 3D discs on the large installed base of Blu-ray Disc players currently in homes around the world
 - 25-50% increased data rate compared to 2D
- HDMI 1.4 required

Dreamwork's *Monsters vs Aliens*
at CES 2010 was first 3D Blu ray disk



HDMI mandatory 3DTV formats

The HDMI 1.4 Specification has established a critical **infrastructure** for implementing 3D in the home

For **movie** content:

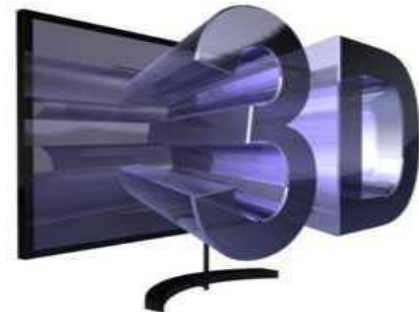
- Frame Packing 1080p @ 23.98/24Hz

For **game** content:

- Frame Packing 720p @ 50 or 59.94/60Hz

For **broadcast** content:

- Side-by-Side Horizontal 1080i @ 50 or 59.94/60Hz
- Top-and-Bottom 720p @ 50 or 59.94/60Hz
1080p @ 23.97/24Hz



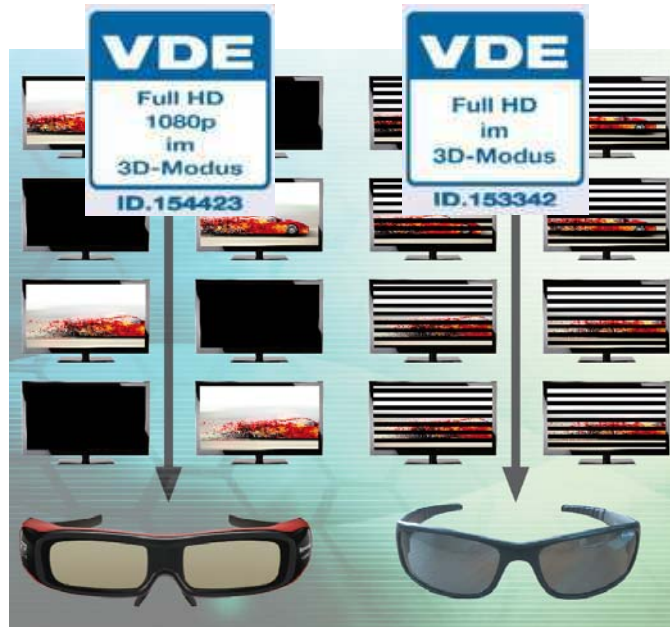
A logo for consumer information?

- Might be a good idea!
 - HDready and HD TV have been useful to foster the HDTV roll-out
- What message should the logo carry?
 - Compliance to the DVB standards might be a good one
 - ... then it should be available now
- ...but there are already (too) many 3D related logos around



- And the CE industry is hesitant to support yet another one.

Displays with (standardized ?) glasses



Shutter

Polarizer

Both systems offer acceptable 3D experience

...and "quality" (resolution) is already determined at the production level

Production quality is key for success

Shutter glasses are linked to the display brand

...but do they need to?

And such logos are not helpful at all!



CEA kicks off process to standardize active 3D glasses

By Donald Melanson posted Mar 10th 2011 1:28AM



PANASONIC, SAMSUNG, SONY, AND XPAND 3D JOIN FORCES IN 'FULL HD 3D GLASSES INITIATIVE'

Four Companies Will Seek Development of Joint Licensing on 'BLUETOOTH® ENABLED RF' and 'IR' Consumer 3D Active Glasses

August 8, 2011— Panasonic Corporation, Samsung Electronics Co., Ltd., Sony Corporation and X6D Limited (XPAND 3D) today announced their intent to collaborate on the development of a new technology standard for consumer 3D active glasses, under the name, "Full HD 3D Glasses Initiative."

With this new agreement, the companies intend to work together on the development and licensing of radio frequency (RF) system 3D active glasses technology, including RF system protocols between consumer 3D active glasses and 3D displays such as televisions, personal computers, projectors and 3D theaters with XPAND active shutter glasses.

The standardization will also include multiple types of infrared (IR) system protocols between 3D active glasses and 3D displays, ranging from the protocols jointly developed by Panasonic and XPAND 3D*, to the proprietary protocols of Samsung and Sony, respectively.

The license of today's newly announced Full HD 3D Glasses Initiative is targeted to be released in September 2011, at which time the development of new standardization-applied active 3D glasses will begin. Universal glasses with the new IR/RF protocols will be made available in 2012, and are targeted to be backward compatible with 2011 3D active TVs.

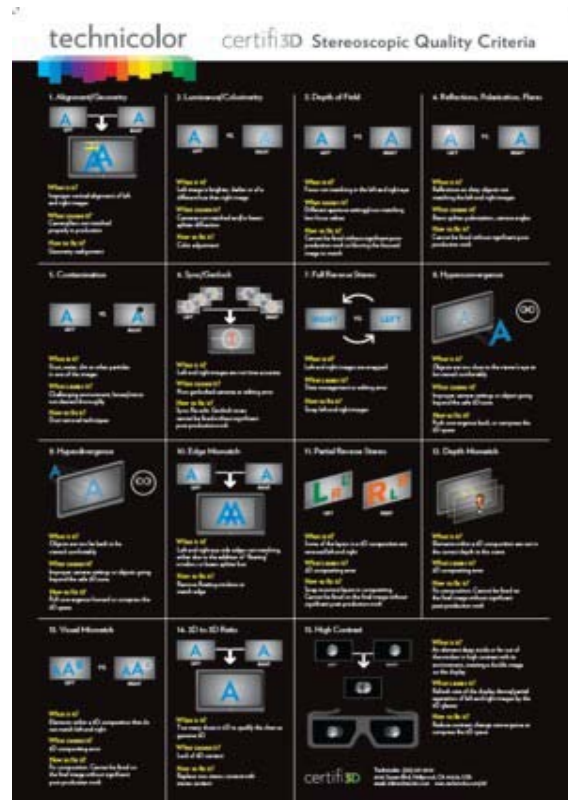
Through this initiative, the four companies aim to widely introduce universal active 3D glasses to the market. Today's announcement marks a unique collaboration of the world's leading 3D TV manufacturers and 3D technology providers for the benefit of consumers. Glasses utilizing 3D active technology benefits consumers in that they enable Full HD 3D picture quality to be displayed to each eye, as well as a greater freedom of movement thanks to Bluetooth® technology.

initiated
standardization



..but technology is not all!

- 3D content must be correctly produced
- Work on production guidelines and related tools at various levels
 - BSkyB
 - UK DTG
 - EBU group on 3DTV
 - Technicolor Certifi3D
 - ...
- Badly produced content is hampering acceptance of 3DTV
- It must be our joint interest to prevent this from happening



What are the messages from/to the market?

- 3DTV this time can be successful
- Flat panel technology for the first time allows economic implementation of Stereo-3D displays with glasses
 - 3D displays are available in good quality and at acceptable prices
 - Two competing systems are in the market
- Standards for frame compatible transmission of S3D are in place
- First commercial services are on air
- Compelling content is one key for further success
- I do not expect 3DTV to be a 24/7 program
- ...and production quality is of utmost importance

Thanks for your attention

Dietrich Westerkamp

Director Standards Coordination

Technicolor

dietrich.westerkamp@technicolor.com

Questions....?

