

Optical characterization of different kinds of 3D displays

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Optical characterization of 3D displays is mandatory for quality control and comparison between the different technologies. In 2009 we have proposed a new viewing angle instrument VCMaster3D dedicated to the characterization of auto-stereoscopic displays [1-2]. Using this instrument left and right eye contrasts and 3D contrasts can be computed everywhere in front of the display and qualified monocular and binocular viewing spaces can be evaluated. Using multispectral polarization measurement with Fourier optics viewing angle instrument we have also shown that the same type of parameter can be calculated for polarization based stereoscopic 3D displays [3-4]. Direct comparison between the two technologies was possible since similar quality parameters can be computed. We have been also interested in the third class of most popular 3D displays, the time sequential stereoscopic 3D displays. This display technique has a long and successful history with CRT displays. It is only recently that the LCD refresh rate has been increased enough to allow this type of technology. In 2010 we have presented a temporal analysis of one sequential 3D display [5] and a quality control method using a video luminance meter was also been proposed [6]. A method to qualify completely the time sequential stereoscopy displays was also presented in 2011 [7].

In the proposed paper, we will summarize the different characterization techniques dedicated to each kind of 3D display. The comparison of the different technologies will be discussed in view of the different characterization results.

References

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