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Comment on recent submission from Philips

I would like to draw attention to some unfortunate misconceptions in the most recent submission from Philips. The following is a quotation from the submission

"2.4.5

static observer

observer who does not move her / his eye(s)

Note 1 to entry: Only large eye movements (saccades) fall under this definition. An observer that only does involuntary micro-saccades is considered static.

The definition allows for the presence of some eye motion, and therefore some phantom array effect. By the way, if eye motion is inevitable as the commenters suggest, then it was also happening during the experimentation used to develop the SVM metric, and was accounted for implicitly (at least the small micro-saccades mentioned in the definition)."

"there is no evidence that phantom array is more serious than stroboscopic effect or flicker."

Response to these statements.

Eye movement is indeed continuous and therefore inevitable, but the nature of the eye movements during the experimentation used to develop the SVM metric were atypical because observers were following a moving target. The eye movements involved will have been those of smooth pursuit with small catch-up saccades. Phantom array will not tend to occur with small saccades or smooth pursuit movement because the eye velocity is low, and the duration brief. The movements that track a moving target are qualitatively different from the large, high velocity saccades that give rise to the phantom array. It is not therefore reasonable to suppose that any SVM metric is sufficient for phantom array because the nature of the eye movements involved is so different.

The SVM cannot predict the occurrence of the phantom array.

The phantom array has the potential to occur with every large (fast) saccade, regardless of movements of objects. It is therefore more ubiquitous. In this sense it is undoubtedly more serious than the stroboscopic effect. The phantom array is known to be annoying and distracting, and to this extent is likely to interfere with visual performance.

The phantom array is indeed more serious than the stroboscopic effect.

The objection seems to be that lighting with low standards is acceptable in the market place and therefore generally acceptable. This is not reasonable. The marketplace continues to accept magnetic fluorescent ballasts because they are cheaper to purchase (though more expensive to run). The industry has continued to supply these ballasts for the 20 years since the original demonstration that the ballasts are injurious to health (Wilkins et al 1989). As a result 80% of fluorescent lighting in British schools is of a type that causes headaches (Winterbottom and Wilkins, 2009). This is not an acceptable situation. What is acceptable or not cannot be left simply to the market. Some oversight from consumers' representatives is clearly necessary.

Reference

- Wilkins, A.J., Nimmo-Smith, I.M., Slater, A. and Bedocs, L. (1989) Fluorescent lighting, headaches and eye-strain. *Lighting Research and Technology*, 21(1), 11-18.
- Winterbottom, M. and Wilkins, A.J. (2009). Lighting and discomfort in the classroom. *Journal of Environmental Psychology*, 29, 63-75.

Sincerely,
Arnold Wilkins