

Poster

“Day for Night” LED Digital Screens in Urban Public Spaces, any Risk for Occupants?

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In many cultures around the world light brings such promising concepts as beauty, immortality and existence. The fascination of people to the light and in general to lit spaces had been used by powers throughout the history as an advantageous factor to boast their glory. Nowadays advertisement is also a tool for the powers to transfer their ideologies to public. Since currently replacement of static billboards with digital LEDs which can play thousands of commercial ads in an hours is getting common in big cities, this research seeks to find the possible effects of LED screens on occupants of a space regarding the popularity of this technology between advertisement industries.

As the brightness of Digital screens is much more than the former versions (static screens), one of the primary effects of digital LED screens on the surrounding is the “Glare” effect. Figure 1 shows high contrast between new implanted LED screen in a roundabout in Famagusta, a developing city in Cyprus, and general lighting of the environment. Such condition may cause glare or even temporary blindness which is really unsafe especially for drivers. Another consequence of the new screen is disturbance in the hierarchy of urban illumination.

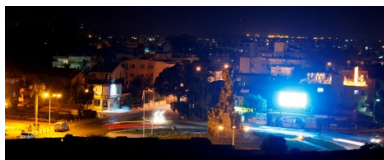


Fig. 1: LED screen extremely inharmonious with surroundings in Famagusta- Cyprus

The future of this phenomenon can easily be seen in developed cities such as Tokyo, where the high percentage of urban edges had been already transformed to large scale LED screens. (Fig-2)

As can be seen from the figure above overall illuminations of urban edges are much brighter than the pathway. The overhead brightness of advertisement screens leaves the pathways dim and obviously causes unpleasant glare effect for pedestrians. Also researches by Fabio(2011) , Behar-Cohen(2011) and Pode(2009) had shown the drawback of blue and white LED lights on circadian cycle of the body. By changes these lights make in melatonin



Fig. 2: General illumination of a public urban space in Tokyo – Japan

production of the brain such diseases as insomnia, high stress level and even cancer may emerge depending on the length and intensity of radiation.

This survey pointed out three negative effects of LED screens; 1-Glare 2-Harmony disturbance 3-Circadian cycle disorder. Further researches are essential to examine other possible effects of LED screens in order to survey the necessity of controlling guidelines for these products.

References

- F. Behar-Cohen, C. M. (2011). *Light-emitting diodes (LED) for domestic lighting: Any risks for the eye?* Elsevier Ltd., 256.
- Fabio Falchi, P. C. (2011). Limiting the impact of light pollution on human health and environment. *Journal of Environmental Management* 92, 2714-2722.
- Pode, R. (2009). *Solution to enhance the acceptability of solar-powered LED lighting technology.* Elsevier, 1096-1103.