

Samsung LED Webinar: Relaxing Lighting Solutions

**Each Place Has Its Own Purpose,  
Complete It with the Right Light!**

**Q&A**

# Samsung LED Webinar: Relaxing Lighting Solutions



How long do I have to be exposed to the light to become sleepy?  
Is there a minimum time for exposure?

Minimum exposure requirement is only relevant to daytime lighting. At night, no light is best for a natural wake-sleep transition. However, most people can't avoid exposure to at least some light at night these days. Therefore, the best strategy is to reduce the Melanopic EDI of the light while you get enough illumination for your evening activities.



Elio Jin-Ha Kim

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Can we make it tunable? For example, the spectrum between 1800K and 4000K of LM302N NITE?  
What about combining it with LM302N DAY?

Yes, you can. LM302N NITE can be used in a variety of tunable CCT configurations. A CCT-tunable luminaire using LM302N NITE can create light conditions with different moods, while maintaining a low Melanopic EDI for relaxation.  
You can also combine LM302N DAY and NITE. It is generally recommended to use LM302N DAY during the daytime, and LM302N NITE in the evening.



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I think using LM302N NITE can help in dealing with jet lag if it's applied to hotel room lighting. Is this true?

Yes it can. Suppose that you travel across time zones. You have to go to bed at a different time than your original schedule on that day. Naturally, you may have difficulty relaxing in order to sleep. You should more easily adapt to a new time zone if you stay at a hotel that uses LM302N NITE in its lighting design. In addition, LM302N DAY can help wake you up in the morning.



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Is it only for hotels and restaurants? Is there anyway we can use it at home?

Samsung's Relaxing Lighting Solutions can be used at home as well. We offer two package platforms, LM302N (3030 6V) and LM283N (2835 9V). The former is popular for fixtures while the latter is popular for retrofit bulbs. At home, the Relaxing Lighting Solutions are best used in bedrooms where people spend a short amount of time before going to sleep. By using it, they can still carry out simple tasks without disrupting their regular sleep routine.



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Depending on the geographical location, and based on differences in cultural or historical background, and even age group, people's lifestyles can be very different, and so, when we talk about 'relaxing lighting color - color temperature', the preference of lighting color in each region might not be the same. For the non-visual effects, will the melanopic sensitivity of people differ in the same way? If different, is Samsung researching ways to change wavelength, to achieve varying degrees of relaxation?

The melanopic action spectrum originates from the light absorption spectrum of the photopigment called melanopsin, which resides in some retinal ganglion cells within the eye. Regardless of where you live or your ethnicity, the melanopsin in your eyes remains the same, which gives rise to the same absorption characteristics. However, the transmission spectrum of your lenses, and the response of your neuroendocrine system to the stimulus can differ significantly. That's why the blue-cyan wavelength of light affects human circadian system very effectively, while individual responses to the same level of stimulus can widely differ. Please watch Dr. Lucas' explanation on individual variability in the Samsung LED webinar video.



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Every countr is experiencing historically worrisome changes in local weather. Do you think the level of improvement in the lighting will impact the lifestyle of many people in the near future?

We shouldn't associate lighting improvements with the dramatic changes in local weather that are occuring. Though we can find adverse correlations between the modern electric lighting environment and many types of health hazards, we actually are working to create better lighting that can reduce some of the impact of such undesirable effects. We believe that healthy as well as aesthetically pleasing lighting can change people's lifestyles to some extent so that they may enjoy more energetic living during work hours and increased relaxation when they need rest.



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Have there been any academic studies to prove if the lighting actually influences the brain enough for it to emit certain hormones?

So sleep is impacted by the amount of light exposure, and lack of sleep can significantly influence work performance. But why do some people perform better at night and perform less efficiently during the day? This basically contradicts our biological need, right?

Of course, it is now a quite well studied area in biology and neuroscience. You may find references in the following document useful for further information.

“Recommendations for healthy daytime, evening, and night-time indoor light exposure”

<https://www.preprints.org/manuscript/202012.0037/v1>

Time of the day can be one factor affecting concentration and performance, but it's not the only factor. Similarly, light exposure and the amount of sleep during the previous night are important factors as well. You might concentrate better at night thanks to less disturbances from other people, calls, and emails. Therefore, we should consider all of these. From a lighting point of view, we can offer better spectra which didn't exist before and this can provide you with additional benefits. That's the key message here.



**Elio Jin-Ha Kim**

The background of the image is a dark blue field filled with a pattern of white and light blue binary code (0s and 1s). A prominent, bright blue vertical light streak runs down the left side of the image. The Samsung logo, consisting of the word "SAMSUNG" in a bold, white, sans-serif font, is centered horizontally and vertically.

# SAMSUNG

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