



Welcome to the second edition of Brillianz Ltd Quarterly Newsletter, keeping you up to date with all the latest developments in the LED field, as well as offering factual information on LED lighting.

In this edition we are looking at the 'Lux, Lumen and Watts; What's the Difference?' as well as 'AC LEDs – Current Position'. Finally, another testimonial of current user of VisiLite.

Lux, Lumen and Watts, What's the Difference?

The lux (symbol: lx) is the SI derived unit of illuminance or illumination. It is equal to one lumen per square metre.

- sunlight on an average day ranges from 32 000 to 100 000 lux
- TV studios are lit at about 1 000 lux [i.e. 1000 lumens per square metre]
- a bright office has about 400 lux of illumination
- at sunset and sunrise, ambient outdoor light is also about 400 lux (if the sky is clear).
- moonlight represents about 1 lux
- starlight measures a mere 0.00005 lux

Lumens measure "luminous flux". This is a measure of the total number of packets (or quanta) of light produced by a light source (e.g. a globe or fluorescent tube). This is the "quantity" of light emitted by the light source. The purpose of lux is intended to tell you how many lumens you need given the area you are trying to illuminate.

Achieving an illuminance of 500 lux might be possible in a home kitchen with a single fluorescent light fixture with an output of 1200 lumens. To light a factory floor with dozens of times the area of the kitchen would require dozens of such fixtures. Thus, lighting a larger area with the same number of lux requires a larger number of lumens.

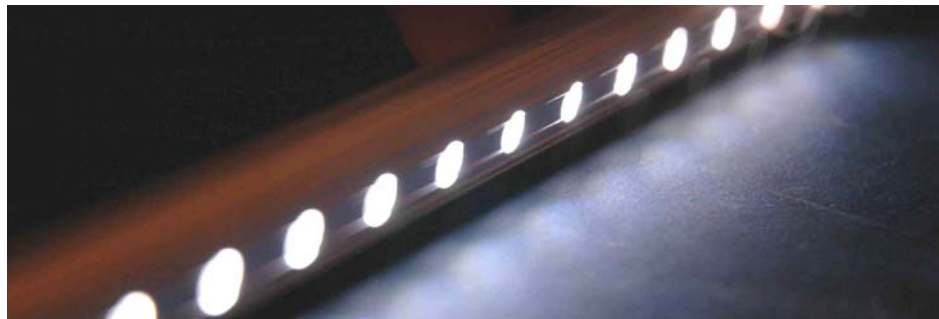
The difference between the lux and the lumen is that the lux takes into account the area over which the luminous flux is spread. 1000 lumens, concentrated into an area of one square metre, lights up that square metre with an illuminance of 1000 lux. The same 1000 lumens, spread out over ten square metres, produces a dimmer illuminance of only 100 lux.

Now to the issue of *watts* vs *lumens* produced. This is a difficult one because the *wattage* of a light source refers to the power consumed to drive the source while *lumens* refers to the brightness of that source as the human eye perceives it. The wattage of course would be the sum of the heat generated as well the energy of the light emitted.

So, what of LEDs?

"Wattage" of LED Lamps

When evaluating LEDs we are often asked for the wattage of LED lamps when what is really meant is: "How bright are they?". One can only compare the brightness of the various light sources on the market by knowing the number of lumens they produce. We have all developed expectations about the how bright a 25, 40, 60 or 100 watt bulb should be and we tend



to apply that frame of reference to LED lamps.

To clarify the relationship of watts to light output and LED bulbs, we talk about the number of 'lumens per watt' (lm/w) that the device produces. Incandescent bulbs are very inefficient and only generate around 12 lm/w, whereas LEDs and halogen sources now have almost equivalent efficiencies of 40 lm/w. Some fluorescent tubes generate 60 lm/w (which is where LEDs are predicted to be next year!) It is always better to talk about lumens (and lux required) than watts when it comes to lighting decisions.

So LEDs are as bright per watt as halogen and nearly as bright as fluorescent – and when properly applied they can deliver more lux per watt than either of these onto a surface such as a display case floor.

To read more on this fascinating topic – please go to www.Brillianz.co.uk/lumen.cfm

Brillianz Teams up with LynkLabs Inc to Develop AC LED Applications

Brillianz has formed a venture with LynkLabs Inc. of Illinois USA. Lynk is a ground breaking technology company with extensive patents applying 'ac' power sources to a new type of LED – the 'AC LED'.

Unlike traditional 'dc' driven LEDs, AC LEDs work



off an alternating current source. This can be 50hz mains but is more effectively a high frequency low voltage ac source. AC LEDs are more power efficient, reliable and produce less heat than equivalent dc LEDs – Lynk studies suggest up to 30% better in fact.

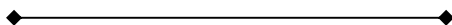
Equally important is the power source – BriteDriver – lower cost per watt than regulated DC supplies and much higher power ratings with no need for fan cooling – even at 250 watts. AC LEDs are parallel



connected, making installation a 'plug and play' exercise – unlike the constant current configurations needed for high power LEDs today.

The first products to market from this collaboration, licensed from LynkLabs and called VisiBrite in the UK, are - 'fluorescent tube' replacement lamps – providing more lux (light intensity) per watt than equivalent powered tubes. These are incredibly low profile, low heat and high brightness light engines and can be supplied in various colour temperatures from cool (6000 ° K) to warm (2500 ° K). They are finding application in jewellery display, cool food environments and many situations where light intensity and low heat generation are requires in a very thin package.

To see more detail on these and other AC LED products go to www.Brillianz.co.uk/Lynk.cfm and for information on LynkLabs visit www.lynkylabs.com



Pulse 3-D claims that Brillianz VisiLite has been a hit for them across the world.

Pulse 3-D, provides bespoke solutions designed and built onsite at their fully equipped, Hinckley-based workshops. They specialise in high-quality display stands and are heavily involved with the provision and design of exhibition and conference stands. Other areas of expertise include product launches and road shows.

When Martin Cull from Pulse 3-D initially saw VisiLite, he was taken by its neatness and how well it would fit in with their all aluminium construction system. "For us, style is extremely important as we have many leading edge clients, where style is imperative to their corporate statements."

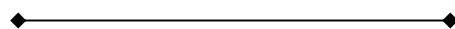
An early result for Martin in adopting VisiLite is with an important contract win. "Your VisiLite product has actually helped us to secure a recent contract with a Formula 1 client. As we continue to experiment with VisiLite we envisage many other unique applications for it in the future. We were also enthused with the active help provided by Brillianz knowledgeable members of staff."

"The colour of VisiLite suits our application since the stands are aluminium based, and besides being elegant, VisiLite is also unobtrusive. We are in the business of utilising VisiLite in direct accent illumination as this forms around 90% of our activities."



What final words would Martin use to sum up his views on his dealing with VisiLite to date? "VisiLite is a neat, nice and well-priced product and even though we have been approached by a number of other companies, none measure up in the slightest with regards to ease of use or style."

For the full case study, please visit <http://www.brillianz.co.uk/pulse.cfm>



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