

AMERICAN MEDICAL ASSOCIATION (AMA) REPORT ON THE HUMAN AND ENVIRONMENTAL EFFECTS OF LED COMMUNITY LIGHTING

In June 2016, the American Medical Association published a report on the [Human and Environmental Effects of Light Emitting Diode \(LED\) Community Lighting](#). This report has generated considerable domestic and overseas media attention.

In IPWEA's view, much of the mainstream media coverage has not been accurate in reporting the findings and recommendations of the AMA. Specifically, the AMA has not made a general finding against LED street lighting. Their position has been the opposite in saying, *"That our American Medical Association (AMA) support the proper conversion to community-based Light Emitting Diode (LED) lighting, which reduces energy consumption and decreases the use of fossil fuels."*

Importantly though, the AMA report contains a warning about the problems of LED street lighting when improperly designed and/or having higher than necessary blue light content. The key AMA recommendation is, *"That our AMA encourage the use of 3000K or lower lighting for outdoor installations such as roadways. All LED lighting should be properly shielded to minimize glare and detrimental human and environmental effects, and consideration should be given to utilize the ability of LED lighting to be dimmed for off-peak time periods."* A colour temperature of 3000K or lower is generally referred to as warm white and contains less blue light content than light of higher colour temperatures.

In Australia, technical specification, SA/SNZ TS 1158.6 (which carries less weight than a Standard), states that 4000K is the preferred colour temperature for road lighting. The decision to suggest 4000K was made in 2014 when this was the warmest commercially practical colour temperature generally available at the time. This situation is changing now with an increasing number of luminaires with 3000K LEDs (or lower) becoming available. However, while now commercially available, the debate about whether it is better to use 3000K or 4000K is less than settled.

As a credible source of further LED information, IPWEA refers interested parties to a [statement on this subject from the US Department of Energy](#) of 21 June 2016 on its SSL Postings. This posting makes the important points that blue light content, the need for proper control of glare and the need to limit spill light are not new issues or unique to LEDs. The posting also notes that while using light with low colour temperatures may be useful to mitigate some impacts, this may also reduce the effectiveness of public lighting. To achieve the same safety levels, lighting designs using low colour temperatures may therefore require, *"...designs with more lumens which may completely negate the effects of reducing the relative amount of blue light emission."*

The US Department of Energy's Municipal Solid State Lighting Consortium has also subsequently published a [July 2016 issue of The Light Post](#) which contains a comprehensive discussion of the spectral science behind various types of street lighting and how this relates to the AMA report. The newsletter also contains a number of links to further credible reading on the topic. The leading LED lighting industry publication, LEDs Magazine, has also published an editorial and [article](#) in its July/August 2016 edition.

It is likely that pressure for the use of warmer LEDs, particularly on residential roads and in parks, will continue to grow as a result of increasing awareness of issues raised by parties such as the AMA and the International Dark Skies Association. However, the science, safety impact and societal costs of lower colour temperature lighting are the subject of much on-going research and debate. And, IPWEA notes that the AMA recommendation for off-peak dimming can only be implemented with the widespread adoption of smart controls in Australia and New Zealand, something which has been slow to occur in both countries in comparison with overseas markets.