

RE: Applicability of 3000 K CCT Limits to Digital Billboard Displays

To whomever it may concern,

Media Resources Inc. has been asked by Pattison Outdoor to provide an assessment of a potential correlated color temperature (CCT) requirement as applied to Digital Billboard technology. As a trusted manufacturer in the industry, we believe in the responsible application of Digital Display technology and are supportive of the direction of the City of Toronto with respect to mitigating potential impacts of night-time illumination.

In reviewing the proposed Condition of Approval for Pattison's Sign Variance Application at 2200 Markham Road, specifically that the Proposed Sign operate at a maximum correlated color temperature (CCT) of 3000K, we would like to provide important technical clarification to ensure the requirement is applied appropriately and effectively.

1. Digital Billboards Are Not Comparable to Lighting Fixtures

Traditional lighting fixtures — such as streetlights, floodlights, sports field lighting, or pathway and architectural accent lighting — emit white light only, and therefore can be assigned a fixed CCT (e.g., 3000K). A digital billboard, however, is not a lighting fixture. It is a full-color electronic display that uses red, green, and blue (RGB) LEDs to reproduce millions of colors for logos, graphics, and advertising content.

Because of this fundamental difference:

- A digital billboard cannot operate at a single CCT, and
- It cannot be restricted to a maximum CCT without compromising its intended function of displaying accurate logos, images and creative content.

Applying a 3000K limit to a digital display is technically equivalent to requiring a television or computer monitor to operate only in warm-white light.

2. A 3000K Maximum Would Distort Colors and Render Content Inaccurately

A 3000K light source has a very strong yellow/orange bias (See Figure 1 below). If a digital billboard were forced to operate within this color temperature:

- Blues would shift toward green
- Reds would shift toward orange
- Whites would appear cream-colored
- Brand colors would no longer match their intended appearance

This would materially alter Corporate logos, Product branding, Advertiser artwork and Public messaging.

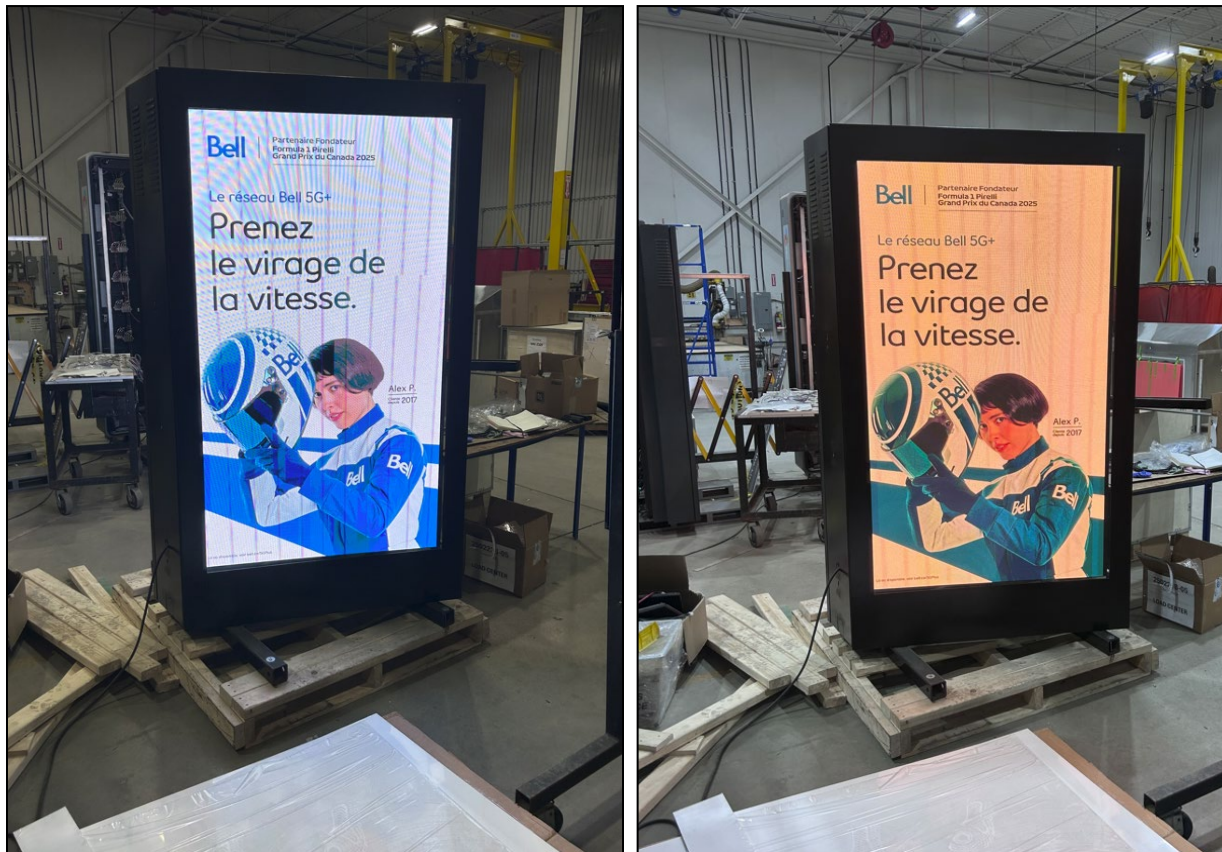


Figure 1: Comparison of Digital Display at Standard 7000K CCT versus 3000K CCT

Such distortion would render the display commercially non-viable and inconsistent with industry standards for digital advertising.

3. Proposed Alternative: Reduction of Blue Channel Output at Night

We understand and respect Toronto's interest in reducing potential impacts associated with blue-wavelength light during night-time hours. Reducing blue light impact is in fact the primary reason for restricting CCT in light fixtures, as CCT is the most measurable aspect of a lighting system. To address this concern in the context of a Digital RGB Display, we suggest a REVISED Condition of Approval:

"Between Sunset and Sunrise, the Proposed Sign shall operate with a reduction of up to 50% in the blue output channel, as measured at the display controller, to mitigate potential impacts associated with blue-wavelength light while preserving accurate color representation and commercial viability."

This approach provides the Municipality with a meaningful and enforceable mitigation measure that:

- Reduces blue-light emission
- Minimizes potential ecological and human-health impacts
- Maintains accurate color reproduction
- Preserves the billboard's intended advertising function

This is a technically sound, industry-appropriate compromise that aligns with best practices in digital display management.

By reducing blue-channel levels by up to 50% during evening hours, this revised Condition of Approval will ensure that the Proposed Sign will minimize glare, reduce upward light spill and have a reduced impact on night-sky pollution, achieving the higher-level objectives of the original Condition of Approval.

Sincerely,



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