The New World of Backlit Media and Color Management

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Backlit Media: Setting Expectations

This

Not This
Backlit Media, Some History

- 20 years ago
  - Backlit media meant
    - Film
    - Duratrans
    - And a little bit of inkjet or toner

- Instruments of yesteryear…

DTP41T strip reader
Spectrolino Spectroscan T manual spot read
Signs, Signs Everywhere A Sign

- Video
- Duratrans
- Vinyl
- Fabric
Backlit Media: a Primer

- A translucent or transmissive print
- Most digital printers can create backlit materials
- Like analog printing, each process has advantages and may require special media
  - Aqueous
  - Solvent
  - UV
  - ...
- Going across processes drives the need for custom calibration and profiles
What’s New: In Media

- Film
- Polyester Film
- PET banner
- Polycarbonate
- Fabric
- Lexan
- Glass
What’s New: Fine Art Media
What’s New: Illumination

- LED’s are the new normal but don’t count the fluorescent tube out yet!
A Real World Example

- A tale of 3 backlights
A Real World Example

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A Real World Example

- A tale of 3 backlights
DAY – NIGHT Use: Challenges

- The Challenge
DAY – NIGHT: How To Measure?

- The Challenge

Backlight on/off – One setup to fulfill “Measure as we see”?
DAY – NIGHT Setup Challenges

- **Double sided printing**
  - Roll-to-roll digital printing systems with double-sided print feature to allow registration of the front and back side
  - Typical substrates: Backlit PVC Banner, Citylight Paper
    - Setup mode:
      - Frontside - Reflective setup
      - Back content is mirrored, printed the same as front or as a fixed % of the front

- **One sided printing using a white ink layer between two color layers**
  - Flatbed digital printing systems with White ink, printing with accurate positioning either as one time or multiple times over
  - Typical substrates: transparent substrates like acrylic, glass, Transparent self adhesive vinyl
    - Setup mode: Reflective setup/1st layer, White layer/2nd layer
Considerations In Measurement

- Aperture size
- What M mode (yes it’s kind of a trick question)
- Spot, Scan or Average?
- What about thicker substrates
  - Glass, Plastics etc?

Barbieri Spectro LFP qb

i1Publish Pro 3 Plus
Considerations In Measurement: Aperture Size

- Backlit signs benefit from larger apertures or more sampling
Considerations In Measurement: Aperture Size

- Backlit signs benefit from larger apertures or more sampling

1.5mm 2mm 4 mm 6 mm 8 mm
Considerations In Measurement: Aperture Size

- More light and more averaging as the aperture size increases

<table>
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<tr>
<th>Size</th>
<th>1.5 mm</th>
<th>2 mm</th>
<th>4 mm</th>
<th>6 mm</th>
<th>8 mm</th>
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<tbody>
<tr>
<td>Area</td>
<td>1.8 mm²</td>
<td>3.1 mm²</td>
<td>12.6 mm²</td>
<td>28.3 mm²</td>
<td>50.3 mm²</td>
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<td>Difference from 1.5 mm</td>
<td>2x</td>
<td>7x</td>
<td>16x</td>
<td>28x</td>
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The “Virtual Aperture”

- Scanning devices that automatically average across a patch are said to have a “virtual aperture” which is dynamic based on patch size.
- Alternately you can average by taking multiple spot measurements and average them.
Considerations In Measurement - Glass

- Glass should be measured the way that it will be viewed
  - Diffuse light source on one side the measuring instrument at the side of viewer.

- This can cause 2 situations:
  - Print side towards instrument which is preferred
    - no stray light
  - Print side behind (towards diffusor)
    - The thicker the glass, the more light scatters before hitting the instrument
      - This often makes dark patches appear lighter to the instrument
Considerations In Profiling

- Data to any Profiling package?
  - Yes and No

- Special considerations about:
  - Backlight
  - Materials

- What about iccMAX?
What To Do With What You’ve Learned

- Remember, nothing stands alone, it is all a system
  - Printer, RIP, Materials, Lighting, Environment, Measuring
    - Make sure they are well matched
- Consider your market – What are the best use cases
  - Will you need to match backlit and reflection prints?
  - Indoor or outdoor signage
  - Two sided or one side
- When you expand your choices you drive the need to understand your process
  - Investigate new print methods
  - See if custom ICC profiles will help your business
QUESTIONS
Thank you for attending!