

🕒 100 seconds

🌐 EN · العربية



One hotel lobby at Duv +0.006 · 0.000 · -0.006. Only the assumed illuminant changes between frames.

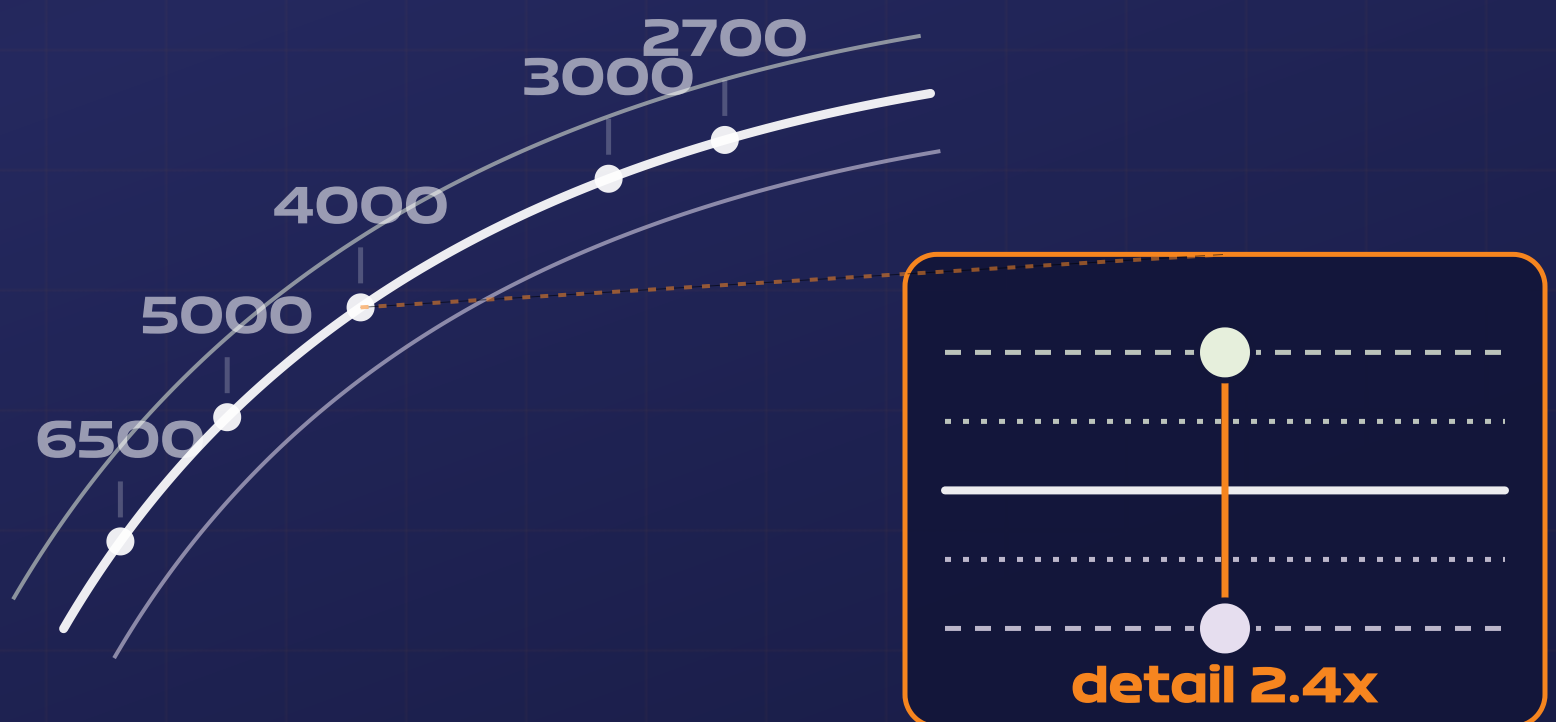
BEYOND KELVIN

The shift nobody warns you

Two '4000K' fixtures can look green vs pink. Here's why.

Why does your 'matched white' look mismatched?

Because CCT is only one dimension. Duv, the distance off the Planckian curve, is the second. Specs that ignore Duv buy you a quality control nightmare.



The Planckian locus in CIE 1960 (u, v) at true scale. The inset magnifies the $\pm Duv$ envelopes 2.4x, because at true scale they sit almost on the line.

DEFINITION · 1 OF 2

+DUV

Above the locus, **green cast**.



A hotel lobby, re-rendered at Duv +0.006. The cast lands on the sheer curtains and cream seating first.



Often appears **greenish** and may be less flattering on camera.

DEFINITION · 2 OF 2

-DUV

Below the locus, **pink cast**.



The same frame at Duv -0.006: rosier, on exactly the same surfaces.



Often appears **rosier or more magenta**. Some projects intentionally target a slightly negative Duv, subject to mock-up approval.

PREMIUM SPEC

$$|Du_{uv}| \leq 0.003$$

Duv tolerance

Specify colour consistency separately: SDCM ≤ 3 .

Perceptibility depends on the application, surroundings and viewing conditions.

+0.006
green

+0.003
faint green

+0.000
on locus

-0.003
faint pink

-0.006
pink

Computed sRGB at 4000 K, true scale. If the middle three look alike, that's exactly why measurement matters.

Three projects. Three suggested Duv limits.

Practical starting points, confirm with samples or mock-ups.

WAREHOUSE

Function only, no
rendering

$|Duv| <$

0.006

OK

OFFICE

Professional standard

$|Duv| <$

0.005

OK

RETAIL · HOSPITALITY

Premium uniformity

$|Duv| <$

0.003

PREMIUM

Duv visual chart.

NLC practical guide based on Duv. Not an ANSI C78.377-2024 classification.



On the locus · neutral white

Duv 0 REF



Faint green tint

Duv +0.003 LIMIT



Visible green · reject

Duv +0.006 REJECT



Faint pink tint · sometimes a deliberate target

Duv -0.003 OK



Visible pink · outer boundary, not a target

Duv -0.006 LIMIT

Asymmetric by design: a slightly negative Duv can be an intentional target, subject to mock-up approval, while an equal green shift reads unnatural. -0.006 is the outer boundary, not an acceptable result. NLC practical guidance, not an ANSI classification.



The CCT-only mistake.

Spec'ing '**4000K, CRI > 80**' and assuming uniformity. Two suppliers can both meet that, and one ships green, the other ships pink.



Supplier A · greenish



Supplier B · pinkish

NEXT TIME YOU SPEC COLOUR

Add Duv to **every spec line.**

And use a spectrometer (Sekonic C-800) to verify on site. A lux meter cannot measure Duv.

- ✓ $|Duv| \leq 0.003$ in the datasheet
- ✓ $SDCM \leq 3$
- ✓ Single-lot binning for project orders



Integrating sphere, NLC photometric lab: where CCT and Duv are measured on the actual product.

PRACTICAL LIGHTING & ELV KNOWLEDGE

**Save this. Send it
to a colleague.**



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