
HEIDELBERG

# Prinect Multicolor

## For experts.

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# Prinect Multicolor

## Have a look behind the scene!

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# Workshop no. 19 – Prinect Multicolor for Experts

## Presentation

*Cordula Voelker*

*Tobias Laubmann*

## Prinect Cockpit

*Moana Diehl*

*Tobias Laubmann*

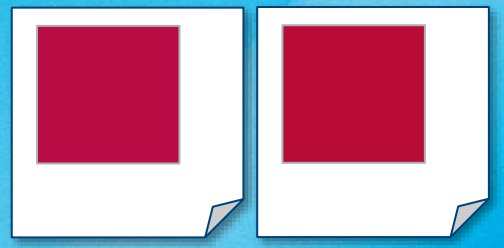
## Speedmaster XL 75-8-P

*Roland Schönmann*

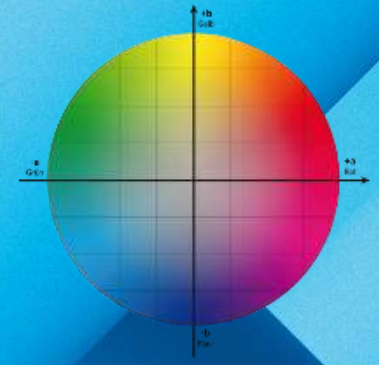
*Mustafa Elshakarji*

# Prinect Multicolor  for Experts

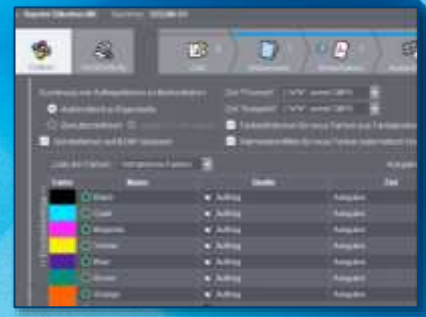
1. How good is color quality with Prinect Multicolor?
   Printing with XL 75-8-P



2. Conditions for Prinect Multicolor
   Color management



3. Expert level news
   InRip color management – ROOM Proof – mixed rendering - mixed screening



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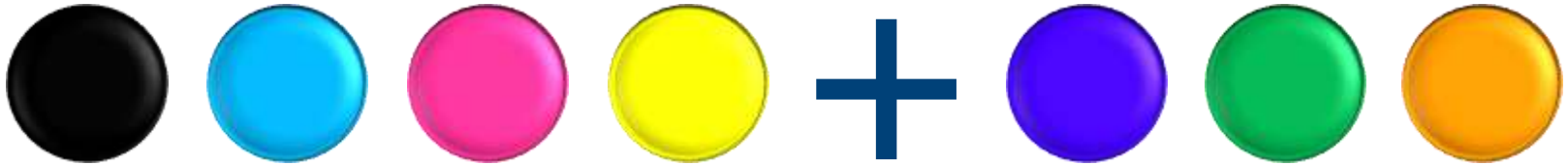
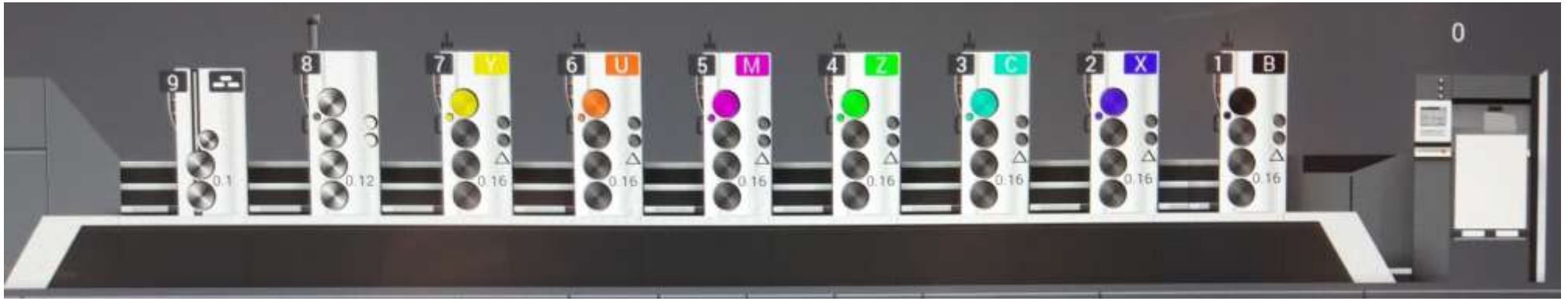
# Prinect Multicolor - What is it?

Printing with 7 inks



→ Process colors BCMY + spot colors violet, green and orange.

→ Simulating a huge amount of other spot colors

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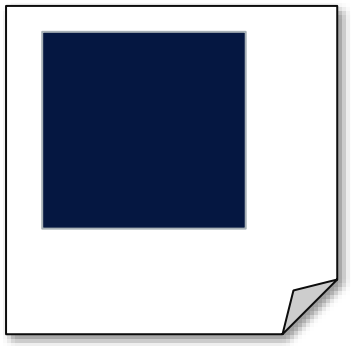
# Prinect Multicolor - What about color quality?

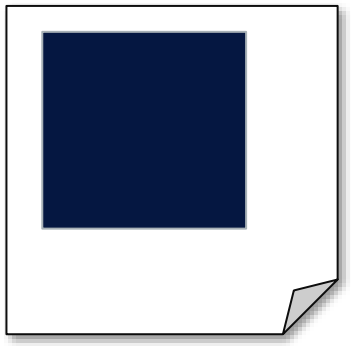
## Printed with one spot color

Pantone® color

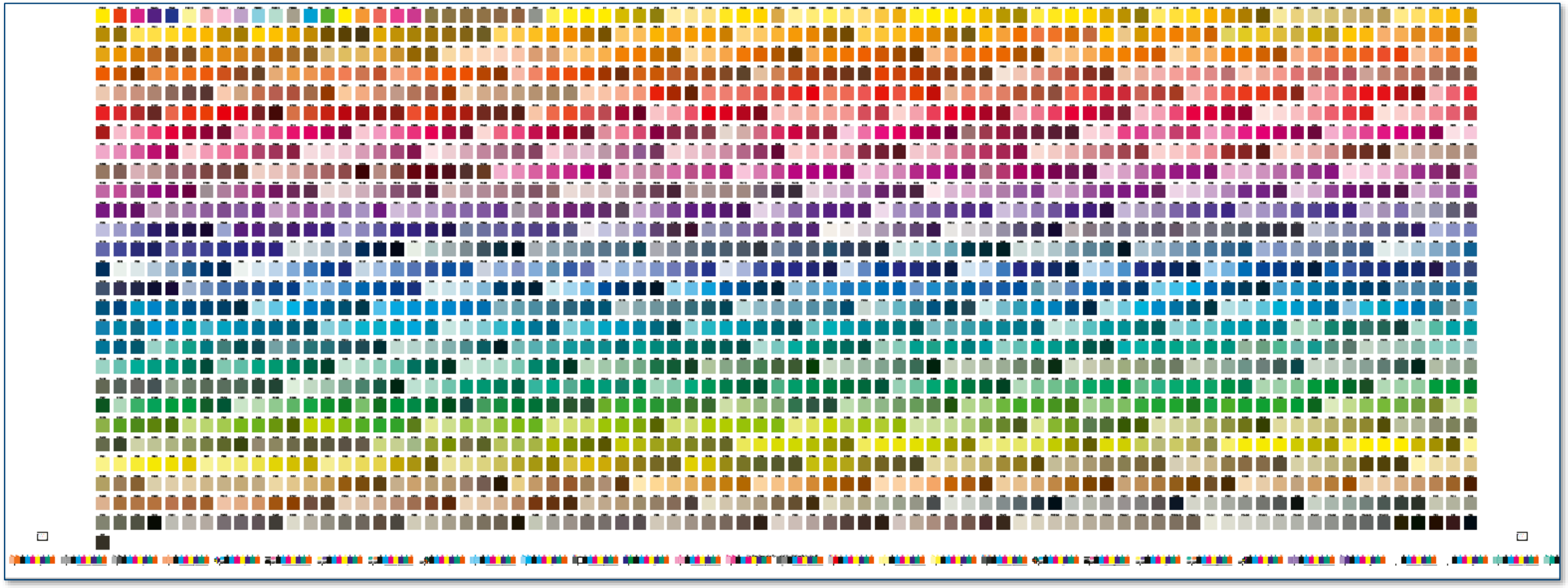

$\Delta E = ?$

## Printed with Multicolor separation

# How good is color quality with Prinect Multicolor?

Simulation of color fan Pantone ® solid coated V4: **2161** colors



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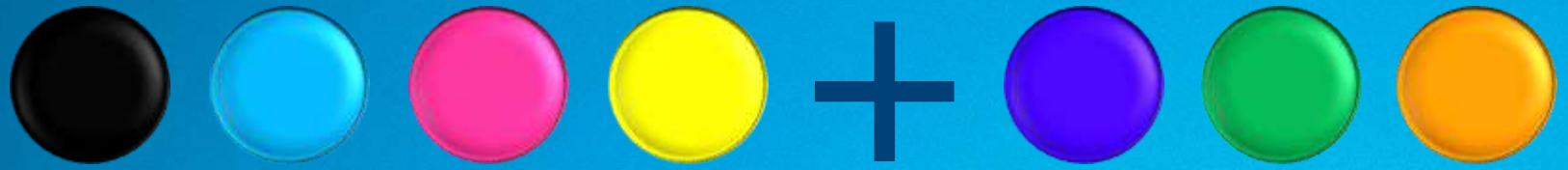
# Simulating Spot Colors with Prinect Multicolor



2161 colors

**94 % ≤ ΔE 3**

**98 % ≤ ΔE 5**

| | | | | |
|---|---|---|---|---|
| simulated PANTONE® 3165_C | 27,67 | -30,2 | -16,27 | 0,26 |
| simulated PANTONE® 7709_C | 67,26 | -23,4 | -14,26 | 1,33 |
| simulated PANTONE® 7710_C | 61,09 | -36 | -20,41 | 1,49 |
| simulated PANTONE® 7711_C | 54,02 | -44,06 | -24,32 | 0,93 |
| simulated PANTONE® 7712_C | 47,6 | -40,32 | -26,36 | 0,95 |
| simulated PANTONE® 7713_C | 44,43 | -41,72 | -21,11 | 0,81 |
| simulated PANTONE® 7714_C | 42,37 | -39,52 | -18,06 | 0,77 |
| simulated PANTONE® 7715_C | 35,4 | -31,63 | -14,41 | 0,43 |
| simulated PANTONE® 2218_C | 67,5 | -18,11 | -14,7 | 1,68 |
| simulated PANTONE® 2219_C | 62,57 | -20,06 | -16,64 | 1,20 |
| simulated PANTONE® 2220_C | 57,43 | -21,46 | -18,44 | 1,29 |

| | number of colors | ΔE 2000 |
|---|---|---|
| < dE 3.0 | 2022 | 93,6% |
| < dE 5.0 | 2128 | 98,5% |

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# Print form 1 „Passion“


1st spot color

2nd spot color

# Print form 1 „Passion“

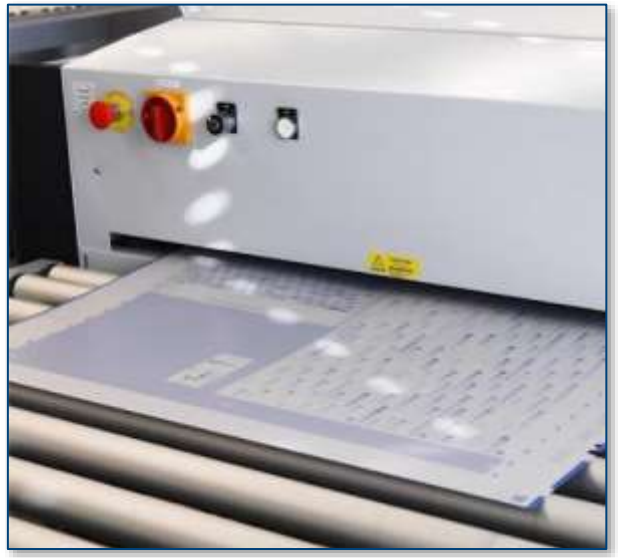
## 6 separations for printing with Multicolor

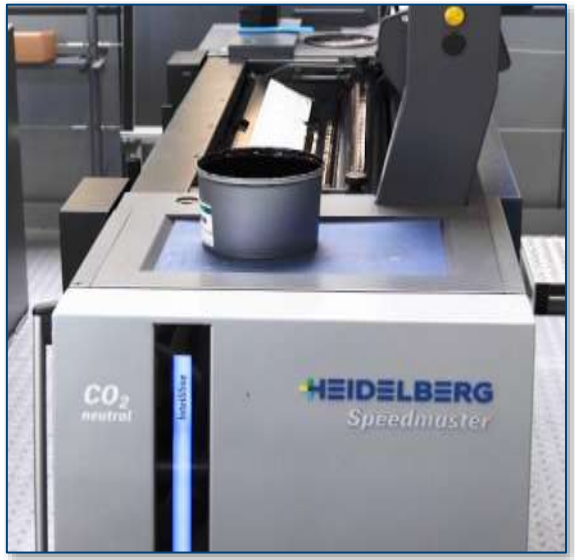
# Benefits with Prinect Multicolor

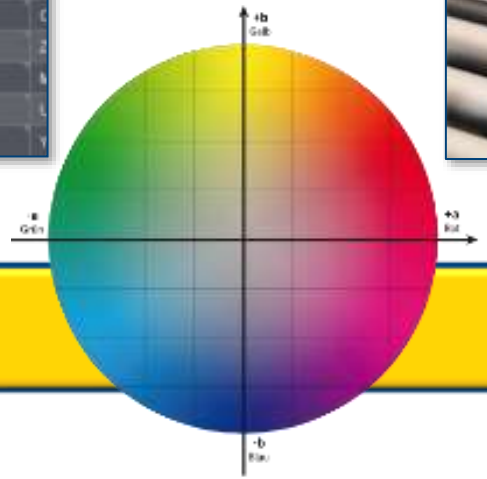
- → Less wash-up times: No ink change
- → Reduced makeready waste: Stable color control
- → Repeatable print quality: Standardized Multicolor process
- → Reduced ink inventory: Only 7 inks

# Color Management for Prinect Multicolor

Prepress → Linearize → Plate setter → Calibrate → Press

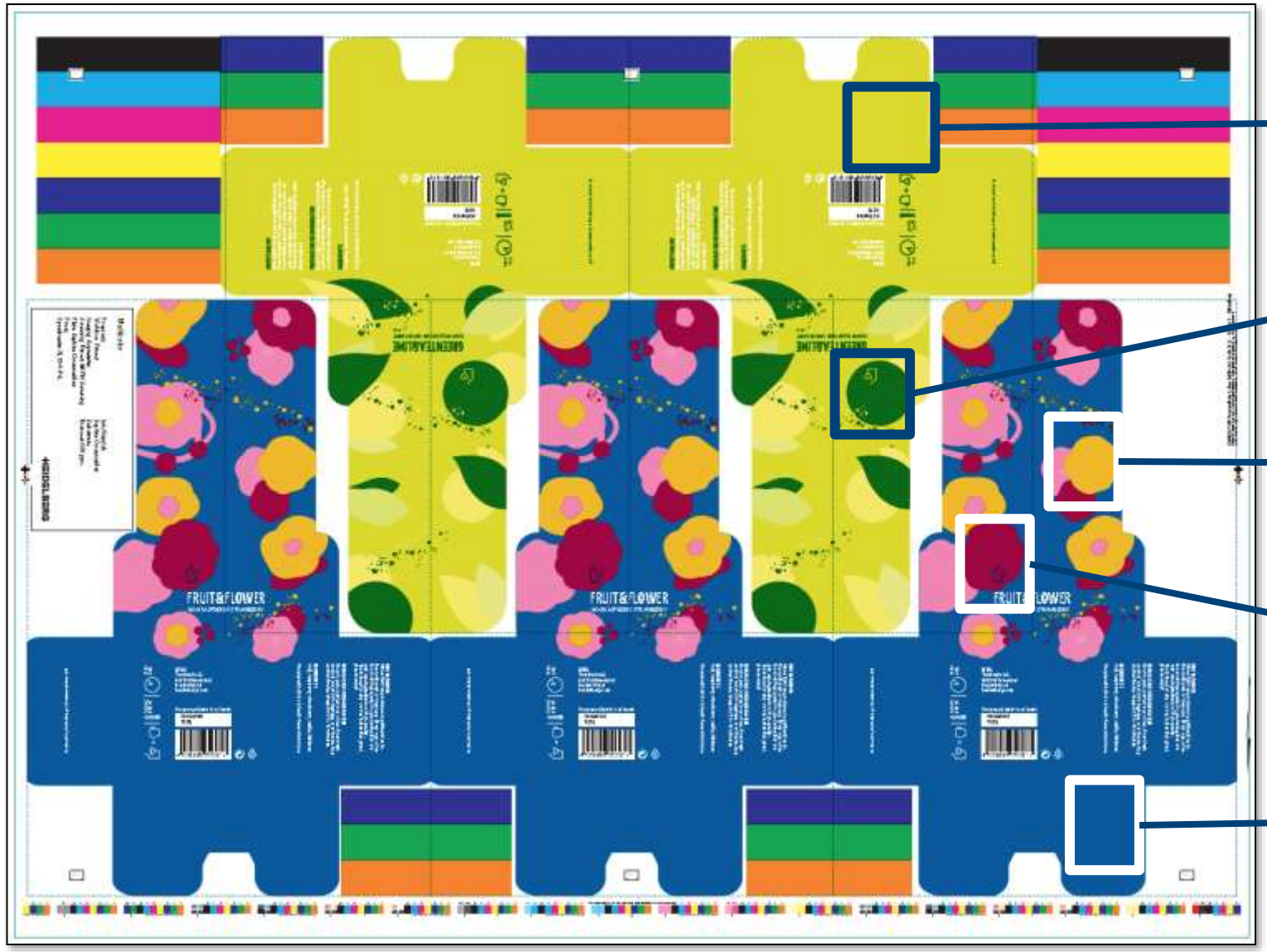





ICC profile

# Print form 2 „Lotea“




1st spot color

2nd spot color

3rd spot color

4th spot color

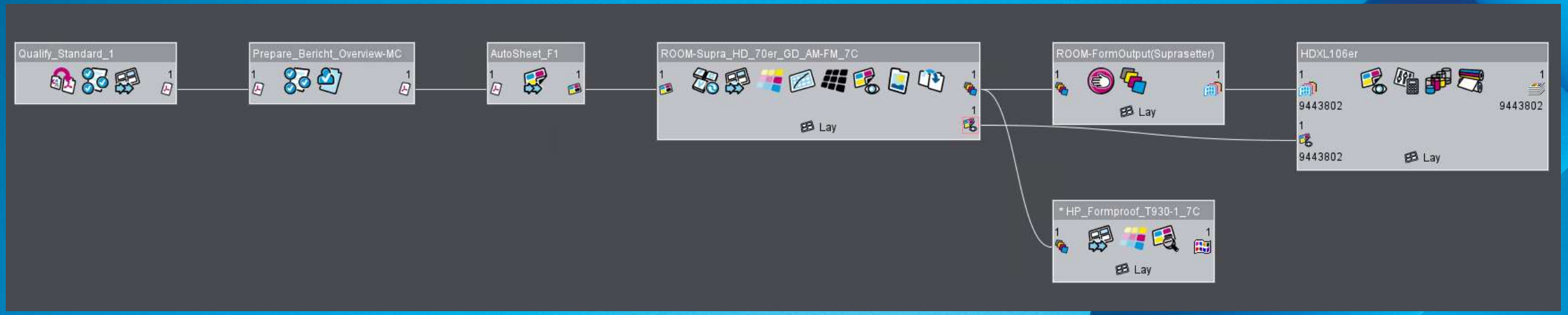
5th spot color

# Print form 2 „ Lotea“

7 separations for printing with Multicolor

# Multicolor InRIP Color Management

# Room Proof – Color Proof




Room Proof

= Rip once output many

- proves the content
- possible for InRIP color management

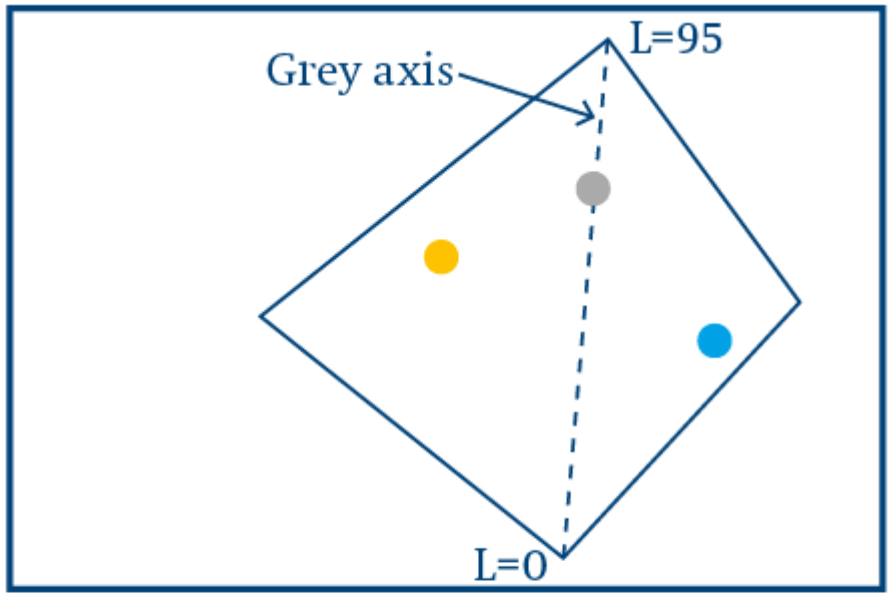
Color Proof

= 4c + spot colors

- proves the color – is color binding

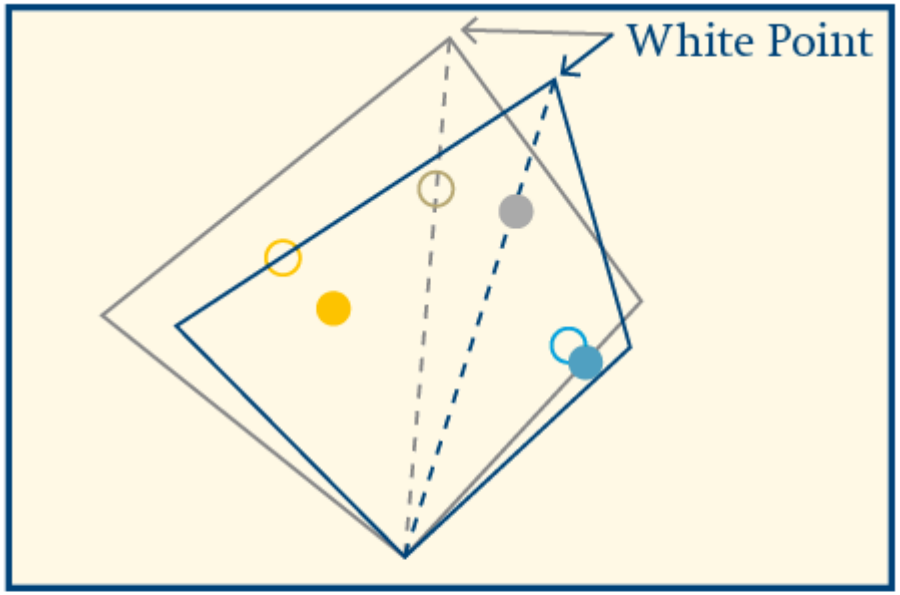
# Rendering Intents - Absolute vs. Relative

## Original gamut – white substrate




Three different colors

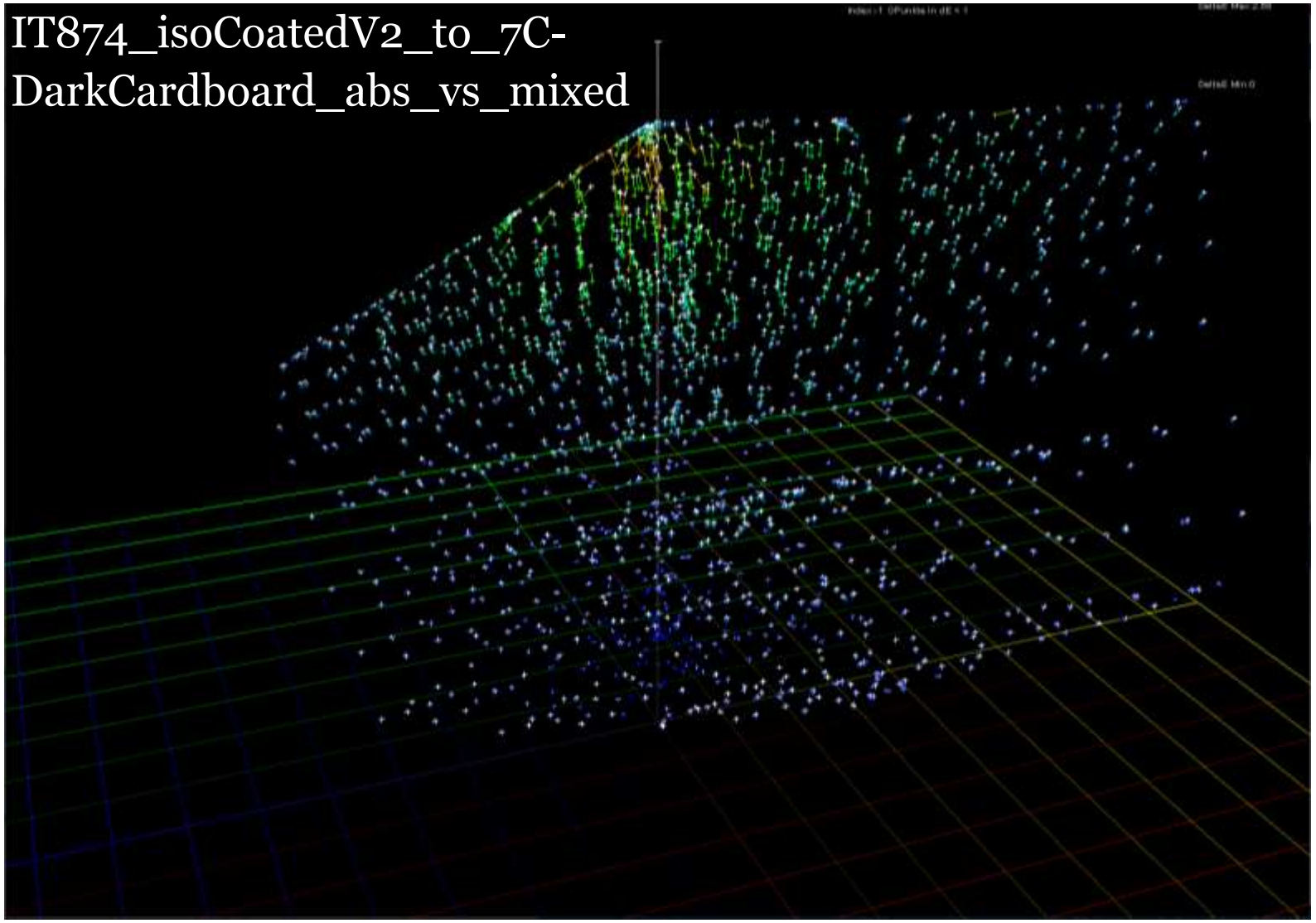
## Target (yellowish) substrate




Rendering intent Absolute

Rendering intent Relative

# Mixed Rendering Intent




## Heidelberg Patent

Goal:

- Optimize printing on dark cardboard ( L < 90)

Solution:

- Use a mix of 2 rendering intents: absolute + relative

Green strokes
= difference in color space comparing absolute versus mixed rendering intent

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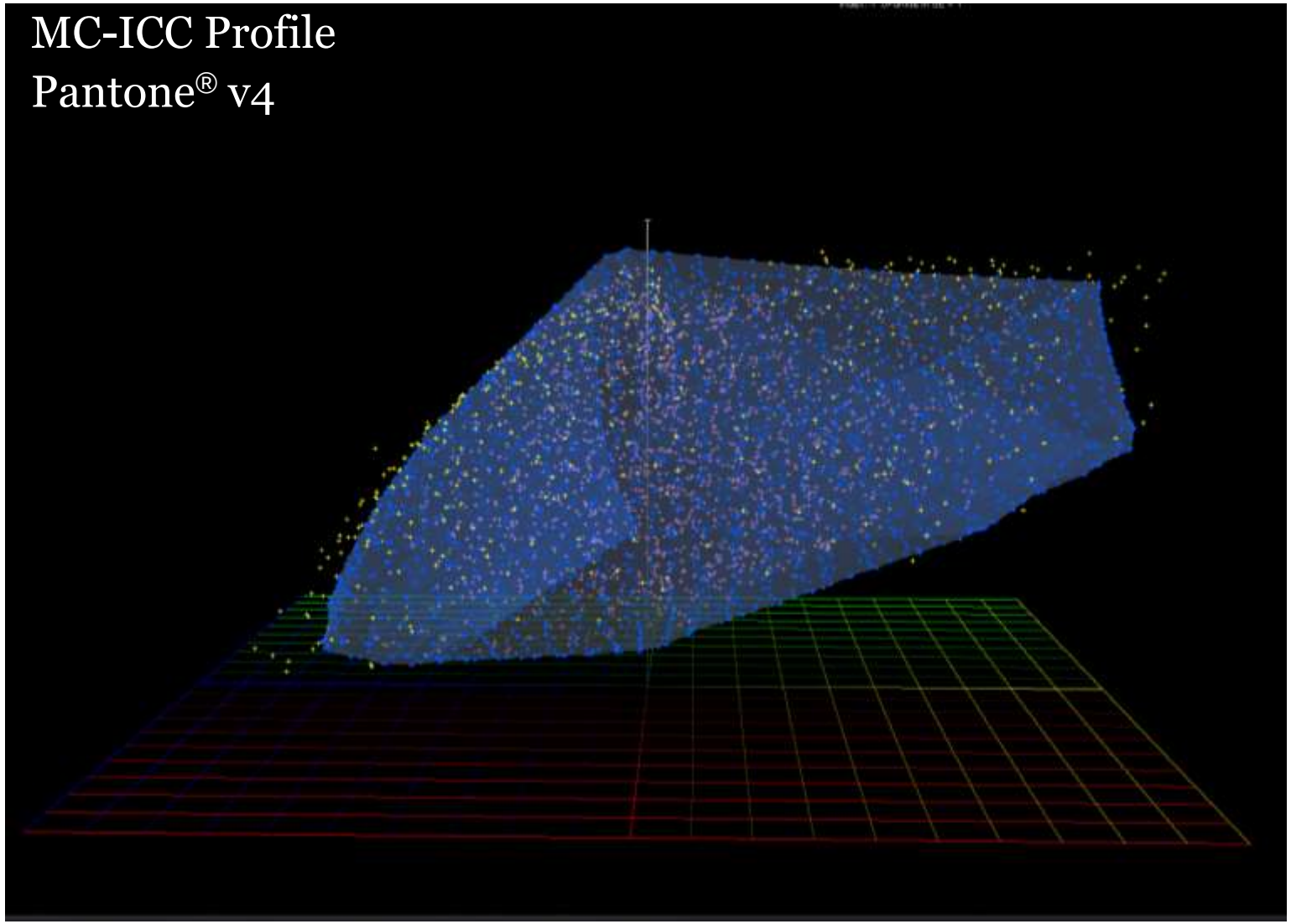
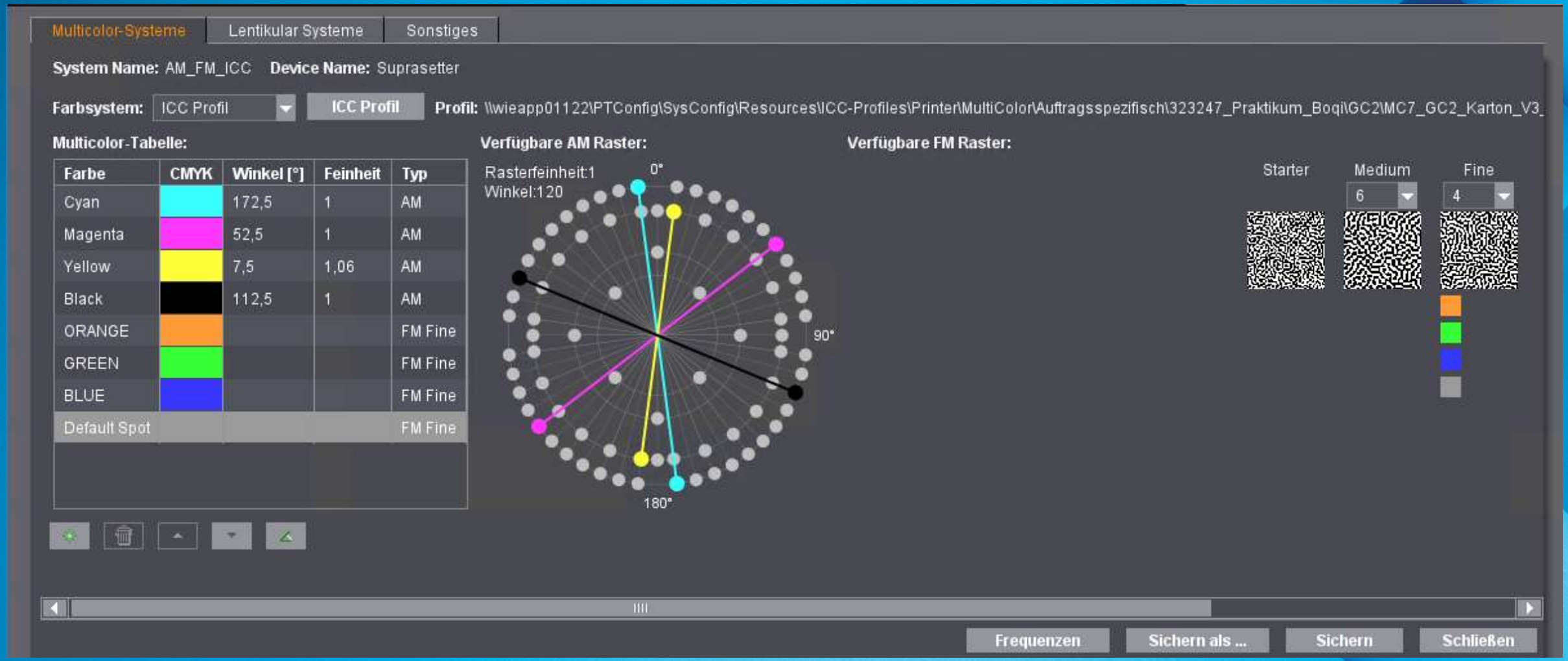
# Three-dimensional Color Space



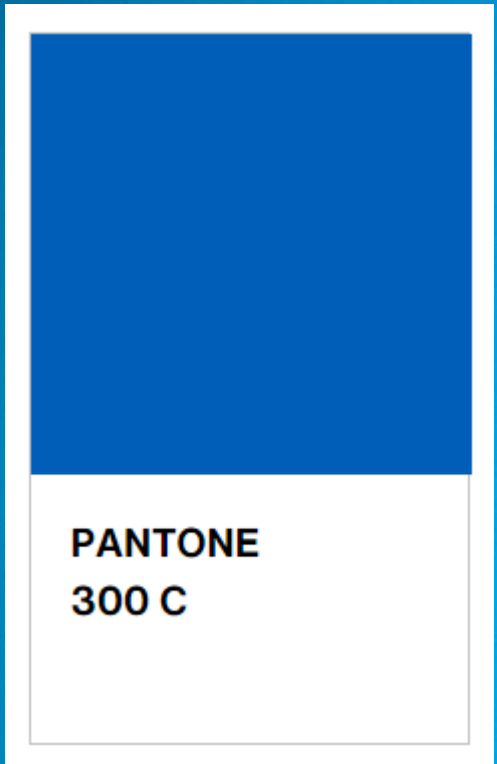

Color space comparison

- Blue: Multicolor
- Yellow: Pantone® V4 spot colors

# Mixed Screening



# How can we achieve a bigger gamut?
# Low density (SD) versus high density (HD)




Potential Problem:

Pantone ® 300
→ MC separation = 100% Cyan, 50% Violet, 15% Black
→ Delta E above 3.5
→ more Cyan needed

Solution:

→ MC separation = 120% Cyan, 50% Violet, 15% Black

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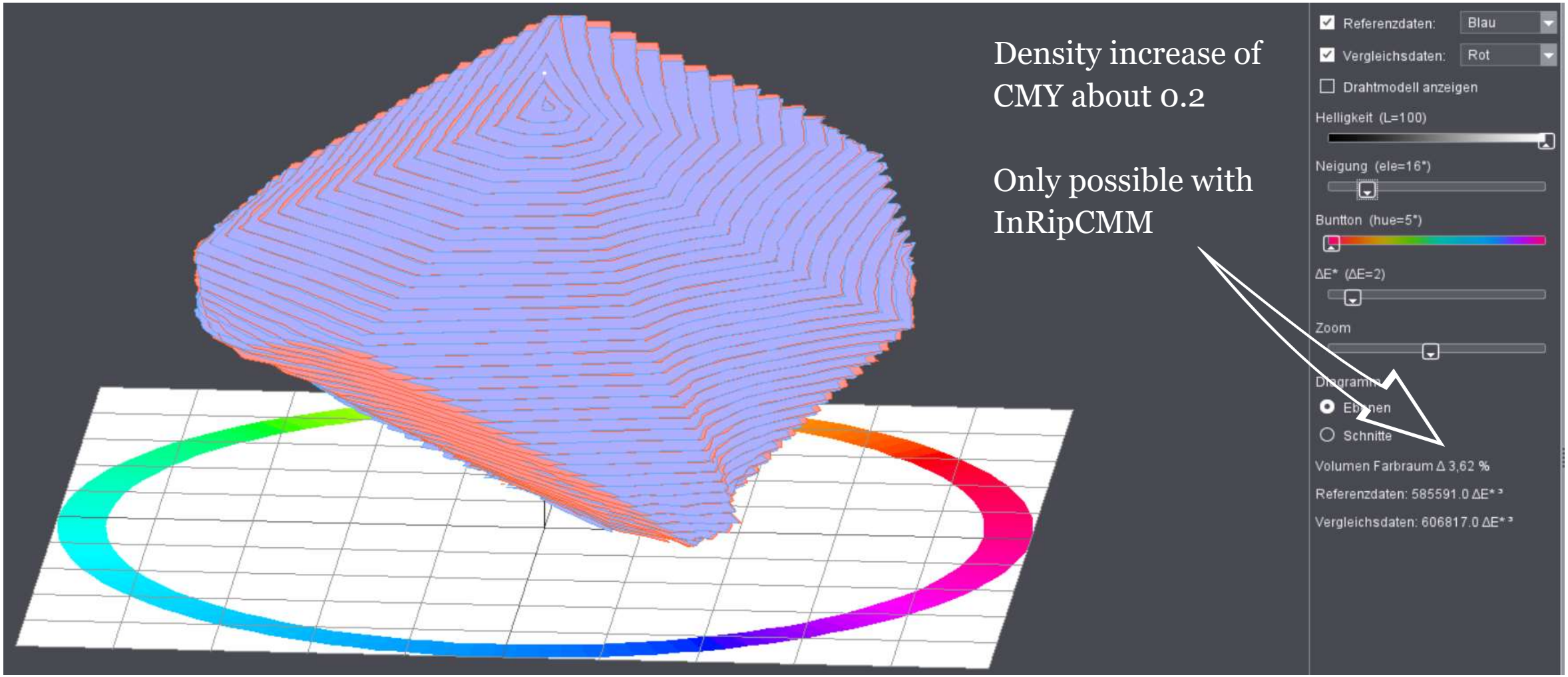
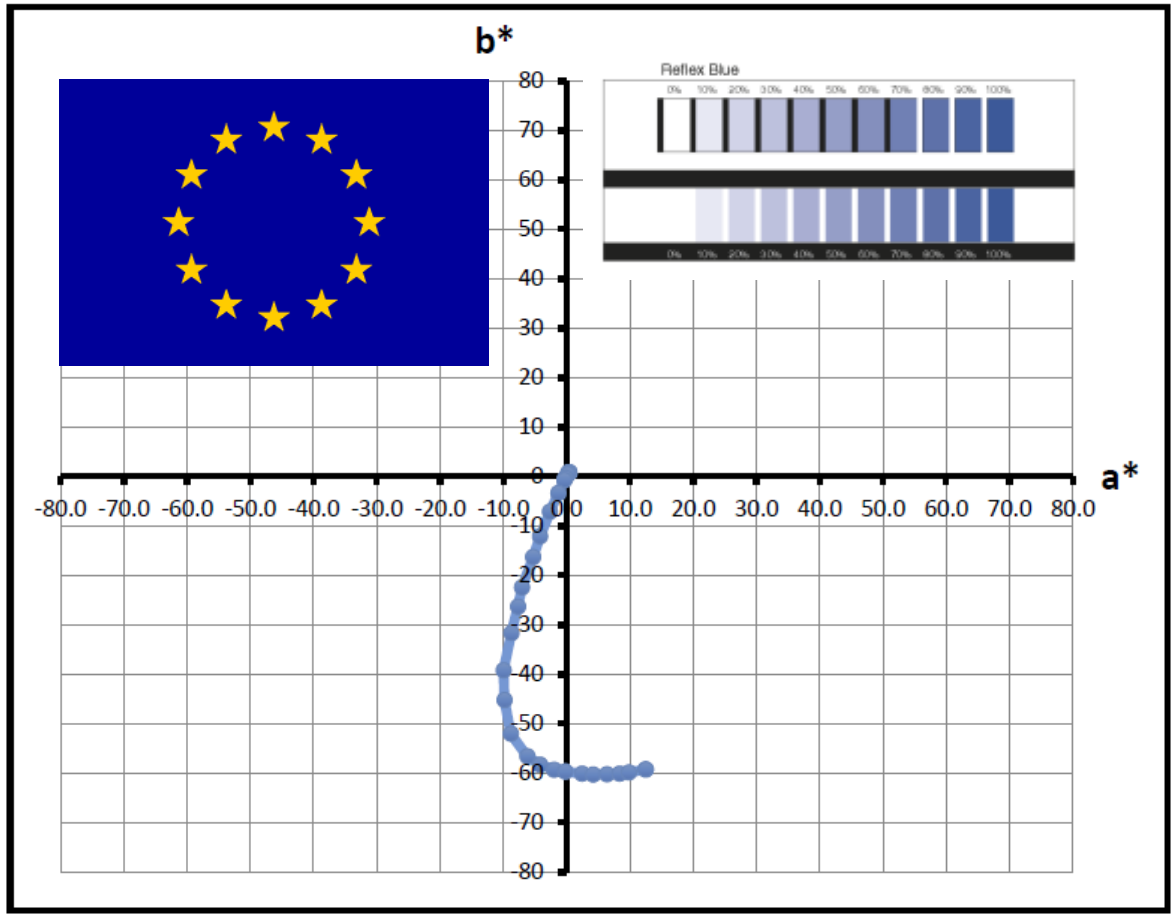
# How can we achieve a bigger gamut? SD versus HD



# Why SCTV? Pantone Reflex Blue - Hooking

## Set of measurements of Reflex Blue in CIELAB




Steve Smiley

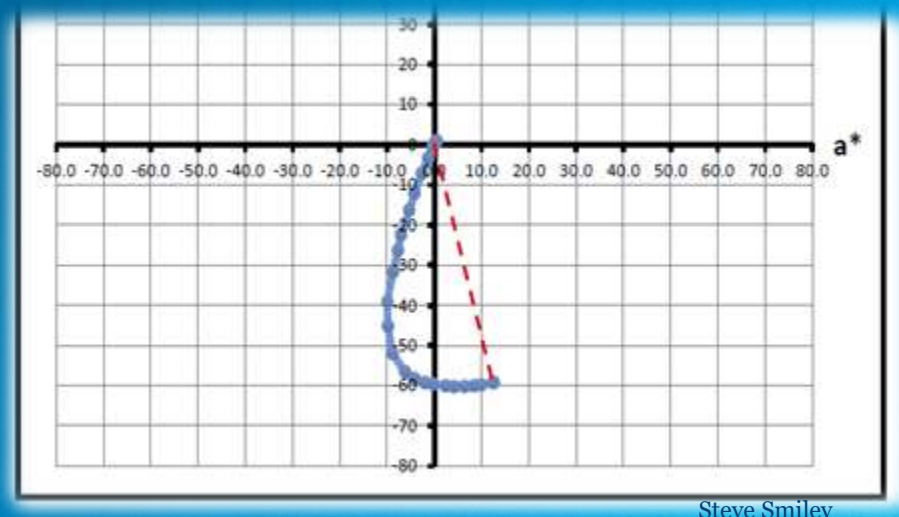
Problems:

1. Different methods are used to measure spot colors

2. Curvature is not taken into account by display of intermediate tones

-> Displayed colors can differ from printed result

# Why SCTV? Murray Davies‘ calculation




Steve Smiley

Murray Davies’ calculation

- Distance of dots is not equidistant
- Intermediate tones cannot be estimated by linear interpolation in CIELAB

SCTV – Spot Color Tone Value

- Visual equidistant distinction
- Can also be used for CMYK (Black would look darker)
- SCTV spot color tone value is implemented in ISO 20654

# Prinect Multicolor with Heidelberg


Seven - color offset printing process

Heidelberg is your full end to end solution provider

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# Prinect Multicolor

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