Optimal Method Print Calibration

With **PressCal** Software

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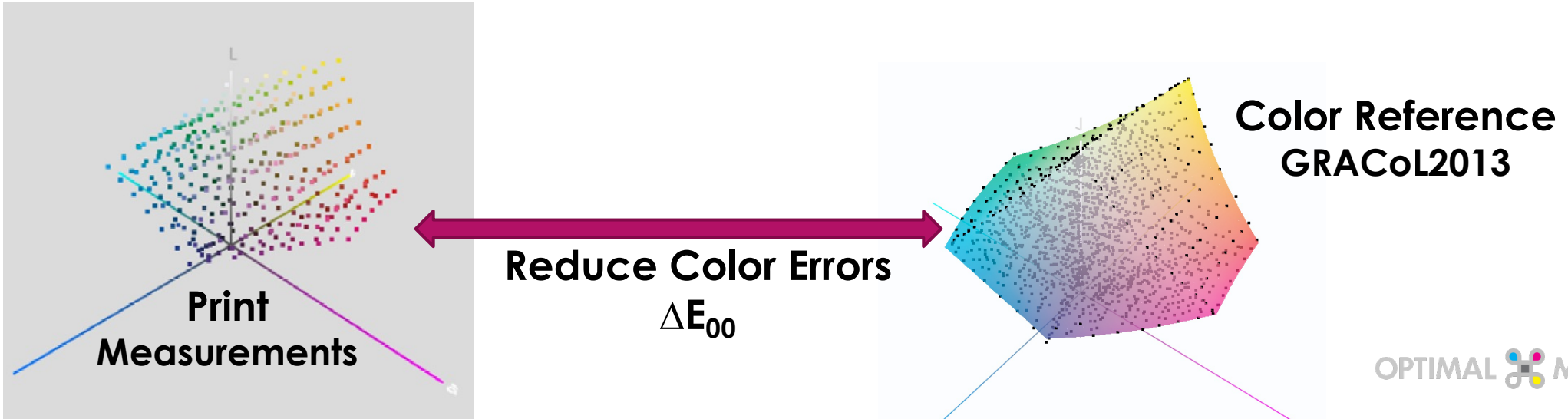
OPTIMAL METHOD

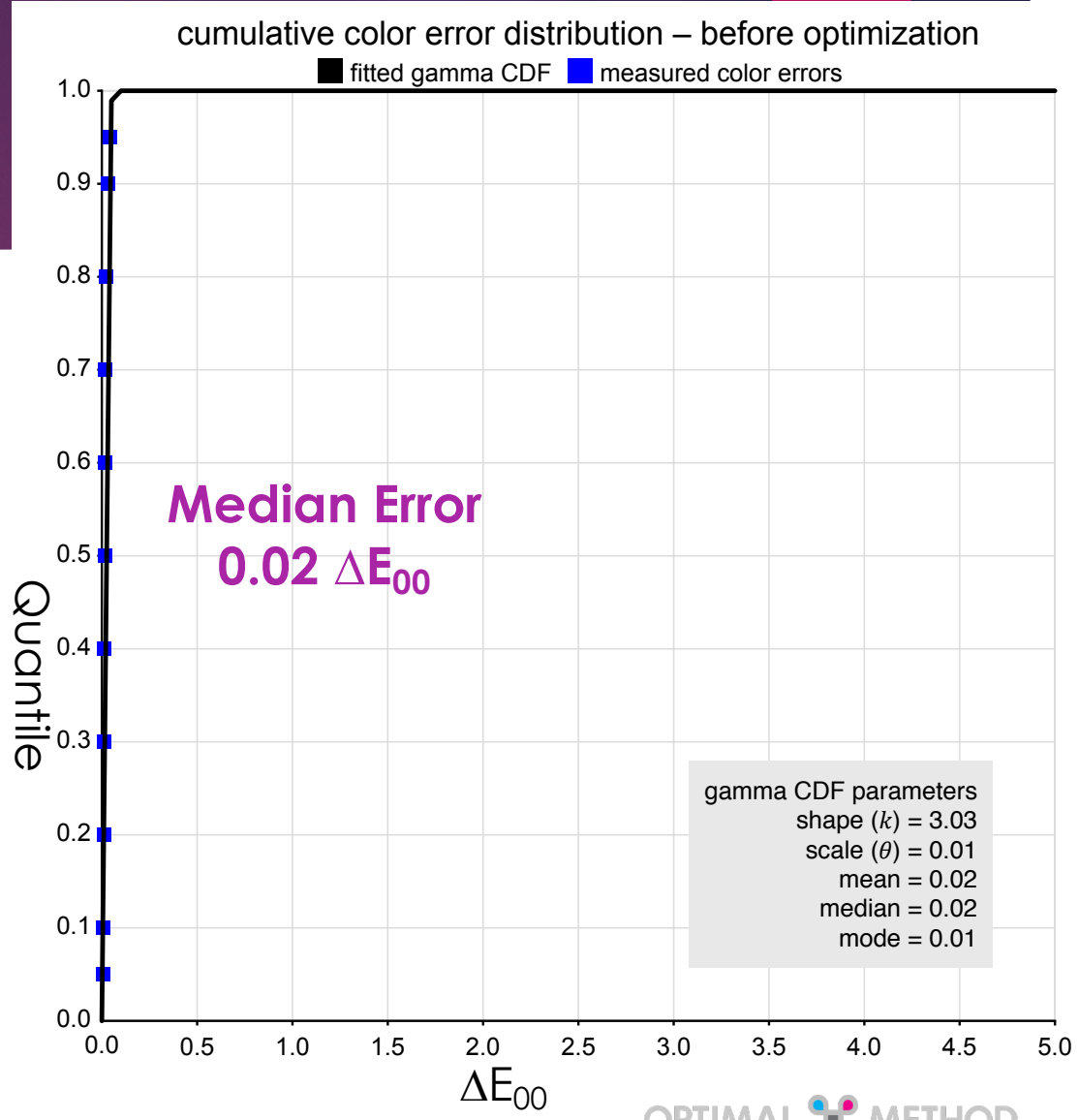
Print Calibration

- Calibration - **Reduce Color Errors**
  - **Between Print Process and Reference**



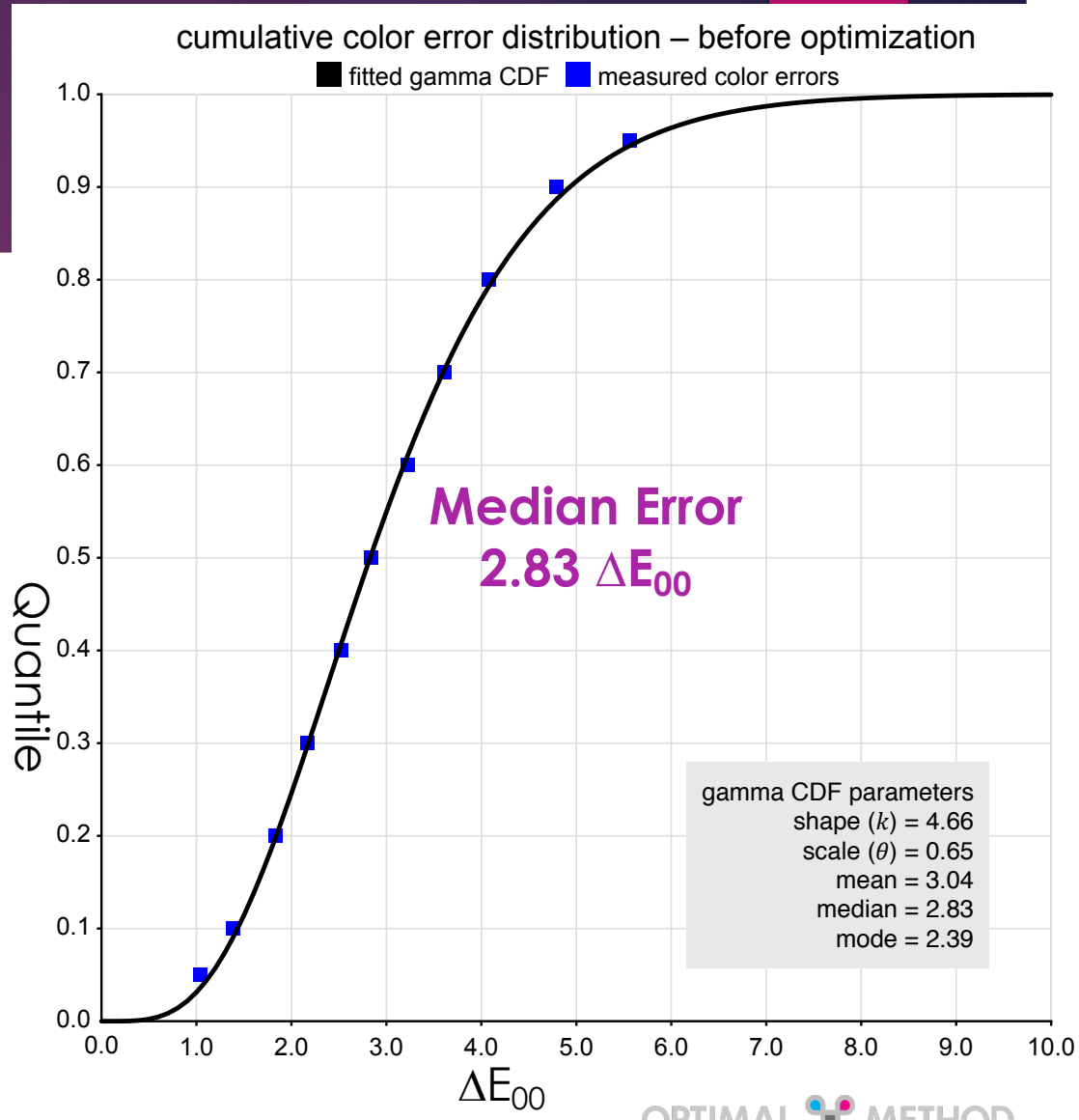
Color Error Statistics

- **Cumulative Error Distribution**
  GRACoL2013_CRPC6 Reference and **CGATS21-2-CRPC6** Data-Set
- **Median Color Error = 0.02 ΔE_{00}**
  - Nearly perfect color match
  - Some residual color error



Color Error Statistics

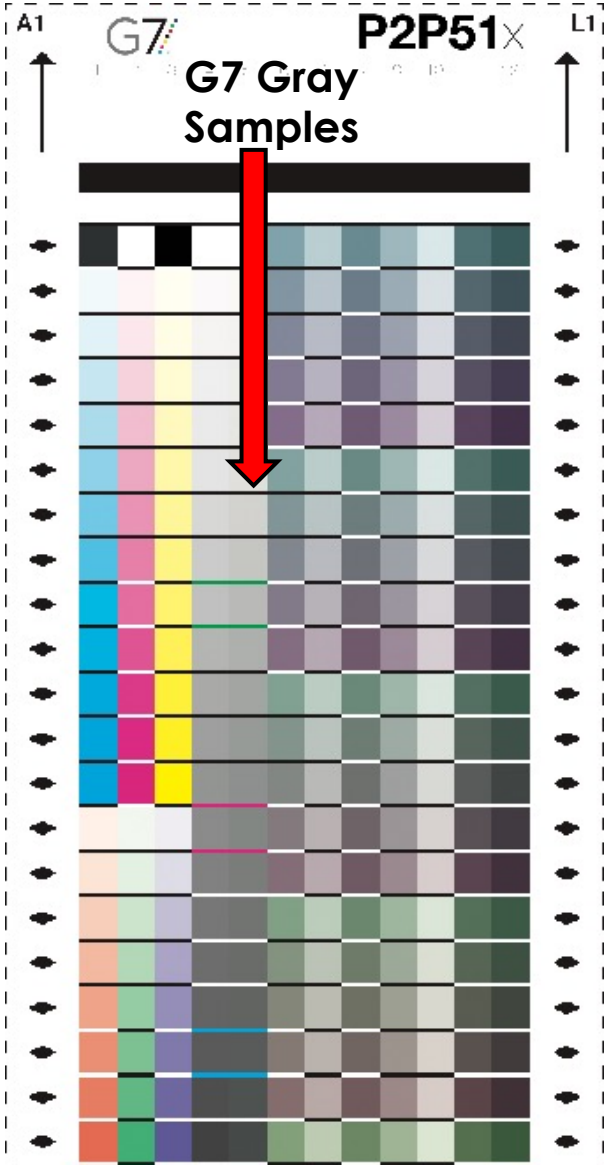
- **Cumulative Error Distribution**
  GRACoL2013_CRPC6 Reference and **FTA_IT875_M1.txt** Data-Set
- **Median Color Error = 2.83 ΔE_{00}**
  - Initial color match is fair, at best



OPTIMAL METHOD

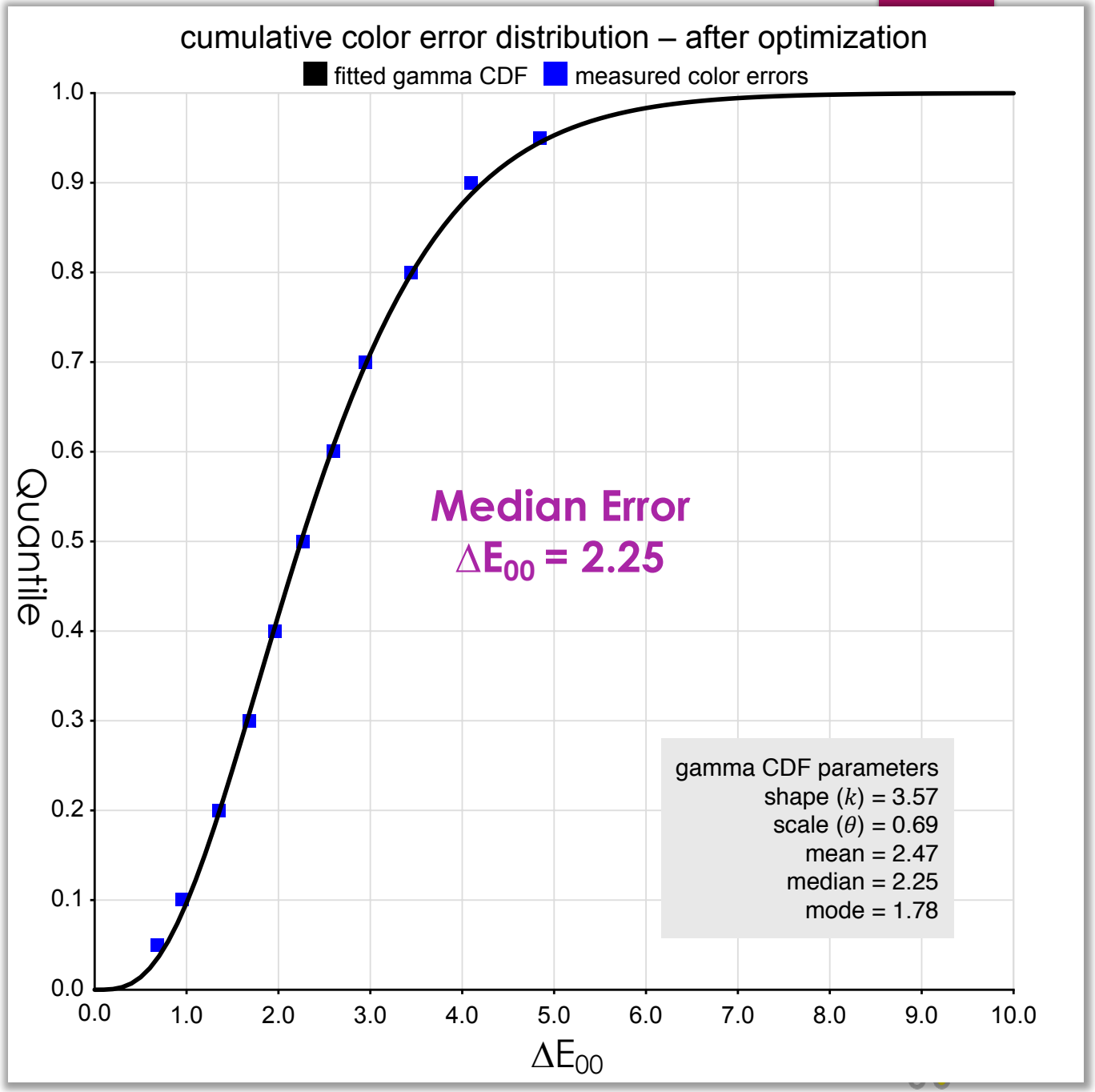
Calibration Methods – G7 Neutral CMY

- **G7 – Adjustment curves** to resemble grays and tonality of a reference like (CRPC6)
- Possible **low to 0 error** between printing gray tones and NPDC reference grays



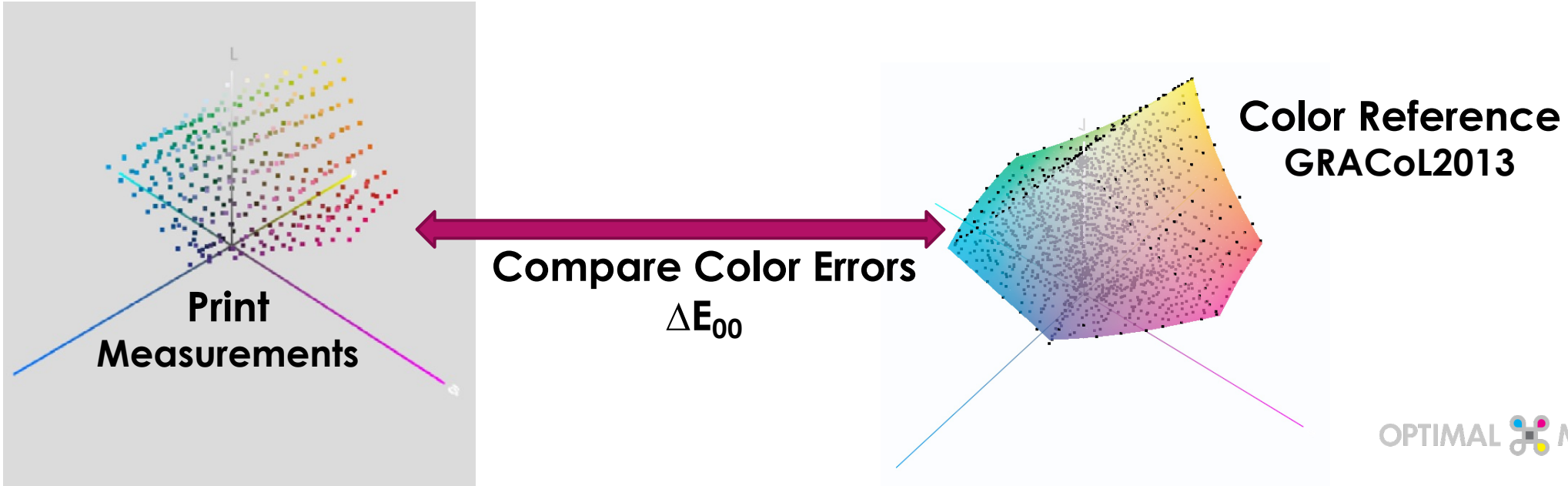
Color Errors – G7 Calibration

- **Median** ΔE_{00} for 1617 samples is $\Delta E_{00} = 2.25$
- **Mean** ΔE_{00} for 1617 samples is $\Delta E_{00} = 2.47$



Optimal Calibration

- **Optimal METHOD** – Compares a full gamut of printed color samples (including grays) to target values from a color reference profile.



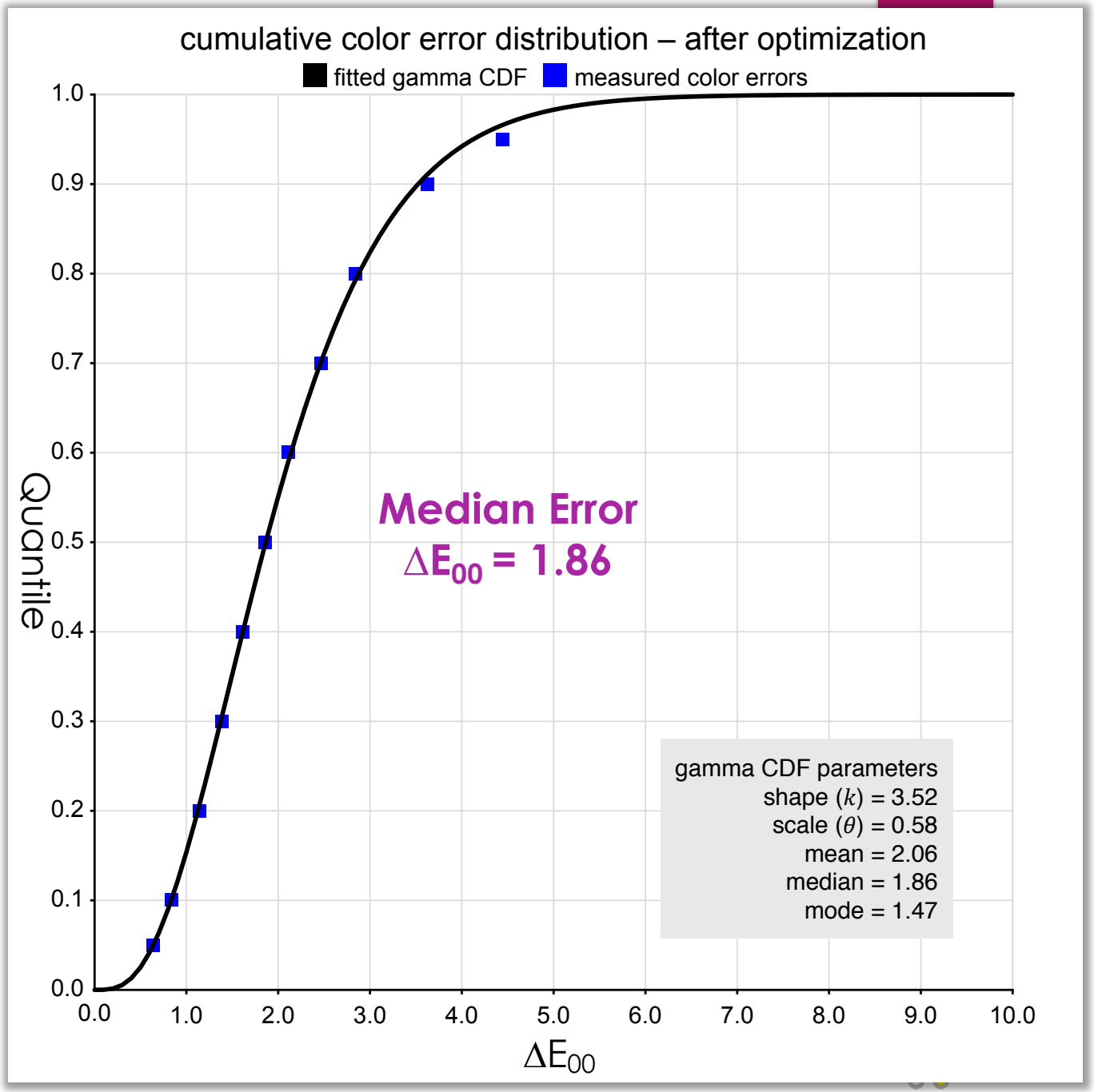
OPTIMAL METHOD

Optimal Calibration

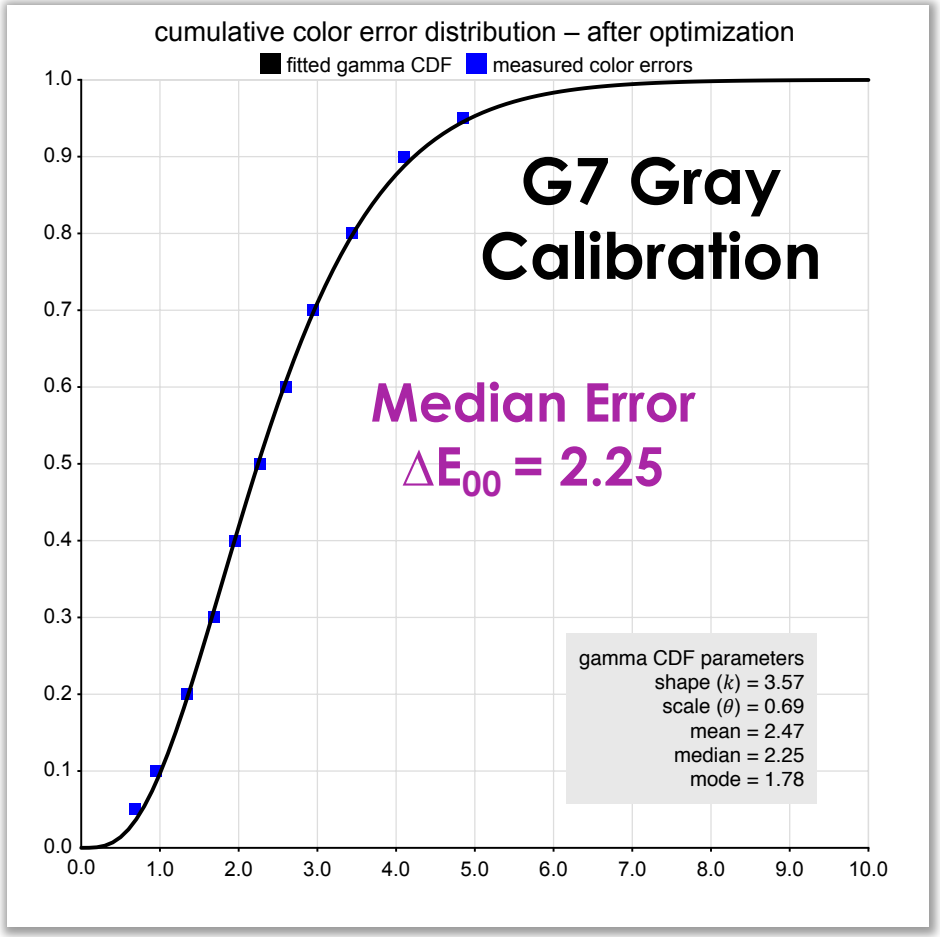
- Computes the **color errors** between a full gamut of press samples (including grays) and the chosen color reference e.g. **GRACoL2013_CRPC6**
- **Optimization** **adjusts the calibration curves** for the **lowest overall color errors**

Color Errors – Optimal Calibration

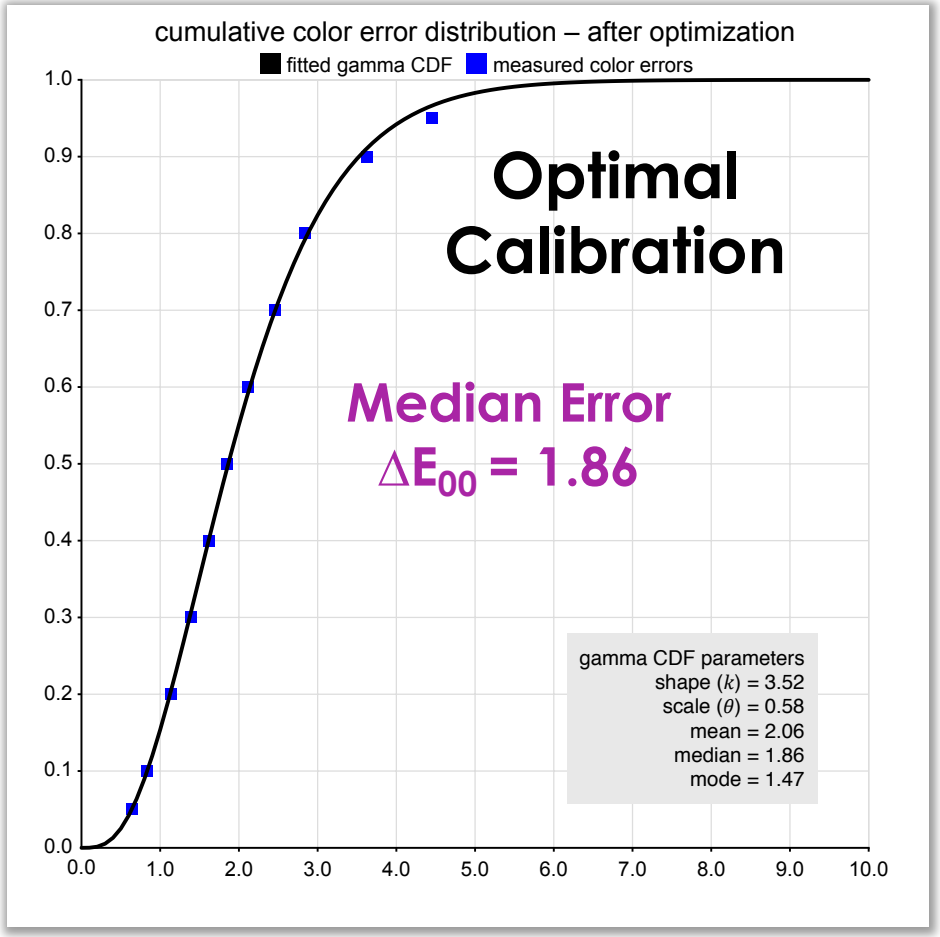
- **Median** ΔE_{00} for 1617 samples is $\Delta E_{00} = 1.86$
- **Mean** ΔE_{00} for 1617 samples is $\Delta E_{00} = 2.06$



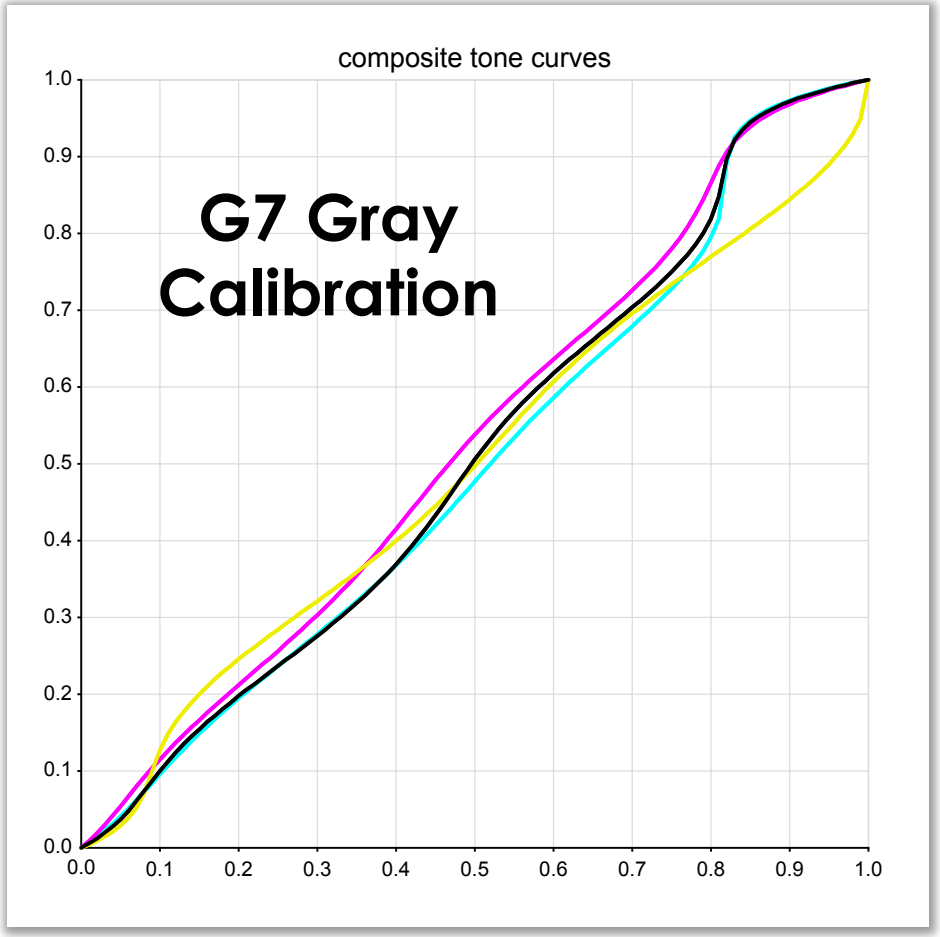
Color Error Comparison



SAME Press Data



Tone Curve Comparison



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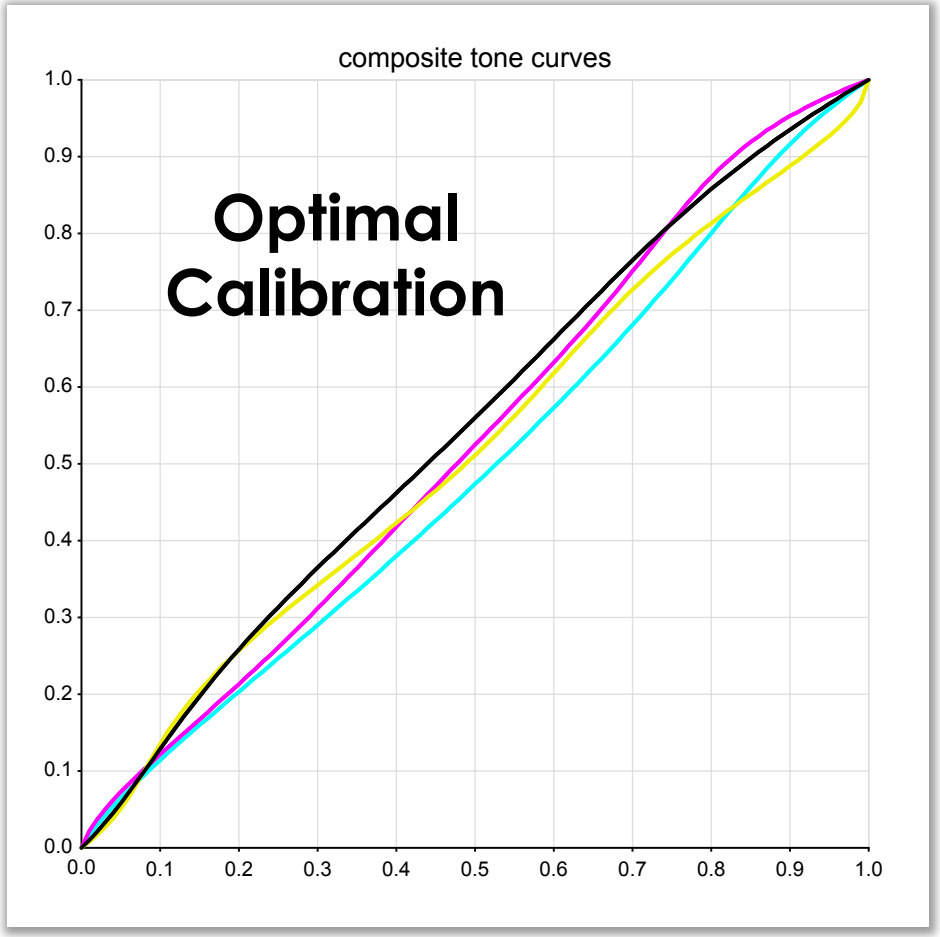
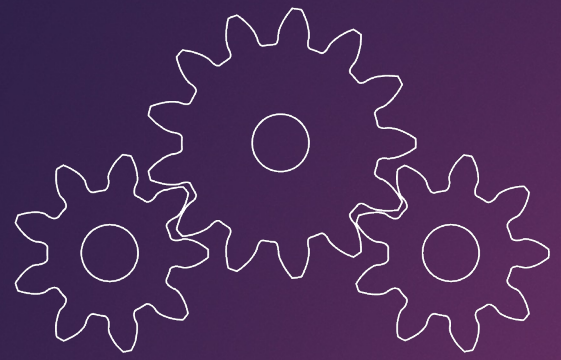
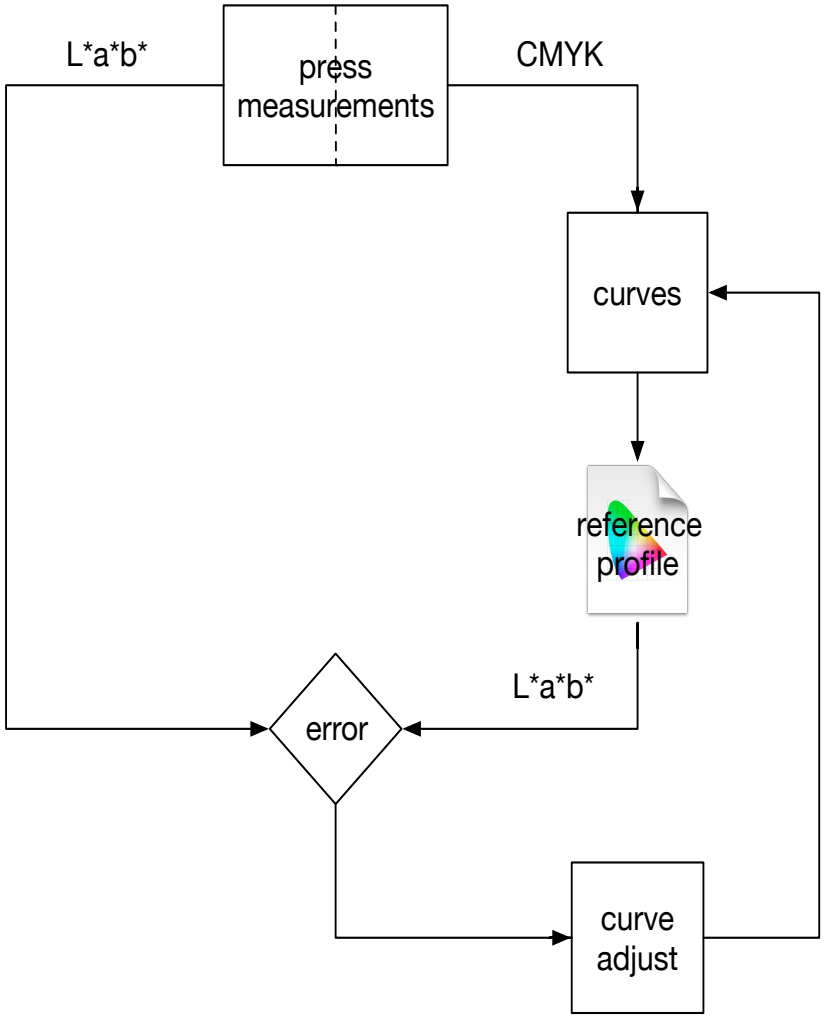
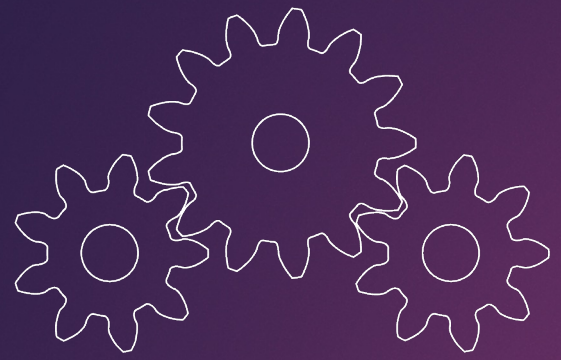




How It Works

- This **flowchart** illustrates the essential function of the software
- **Color error** is minimized using the well-known **Gauss-Newton** optimization algorithm
- This is an **iterative process.**
- The **sample set** and **error function** are adjustable





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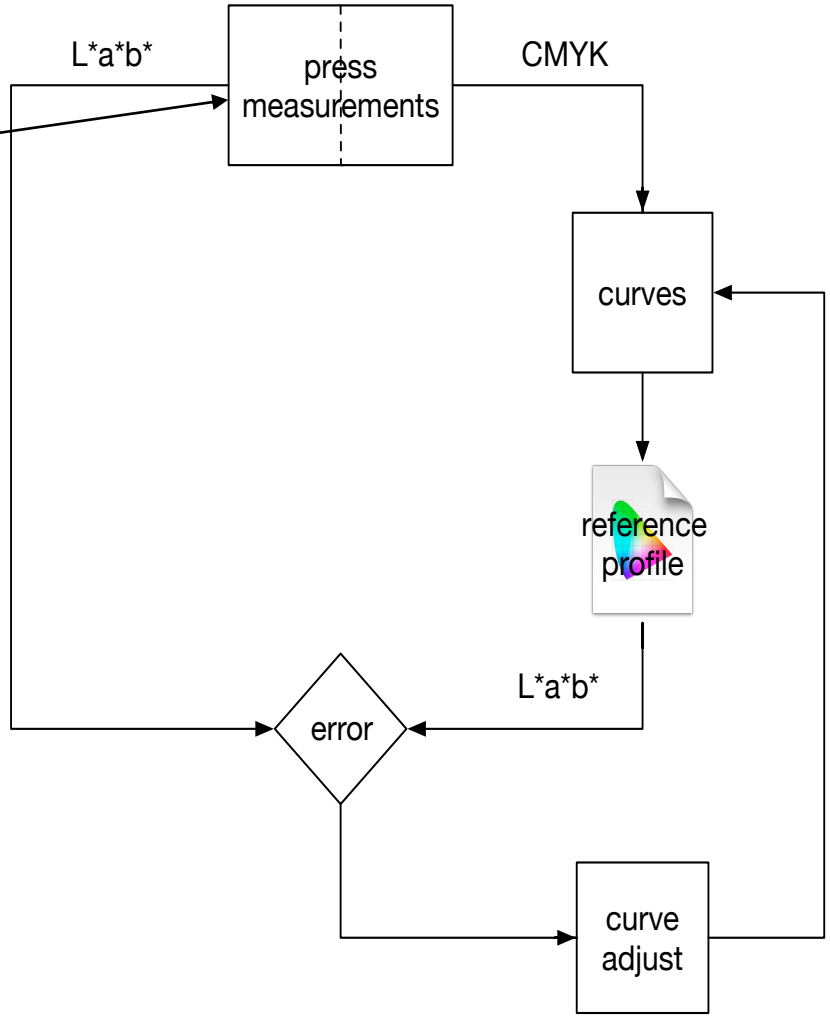
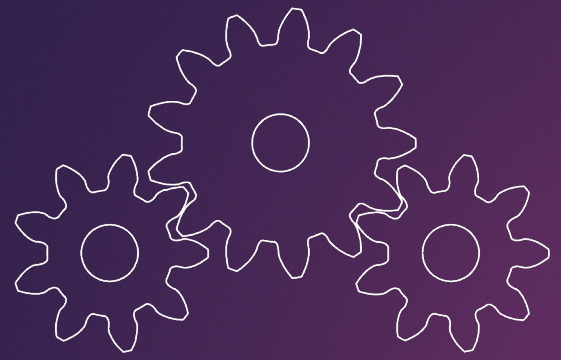
Print a test chart with standard inks and color gamut.
Measure the samples.





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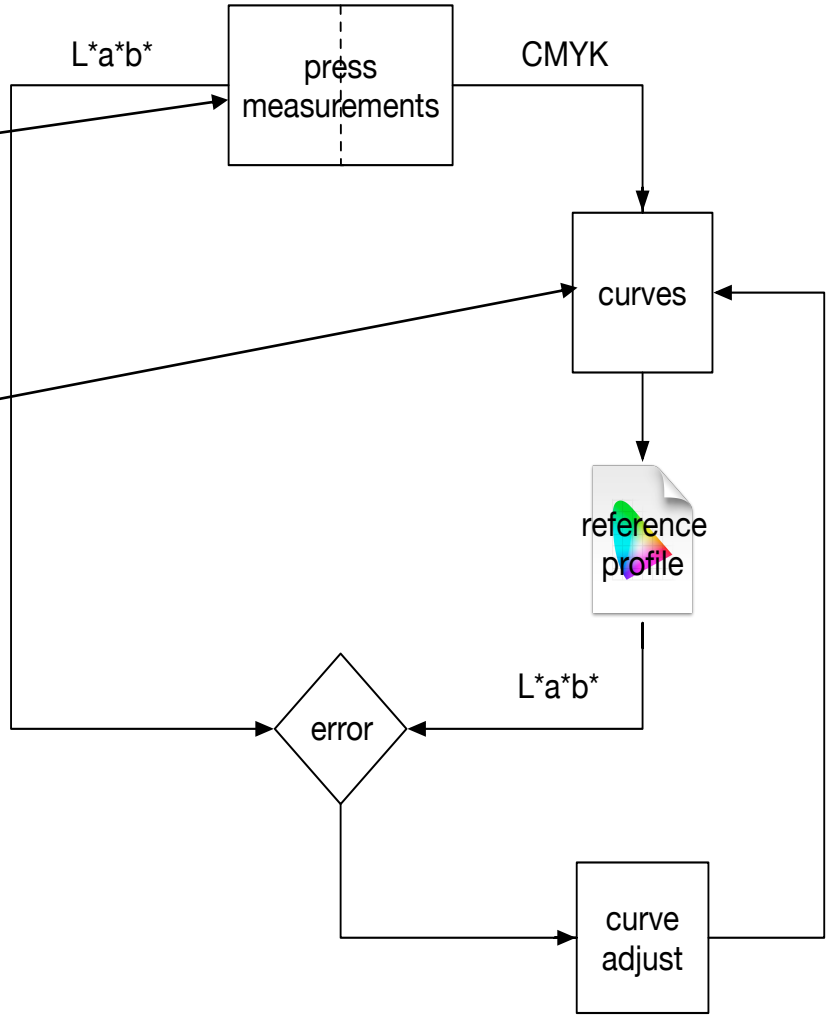

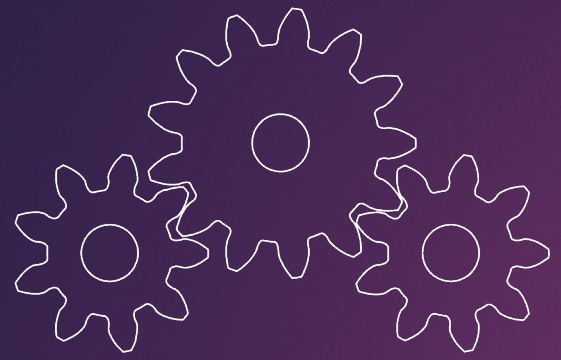

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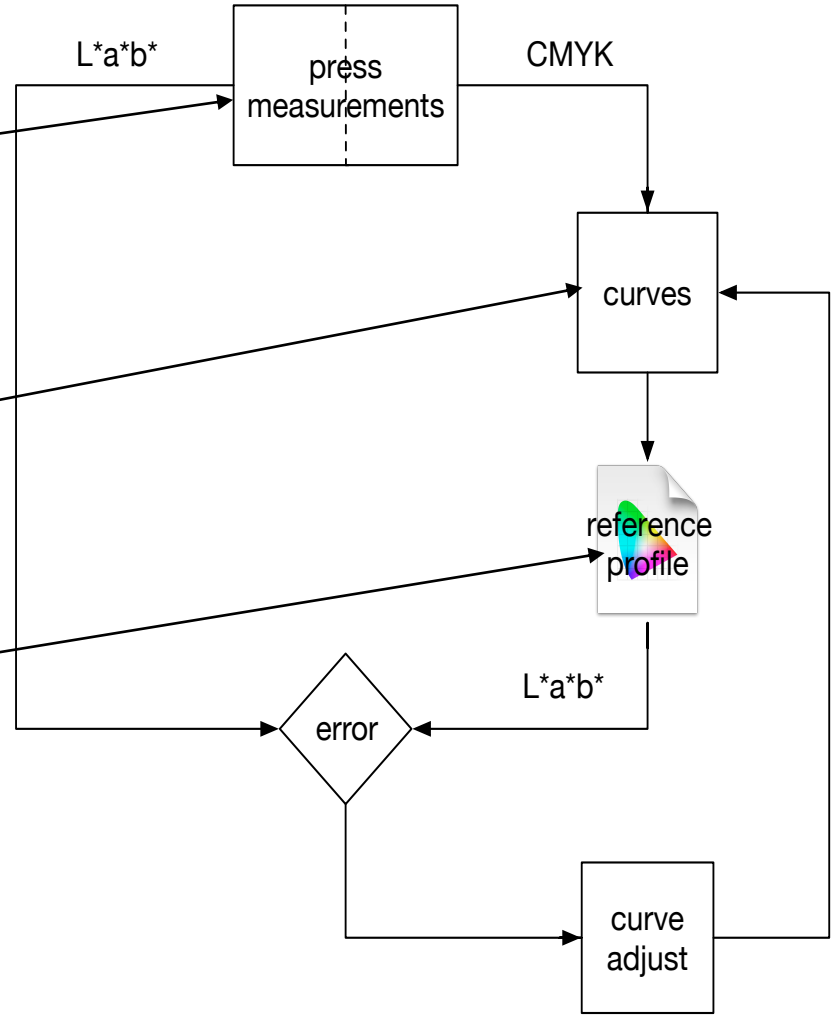

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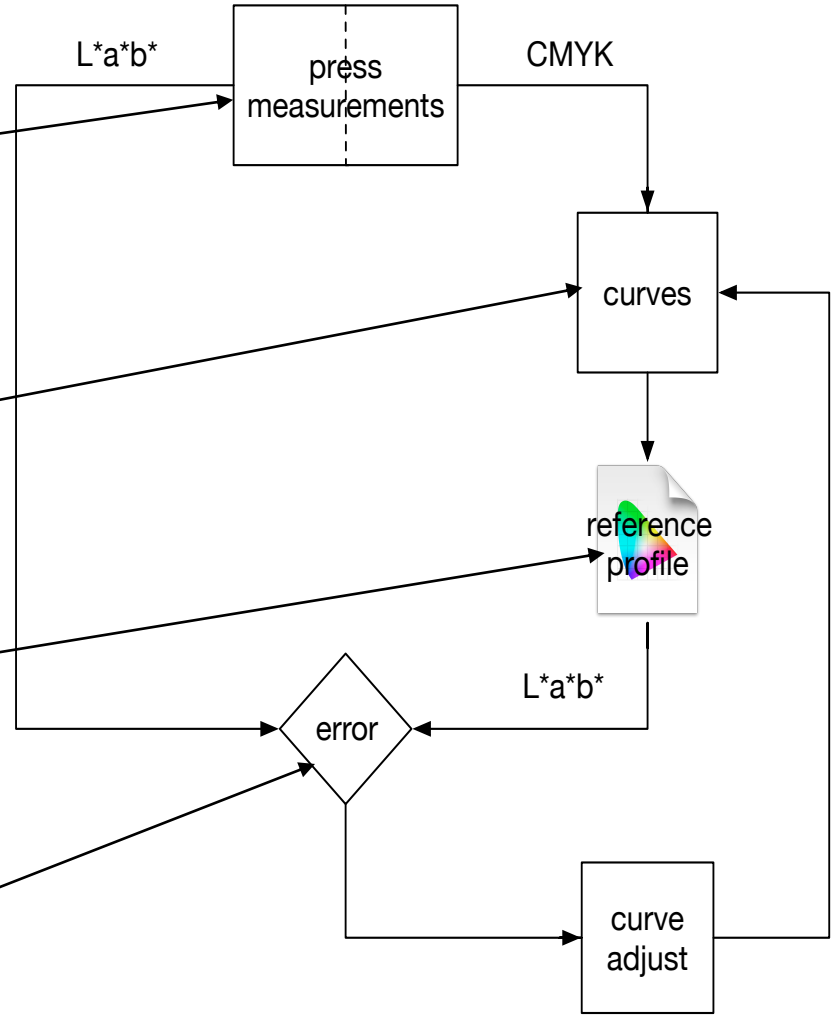

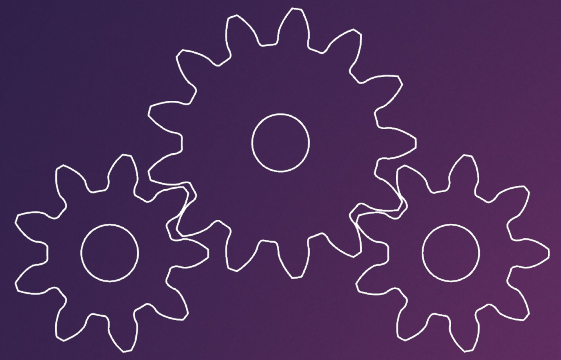

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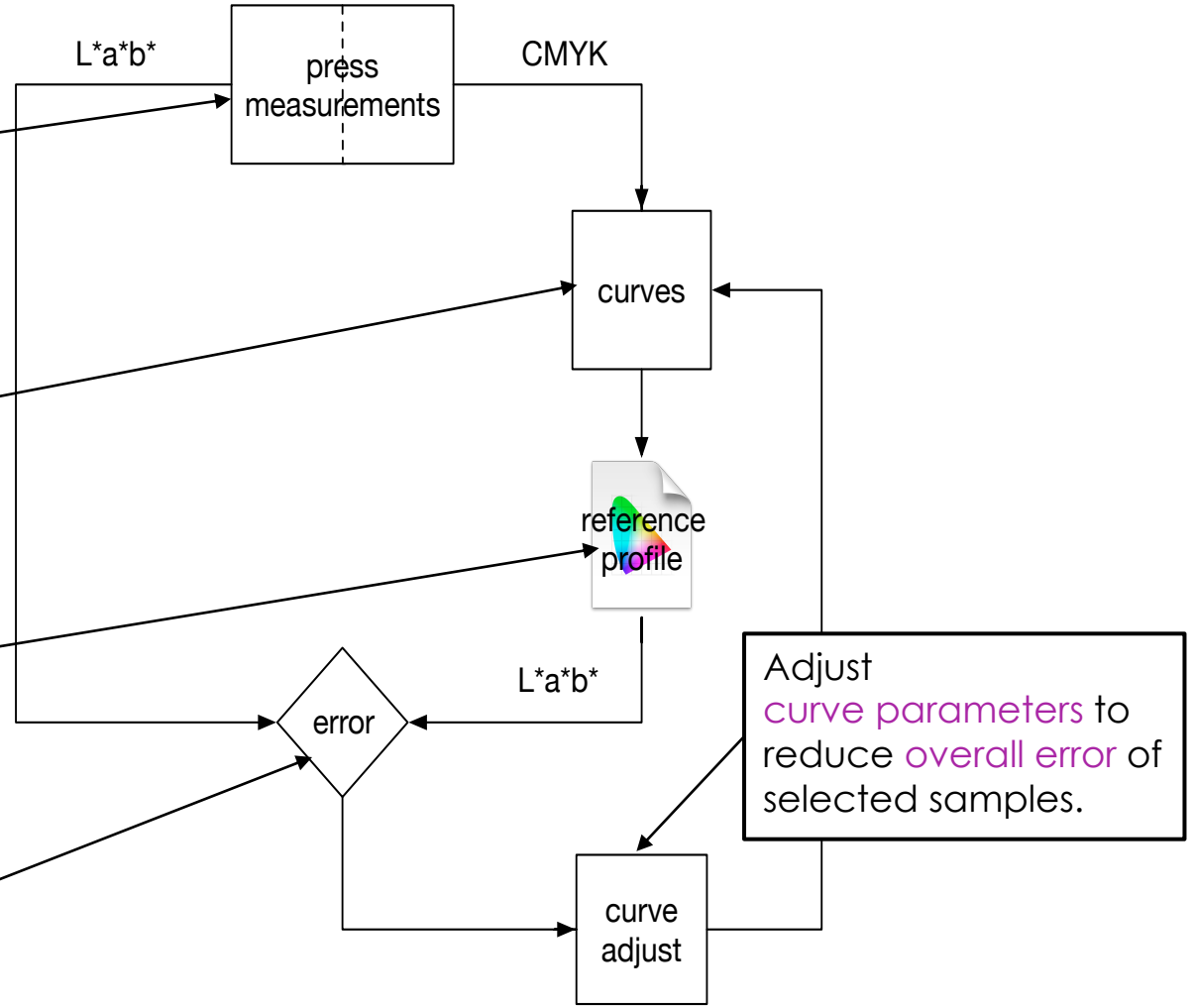

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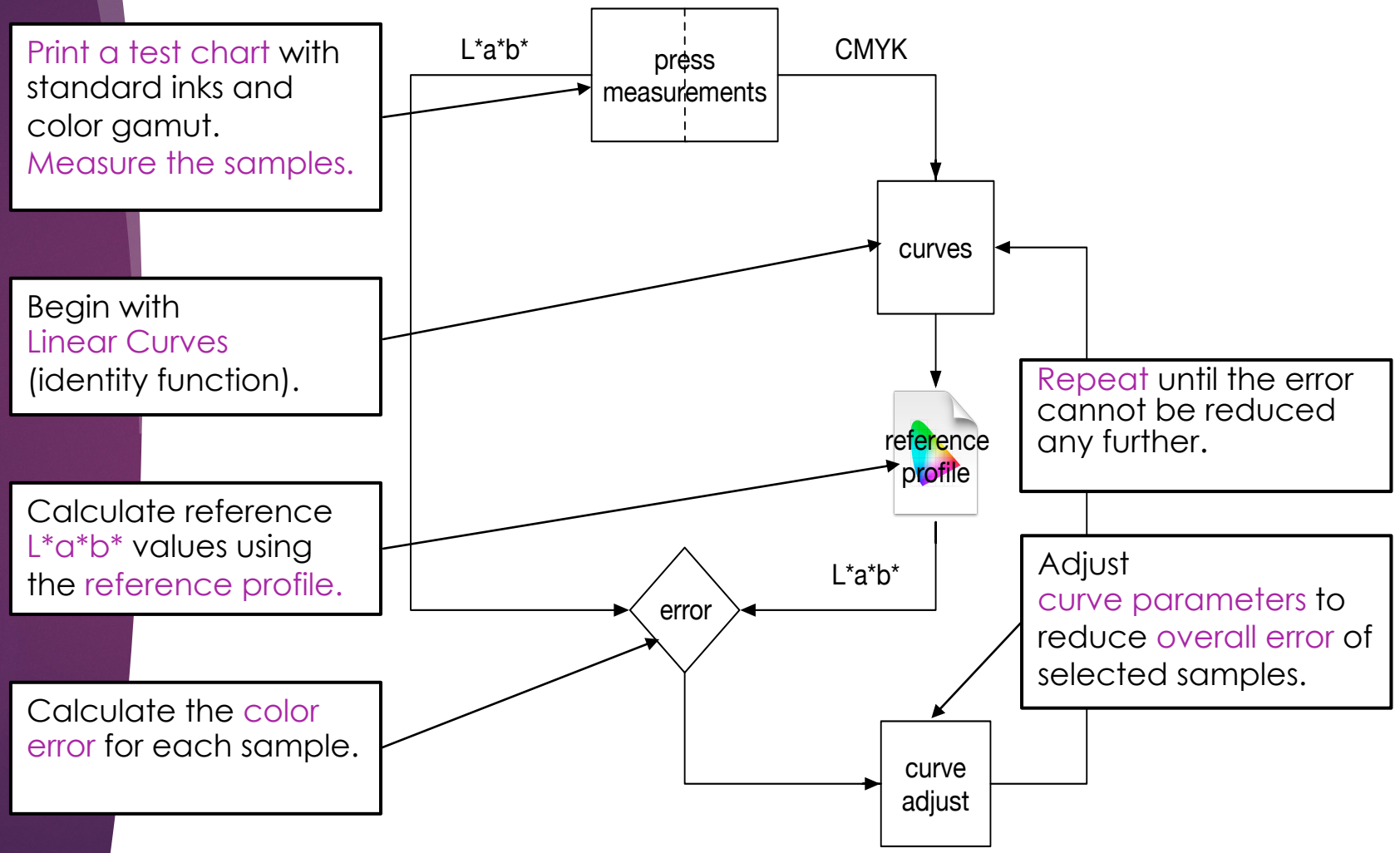
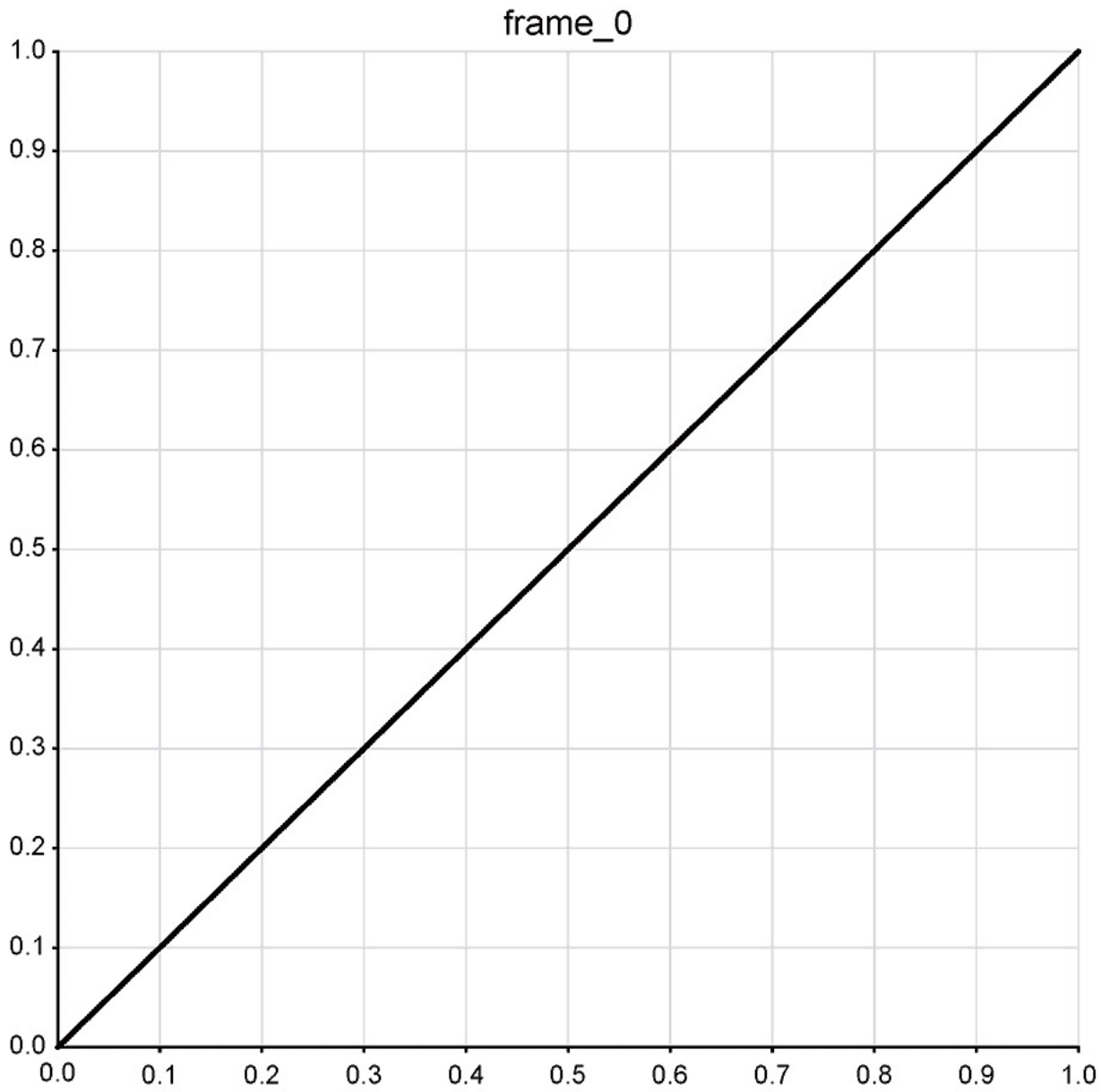


Visualization

- **Animation** shows the optimization process at work
- The initial curves are **linear**
- In this example, optimization required **145** iterations



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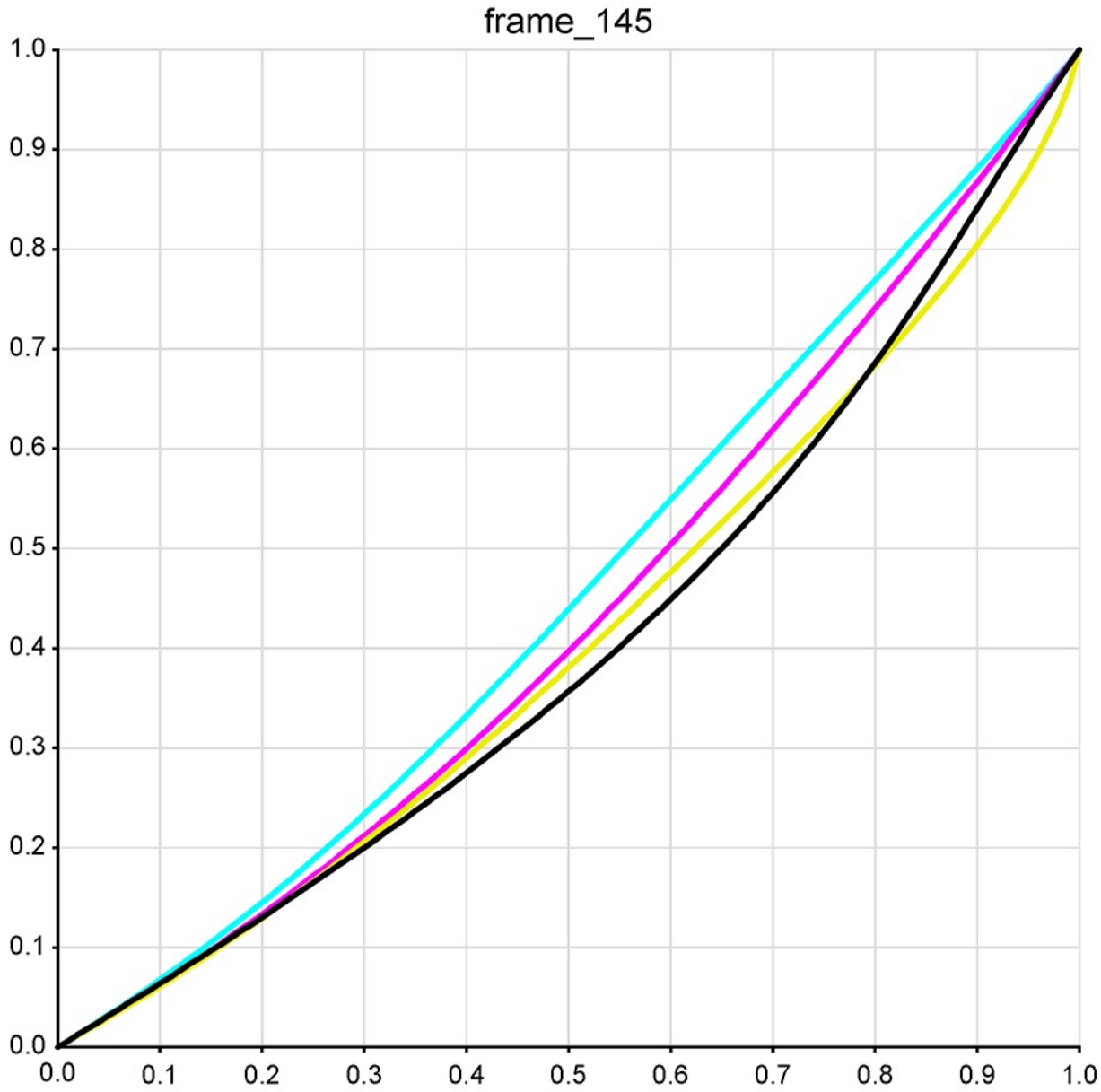

OPTIMAL METHOD

Optimal Method

- **Unifies**

Print Calibration with Color Management

Reference Profile

Optimal Curves

Contact Info

The Optimal Method **web site** contains software downloads and extensive background information.

Feel free to contact us via **e-mail**

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Optimal Method Web Site

https://Optimalmethod.org