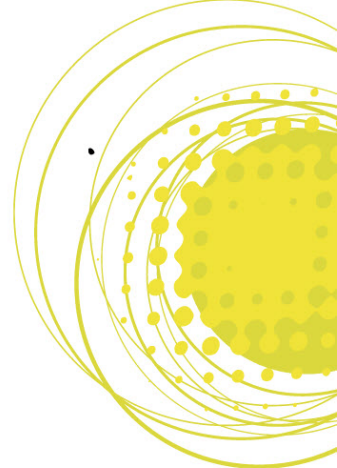
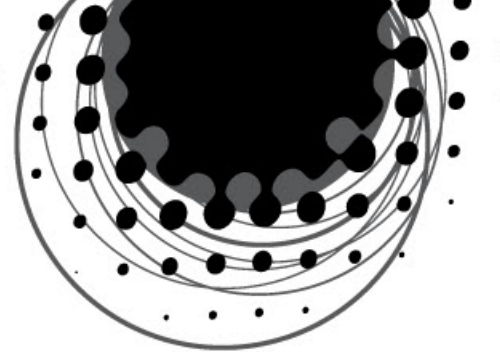


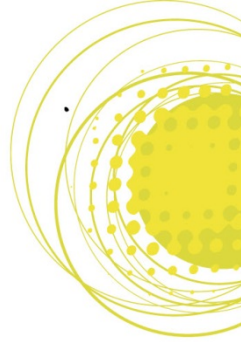
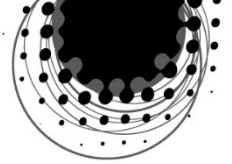


# Color Tool for Customer Success

*Pancham Kumar*  
*EFI*

February 12, 2015 • India Expo Centre • Greater Noida, Delhi NCR

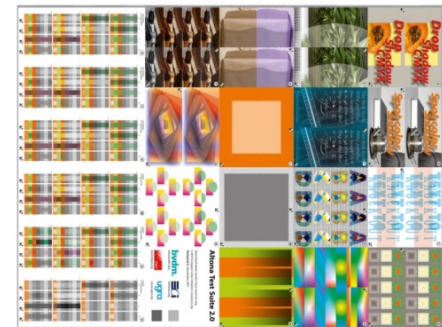
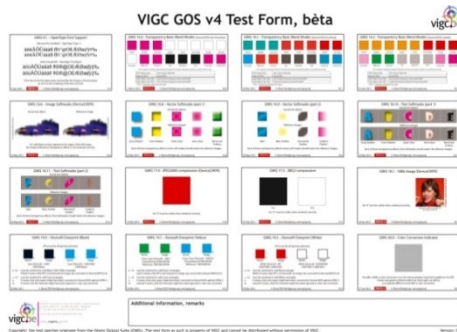




# Color Quality

It is one of the Key component of Printing business.

- Enhances Brand Image.
- Keep the business ahead of the competition.
- Act as a strong selling point.



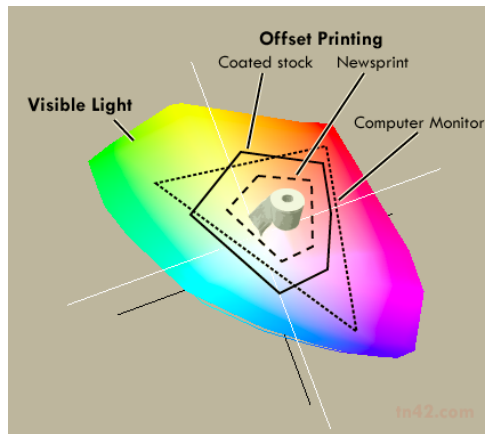


# How to Manage Color ?

Adopt ICC based Color management workflow.

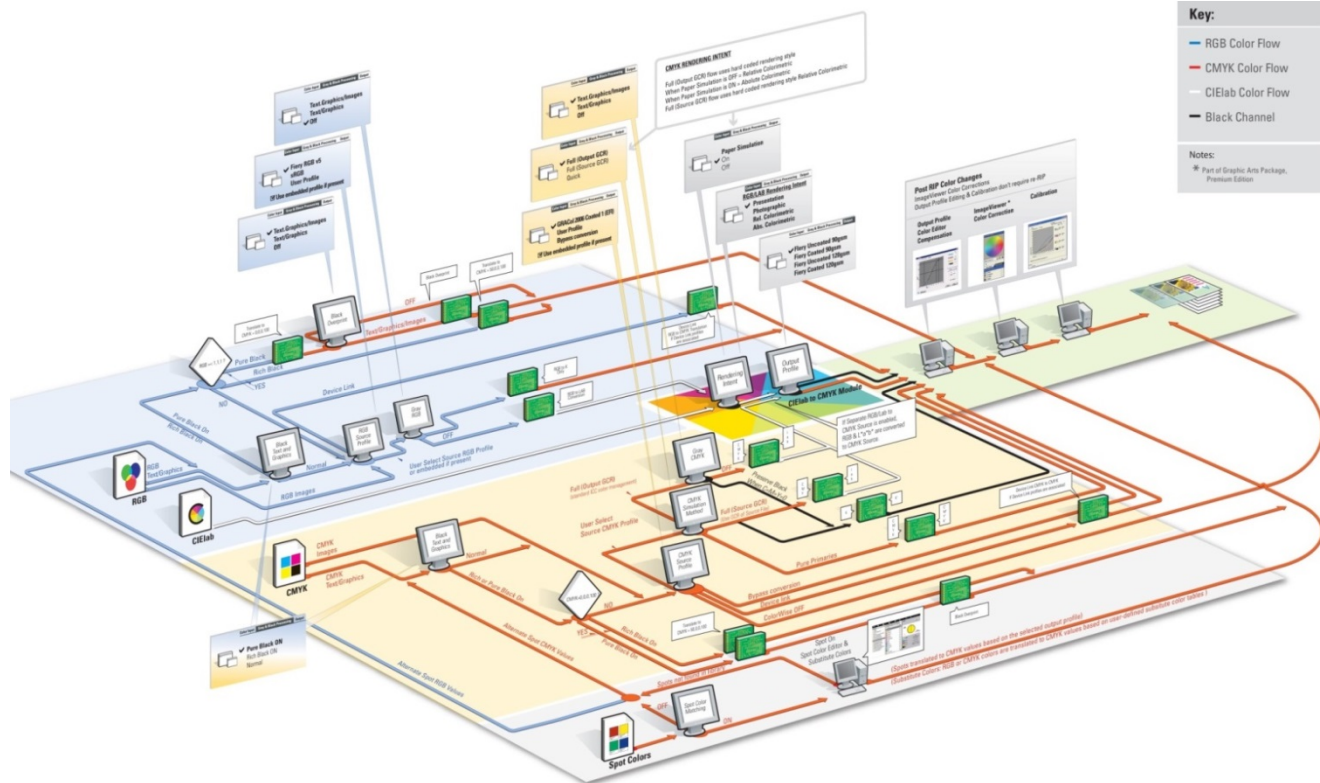
## Color Management

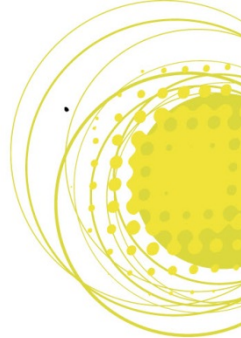
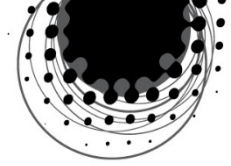
Process of gamut mapping with the intent of preserving color appearance across a wide range of devices.



# Color System in a RIP

- Ability to handle RGB, CMYK, lab and Black workflow.





# What Customer want ?

- WYSWYG
- Color Consistency
- Color Accuracy with respect to standard.



test End to End\_CMYK

Created: Fri 6 Feb 14:32:02 2015  
Color Space: CMYKOG  
Printer: Linearization device  
Manufacturer: EPSON  
Model: EPSON Stylus Pro 7900/7910 (PX-H...

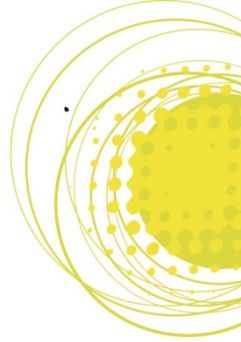
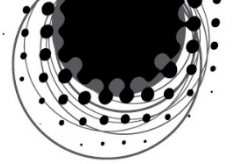
Instrument: EPSON SpectroProofer (ILS 30)  
Instrument Filter: M2 - UV cut  
Patch Layout: 928 patches  
Patch Type: Bitmap Images

Calibrated Patches: Unspecified  
Include ColorWise Calibration: Unspecified

Ink/Toner Limits(2/3/4 inks): 200% / 300% / 400%

Average Measured Variation: 0.7 delta E  
Maximum Measured Variation: 3.1 delta E

1<sup>st</sup> & last impression should be same

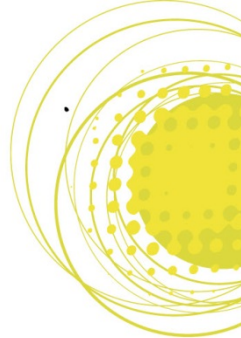
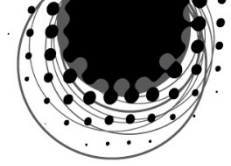


# Color Consistency

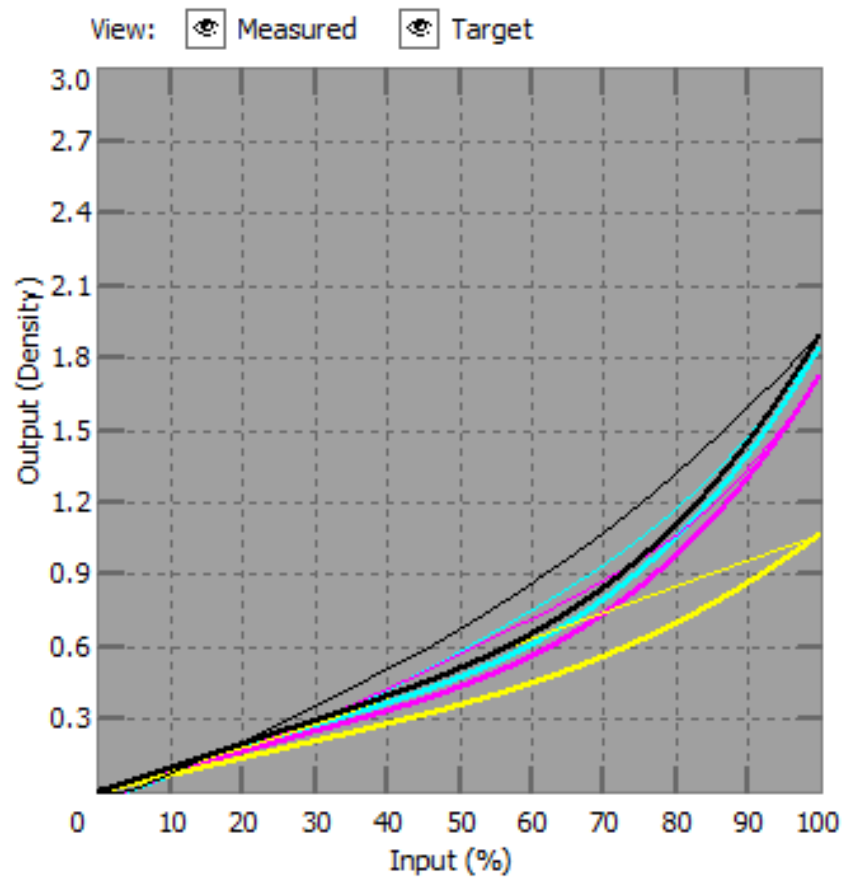
This can be achieved using Color Calibration.

Benefits:-

- Ensure consistent color quality overtime.
- Produce consistent output across different print engine (same make).



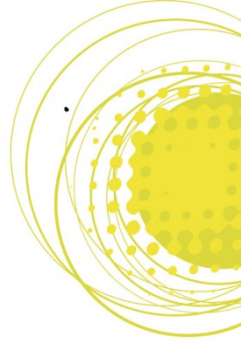
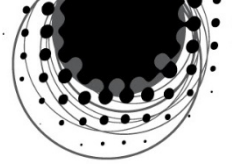
## Default measurements for "Coated 210gsm"



## Maximum densities

|                                             | Measured | Target | Visual difference |
|---------------------------------------------|----------|--------|-------------------|
| <input checked="" type="checkbox"/> Cyan    | 1.86     | 1.86   | 0%                |
| <input checked="" type="checkbox"/> Magenta | 1.74     | 1.74   | 0%                |
| <input checked="" type="checkbox"/> Yellow  | 1.08     | 1.08   | 0%                |
| <input checked="" type="checkbox"/> Black   | 1.91     | 1.91   | 0%                |

Test Print

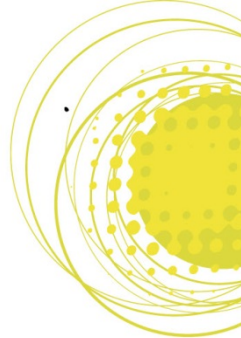
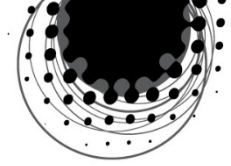


# Calibration Guard

This tool help prevent missing the calibration schedule.

- Logic to suspend the job if calibration expire.
- Post raster calibration ensure the job doesn't require reprocessing and can resume printing without any complexity.
- Excellent for print shop running in shift and multiple operators.





## Preferences

These settings are used to calibrate "SERVER-JKH871SV" only.

### Calibration method and patch layout

Measurement method:

ILS



Patch layout:

Calibration

### Settings for "SERVER-JKH871SV"

☒ Print warm up pages before calibrating:

4

### Calibration status

☒ Set time limit and display status in Job Center.

Hour(s)

☒ Suspend printing when calibration expires.

**Printing:**

| # | Job Status   | Job Title                 | User    | Size    | Pages | Copies | Media type | Paper size        |
|---|--------------|---------------------------|---------|---------|-------|--------|------------|-------------------|
| 1 | prin...ended | Altona_Visual_1v2a_x3.pdf | pancham | 43.3 MB | 1     | 1      | Any        | 13.00in x 12.53in |

**Processing:**

| Job Status | Job Title | Paper size |
|------------|-----------|------------|
|------------|-----------|------------|

**Job Errors**

**Altona\_Visual\_1v2a\_x3.pdf**

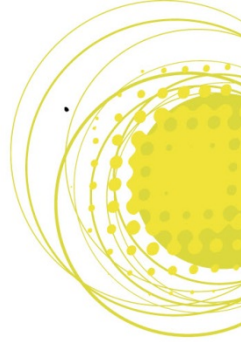
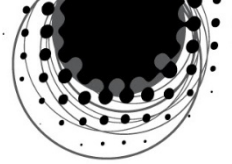
This job was suspended because it is using at least one expired calibration.

Suspended since: Today 11:01:26 PM

[Print Anyway](#) [Calibrate](#) [OK](#)

**Held (16) Printed (10) Archived (0)**

| Job Title                              | User    | Size    | Pages | Copies | Date/Time           | Media type | Paper size |
|----------------------------------------|---------|---------|-------|--------|---------------------|------------|------------|
| VIGC_GOSv4-Test-File_v0.2_20120822.pdf | pancham | 9.5 MB  | 1     | 1      | 2/7/2015 5:46:45 AM | Any        | A3         |
| Xerox_test_ppt.PS                      | pancham | 1.4 MB  | 11    |        | 2/7/2015 4:06:47 AM | Any        | 8.5x11...  |
| wineLT_3118x3825.ps                    | pancham | 25.5 MB | 1     |        | 2/7/2015 4:06:43 AM | Any        | 8.5x11...  |
| Testseiten.pdf                         | pancham | 3.9 MB  | 3     |        | 2/7/2015 4:06:43 AM | Any        | A4 LEF     |
| SCID.ps                                | pancham | 15.0 MB | 1     |        | 2/7/2015 4:06:41 AM | Any        | 8.5x11...  |
| schwepps_2475x3560.ps                  | pancham | 32.4 MB | 1     | 1      | 2/7/2015 4:06:38 AM | Any        | 8.5x11...  |
| schwepps_2475x3560.pdf                 | pancham | 0.2 MB  | 1     |        | 2/7/2015 4:06:37 AM | Any        | 8.5x11...  |
| PDI_Target-DCP 11x17_sRGB.pdf          | pancham | 62.5 MB | 1     | 1      | 2/7/2015 4:06:34 AM | Any        | 10.75in... |
| PDI_Target-DCP 11x17_adobe.pdf         | pancham | 7.2 MB  | 1     |        | 2/7/2015 4:06:33 AM | Any        | 10.75in... |
| PDI Target sRGB TAB.ps                 | pancham | 37.3 MB | 1     |        | 2/7/2015 4:06:29 AM | Plain      | 11x17"     |

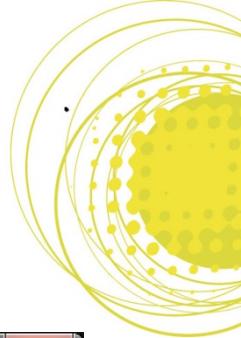
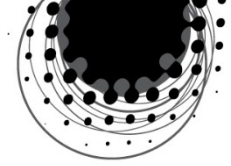


# Job Based Calibration

This tool help picks the correct calibration set based on job attributes defined by user.

Benefit:-

- Act as a QC tool and Prevent user error during calibration.



Printing:

#

Job Status

Job Title

Size

Pages

Copies

Media type

Paper size

Cancel

Processing:

#

Job Status

Job Title

Size

Pages

Copies

Media type

Paper size

Cancel

Held (4)

Printed (8)

Ar

Job Title

Pages

Copies

Date/Time

Media type

Paper size

World

ColorRenditionScorecard\_RGB\_2

ColorRenditionScorecard\_CMYK

Altona\_Visual\_1v2a\_x3.pdf

2.iQ Check Tool - ProdColour v1.1-EN.pdf

Print

Print and Delete

Rush Print

Proof Print

Delete

Duplicate

Rename

Calibrate job...

Preview...

ImageViewer...

Image Enhance Visual Editor...

Remove Raster

Properties...

Preflight...

Color Verification...

Archive

Calibrator

Calibrating "SERVER-0J3CIUSG" for "Altona\_Visual\_1v2a\_x3.pdf"

Only calibration settings used by this job are shown.

Calibrate for:

Coated 210gsm

Last calibrated: Default measurements

Paper source:

Tray 1: Uncoated; 81-90 gsm; 8.5x11" LEF

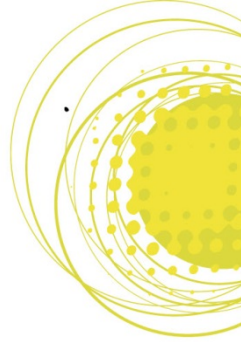
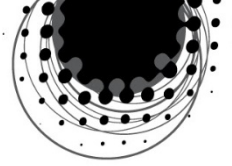
Mismatch: "Uncoated; 81-90 gsm"  
Expected: "Coated; 177-220 gsm"

Measurement method:

ILS

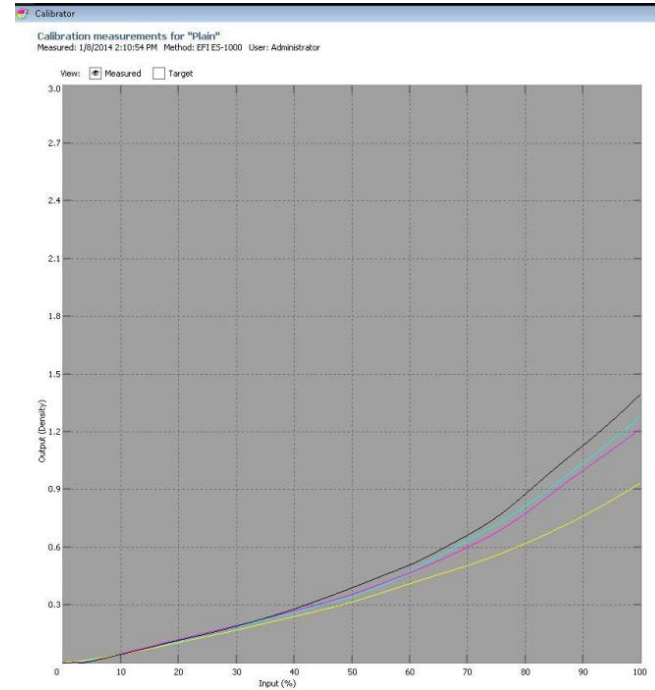
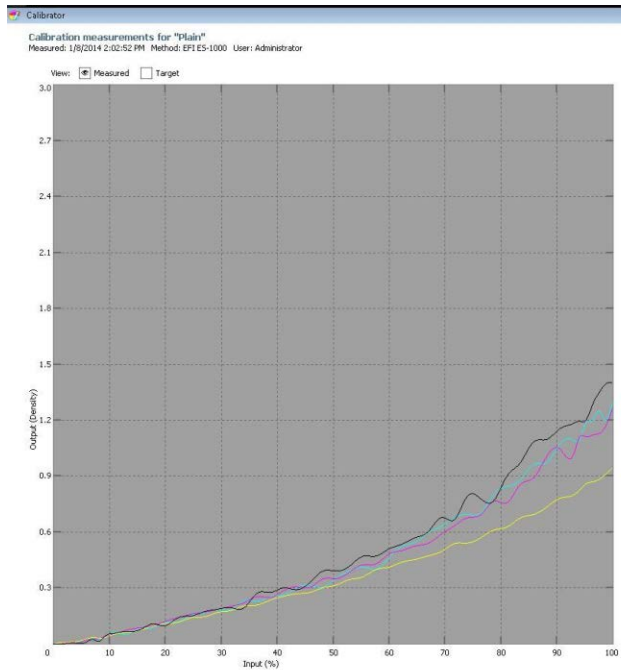
Continue

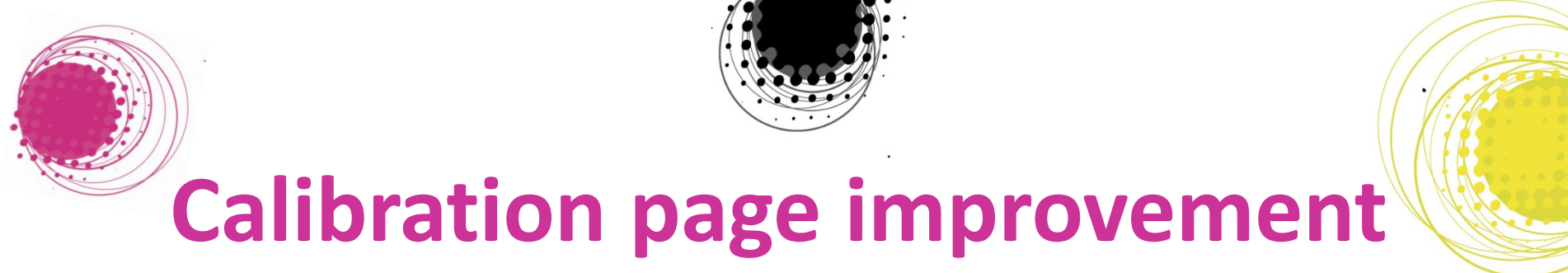
Cancel



# Calibration Smoothing

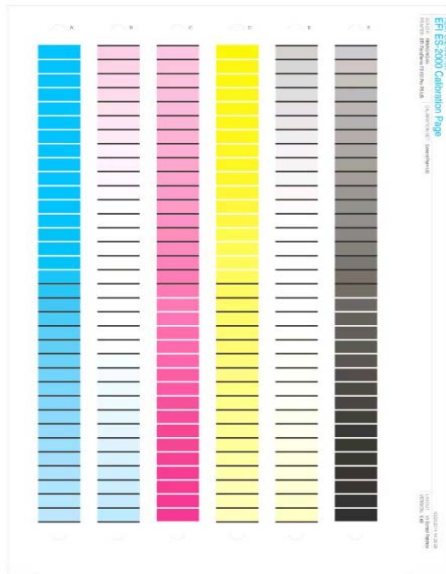
Fixes the wavy calibration curve that result from measurement on Toner based color engines.



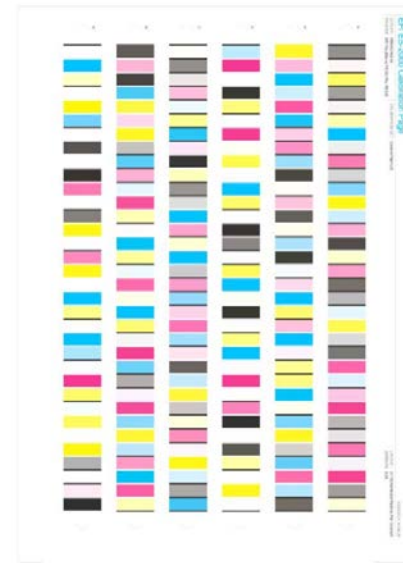


# Calibration page improvement

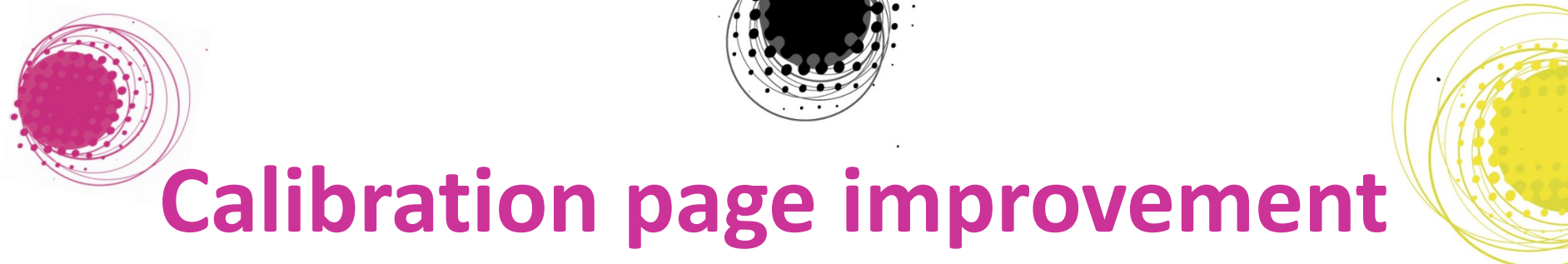
- Increased number of patches
- improved unsorted patch placement.



Patch Layout: Sorted page



Patch Layout: Random page



# Calibration page improvement

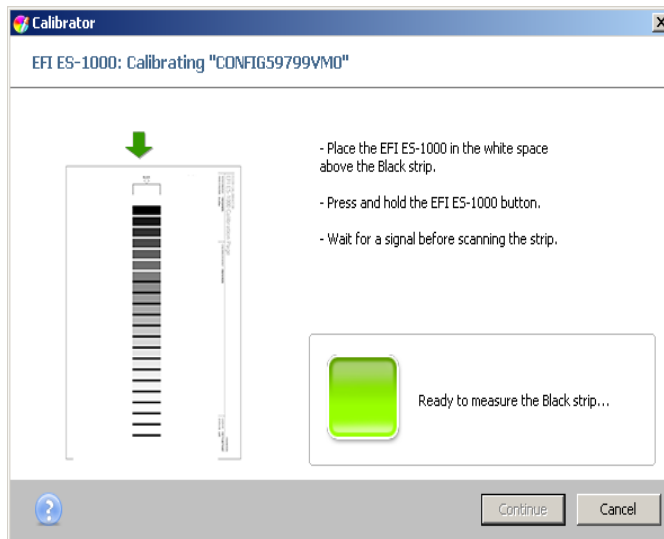
Benefit:-

- Fix the smoothness issue while printing smooth shedding.
- Fix the Variation of density around the printed page.



# Monochrome calibration

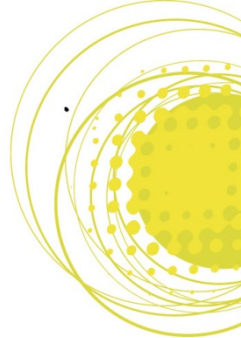
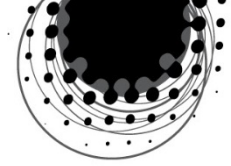
- Consistency is important for B&W print too.



1<sup>st</sup> Impression

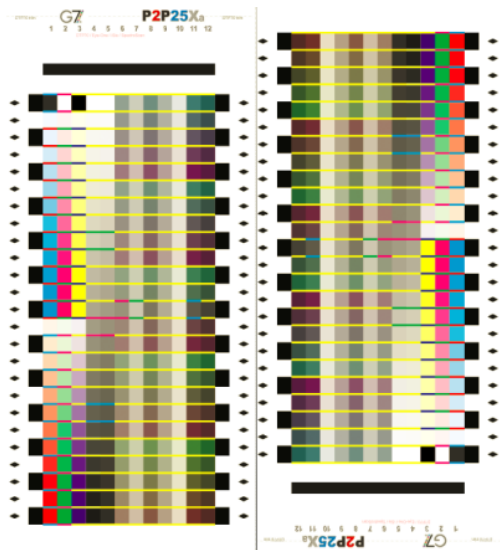


Last impression



# G7 Calibration support

This tool help simulate G7 standard on Digital press.



Curve Table Edit

Control Points: P2P Import Curve...

| Input | Cyan  | Magenta | Yellow | Black |
|-------|-------|---------|--------|-------|
| 0     | 0.00  | 0.00    | 0.00   | 0.00  |
| 2     | 1.97  | 2.04    | 2.15   | 1.88  |
| 4     | 3.85  | 4.20    | 4.26   | 3.74  |
| 6     | 5.70  | 6.35    | 6.35   | 5.60  |
| 8     | 8.03  | 8.24    | 8.26   | 7.54  |
| 10    | 10.44 | 10.29   | 10.38  | 9.53  |
| 15    | 15.91 | 15.47   | 15.86  | 14.39 |
| 20    | 20.90 | 21.07   | 21.54  | 19.29 |
| 25    | 26.25 | 26.28   | 27.32  | 24.77 |
| 30    | 31.49 | 31.73   | 33.05  | 29.91 |
| 35    | 36.10 | 36.80   | 39.25  | 35.30 |

OK Delete Row Cancel

Viewer Controls

Navigator

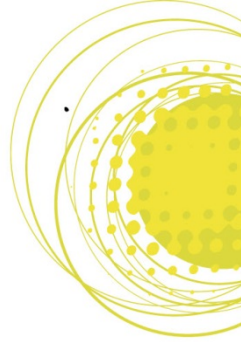
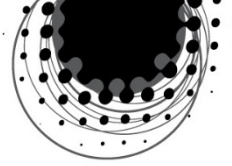
Color Adjust

Input:  Output:  Edit Curve...

Deselect All

Preset: Custom Apply to...

Color Wheel Curves

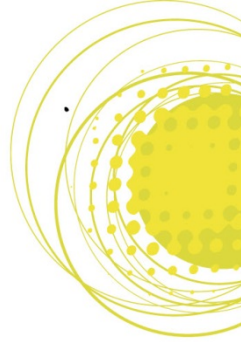
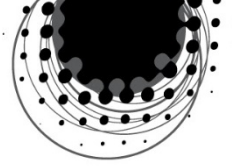


# Express Profiler

Require less steps to generate high Precision Custom profile.

Benefit:-

- Excellent tool for Novalic user.
- Streamlines the workflow from calibration to profiling .
- Automatically creates virtual printer and Preset with the correct attribute.

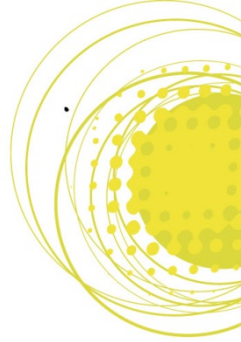
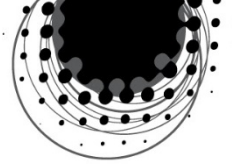


# Express Profiler-GCR

Automatically set the GCR setting based on factory recommended TIL .

Benefit :-

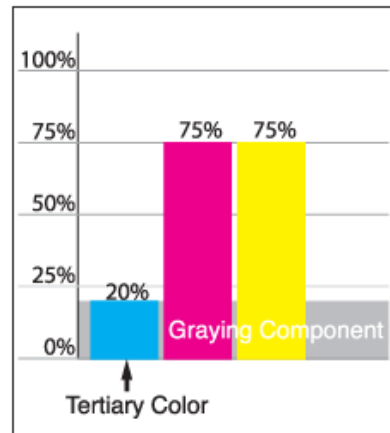
- Save ink.
- Gray appear neutral under wide range of viewing conditions.
- Color shift on the press is less noticeable.



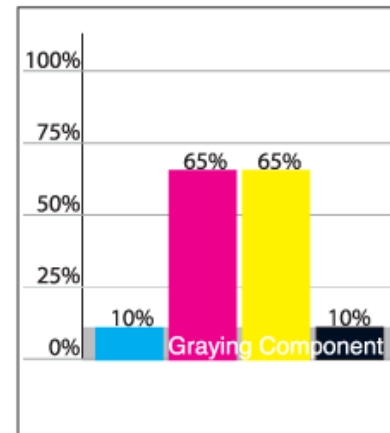
Without GCR



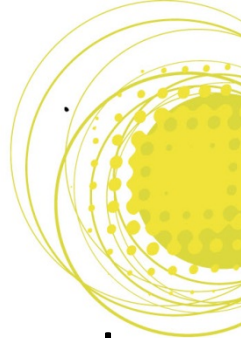
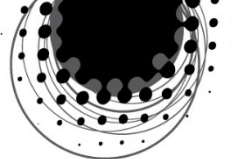
With GCR



No GCR



50% GCR



# Color Optimization

This tool allow additional iterations of color measurements to fine-tune color.

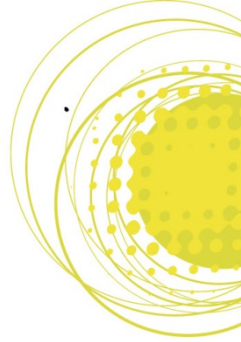
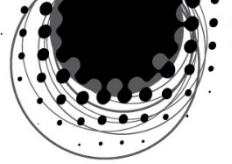
**Benefit :** Useful for users looking to achieve FOGRA,SWOP and G7 under tight tolerance.

| G7_ISO12647-7 Contract Proof |                             |                   |                             |               |
|------------------------------|-----------------------------|-------------------|-----------------------------|---------------|
| Approved by:                 | -                           | Proof profile:    | iPF6450_ProofSatin220_07... |               |
| Reference data:              | GRACoL2006_Coated1v2.icc    | Proofing system:  | EFI FIERY XF 5.0            |               |
| Reference profile:           | GRACoL2006_Coated1v2.icc    | Measuring device: | Canon Spectrophotometer     |               |
| Printer:                     | Canon imagePROGRAF iPF64... | Date/Time:        | 22.07.2013 11:38:25 AM      |               |
| Criteria                     | Measured                    | Tolerance         | Status                      |               |
| Average all patches          | 1.12 dE                     | 3.00              | Passed                      |               |
| Maximum all patches          | 4.16 dE                     | 6.00              | Passed                      |               |
| Paper white                  | 0.20 dE                     | 3.00              | Passed                      |               |
| Cyan                         | 0.56 dE                     | 5.00              | Passed                      |               |
| Magenta                      | 1.55 dE                     | 5.00              | Passed                      |               |
| Yellow                       | 1.00 dE                     | 5.00              | Passed                      |               |
| Black                        | 0.93 dE                     | 5.00              | Passed                      |               |
| Hue difference - CMYK        | 1.19 dH                     | 2.50              | Passed                      |               |
| Maximum weighted CMY scale   | 0.76 dCh                    | 3.00              | Passed                      |               |
| Average weighted CMY scale   | 0.45 dCh                    | 1.50              | Passed                      |               |
|                              |                             |                   |                             | <b>PASSED</b> |
|                              |                             |                   |                             | Job-ID 87     |
|                              |                             |                   |                             | PAGE 1/2      |

Without optimization

| G7_ISO12647-7 Contract Proof |                             |                   |                             |               |
|------------------------------|-----------------------------|-------------------|-----------------------------|---------------|
| Approved by:                 | -                           | Proof profile:    | iPF6450_ProofSatin220_07... |               |
| Reference data:              | GRACoL2006_Coated1v2.icc    | Proofing system:  | EFI FIERY XF 5.0            |               |
| Reference profile:           | GRACoL2006_Coated1v2.icc    | Measuring device: | Canon Spectrophotometer     |               |
| Printer:                     | Canon imagePROGRAF iPF64... | Date/Time:        | 22.07.2013 3:12:06 PM       |               |
| Criteria                     | Measured                    | Tolerance         | Status                      |               |
| Average all patches          | 0.70 dE                     | 3.00              | Passed                      |               |
| Maximum all patches          | 2.73 dE                     | 6.00              | Passed                      |               |
| Paper white                  | 0.12 dE                     | 3.00              | Passed                      |               |
| Cyan                         | 1.13 dE                     | 5.00              | Passed                      |               |
| Magenta                      | 0.24 dE                     | 5.00              | Passed                      |               |
| Yellow                       | 1.48 dE                     | 5.00              | Passed                      |               |
| Black                        | 0.38 dE                     | 5.00              | Passed                      |               |
| Hue difference - CMYK        | 1.05 dH                     | 2.50              | Passed                      |               |
| Maximum weighted CMY scale   | 0.60 dCh                    | 3.00              | Passed                      |               |
| Average weighted CMY scale   | 0.37 dCh                    | 1.50              | Passed                      |               |
|                              |                             |                   |                             | <b>PASSED</b> |
|                              |                             |                   |                             | Job-ID 87     |
|                              |                             |                   |                             | PAGE 1/2      |

With optimization



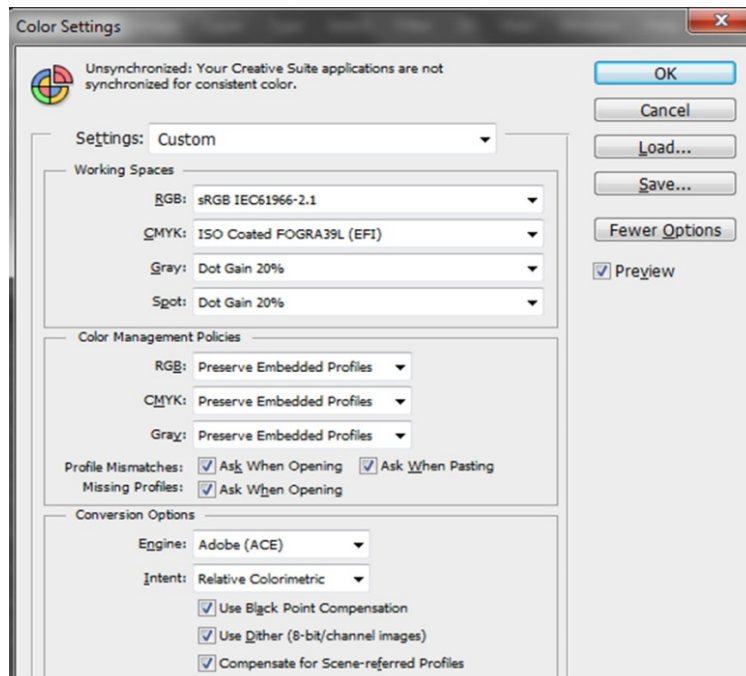
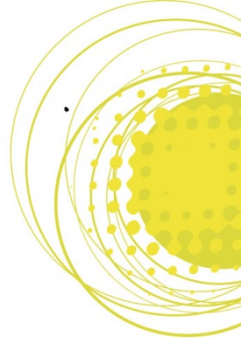
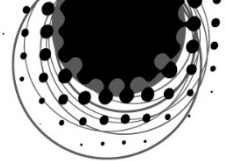
# Color conversion

Rip should allow user to customized color setting and honor the application defined options:-

- Embedded profiles
- rendering intent
- ICC version 4 profiles
- Black point compensation

Benefit:-

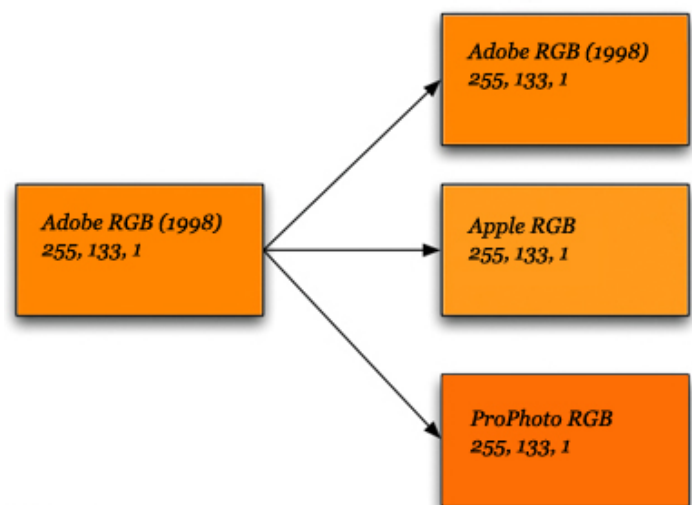
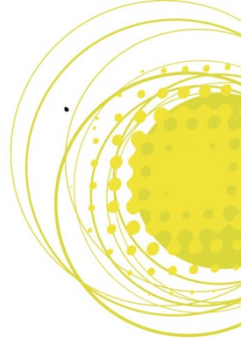
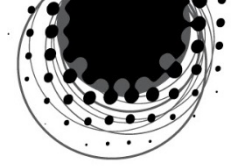
Avoid print rejection due to color setting mismatch.



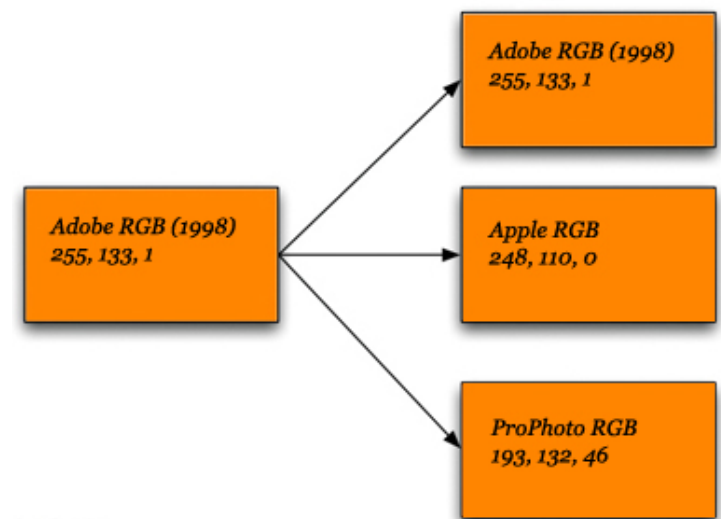
**Application Color setting**



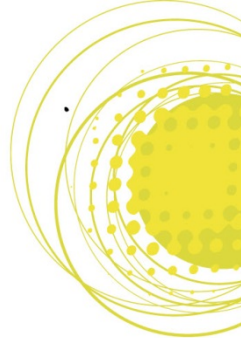
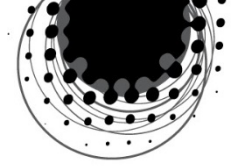
**Printer/Rip Color setting**



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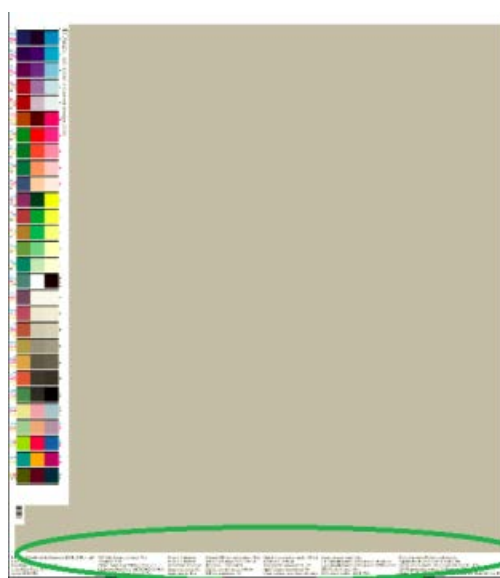


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# Control bar

Help to diagnose color setting while Ripping.



Calibration Date/Time 06/02/2015 23:42:55  
Calibration Set GenericPlain-Europe  
Output Profile Fiery Generic Plain EUR Test  
RGB Source Profile sRGB (PC)  
RGB Device Link None

Use embedded profile when present (RGB) On  
Separate RGB/Lab to CMYK source Off  
Rendering Intent Relative Colorimetric  
RGB Gray Processing Off  
CMYK Source Profile ISO Coated FOGRA39L (EFI)

CMYK Device Link None  
PDF/X output intent Off  
Use embedded profile when present (CMYK) On  
CMYK Processing Method Full (Output GCR)  
CMYK Gray Processing Text/Graphics/Images

Paper Simulation Off  
Spot Color Matching On  
Black Text and Graphics Pure Black On  
Black Overprint (for pure black) Text/Graphics

