G7 calibration with Fiery Color Profiler Suite
Why G7?

• You want to visually match one or more printing devices
• You want truly neutral colors (grays) and correct tonality from highlight to midtone
  – The most common visual reference colors
  – Helps to achieve best saturated colors
• You want a competitive advantage for your print business
Agenda

- G7 background & history
- Where Neutral Print Density Curves (NPDC) come from
- Difference between G7 calibration and linearization
- G7 process for conventional
- G7 calibration for Fiery servers
- Resources including how-to guide and simulation learning
G7 background & history
What is the G7 process?

- Method of calibrating press or proofer to common grayscale appearance
Shared neutral appearance

Digital (raw)  Inkjet (raw)  Offset (raw)

G7  G7  G7
How is G7 calibration performed?

- Print systems may be G7 calibrated by loading Neutral Print Density Curves (NPDC) on the platesetter for conventional presses or on the Digital Front End (DFE) for digital systems.
Where do NPDC curves come from?

- NPDC curves can be calculated manually using “fan paper”
Where do NPDC curves come from?

- NPDC curves may be created with software tools and loaded on print system.
Where do NPDC curves come from?

• NPDC curves may be created directly on the DFE for a digital print system
Loading NPDC curves on a print system

- NPDC curves may be entered or imported on the front end for a platesetter (conventional)
- NPDC curves may be entered or loaded on some DFEs (digital)
What is the difference between G7 calibration and linearization?
Linearization corrects uneven tonal response
Linearization provides even tonal response
Without Linearization
With Linearization
Linearization is done for all colors
The difference with G7 calibration

• Linearization may be performed before G7
• The results of G7 calibration are specific curves for each color that are not visually linear
The CtP experience

• In the 1990s North American printers moved from film-based to CtP (Computer-to-Plate) workflows
• The quality of printing in the U.S. suffered badly during this transition
Press test – no linearization
Press test – linearization only
Press test – G7 calibration
P2P target
What is a P2P target?
Introducing the P2P target for G7 calibration

- Columns 1-3: Solids for ISO 12647 and linearization for CMY
Introducing the P2P target for G7 calibration

• Columns 1-3: Solids for ISO 12647 and linearization for CMY
• Column 4: K tints for K NPDC
Introducing the P2P target for G7 calibration

- Columns 1-3: Solids for ISO 12647 and linearization for CMY
- Column 4: K tints for K NPDC
- Column 5: Gray balanced CMY builds
Introducing the P2P target for G7 calibration

- Columns 1-3: Solids for ISO 12647 and linearization for CMY
- Column 4: K tints for K NPDC
- Column 5: Gray balanced CMY builds
- Columns 6 – 12: Gray-finder tints
How did G7 solve the CtP problem?

- 98% of color separations have been made in Photoshop since 1995
How did G7 solve the CtP problem?

• Many users are not aware they are converting to “U.S. Web Coated SWOPv2”
  – CGATS TR 001 reference
How did G7 solve the CtP problem?

• Photoshop separations match the tone and gray balance of CGATS TR 001
  – U.S. Web Coated SWOP v.2
• Does G7 calibration give the same match?

Let’s find out...
Applying CGATS TR 001 to P2P
P2P TR 001
P2P TR 001
What about Europe and other regions?

- In general, Europe and other regions have not adopted G7 calibration methodology
- Many regions are still interested in “Near neutral calibration”
P2P ISO Coated (Fogra 39)
P2P ISO Coated (Fogra 39)
Printing certification programs
Certification programs

- G7 Certification for software and personnel
- Print system certifications
  - Fogra Cert
  - Idealliance Digital Press Certification
- Print operations programs*
  - G7 Qualified
  - Fogra PSD certified

* Discussed in previous World of Fiery webinar
## G7 levels

<table>
<thead>
<tr>
<th>G7 Level</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>G7 Grayscale</strong></td>
<td>Match NPDC Curve targets for tone and neutrality</td>
</tr>
<tr>
<td><strong>G7 Targeted</strong></td>
<td>G7 Grayscale + match ISO 12647-2 primaries and overprints</td>
</tr>
<tr>
<td><strong>G7 Color Space</strong></td>
<td>G7 Targeted + match reference color space (1617 patches)</td>
</tr>
<tr>
<td><strong>G7 Extreme</strong></td>
<td>G7 Grayscale + full output device gamut for primaries and overprints</td>
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G7 process for conventional presses
G7 for conventional best practices

• Order more paper than you think you need
• Let the press run in for 500-1000 impressions after makeready
• Remember to run press at production speed
G7 test form
Calibration run

• Press run with linear plating curves
• Choose acceptable forms (12647-2 soilds)
• Cut out P2Ps and measure
  – Fiery Measure or other software
Create curves

• Load measurements into Curve software
• Export curves
• Load on platesetter
Measure G7 qualification target

• Press run with G7 plating curves loaded (“qualification run”)
• Measure the P2P target for qualification
• Press fingerprinting (ICC) – optional
  – Best practice for digital proofing
G7 calibration process for digital
G7 for cut-sheet digital best practices

• Engine calibration from press panel
• Engine warm-up pages
• Averaging multiple P2P targets
Fiery Color Profiler Suite G7 calibration

• IDEAlliance G7 System Certification
  Awarded May, 2016
• Operators of any skill level can calibrate Fiery Driven print systems to G7
• Calculates the G7 correction curves and writes them directly into a calibration set on the Fiery server
Fiery G7 calibration workflow

Fiery calibration → G7 calibration → ICC profile

Fiery G7 calibration and profiling time about 30 minutes
Launch Printer Profiler
Choose Print Patches
Name session & select Fiery server
Enable G7 calibration
Configure Fiery Calibration

Fiery calibration

G7 calibration

ICC profile
Measure Fiery Calibration

- Fiery calibration
- G7 calibration
- ICC profile

Image: Calibration software interface with color patches and measurement details.
Print P2P without G7 calibration
Measure P2P for G7 calibration
G7 calibration run results (un-calibrated)
Print P2P with G7 calibration
Verification – P2P results with G7 calibration
Digital press results without calibration

Curve software not required for Fiery G7 calibration or verification
Digital press results with G7 calibration only

Curve software not required for Fiery G7 calibration or verification
Digital press results with G7 calibration only

G7 Targeted Fail

Curve software not required for Fiery G7 calibration or verification
Print and measure profiling patches

Fiery calibration
G7 calibration
ICC profile
Job Properties Preset created
New calibration & profile selected by preset
G7 calibration and ICC profile

Curve software not required for Fiery G7 calibration or verification
Fiery G7 calibration workflow

- Fiery calibration
- G7 calibration
- ICC profile
Expert Fiery G7 calibration workflow

1. Fiery calibration
2. G7 calibration
3. ICC profile
4. Verify compliance
What we learned

• G7 background & history
• Where Neutral Print Density Curves (NPDC) come from
• Difference between G7 calibration and linearization
• G7 process for conventional
• G7 calibration for Fiery servers
• Next: resources including how-to guide and simulation learning
Additional resources

- Fiery Color Profiler Suite product info [efi.com/cps](http://efi.com/cps)
- Fiery Color Flowchart video
- [help.EFI.com/cps](http://help.EFI.com/cps)
- Color Profiler Suite [G7 how-to guide](http://training.efi.com)
- Color Profiler Suite G7 calibration simulation learning at [training.efi.com](http://training.efi.com)
- Color Profiler Suite [verification how-to guide](http://training.efi.com)
- [Download P2P target](http://training.efi.com)
- FieryForums.efi.com
World of Fiery webinars

• Watch World of Fiery education webinars on color
  – 3 Key Steps to Getting the Right Color
  – ABC’s of Producing the Best Match for Spot Colors
  – Best Practices for Matching Industry Color Standards
  – Best Practices for Producing Outstanding Image Quality Results
  – Achieving Great Output Quality with your Paper
  – Advanced Color Management for Digital Print Systems
Questions

FieryForums.efi.com
Thank you!