



**IPA**

# *Special Report*

## **Proofing RoundUP Results 2007**

**Test Results and Analysis  
IPA Technical Conference  
June 5-7, 2007**

---

**End-User Submissions  
Softcopy Visual Match to Press Sheet  
N-Channel Images and Spot Color  
JDF Imposition  
Remote Hardcopy Proofing**

**INTRODUCTION**

## Introduction

The 5th Annual IPA Color Proofing RoundUP was conducted during the IPA Technical Conference, June 5–7, 2007, Chicago, Illinois, USA. The objective of the Color Proofing RoundUP was to provide graphic solutions providers with a comprehensive understanding of available color proofing options and to identify key issues affecting color proofing.

The IPA Color Proofing RoundUP brings together, under one roof, all the main color proofing solutions in an event that is unique in North America. The RoundUP has been successful in continuing to improve the quality and performance of commercially available proofing systems.

This year the Color Proofing RoundUP focused on matching characterization data. Suppliers were required to create a proof based only on a colorimetric match to the GRACoL reference printing condition, represented by the “GRACoL2006\_Coated1.txt” characterization data set. The RoundUP team established criteria in accordance with IDEAlliance; measured and evaluated the proofs and provided feedback via a Color Assurance Evaluation form.

This year the tests were expanded and evaluated not only our community of proofing suppliers but also the proofing capabilities of our user community: the trade shops, the printers, and the graphic solutions providers. We assessed 64 end-user proofing systems offering a real-world snapshot of proofing in North America. We gathered data to understand the state of the North American proofing market — where are we in terms of producing and using color proofs in a commercial environment.

The Proofing RoundUP evaluated soft proofing systems for colorimetry and also a visual match to a press sheet. Tests evaluated the ability of proofing systems to deal with multi-channel ICC profiles, Pantone™ spot colors and Pantone™ tints. Hardcopy proofs were not supplied; rather emphasis was placed on interpreting the image data based on an ICC profile or other data.



A certified imposition program, Dynagram DynaStrip was used to create an imposition for the JDF test. The JDF and PDF content files were provided and suppliers were required to correctly interpret the instructions and create an imposition. Seven supplier systems created this imposition.

Many vendors offer the ability to monitor and provide matching proofs from different physical locations. We solicited proofs from multiple locations to evaluate the effectiveness of the system to produce remote matching hardcopy proofs.

In summary, the list of tests conducted in the Proofing RoundUP 2007 were:

- Hardcopy Colorimetry (Supplier)
- Hardcopy Visual Assessment (Supplier)
- Hardcopy Colorimetry (User)
- Hardcopy Visual Assessment (User)
- Softcopy Colorimetry
- Softcopy Visual Assessment
- N-Channel Images
- Pantone™ Spot Color and Tints
- JDF Workflow and Imposition
- Remote Hardcopy Proofing

## Summary of Findings

**Hardcopy Colorimetry** Certificates for 22 suppliers and 64 end-user submissions were given out. The RoundUP tests found that the 22 supplier system submissions had an average of 1.01 Delta E, which is well within the SWOP Certification tolerance of 1.5 Delta E, further confirming the IDEAlliance certification process. The end-user average was 2.21 — proving that hardcopy proofing by the numbers is possible, is happening and is successful.

**Hardcopy Visual Assessment** This year there was reduced emphasis on visual judging for the hardcopy assessment as the validation in our industry is done using colorimetry. Nevertheless, given we had samples from all the major hardcopy proofing systems, it was exciting to place them side by side and see that they are indeed very similar to one another speaking to the fact that they all produce good proofs. Visually, the user proofs were “not as bad as we thought,” some very close to the certified supplier systems.





**Softcopy Proofing** With an unseen press sheet there wasn't any way to know what to expect. A visual assessment of the major systems showed that soft proofing is a very acceptable option getting high marks from many of the 35 judges who evaluated the systems. Visually the white point of the monitor is still a concern especially when implementing in a pressroom or other semi-controlled conditions. Since the technology is producing acceptable results the suppliers are working on system features and suitability. One feature implemented now in all of these systems is the ability to loop through the IT8.7/4 color samples for measurement as required for the colorimetry portion of the IPA RoundUP. This functionality and the fact that Delta E\*94 numbers from this testing are "comparable" to hardcopy proofing are guiding us down the path to certification of soft proofing systems.

**N-Channel Images** The N-Channel replacement of process colors with Pantone™ colors was evaluated visually based on an unseen master by four to ten judges for each of the submitted proofs. The N-Channel replacement images were not rated as acceptable by the judges. This may be because many RIPs do not fully support N-Channel profiles.

**Pantone™ Spot Colors** This test was split into several sections each with its own challenges. Solid Pantone™ colors were not rated as high as previous years. The spot colors were not defined with L\*a\*b\* and a specific instrument so there was some variability on how the color was supposed to look. The edition of the Pantone™ swatch book was agreed, but the suppliers were not given the physical sample to proof from. The other sections of the test form were the overprints and transparency. Previous testing of several RIPs did not process this correctly but by the conference they had all fixed their issues.

**JDF Imposition** This test only looked at one part of an entire workflow, the imposition to the RIP. Seven suppliers entered this test that required their software to interpret a JDF file to gather a marks file and the correct content file, impose the specified pages and produce an output that would continue into the RIP. All the participants passed the six criteria that were being looked at with a couple of systems missing the correct pages being imposed. This was caused by the interpretation of manual vs. automatic paging and the intended use of the specific systems.

**Remote Proofing** Six sets of remote proofs were submitted, each set consisted of two, three or four proofs from locations from across a city to across the globe. Each company used the same model of proofing device and media for each location to maximize the effectiveness of their color management. The systems that were used have some control mechanism to standardize their output. The RoundUP test compared the first proof with all subsequent proofs in that set and found an unbelievable average Delta E of 0.81. This shows that with quality controls in place proofs can be made anywhere and look the same.



## Thank you to the 2007 RoundUP Leadership Team!

*Abhay Sharma,  
Scott Millward and Martin Habekost,  
Ryerson University  
Tom Collins, Quad/Graphics  
Mike Eddington, North American Color  
Marc Levine, X-Rite  
Steve Smiley, Vertis Communications*



# Table of Contents

|   |    |
|---|----|
| 1. Introduction .....   | 3  |
| 2. Summary of Tests.....  | 5  |
| 3. Summary of Findings .....  | 6  |
| 4. List of Suppliers and Systems.....   | 8  |
| 5. Vendor Entry by Category .....   | 11 |
| 6. Relation to IDEAlliance Proofing System Certification.....                           | 11 |
| 7. Colorimetric Testing of Supplier and End-User Hardcopy Submission.....               | 12 |
| 8. Measuring the Digital Test Form .....  | 13 |
| 9. The Color Assurance Evaluation Form .....  | 13 |
| 10. Verification of RoundUP Color Assurance .....                                       | 14 |
| 11. Tolerances.....   | 15 |
| 12. Colorimetric Results for Vendors and End-User .....                                 | 16 |
| 13. Ugra/FOGRA Proofing Bar vs. IT8.7/4 Target .....                                    | 18 |
| 14. Meeting IDEAlliance Certification.....  | 19 |
| 15. Supplier vs. IPA Measurement .....  | 19 |
| 16. Measurement Repeatability .....   | 20 |
| 17. Evaluation of the Supplier Proofs and End-User Proofs .....                         | 20 |
| 18. End-User Submissions — Software and Hardware .....                                  | 23 |
| 19. End-User Submissions — User Information.....  | 23 |
| 20. End-User Submissions — Analysis of Results.....                                     | 24 |
| 21. End-User Submissions — What Next?.....  | 26 |
| 22. Softcopy Visual Match to the Press Sheet .....                                      | 27 |
| 23. Softcopy Colorimetry.....   | 29 |
| 24. N-Channel Images and Spot Color Tests.....  | 31 |
| 25. Results for N-Channel and Spot Colors.....  | 33 |
| 26. JDF Imposition Test.....  | 34 |
| 27. Remote Hardcopy Proofing.....   | 37 |
| 28. Web Site and e-mail Communication.....  | 37 |
| 29. Discussions and Disagreements .....   | 38 |
| 30. Permissions and Copyright.....  | 38 |
| 31. Acknowledgements .....  | 38 |
| 32. Supplier Comments .....   | 39 |
| Appendix A — Example Color Assurance Evaluation of User Hard Proofing Systems .....     | 40 |
| Appendix B — Example Color Assurance Evaluation of Supplier Hard Proofing Systems ..... | 41 |
| Appendix C — Heidelberg Report From QualityMonitor 2.0 .....                            | 42 |
| Appendix D — AGFA Report From ColorTune .....   | 46 |
| Appendix E — Visual Evaluation of Hardcopy Proofs Judging Form.....                     | 48 |
| Appendix F — Comments From Judges on Visual Evaluation of Supplier Proofs .....         | 49 |
| Appendix G — End-User Data Sheet to Accompany Each Submission.....                      | 50 |
| Appendix H — Vendor Data Sheet to Accompany Each Submission.....                        | 52 |
| Appendix I — Judging Sheet for Visual Evaluation of Soft Proofing Systems.....          | 54 |
| Appendix J — Comments From Judges on Visual Evaluation of Soft Proofing Systems.....    | 55 |
| Appendix K — Methodology for Calculation and Normalization of Monitor Colorimetry.....  | 56 |

**Purchase report at [www.ipa.org/roundup](http://www.ipa.org/roundup)**