Custom Test Report

BLI Comparative Performance Evaluation

DECEMBER 2014

Canon imagePROGRAF iPF825 vs. Epson SureColor SC-T7200D

Canon imagePROGRAF iPF825

Epson SureColor SC-T7200D

Advantage ✔	Canon imagePROGRAF iPF825	Epson SureColor SC-T7200D
Colour Image Quality	✔	
Black Image Quality	=	=
Print Productivity	✔	
Direct PDF Submission Functionality	✔	
Banner Printing	=	=
Poster Printing	=	=
Ink Consumption	✔	
Device Feature Set	=	=
Print Driver Feature Set	✔	

TEST OBJECTIVE

Buyers Laboratory LLC (BLI) was commissioned by Canon Europe to conduct confidential document imaging device performance testing on the Canon imagePROGRAF iPF825 and the Epson SureColor SC-T7200D, and produce a report comparing the relative strengths and weaknesses of the two products in terms of image quality, productivity, ink consumption, direct PDF submission, device feature set, driver functionality, and banner and poster printing. All testing was performed in BLI's test facility in Wokingham, UK.

TABLE OF CONTENTS

Executive Summary

The Canon imagePROGRAF iPF825 gave a superlative overall performance in BLI's testing, surpassing the Epson SC-T7200D in most areas of the evaluation. Specifically, it delivered significantly higher productivity for both colour and black output in all modes tested. Moreover, the iPF825's productivity advantage, particularly in High quality mode, enables Canon users to focus on achieving optimum image quality without sacrificing productivity.

In BLI's ink consumption testing the Canon unit used less ink overall than the Epson device with all three test documents used. A key strength of the Canon iPF825 is that it is capable of handling ink outages without having an impact on user productivity or causing unnecessary waste. When it runs out of ink, it continues to operate while alerting the user to replace the cartridge and, thanks to its hot swap ink tanks, inks can be replenished on the fly while printing is in progress. In contrast, when the Epson SC-T7200D runs out of ink, printing has to stop for the cartridge to be replaced, leading to operator downtime.

Aimed at the Architectural, Engineering and Construction (AEC), Computer-Aided Design (CAD) and Geographic Information Systems (GIS) markets, both models produced high quality AEC and GIS graphics that would easily satisfy customer requirements. They delivered comparable photographic output quality, with the Canon model producing better output in dark contrast areas and the Epson unit producing better quality in light contrast areas. Neither model produced very natural-looking flesh tones, which were reddish in the output of both devices, while Epson's skin tones were also distinctly grainy. There was little to differentiate between the two models in many aspects of colour and black image quality, with both delivering crisp and clean serif and sans serif fonts, very good fine lines and circles, and a full halftone range, although halftone fills in black were a little grainy in the output of both units. Overall, however, the Canon unit has the edge for colour output, delivering higher colour densities for cyan, magenta and composite black, sharper fine details in business graphics; and a larger colour gamut in all modes when printing on plain and matte coated paper. In black mode, the Epson model's superior optical densities (except in Draft/Speed mode) helped it to match Canon's output, even though Canon's business graphics output was slightly sharper and bolder and its photographic images exhibited smoother gradations and more detail in dark contrast areas.

Another area in which the two models are closely matched is their feature sets. The Epson SC-T7200D's device feature set includes higher print resolution, smaller (variable) ink droplet sizes, and slightly higher ink cartridge capacities, whilst the Canon iPF825's feature set includes higher standard and maximum memory capacities and a 160-GB hard drive as standard. However, Epson does offer a 320-GB hard drive as an extra-cost option. In addition, the Epson unit has much lower energy consumption—64 watts while printing and 3 watts in standby mode, compared with 190 watts while printing and 5 watts in standby mode for the Canon model.

In conclusion, the Canon imagePROGRAF iPF825 delivered a superior performance to that of the Epson SureColor SC-T7200D model in nearly all categories tested, while also offering several unique advantages. These include its unidirectional print capabilities (which help to eliminate banding), support for mobile printing from iPads, hot swap ink tanks and Canon iPF Direct Print & Share, a free utility that can be downloaded from the company's website, which supports direct PDF submission without the need to open an application.

Colour Image Quality

Advantage ✔	Canon imagePROGRAF iPF825	Epson SureColor SC-T7200D
Text	=	=
Fine Lines	=	=
Halftone Range	=	=
Halftone Fill	=	=
Solid Density	✔	
AEC Graphics	=	=
GIS Graphics (plain paper)	=	=
Business Graphics	✔	
Photographic Images	=	=
Colour Gamut (plain paper, Draft/Speed settings)	✔	
Colour Gamut (plain paper, Standard/Quality)	✔	
Colour Gamut (plain paper, High/Max Quality)	✔	
Colour Gamut (matte coated paper, High/Max Quality settings)	✔	

+, — and O represent positive, negative and neutral attributes, respectively.

O There was some banding evident in output produced by both models in Draft/Speed and Standard/Quality modes. On the Canon iPF825 this was eliminated when the unidirectional printing option was selected.

+ Overall, the Canon iPF825 delivered the higher optical densities when printing in colour for cyan, magenta and composite black across all tested modes; both models delivered comparable optical densities for yellow.

+ When printing on plain paper using Draft/Speed settings, the Canon model delivered a colour gamut 14.2% larger than that of the Epson unit, with a CIE volume of 192,246 versus a CIE volume of 168,336 for the Epson device.

+ The Canon model also produced a 14.3% larger colour gamut when printing on plain paper using Standard/Quality settings—with a 231,884 volume for the Canon model versus a 202,953 CIE volume for the Epson device.

+ When printing on plain paper in High/Max Quality settings, the Canon iPF825 delivered a 5.3% larger colour gamut than did the Epson SC-T7200D, with a CIE volume of 241,414 versus a CIE volume of 229,339 for the Epson model.

+ When printing on matte coated paper using Canon's High quality setting and the Epson SC-T7200D's Max Quality setting, the Canon model delivered a colour gamut 37.3% larger than that of the Epson unit, with a CIE volume of 473,680 compared with 345,122 for the SC-T7200D.

O Both models delivered consistently good text quality in colour in High/Max quality modes, with both serif and sans serif fonts being legible down to the 3-pt. level with no breakup. However, in Draft/Speed mode, some ink bleed was apparent in the output of both models with serif fonts fully legible only down to the 5-pt. level in output produced by the Epson model and 4-pt. in output produced by the Canon model. In Standard/Quality mode,

results for both serif and sans serif fonts were nearly identical for the two units, but ink bleed was slightly more apparent with the Epson unit.

O Fine lines produced by both devices remained distinct down to the 0.1-pt. level in Fast/Speed and Standard/Quality modes, but with some slight blurring evident. In High/Max quality mode, the no blurring was visible and the output from both models was rated very good.

O Both devices delivered halftone output across the full range—from the 10% to 100% dot-fill levels in all modes, with distinct transitions between all levels.

O Both models delivered good and consistent halftone fills in all modes.

O When evaluating Architectural, Engineering and Construction (AEC) graphics in Standard/Quality and High/Max Quality modes, both models exhibited an excellent level of detail and distinct fine lines.

O When evaluating Geographic Information Systems (GIS) graphics in High/Max Quality mode on plain paper, both units delivered an excellent level of detail and showed an equally good depth of field—a critical factor in delivering realistic three-dimensional renderings of topographical features.

+ Colour business graphics produced by the Canon iPF825 unit exhibited slightly sharper details and better colour saturation than the Epson device.

+ When BLI analysts compared photographic images produced in High/Max Quality mode, the output produced by the Canon model exhibited slightly better dark contrast areas, with very good detail.

— However, the Epson T7200D delivered slightly better results in light contrast areas in photographic images, which displayed a finer level of detail than did the output from Canon.

O In Standard/Quality and High/Max Quality modes, both units produced 0.1-pt. level circles that were smooth and unbroken, and rated as good and very good, respectively. In Draft/Speed mode, however, there was some stair-stepping in circles at 0.1-pt. level with both models.

+ Skin tones produced by both models were somewhat reddish, but those produced by the Epson device were also distinctly grainy in Quality (standard) mode.

+ The Canon iPF825 produced the 1x1 pixel grid in CMY with no quality issues, and coverage was consistently good across all colours. The Epson SC-T7200D delivered poor coverage compared with that of the Canon unit in Speed mode, in Quality mode it was rated fair, and only matched the Canon model's full coverage in Max Quality mode.

+ As befitting the needs of their target markets, both models produced distinct fine lines in AEC drawings and an excellent level of detail in GIS graphics. Other areas where the two were closely matched included skin tones (which were reddish in both, with Epson's output also exhibiting more graininess) and their clean and crisp text, fine lines and circles, although some fuzziness caused by ink bleed was detectable when both models' output was viewed under magnification. Although the Epson model had a comparable density for yellow and produced a finer level of detail in light contrast areas in photographic images, the Canon model emerges as the stronger overall performer in BLI's assessment of colour image quality, with much larger colour gamuts in all modes on both plain and matte coated paper, a sharper level of detail in colour business graphics, and higher density cyan and magenta output. Another key advantage for the Canon model is its unidirectional printing option which effectively eliminates banding. While output from the Epson device in Max Quality mode was free from banding, there was some banding evident in Speed and Quality modes.

Black Image Quality

Advantage ✔	Canon imagePROGRAF iPF825	Epson SureColor SC-T7200D
Text	=	=
Fine Lines	=	=
Halftone Range	=	=
Halftone Fill	=	=
Solid density		✔
Business Graphics	✔	
Photographic Images	✔	

+, — and O represent positive, negative and neutral attributes, respectively.

— When printing in monochrome, the Canon model delivered a higher optical density for black in Draft/Speed mode, but the Epson model delivered higher densities in High/Max Quality and Standard/Quality modes.

O Black fonts produced by both models were crisp and legible down to the 3-pt level across most modes, although in some modes they were legible only down to the 4-pt. level. Unlike in colour mode, there was no sign of ink bleed.

O Fine lines in BLI's Line Art test target remained distinct down to the 0.1-pt. level in all modes in the output of both devices, with no evidence of stair-stepping in diagonal lines. Both devices delivered white-on-black fine lines at the 0.25-pt. level in Standard/Quality mode, but their distinctness was only rated fair as the contrast between lines and background was quite fuzzy.

+ Circles produced by both models were fully formed in High/Max Quality and Standard/Quality modes; the iPF825's circles were smoother than those produced by the Epson unit in Speed mode, which were slightly broken in appearance.

O Both models delivered halftones across the full range—from the 10% to 100% dot-fill levels in all modes.

O Halftone fill results in BLI's halftone test charts in all modes were rated only fair for both models, with both exhibiting some graininess at the lower end (10% to 30%) of the range.

O Both models delivered detailed and distinct fine lines in AEC graphics in Standard/Quality and High/Max Quality modes in black.

+ Monochrome business graphics in High/Max Quality mode on plain paper were produced more accurately by the Canon model, with smooth halftone gradations, whereas some graininess was visible in output produced by the Epson unit, even without magnification.

+ Photographic images in High/Max Quality mode on plain paper were produced with smoother gradations and better detail in dark contrast areas by the Canon iPF825 than they were by the Epson model.

O Although the Epson model delivered higher black optical densities than the Canon unit except in Draft/Speed mode, BLI's analysts found the Canon device provided comparable black image quality overall. The Canon iPF825 delivered smoother gradations in photographic images and business graphics, with none of the graininess evident with the Epson model. Both models deliver good fine lines and very good circles, and text that was

legible down to a very small size (3-pt. or 4-pt.) with no breakup. Both models delivered distinct fine lines in AEC graphics and a full halftone range, although greyscale fills in BLI's halftone test targets were grainy with both devices.

Print Productivity

Advantage ✔	Canon imagePROGRAF iPF825	Epson SureColor SC-T7200D
First Page Out From Ready State	✔	
First Page Out From Weekend Non-Use	✔	
Throughput Speed (fastest mode)	✔	
Throughput Speed (default mode)	✔	
Throughput Speed (highest-quality mode)	✔	
Job Stream (multiple jobs submitted to device in fast succession simulating busy network environment)	✔	
Dual-roll Job Stream	✔	

+ The Canon iPF825 delivered a much faster first-page-out time of 117.35 seconds after a weekend of non-use, compared with 177.40 seconds for the Epson device. Start-up time before printing commenced was also much faster for the Canon model, at 58.81 seconds, compared with 114.03 seconds for the Epson unit.

+ The Canon device delivered a faster first-page-out time of 50.78 seconds from its ready state, compared with 74.36 seconds for the Epson device. While the Epson device demonstrated the quicker start-up time before printing commences (11.65 seconds versus 16.04 seconds for the Canon model), taking into account the two measurements together, the iPF825 is the faster device overall.

+ When printing BLI's job stream, designed to simulate a typical mixed workflow for a large-format unit, the Canon iPF825 delivered a superior performance in High/Max Quality mode, running 34.3% faster than the Epson model. In the other tested modes, it was also faster—8.2% faster in Draft/Speed mode and 13.7% faster in Standard/Quality mode.

+ As both models offer a dual-roll design, BLI conducted a second job stream test, sending the same files as alternate jobs to different rolls to test both models' efficiency when switching between rolls. The Canon iPF825 completed the dual-roll job stream in Draft/Speed mode in 835.80 seconds—7.14% faster than the 900.09 seconds taken by the Epson SC-T7200D.

O BLI analysts observed that, although Canon's faster speed gave it the overall edge when printing to dual rolls, the actual time taken to switch between rolls (around 22 seconds) was similar for both models.

+ When printing BLI's 12-page DWF test file in colour, the Canon unit was 13.9% faster than the Epson unit in Draft/Speed mode, 20.9% faster in Standard/Quality mode, and 43.5% faster in High/Max Quality mode.

+ Similarly, when printing BLI's 12-page DWF test file in monochrome, the Canon unit was 19.2% faster than the

Epson model in Draft/Speed mode, 21.4% faster in Standard/Quality mode, and 44.2% faster in High/Max Quality mode.

+ In BLI's single-page A0-size test, the Canon iPF825 delivered a first-page-out time (123.06 sec-onds) that was slightly (1.5%) faster than that of the Epson unit (124.9 seconds). The Canon model was also 4.0% faster than the Epson SC-T7200D when printing five A0-size pages (581.20 seconds versus 605.72 seconds).

O One factor impacting productivity is that when the Epson SC-T7200D model's ink cartridges are replaced, printing resumes seamlessly from the same point in the page, with no discernible line or break in output and no difference in image quality, so no ink or paper is wasted. The same applies with the Canon device.

+ When the Epson SC-T7200D model runs out of ink, printing has to stop for the cartridge to be replaced, leading to operator downtime. In contrast, the Canon model continues to print (drawing ink from its sub tank) when ink needs replacing, while its control panel conveniently alerts the user to replace ink and provides ink purchasing information. Inks can be replaced while printing is in progress, so no ink or paper is wasted and there's no operator downtime.

O When the Canon imagePROGRAF iPF825 runs out of paper, the device pauses and alerts the operator. After a new roll is installed, the operator is prompted to confirm the paper type and whether he or she wishes to continue printing the job. The device resumes printing at the beginning of the interrupted page, rather than printing the portion of the page that remained before running out of paper, so less ink and paper is wasted. The Epson SC-T7200D will also print the interrupted page in its entirety after a new roll is installed.

Direct PDF Print Submission Functionality

Advantage ✔	Canon imagePROGRAF iPF825	Epson SureColor SC-T7200D
Functionality / Cost	=	=

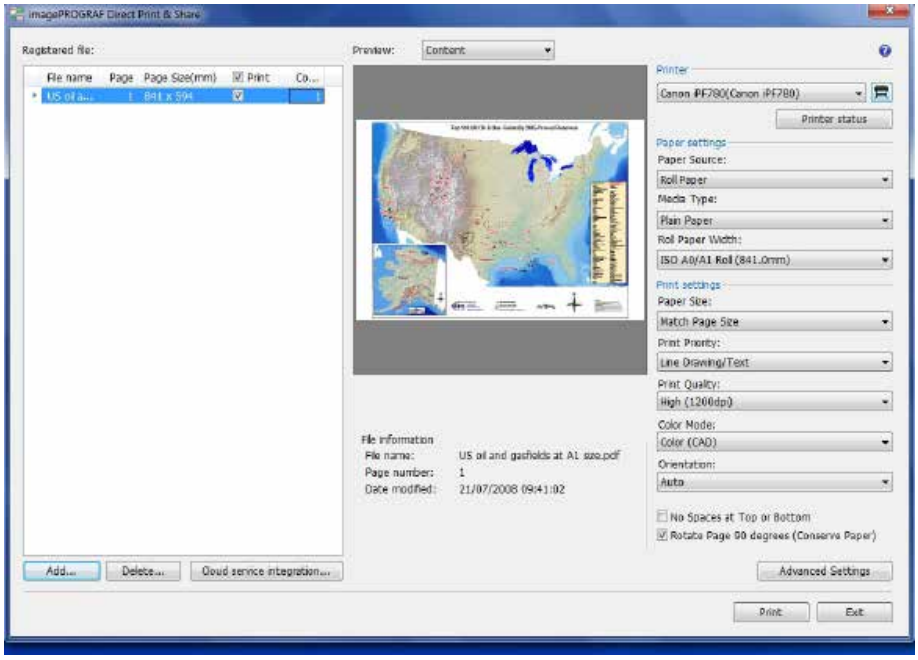
*BLI did not test Epson's optional, extra-cost PS module, therefore is unable to assess its functionality.

+ A free download from Canon's website, the iPF Direct Print & Share utility enables PDFs to be printed without opening Adobe Acrobat.

+ iPF Direct Print & Share also allows users to retrieve files from Google cloud storage for printing.

+ The latest version (v2.0) of iPF Direct Print & Share supports "Shortcut Print" functionality, which enables users to define several print settings that might be commonly used in combination and represent them with a desktop icon. Files are automatically printed with the predefined settings when users drag-and-drop them to the icon. Multiple desktop icons can be created for different print settings or combinations of print settings.

O An optional (extra-cost) PostScript module will enable Epson users to print PDFs without the need for additional drivers—functionality operates via hot-folder 'drag-and-drop' with configurable job processing options.



Canon's iPF Direct Print & Share utility gives operators an image preview.

Banner Printing

Advantage ✔	Canon imagePROGRAF iPF825	Epson SureColor SC-T7200D
Image Quality	✔	
Productivity		✔

+ The Canon iPF825 successfully printed BLI's 36" x 105" banner (a 4,955-KB PDF file) in Draft mode, taking just 33.4 seconds to generate a preview, and a further 4 minutes, 22.5 seconds from preview to final paper cut.

— In Speed mode, the Epson SureColor SC-T7200D printed BLI's banner, taking a comparable 33.6 seconds to generate a preview, and only an additional 2 minutes, 20.0 seconds from the file preview to final paper cut.

+ While it was faster than the Canon model, the Epson device did not successfully print the entire banner image due to its inability to print background detail during the final stages of printing the banner.

Poster Printing

Advantage ✔	Canon imagePROGRAF iPF825	Epson SureColor SC-T7200D
Image Quality (Draft/Speed mode)		✔
Image Quality (Standard/Quality mode)	=	=
Image Quality (High/Max Quality mode)	=	=
Productivity (Draft/Speed mode)		✔
Productivity (Standard/Quality mode)	=	=
Productivity (High/Max Quality mode)	✔	

— When printing a poster in Draft/Speed mode at 300 dpi, the Canon model took 40.09 seconds to complete the job, while the Epson unit at 360 x 720 dpi took just 34.96 seconds. Banding was much more evident with the Canon iPF825 than with the Epson model, which had only slight banding. When unidirectional printing was selected in the Canon print driver, banding was eliminated but the time to print the banner increased to 54.92 seconds.

O When printing a poster in Standard/Quality mode at 600 dpi, the Canon model took 1 minute, 6.41 seconds. The Epson unit at 360 x 720 dpi took a virtually identical time of 1 minute, 6.42 seconds.

+ Printing a poster in High quality (600 dpi) mode on the Canon model took 1 minute, 45.69 seconds, while printing the same posted on the Epson model in Max Quality (720 x1440 dpi) mode took 2 minutes, 39.11 seconds, which represents a 33.6% faster print time for the Canon model.

O At these High/Max Quality settings, image quality was equally good on output from both models, with vibrant, saturated colour, particularly reds, and good definition of fine details.

Ink Consumption

RESULTS		
Results averaged across three sets of 50-page A1 printing in various modes (specified below)	Canon imagePROGRAF iPF825	Epson SureColor SC-T7200D
COTTAGE ARCHITECTURAL PLAN (Standard/Quality mode)		
Overall weight of ink used (grams)	22.6 g	23.0 g
RETAIL POSTER (Standard/Quality mode)		
Overall weight of ink used	67.0 g	69.7 g
GIS MAP (Standard/Quality mode)		
Overall weight of ink used	56.8 g	61.3 g

+ When producing 50 prints of a Cottage Architectural Plan in Standard/Quality mode, the Canon unit used 1.7% less ink than the Epson SC-T7200D.
+ When printing a Retail Poster in Standard/Quality mode, the Canon unit used 3.9% less ink than did the Epson SC-T7200D.
+ When printing a GIS Map in Standard/Quality mode, the Canon iPF825 used 7.3% less ink compared with the Epson device.

Device Feature Set

— The capacity of the Canon cartridges (330 ml and 700 ml for black, cyan, magenta and yellow) is slightly lower than the equivalent (350 ml and 700 ml for black, cyan, magenta and yellow) cartridges of the Epson model.

+ If the Canon device detects that printhead nozzles are in danger of clogging, it automatically starts a cleaning routine. This task would have to be done manually with the Epson unit, although BLI analysts did not encounter any nozzle clogging issues during testing.
+ Canon's ink cartridges are replaceable during operation, which helps to reduce downtime for Canon users.
+ The Canon unit supports a higher maximum cut-sheet media length of 1.6 m compared with 914 mm for the Epson unit.

— Both models offer USB 2.0, but only the Epson model offers Gigabit Ethernet connectivity.

O Both models offer easy and quick roll paper loading with auto paper feed—once the user loads paper on to the device, alignment and width adjustments are automatically carried out without further user intervention.

O For maximum convenience and minimum downtime, both models offer the advantage of a dual-roll design, giving users the added flexibility of switching between different media types or sizes without reloading the media each time. Both models also provide excellent ease of access when loading or unloading the second roll.

O BLI analysts noted that both companies offer single-roll versions of these models with the option of adding an Auto-Take-Up-Roll option, which could be an extremely valuable feature in high-volume production environments, enabling large numbers of images or documents to be conveniently stored on a single roll. In Canon's case, the optional media take-up unit (TU-06) is available for the iPF815 sister model and other 44-inch models such as iPF8400 and iPF8400S.

+ The Canon model offers a standard, non-upgradable RAM of 32 GB, while the Epson unit has a standard non-upgradable RAM of 1 GB.
+ The Canon model has a 160-GB hard drive as standard.

— A 320-GB hard drive is available for the Epson unit, but only as an extra-cost option.

O The Epson model is a lighter (133 kg versus 189 kg), more compact device than the Canon unit.

O The output catch baskets of both models are very simple designs which collect output from media rolls in a random order. The Epson catch basket is attached to the device, whereas Canon's is a separate assembly which must be wheeled up to the device.

— The Epson model includes a small colour LCD while the Canon model has a monochrome LCD display. BLI analysts found both models' control panels very simple to navigate.

— The Epson SC-T7200D's power consumption while active is much lower—64 watts versus 190 watts for the Canon model. In standby mode (where the devices are likely to spend more of their time) the Canon model's power consumption is also higher than that of the Epson device (5 W versus 3 W for Epson).

— Rated noise emissions are slightly higher for the Canon model (52 dB) compared to the Epson device (50 dB).

Driver Feature Set

\+ The Canon iPF825 has five speed settings (Draft 300, Standard 600, Draft 600, High 600 and 1200), while the Epson device offers three settings (Speed, Quality and Max Quality), although not all speed settings are available with all media types.

O Both the Canon GARO driver and the Epson ESC/P driver provide a useful overview of the settings for predefined profiles.

— Seven predefined profiles are available with the Canon driver, while the Epson driver offers a range of eight settings.

\+ The Canon driver supports 2 to 16 multi-up printing, while the Epson driver supports 2 to 4 mul-ti-up printing.

\+ The Canon iPF825 supports mobile printing from iPads—a feature not available with the Epson SC-T7200D.

— Although both devices offer a poster mode, the Canon GARO driver offers only a 2 by 2 poster mode, while the Epson model supports 4 by 4 posters.

— The Canon driver offers page stamping (Date, Time, Name and Page Number), while the Epson driver offers a much wider range of options, including a wide variety of image quality attributes.

O Both the Epson driver and the Canon GARO driver offer a wide range of built-in adjustments for CMYK balance, brightness, contrast and saturation. ICC profile settings are also available with both drivers—in the case of Canon's GARO driver in its matching tab under Advanced Settings. Canon operators can select four matching modes (driver, ICC, driver ICM and host ICM matching) and choose one of four rendering methods (auto, perceptual, colorimetric or saturation).

— The Epson model provides a handy thumbnail preview for users to check the effects on the image as they make colour adjustments. In addition, the Epson driver displays a list of all the current settings on each tab window, providing users with a quick, at-a-glance summary.

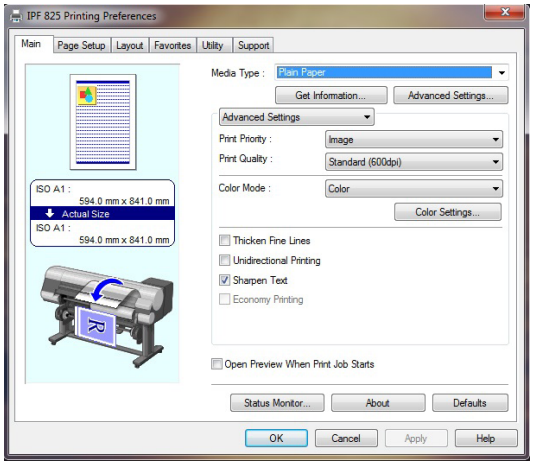
\+ The Canon driver offers unidirectional printing, even in Draft mode. With the printhead travelling in only one direction to create the desired image, this helps to avoid any banding across output. The Epson driver does not offer this feature, however it exhibited banding only in the poster printing test when in Speed mode.

\+ The Canon driver includes the Color imageRUNNER Enlargement Copy Mode utility, which is standard with the 32-bit version of the driver is available as a download for the 64-bit version of the driver via the Printer Driver Extra Kit. This enables users to integrate a Canon small-format MFP device with the iPF825. Documents scanned by the Canon MFP are automatically routed to a hot folder that is monitored by the driver of the iPF825. The

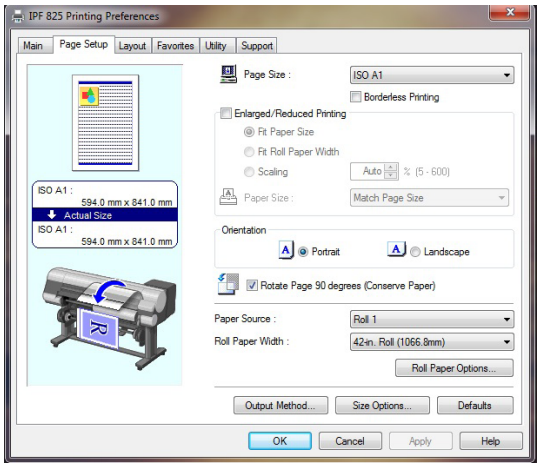
image is then resized and printed, offering a fast, easy-to-use poster creation tool for office users. Epson users can choose comparable functionality via the extra-cost Copy Factory utility.

- The Canon driver offers a Free Layout nesting tool (also available for free download via the Printer Driver Extra Kit) that enables files—even files created with different applications—to be scaled, resized, or grouped together as a single job from the printer driver. Images can be dragged and dropped to their desired locations and printed together on a single page, helping to conserve paper. Epson also offers resizing functionality and the ability for users to combine multiple documents to print on a single layout via its Layout Manager utility.

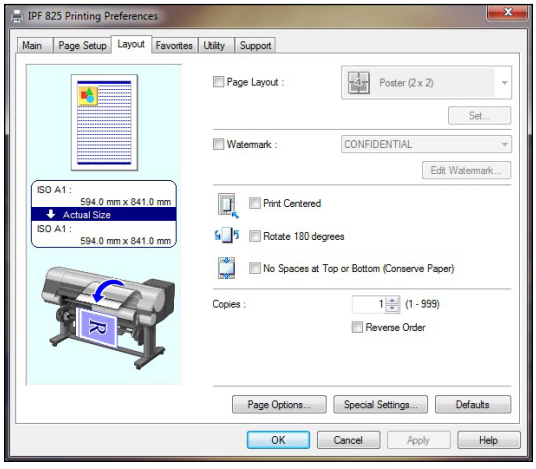
- The Canon model offers a plug-in for printing from Microsoft Office applications, which includes useful tools for automatic media resizing, nesting and borderless printing. Epson offers similar software, LFP Print Plug-in for Office, to its users.



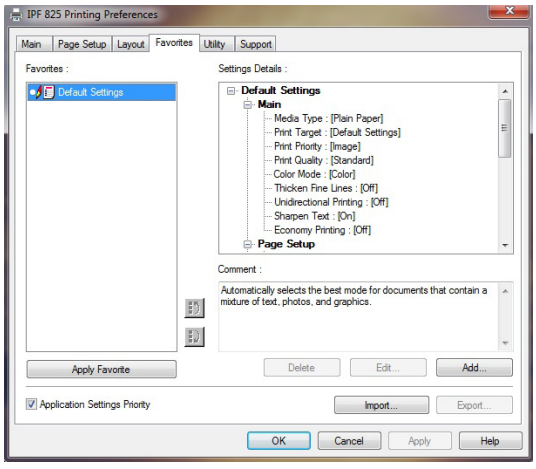
Canon Print Driver Main Tab



Canon Print Driver Page Setup Tab



Canon Print Driver Layout Tab



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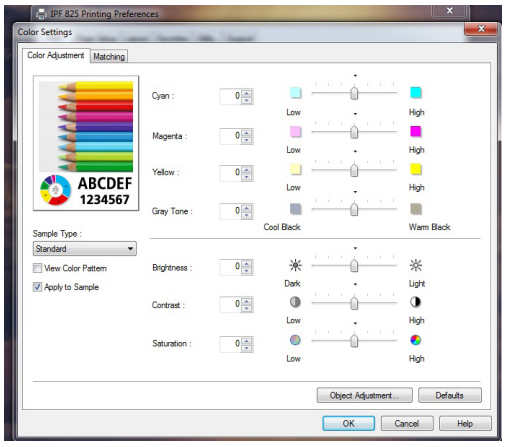

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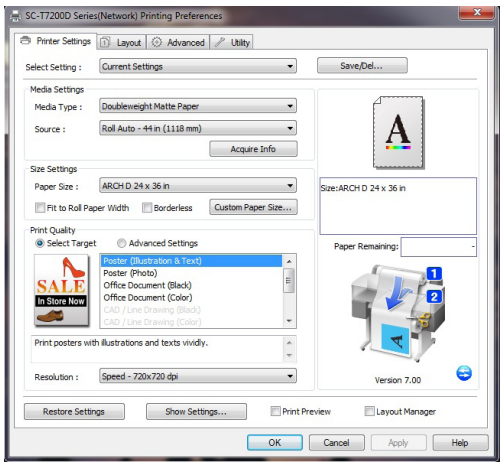
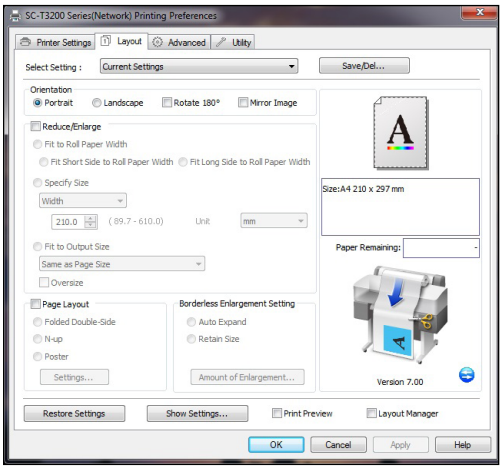


Epson Print Driver Printer Settings Tab



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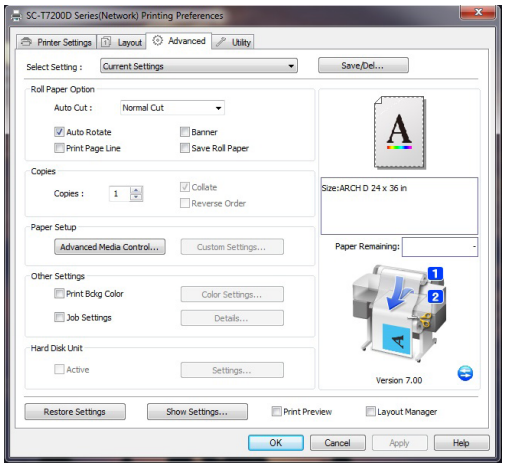
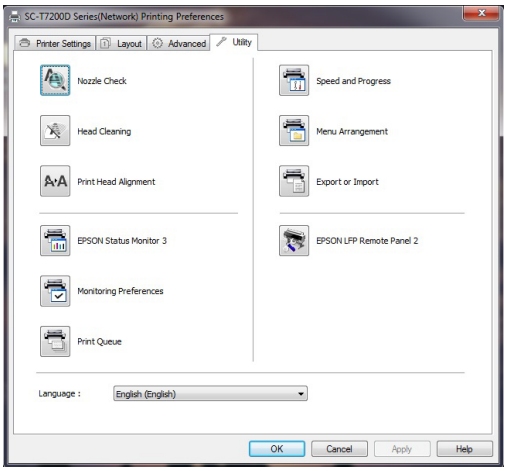
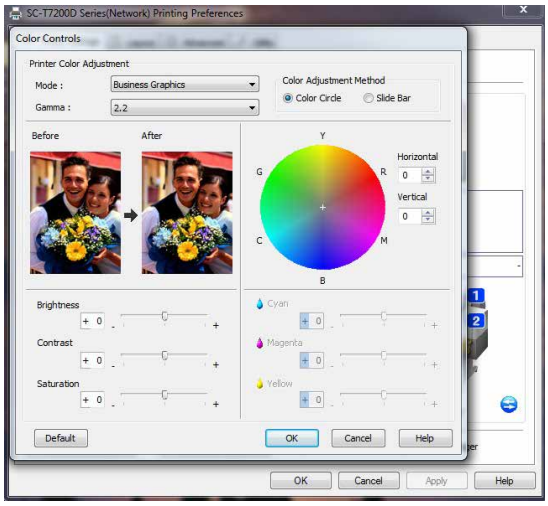


Epson Print Driver Advanced Settings Tab



Epson Print Driver Utility Tab



Epson Print Driver Colour Controls

SUPPORTING TEST DATA

Job Stream Productivity

Mixed File Types, Same Size, Single Roll

Canon imagePROGRAF iPF825 (time in seconds)			Epson SureColor SC-T7200D (time in seconds)		
Draft	Standard	High	Speed	Quality	Max Quality
654.65	1,125.98	2,150.77	712.75	1,304.53	3,273.43

BLI's job stream consists of nine files, including PDF, TIFF and DWF files totalling 19 pages, all at Arch D-size, ensuring that DWF and PLT files are set to fit to page. This test replicates the type of traffic a typical wide-format device might experience in a real-world, multi-user environment. All of the files are submitted to the controller in a specific order and sent to the printer as a group, at which time the stopwatch begins; timing ends when the last page of the last file exits the device. Both devices were loaded with 42-inch rolls, with each file set to auto-rotate to save media.

Mixed File Types, Same Size, Single Roll

Canon imagePROGRAF iPF825 (time in seconds)	Epson SureColor SC-T7200D (time in seconds)
Draft	Speed
835.80	900.09

BLI's dual-roll job stream consists of nine files, including PDF, TIFF and DWF files totalling 19 pages, all at Arch D-size, ensuring that DWF and PLT files are set to fit to page. This test replicates the type of traffic a typical wide-format device might experience in a real-world, multi-user environment. All of the files are submitted to the controller in a specific order and sent to the printer as a group, sending alternate jobs to different rolls, at which time the stopwatch begins; timing ends when the last page of the last file exits the device. Both devices were loaded with 42-inch rolls, with each file set to auto-rotate to save media.

Colour Productivity

Canon imagePROGRAF iPF825 (time in seconds)			Epson SureColor SC-T7200D (time in seconds)		
Draft	Standard	High	Speed	Quality	Max Quality
388.72	666.65	1,306.69	451.50	843.10	2,313.50

The 12-page DWF test file was printed using the device driver set to the plain paper/colour setting. Both devices were loaded with 914-mm rolls with each file set to auto-rotate to save media. The actual time indicated is the time it took to RIP, image and deliver all pages of the test document to the collection bin.

Monochrome Productivity

Canon imagePROGRAF iPF825 (time in seconds)			Epson SureColor SC-T7200D (time in seconds)		
Draft	Standard	High	Speed	Quality	Max Quality
383.97	661.28	1,295.60	474.95	841.60	2,323.33

The 12-page DWF test file was printed with the Canon driver set to the plain paper/monochrome setting and the Epson driver set to plain paper, black mode. Both devices were loaded with 42-inch rolls, with each file set to auto-rotate to save media. The actual time indicated is the time it took to RIP, image and deliver all pages of the test document to the collection bin.

First-Page-Out Productivity after a Weekend of Non-Use

	Canon imagePROGRAF iPF825 (time in seconds)	Epson SureColor SC-T7200D (time in seconds)
Time Before Printing Commences	58.81	114.03
First Page Out	117.35	177.40

First-Page-Out Productivity from Ready State

	Canon imagePROGRAF iPF825 (time in seconds)	Epson SureColor SC-T7200D (time in seconds)
Time Before Printing Commences	16.04	11.65
First Page Out	50.78	74.36

First-page-out times are achieved by sending an Arch D-size PDF file to print, timed from release to page out with the Canon driver set to the plain paper/monochrome setting and the Epson driver set to plain paper, black mode. Both devices were loaded with 42-inch rolls, with each file set to auto-rotate to save media.

A0 First-Page-Out and Throughput Productivity

	Canon imagePROGRAF iPF825 (time in seconds)	Epson SureColor SC-T7200D (time in seconds)
First Page Out	123.06	124.90
Five Pages Out	581.20	605.72

The single-page A0-size PDF test file was printed using the device driver with the plain paper/colour setting in default speed mode. The actual time indicated is the time it took to RIP, image and deliver all pages of the test document to the collection bin.

Colour Image Quality

Colour Optical Density Evaluation

Canon imagePROGRAF iPF825 Plain Paper						
	Draft		Standard		High	
	50%	100%	50%	100%	50%	100%
Cyan	0.50	1.09	0.67	1.17	0.66	1.17
Magenta	0.58	0.96	0.72	1.07	0.71	1.08
Yellow	0.32	0.83	0.48	0.91	0.47	0.93
Black	0.67	1.30	0.67	1.45	0.67	1.48

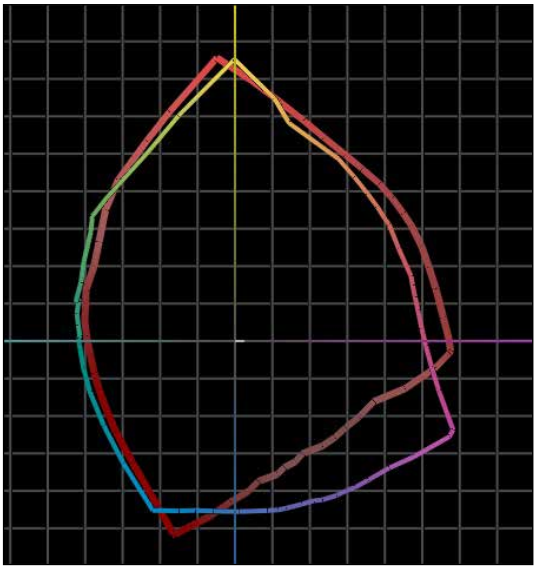
Epson SureColor SC-T7200D Plain Paper						
	Speed		Quality		Max Quality	
	50%	100%	50%	100%	50%	100%
Cyan	0.38	1.02	0.34	1.03	0.38	1.02
Magenta	0.33	0.85	0.27	0.86	0.29	0.92
Yellow	0.38	0.81	0.37	0.89	0.35	0.94
Black	0.65	1.11	0.64	1.28	0.63	1.32

Note: Colour density readings were assessed by printing a BLI proprietary PDF test target file on plain paper in default colour settings at all quality settings available and measuring the density of 100% dot fill and 50% dot fill using an XRite 508 densitometer.

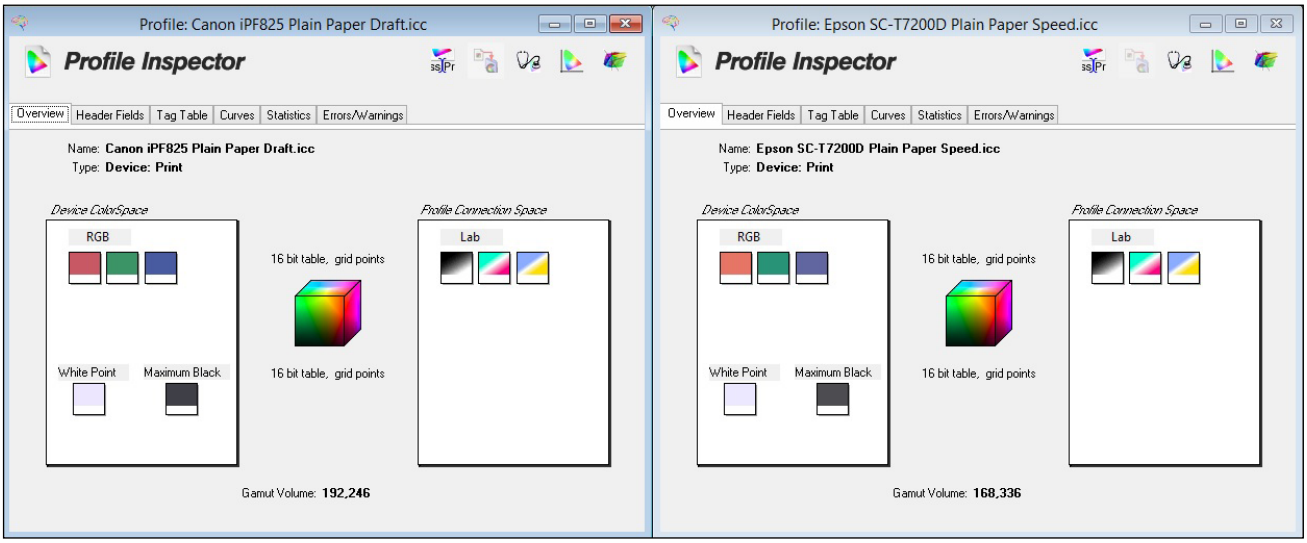
Colour Gamut Comparison

Media Type/Settings	Canon imagePROGRAF iPF825	Epson SureColor SC-T7200D
Plain Paper Draft/Speed	192,246	168,336
Plain Paper Standard/Quality	231,884	202,953
Plain Paper High/Max Quality	241,414	229,339
Glossy Photo High/Max Quality	473,680	345,122

Colour Gamut Comparison

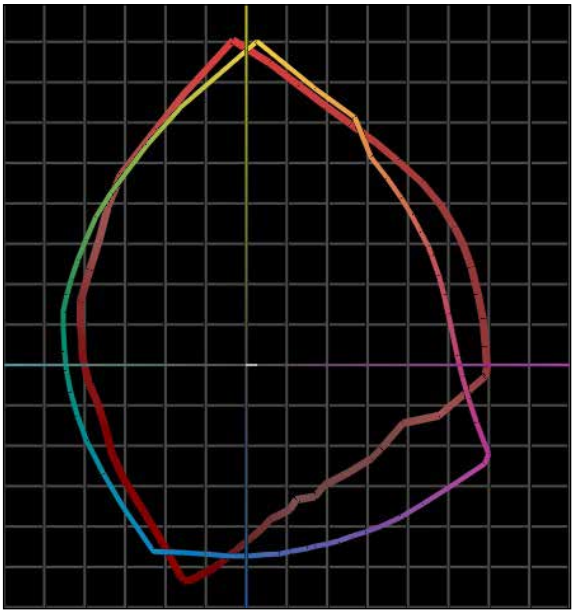


Epson SureColor SC-T7200D colour gamut on plain paper in Speed settings (red) versus Canon imagePROGRAF iPF825 colour gamut (shown chromatically) on plain paper in Draft settings.

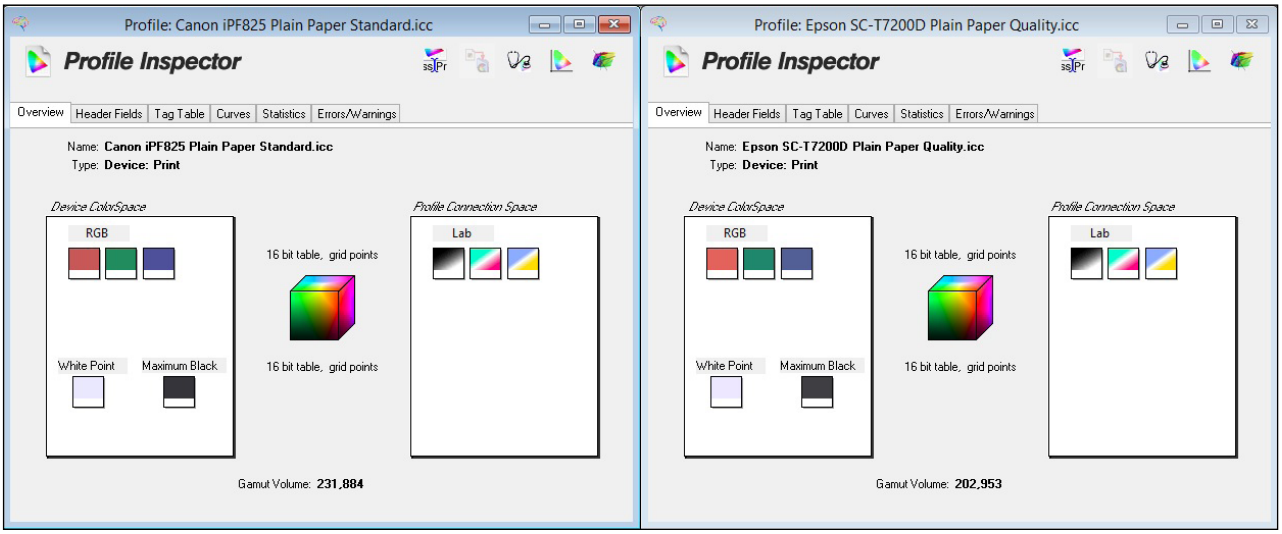


Colour gamut profile for Canon imagePROGRAF iPF825 (left) and Epson SureColor SC-T7200D (right) on plain paper in Draft/Speed modes.

Colour Gamut Comparison

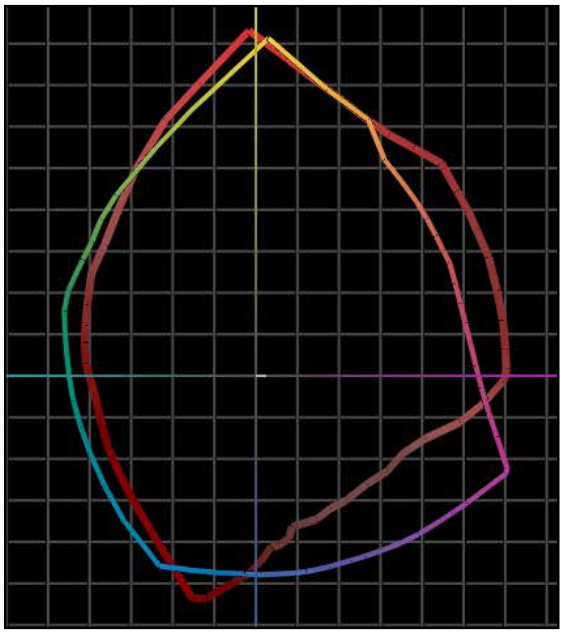


Epson SureColor SC-T7200D colour gamut on plain paper in Quality settings (red) versus Canon imagePROGRAF iPF825 colour gamut (shown chromatically) on plain paper in Standard settings.

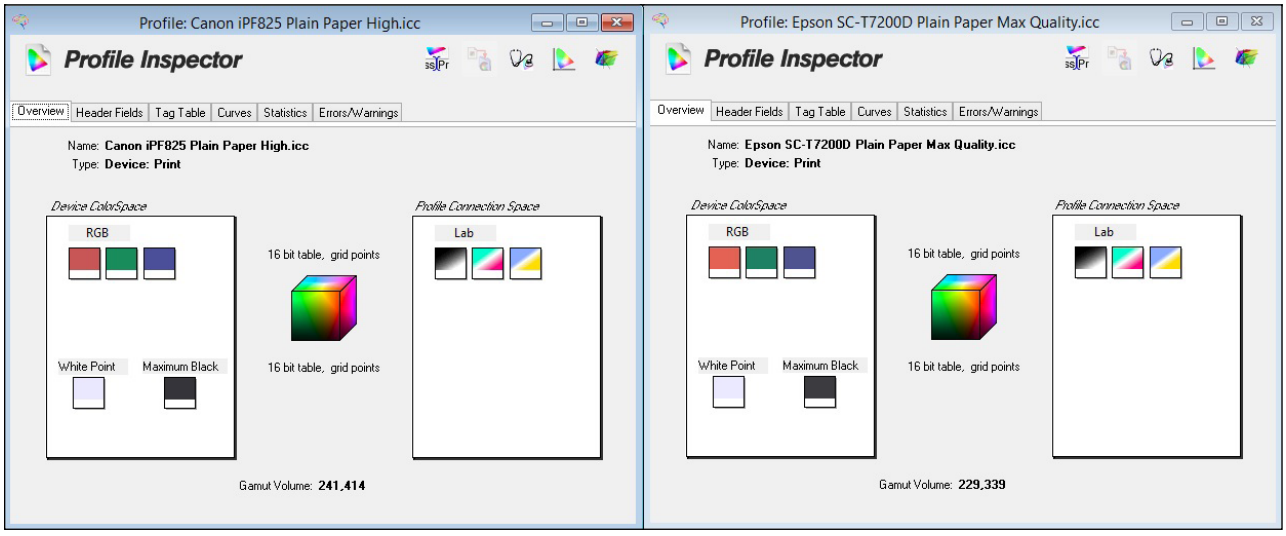


Colour gamut profile for Canon imagePROGRAF iPF825 (left) and Epson SureColor SC-T7200D (right) on plain paper in Standard/Quality modes.

Colour Gamut Comparison

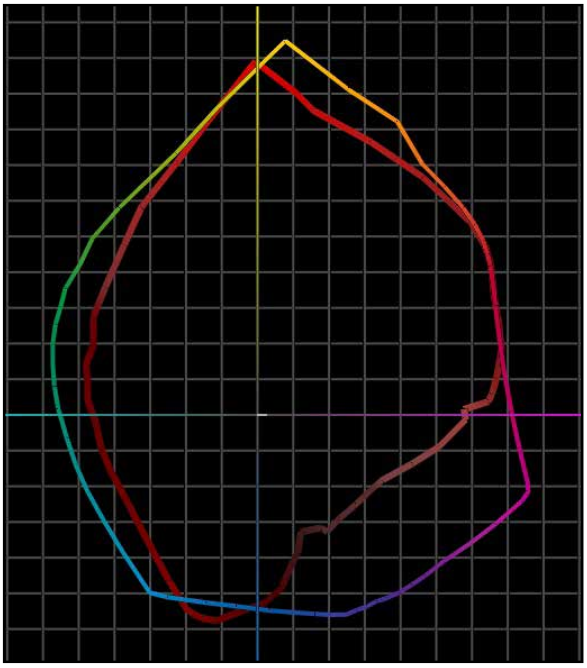


Epson SureColor SC-T7200D colour gamut on plain paper in Max Quality settings (red) versus Canon imagePROGRAF iPF825 colour gamut (shown chromatically) on plain paper in High settings.

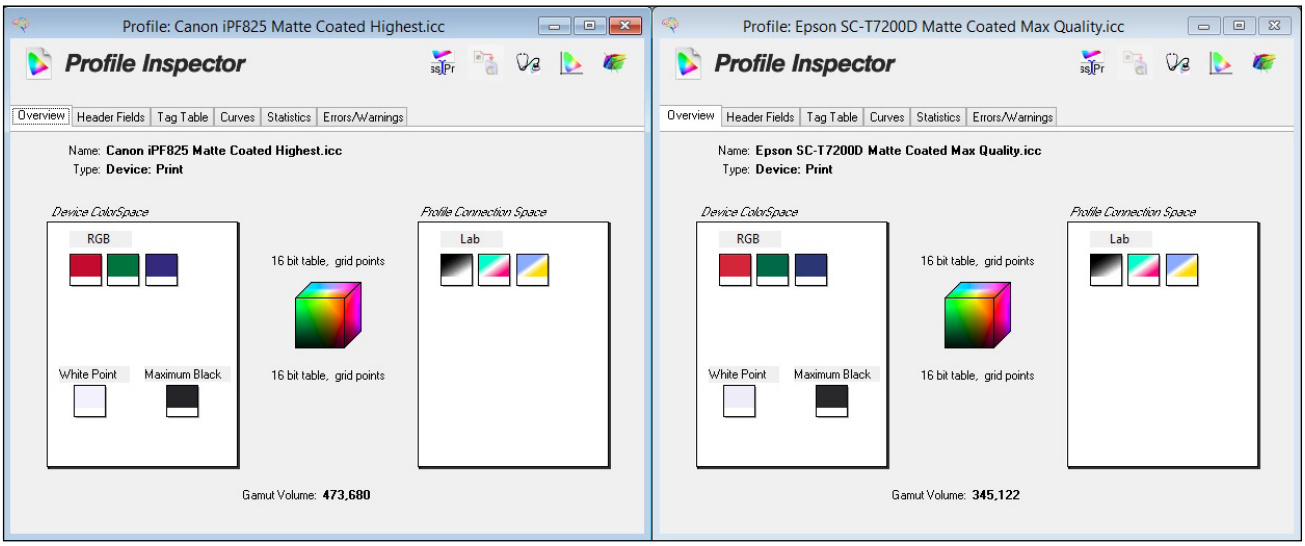


Colour gamut profile for Canon imagePROGRAF iPF825 (left) and Epson SureColor SC-T7200D (right) on plain paper in High/ Max Quality modes.

Colour Gamut Comparison



Epson SureColor SC-T7200D colour gamut on matte coated paper in Max Quality settings (red) versus Canon imagePROGRAF iPF825 colour gamut (shown chromatically) on matte coated paper in High quality settings.



Colour gamut profile for Canon imagePROGRAF iPF825 (left) and Epson SureColor SC-T7200D (right) on matte coated paper in High/Max Quality modes.

Black Image Quality

	Canon imagePROGRAF iPF825			Epson SureColor SC-T7200D		
	Draft	Standard	High	Speed	Quality	Max Quality
Density Block						
1	1.30	1.39	1.45	1.19	1.43	1.51
2	1.34	1.40	1.47	1.19	1.41	1.52
3	1.33	1.35	1.47	1.19	1.43	1.50
4	1.33	1.39	1.45	1.18	1.44	1.50

Note: Solid black density measurements are based on four readings taken from a BLI proprietary PDF test target file corresponding to four different 100% solid black locations on the output. The output was assessed at all quality settings available, with the Canon driver set to plain paper/monochrome setting and the Epson driver set to plain paper, black mode. Density was measured using an XRite 508 densitometer.

Device Feature Set

	Canon imagePROGRAF iPF825	Advantage		Epson SureColor SC-T7200D
Max. print quality	2400 x 1200 dpi		✔	2880 x 1440 dpi
Number of inks	5			5
Ink tanks replaceable during operation	Yes	✔		No
Ink-drop size	4 picoliter	✔		3.5 picoliter (variable)
Ink cartridge capacity	330 ml and 700 ml for CMYK, MK		✔	110 ml (starter), 350 ml, 700 ml for CMYK, MK
Number of nozzles	MBK: 5,120 nozzles, Other colours: 2,560 nozzles each, 15,360 in total	✔		3,600 (720 per colour)
Number of printheads	1			1
Line accuracy	+/-0.1%			+/-0.1%
Minimum line width	0.02 mm			0.02 mm
Minimum print margins	3 mm			3 mm
Borderless (0 mm) printing	Yes			Yes
Maximum outside diameter of roll paper	150 mm			150 mm
Maximum cut-sheet media length	1.6 m	✔		914 mm
Maximum media thickness for roll paper	0.8 mm			Roll 0.8mm Cut sheet 1.5mm
Maximum media width	44 inches			44 inches
Media loading	Front			Front
Optional media handling	Roll holder set			Roll media adapter
Standard RAM	32 GB (384 MB Physical DRAM)	✔		1 GB
Maximum RAM	32 GB (384 MB Physical DRAM)	✔		1 GB
Hard drive Standard or Optional	Standard	✔		Optional
Hard drive	160-GB		✔	320-GB
Interface	10/100/Base-T/TX Ethernet, USB 2.0		✔	10Base-T/100Base-TX/1000Base-T Ethernet, USB 2.0
PDL	GARO, HP-GL/2, HP RTL			HP-GL/2, HP RTL, Epson ESC/P-R
Net weight (unpacked)	189 kg			133 kg
Power consumption when in standby	5 W or less		✔	3 W
Power consumption when active	190 W		✔	64 W
Acoustic pressure	Operation: 52 dB (A) or less; Standby: 35 dB (A) or less		✔	Operation: 50 dB (A); Standby: INA
Acoustic power	Operation: 6.8 Bels			Operation: 6.8 Bels

INA – Information not available

Driver Feature Set

	Canon imagePROGRAF iPF825	Advantage		Epson SureColor SC-T7200D
Speed settings	5 (Draft 300, Standard 600, Draft 600, High 600 and 1200)	✔		3 (Speed, Quality, Max Quality), depending on paper chosen
Economy mode	Yes	✔		No
Predefined profiles	7		✔	8
Overview of profile settings provided	Yes			Yes
Media profiles	50 + 5	✔		20
IQ optimized for print profiles	Yes			Yes
Watermark	Yes	✔		No
Sharpen text	Yes			Yes
Thicken fine lines	Yes	✔		No
Mirror image	No		✔	Yes
Multi-up printing	Yes, 2 to 16	✔		Yes, 2 and 4
Poster print mode	Yes (2 by 2)		✔	Yes (4 by 4)
Page stamping	Yes (Date, Time, Name, Page Number)		✔	Yes (Date, Time, Document/User/Printer Name, Media Type, Print Quality Level, Resolution, Print Mode, High Speed, Finest Detail, Edge Smoothing, Colour Adjustment and Value, Colour Density)
Image rotation	Yes, auto 180 degrees			Yes, auto 180 degrees
Option to preview before print	Yes			Yes
CMYK balance adjustment	Yes			Yes
Brightness adjustment	Yes			Yes
Contrast adjustment	Yes			Yes
Saturation adjustment	Yes			Yes
Advanced colour management options	Yes			Yes
Enlargement Copy Mode	Yes			Yes
Free Layout Capability	Yes			Yes
MS Office Plug-in	Yes			Yes
Disable automatic cutter	Yes			Yes
Unidirectional printing selection option	Yes	✔		No

Ink Consumption

Table 1

Amount of Ink in Each Canon iPF825 Cartridge (grams)

	Cyan	Magenta	Yellow	Matte Black	Black
Weight of cartridge prior to installation	465.3	463.5	459.4	466.3	463.7
Weight of cartridge at end of life	108.5	108.5	108.5	108.5	108.5
Net weight of ink	356.8	355.0	350.9	357.8	355.2
Total ink weight across five cartridges					1,775.7

Table 2

Amount of Ink in Each Epson SureColor SC-T7200D Cartridge (grams)

	Cyan	Yellow	Magenta	Matte Black	Photo Black
Weight of cartridge prior to installation	512.5	511.4	510.9	517.7	512.1
Weight of cartridge at end of life	129.8	129.8	129.8	129.8	129.8
Net weight of ink	382.7	381.6	381.1	387.9	382.3
Total ink weight across five cartridges					1,915.6

Table 3

Ink Used in Three 50-Page Runs of Cottage Architectural Plan Test Document (Standard Mode) by the Canon iPF825 (grams)

	Cyan	Magenta	Yellow	Matte Black	Black
Test Run 1 Net weight of ink used	5.8	2.1	4.3	9.5	1.5
Test Run 2 Net weight of ink used	4.9	2.0	4.1	9.3	1.5
Test Run 3 Net weight of ink used	4.9	2.5	4.6	9.1	1.6
Average amount of ink used across three runs	5.2	2.2	4.3	9.3	1.5
Total ink weight across six cartridges for 50-page run (based on averages)					22.5

Table 4

Ink Used in Three 50-Page Runs of Cottage Architectural Plan Test Document (Standard Mode) by the Epson SureColor SC-T7200D (grams)

	Cyan	Yellow	Magenta	Matte Black	Photo Black
Test Run 1 Net weight of ink used	5.3	1.3	3.5	11.6	0.9
Test Run 2 Net weight of ink used	5.2	1.4	3.5	11.8	1.0
Test Run 3 Net weight of ink used	5.4	1.6	3.8	11.9	0.9
Average amount of ink used across three runs	5.3	1.4	3.6	11.8	0.9
Total ink weight across five cartridges for 50-page run (based on averages)					23.0

Table 5

Ink Used in Three 50-Page Runs of Retail Poster Test Document by the Canon iPF825 (grams)

	Cyan	Magenta	Yellow	Matte Black	Black
Test Run 1 Net weight of ink used	13.0	34.5	15.3	2.2	2.2
Test Run 2 Net weight of ink used	15.6	27.5	19.3	1.5	2.1
Test Run 3 Net weight of ink used	13.4	32.2	18.2	1.6	2.4
Average amount of ink used across three runs	14.0	31.4	17.6	1.8	2.2
Total ink weight across six cartridges for 50-page run (based on averages)					67.0

Table 6

Ink Used in Three 50-Page Runs of Retail Poster Test Document by the Epson SureColor SC-T7200D (grams)

	Cyan	Yellow	Magenta	Matte Black	Photo Black
Test Run 1 Net weight of ink used	15.9	13.2	34.7	4.5	1.1
Test Run 2 Net weight of ink used	16.6	13.5	34.2	4.2	1.0
Test Run 3 Net weight of ink used	16.5	13.7	34.6	4.4	1.1
Average amount of ink used across three runs	16.3	13.5	34.5	4.4	1.1
Total Ink Weight across five cartridges for 50-page run (based on averages)					69.8

Table 7

Ink Used in Three 50-Page Runs of GIS Map Test Document by the Canon iPF825 (grams)

	Cyan	Magenta	Yellow	Matte Black	Black
Test Run 1 Net weight of ink used	21.5	10.3	10.2	9.1	4.3
Test Run 2 Net weight of ink used	22.7	9.2	9.6	11.1	4.3
Test Run 3 Net weight of ink used	21.8	10.9	10.9	9.7	4.7
Average amount of ink used across three runs	22.0	10.1	10.2	10.0	4.4
Total Ink Weight across five cartridges for 50-page run (based on averages)					56.7

Table 8

Ink Used in Three 50-page Runs of GIS Map Test Document by the Epson SureColor SC-T7200D (grams)

	Cyan	Yellow	Magenta	Matte Black	Photo Black
Test Run 1 Net weight of ink used	30.2	11.8	13.8	3.9	1.3
Test Run 2 Net weight of ink used	30.5	12.0	13.9	4.0	1.1
Test Run 3 Net weight of ink used	30.4	11.9	13.9	4.0	1.2
Average amount of ink used across three runs	30.4	11.9	13.9	4.0	1.2
Total Ink Weight across five cartridges for 50-page run (based on averages)					61.4

Ink Consumption Test Methodology Overview:

Buyers Lab's ink consumption analysis was conducted using three document types (architectural plan, retail poster and GIS map). Each document was formatted as a PDF (except for the Cottage Architectural Plan, which was formatted as a DWG TrueView Drawing) and sized at ISO A1.

The Canon imagePROGRAF iPF825 was installed in BLI's lab with the latest "01-22" level of firm-ware (as of October 2014) and connected to a Windows 7 workstation using a 1000BaseT TCP/IP connection. The device was left in default configuration throughout testing. The Canon GARO driver was used for all testing and was left in default colour setting configuration with media selection set to plain paper and the image set to print at actual size. For the Cottage Architectural Plan, Print Priority settings were set to Line Drawing/Text with Quality set to Fast (600 dpi) and Standard (600 dpi). For the Retail Poster and the GIS map, Print Priority settings were set to Image with Quality set to Standard (600 dpi).

The Epson SureColor SC-T7200D was installed in BLI's lab with the latest "MW028E7,F7.10,5000" level of firmware (as of October 2014) and connected to a Windows 7 workstation using a 1000BaseT TCP/IP connection. The device was left in default configuration throughout testing. The Epson ESC/P driver was used for all testing and was left in default colour setting, with media selection set to plain paper and the image set to print at actual size. For the Cottage Architectural Plan, Print Priority settings were set to CAD/Line Drawing with the Standard Quality setting (360 x 720 dpi). For the Retail Poster, Print Priority settings were set to Poster with Quality set to Standard (360 x 720 dpi), and for the GIS map Print Priority settings were set to Perspective GIS with Quality set to Standard (360 x 720 dpi).

Before installing the ink cartridges, BLI technicians weighed and recorded the weight of each with all packaging removed. At the end of each 50-print test run, the cartridges were weighed again and the resulting weight of ink used for the test run calculated for each colour. To ensure that the sub-tank on the Canon model did not affect results, a procedure was followed to ensure that the sub-tank level was at its maximum before the print run commenced and again after the print run was completed, thereby ensuring that ink replenishment of the sub-tanks was taken into account for each print run.

For both models one cartridge was then run to exhaustion and the weight of the empty cartridge was recorded.

Test Environment

Testing was conducted in BLI's European test lab, in an atmospherically controlled environment monitored by a 24/7 Dickson Temperature/RH chart recorder, ensuring that typical office conditions were maintained. All paper used in testing was allowed to acclimatize inside the facility for a minimum of 12 hours before being used.

Test Equipment

BLI's dedicated test network in Europe, consisting of Windows 2008 servers, Windows 7 workstations, 10/100/1000BaseTX network switches and CAT5e/6 cabling.

Test Procedures

The test methods and procedures employed by BLI in its lab testing include BLI's proprietary pro-cedures and industry-standard test procedures. In addition to a number of proprietary test documents, BLI uses industry standard files including a BLI test file and an ASTM monochrome test document for evaluating black image quality. In addition to a visual observation, colour print quality and gamut size are evaluated using a profile

software tool from Colour Confidence and an EFI ES-1000 colour spectrophotometer and analysed using Chromix ColorThink Pro 3.0 software. Density of black and colour output was measured using an X-Rite 508 densitometer.

About Buyers Laboratory Inc.

Buyers Laboratory LLC (BLI) is the world's leading independent provider of analytical information and services to the digital imaging and document management industry. For more than 50 years, buyers have relied on BLI to help them differentiate products' strengths and weaknesses and make the best purchasing decisions, while industry sales, marketing and product professionals have turned to BLI for insightful competitive intelligence and valued guidance on product development, competitive positioning and sales channel and marketing support. Using BLI's web-based bliQ and Solutions Center services, 40,000 professionals worldwide create extensive side-by-side comparisons of hardware and software solutions for more than 15,000 products globally, including com-prehensive specifications and the performance results and ratings from BLI's unparalleled Lab, Solutions and Environmental Test Reports, the result of months of hands-on evaluation in its US and UK labs. The services, also available via mobile devices, include a comprehensive library of BLI's test reports, an image gallery, hard to find manufacturers' literature and valuable tools for configuring products, calculating total cost of ownership (TCO) and annual power usage. BLI also offers consulting and private, for-hire testing services that help manufacturers develop and market better products and consumables.

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