BLI

Custom Test Report

Comparative Reliability, Energy Consumption, Image Quality and Waste Evaluation

MARCH 2014

HP Officejet Enterprise Color X585 MFP vs. Competitive Laser/LED Models

OVERALL PERFORMANCE RATINGS

	HP Officejet Enterprise Color X585 MFP	Konica Minolta bizhub C35	Kyocera FS-C2626 MFP	Lexmark X746de	Ricoh MP C305SPF
Reliability	Excellent	Fair	Very Good	Poor	Very Good
Consumables and packaging waste	Excellent	Fair	Very Good	Poor	Good
TEC Energy Consumption	Excellent	Good	Very Good	Very Good	Excellent
Color Output Quality	Very Good	Very Good	Excellent	Very Good	Good
Black Output Quality	Very Good	Excellent	Excellent	Excellent	Very Good

Test Objective

Buyers Laboratory LLC was commissioned by Hewlett-Packard to conduct comparative reliability, image quality, energy consumption and consumables and packaging waste generation testing of the HP Officejet Enterprise Color X585 MFP with PageWide technology versus the following competitive models, all of which use laser/LED technology: the Konica Minolta bizhub C35, Kyocera FS-C2626 MFP, Lexmark X746de and Ricoh MP C305SPF. BLI used its proprietary reliability and image quality evaluation methods, and test methods consistent with the Energy Star Typical Electricity Consumption (TEC) methodology for the comparative energy evaluation. To evaluate consumables and packaging waste, BLI technicians collected and weighed all used cartridges, waste toner containers and fusers, as well as all related packaging for these items during a 75,000-impression test.

Executive Summary

Over the course of BLI's testing, the HP Officejet Enterprise Color X585 MFP demonstrated a considerable advantage over the competitive models tested in several of the test categories. Not only did the HP model demonstrate the best reliability, but it also generated the least amount of consumables and packaging waste (up to 90% less by weight) over the 75,000-impression test, and consumed significantly less energy than most of the MFPs tested. In fact, the Konica Minolta consumed 108.51 percent, or two times, more energy than the HP model, while the Kyocera and Lexmark models consumed 48.94 percent, or one and a half times, more energy than the HP model in BLI's energy testing. The Officejet Enterprise Color X585 was bested only by the Ricoh model, which used 38.72% percent, or about one third, less energy than the HP model.

The HP model was the only one to complete testing with no misfeeds, malfunctions or service required, while each of the other models experienced multiple misfeeds and one required two service calls. In terms of image quality, based on BLI's standard lab evaluation methods using a combination of visual examination, magnification and densitometer readings, the HP model produced color output in default mode that was on par with most of the laser/LED models tested. In black mode, though clearly acceptable for general office use, the HP's black output was not as cleanly produced as that of the laser/LED models, with technicians citing slight ink overspray and jagged edges on text. Note that the Officejet Enterprise Color X585 offers a high-quality mode, which BLI did not evaluate as part of this test.

Taking overall performance into account, BLI concludes that this test shows the HP inkjet model is superior to all the laser models tested in terms of reliability and waste, and superior to all but one of the laser models tested in terms of power consumption. Based on this evaluation, BLI feels output from the HP Officejet Enterprise Color X585 is well suited for general office use.

What is PageWide Technology?

The HP Officejet Enterprise Color X585 uses fourth-generation PageWide inkjet technology. PageWide technology is so named because the series of staggered, overlapping clusters of nozzles it uses span the width of an 8-1/2" page, in contrast to the couple of inches covered by the printheads of most typical business inkjet products. Rather than travelling back and forth on a carriage to deliver ink dots across the page, the HP PageWide printhead is stationary while the page moves under it during the imaging process. One advantage of a stationary printhead is speed, since only the page needs to move through the printer while the printing element is fixed in one position (much in the way a page moves through a laser printer). Another key advantage is print quality. In traditional inkjet printers, the printhead moves back and forth, and the faster the printhead moves, the more likely output will exhibit banding from the back and forth motion.

Additional information available at www.hp.com/go/officejetenterprisex

Reliability Testing

MFP reliability should be a key concern for buyers, since a reliable device helps minimize downtime, resulting in improved worker productivity. BLI conducted comparative reliability testing on all five units, with each run for 75,000 impressions over 20 working days, using a variable test schedule to simulate real-world usage (varying run lengths, periods of high and low traffic, as well as periods of inactivity).

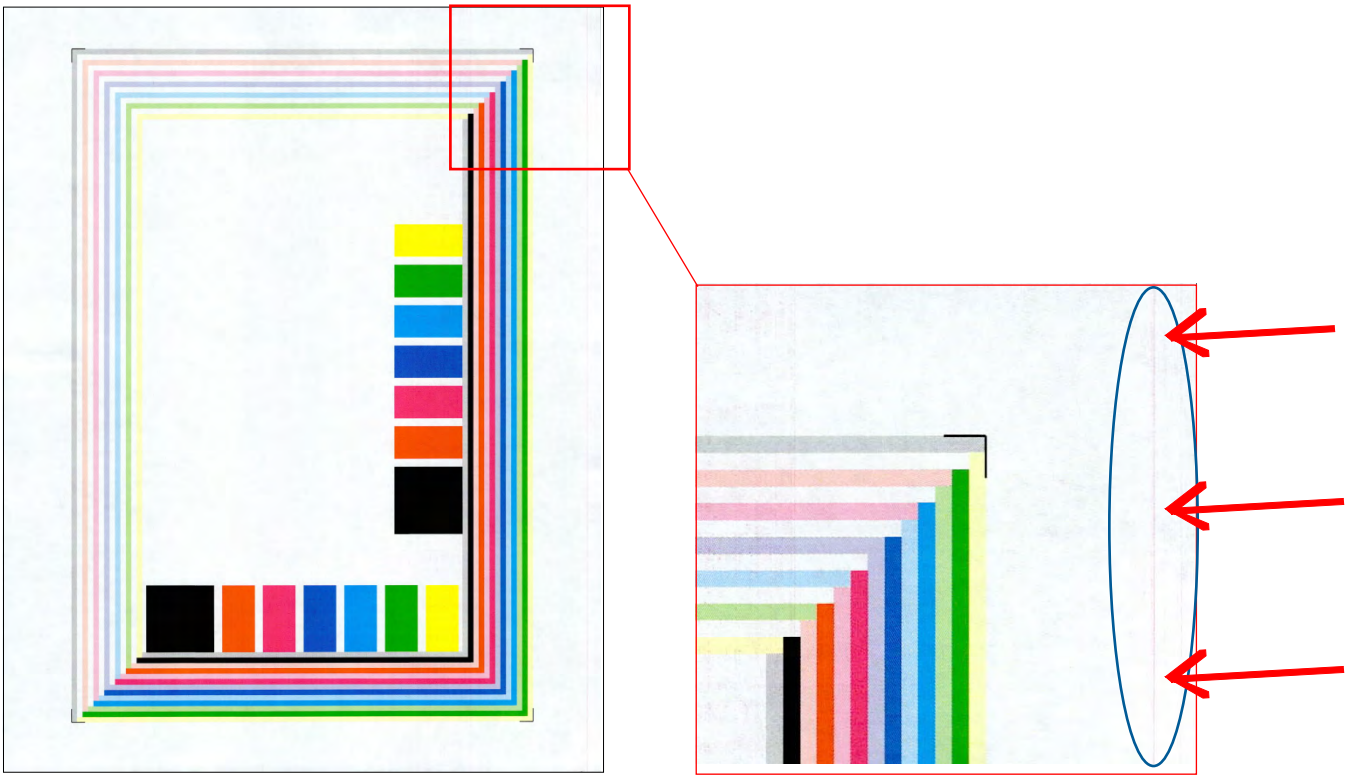
In BLI's test, the Officejet Enterprise Color X585 MFP gave the only flawless reliability performance, completing testing with no misfeeds or malfunctions and no service required. In contrast, the bizhub C35 experienced 11 misfeeds, while both the Kyocera FS-C2626 and Lexmark X746de experienced three misfeeds and the Ricoh MP C305 had two. The Lexmark model also required two service calls, one of which was at the initial setup to address an issue with a drum not being recognized upon installation and then later to correct magenta streaking (see Exhibit A on page 4) on output (after a Lexmark technician replaced the HVPS board, which did not correct the issue, it was determined that the streaking was due to premature expiration of the imaging units; a new set of drums fixed the problem). From a customer perspective, not only would the Lexmark device be out of service during this time, forcing the workgroup to redirect workflow to another device, but someone at the customer site would lose productivity due to time spent scheduling and meeting with service technicians. The Ricoh MP C305SPF required replacement of the fusing unit at 65,280 pages due to extraneous repetitive marks on output (see Exhibit B on page 5).

Reliability Performance Summary

Manufacturer	Model	Total Misfeeds	Scanner Misfeeds	Service Calls
HP	Officejet Enterprise Color X585 MFP	0	0	0
Konica Minolta	bizhub C35	11	0	0
Kyocera	FS-C2626	3	0	0
Ricoh	MP C305 SPF	2	0	0
Lexmark	X746de	3	0	2*

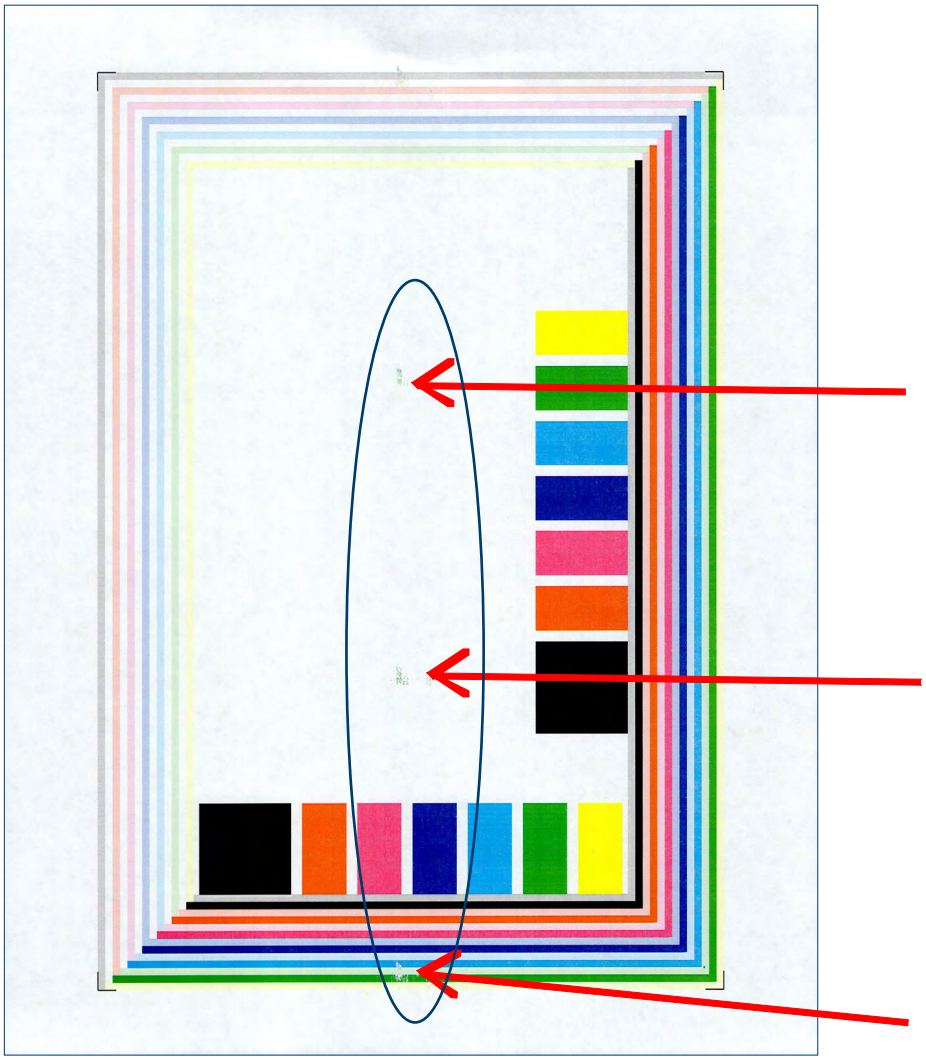
*One of the two service calls on the Lexmark device occurred during initial setup; the unit registered an error message indicating it did not recognize the drum unit.

Exhibit A: Lexmark X746de Reliability Problems



At 26,190 impressions into testing, BLI technicians noted extraneous repetitive magenta marks down the right edge of printed pages. A Lexmark technician was dispatched to perform service on the device. On his first visit, he replaced the HVPS Board, which did not resolve the issue. During a second visit, he instructed the BLI technician to replace all of the imaging units (even though they were not at end of life); installing the new drums resolved the issue.

Exhibit B: Ricoh MP C305 Reliability Issues



At 65,280 impressions into testing, BLI technicians noted intermittent marks down the center of printed pages. Upon inspection of the fuser (pictured above right), technicians noted visible damage to the center of the roller, which necessitated fuser replacement to resolve the problem.

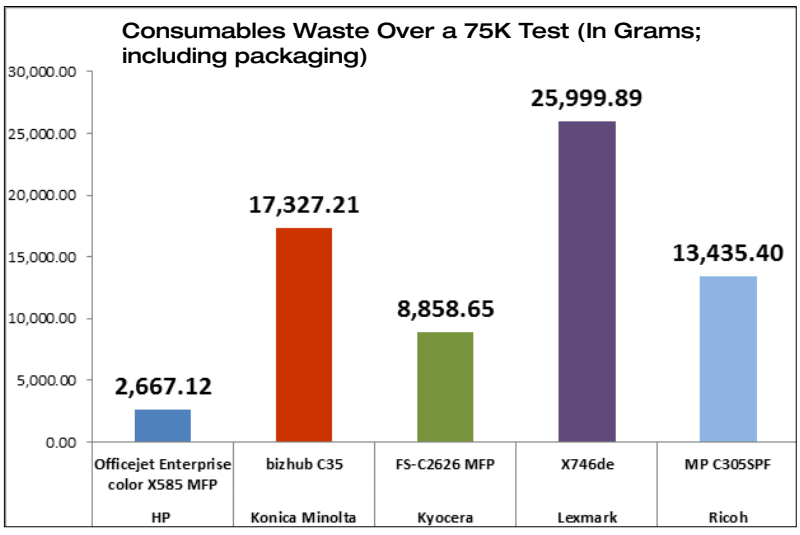
Total Consumables and Packaging Waste Generated at 75,000 Impressions (Based on testing with the ISO 24712 test target)

Packaging and supplies waste can have multiple impacts on businesses, as well as the environment. For instance, in enterprise environments, limiting supplies waste can help reduce storage space requirements and costs, lower shipping expenses, and reduce recycling/disposal expenses, while favorably impacting the environment. In BLI's evaluation of consumables waste based on overall weight, the HP Officejet Enterprise Color X585 MFP produced the least amount of consumables and packaging waste over the 75,000-impression test—in fact, by as much as 90%. The total weight of all cartridges and cartridge packaging required to print 75,000 impressions was just 5.88 pounds (2,667.12 grams) for the HP model. Total weights of all user-replaceable consumable items (toner, drums, and waste containers) used and associated packaging for the competitive devices ranged from 19.53 pounds (8,858.65 grams) for the Kyocera FS-C2626 to 57.32 pounds (25,999.89 grams) for the Lexmark X746de.

The compact design of the HP 980 Black Original ink cartridge minimizes storage spce requirements and reduces the volume of empty cartidge waste.

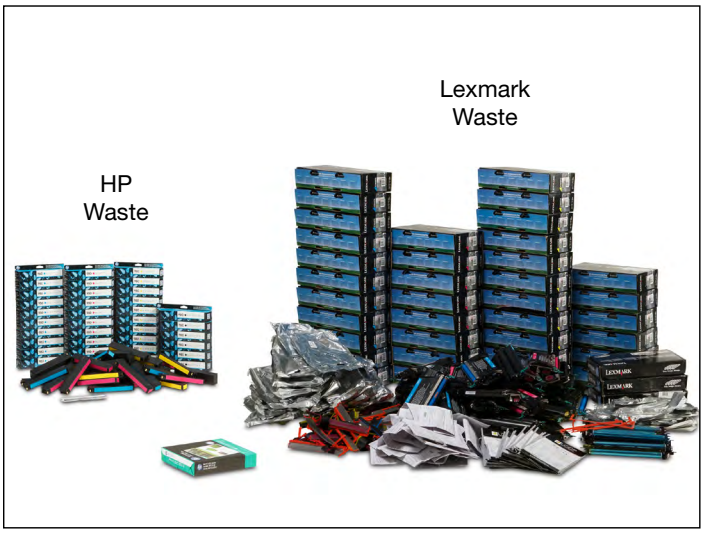
Model	Total Waste Weight (Drum Units, Toner/Ink Cartridges Waste Toner and Packaging) in Pounds	Total Waste Weight (Drum Units, Toner/Ink Cartridges Waste Toner and Packaging) in Grams	% Less Waste Generated by HP	Number of User Interventions Required
HP Officejet Enterprise Color X585 MFP	5.88	2,667.12	-	36
Konica Minolta bizhub C35	38.20	17,327.21	85%	63 (52 for consumables; 11 for misfeeds)
Kyocera FS-C2626 MFP	19.53	8,858.65	70%	61 (58 for consumables; 3 for misfeeds)
Lexmark X746de	57.32	25,999.89	90%	55 (52 for consumables; 3 for misfeeds)
Ricoh MP C305SPF	29.62	13,435.40	80%	43 (41 for consumables; 2 for misfeeds)

Note: Number of user interventions includes number of times users must interact with the device to change consumable or remove missfeeds.



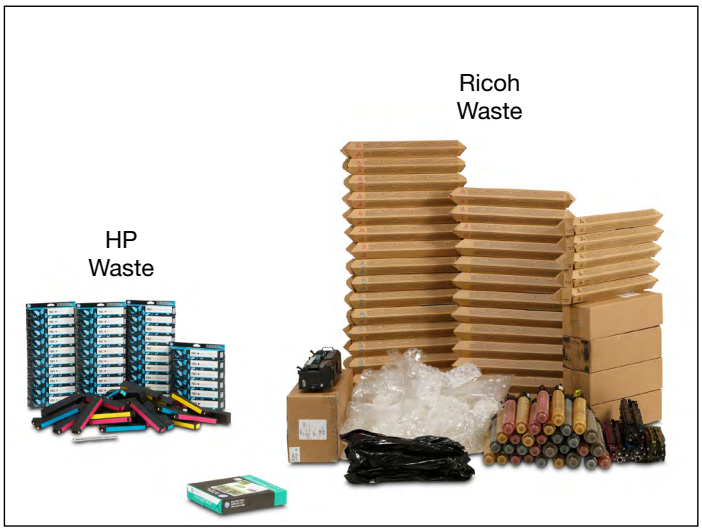
Note: Weights above include all user replaceable consumable items used (toner, drums, waste containers, etc.) and associated packaging. Weight for the Kyocera FS-C2626 also includes the unused waste toner tanks that are received with every Kyocera toner cartridge. The User Manual advises the user to save the waste toner tanks and only replace when the machine alerts the operator to do so.

Waste for the HP Officejet Enterprise Color X585 MFP was 5.88 pounds (2,667.12 grams), consisting of 36 cartridges, plus associated packaging vs:



The Lexmark X746de: 57.32 pounds (25,999.89 grams), consisting of 36 toner cartridges and 16 drum units, plus associated packaging.

The Konica Minolta bizhub C35: 38.20 pounds (17,327.21 grams), consisting of 38 toner cartridges, 8 drum units and 6 waste containers, plus associated packaging.



The Ricoh MP C305SPF: 29.62 pounds (13,435.40 grams), consisting of 36 toner cartridges, 4 drum units and 1 fuser unit, plus associated packaging.

The Kyocera FS-C2626: 19.53 pounds (8,858.65 grams), consisting of 48 toner cartridges and 10 waste containers, plus associated packaging, plus associated packaging.

Comparative Energy Consumption Testing

As corporate responsibility to the environment has moved to the forefront in many industries, companies have adopted and continue to enforce policies to maximize the energy efficiency of systems and devices within the enterprise, including PCs and printers. Because an MFP's energy consumption not only affects environmental impact, but also the company's bottom line, as it accounts for is a significant part of the printing cost of a device, BLI conducted a comparative energy-consumption evaluation using test methods consistent with the ENERGY STAR Typical Electricity Consumption (TEC) method, with the energy consumed recorded as kiloWatt hours (kWh). The test measures the energy that is consumed over a specified period, during which each device prints multiple single-sided sets of a 12-page black document, and also spends time in sleep mode, warm-up mode and ready mode. For the seven units comprising this group, typical usage is assumed as being 288 pages per day. The values that are reported for each device have been calculated to reflect one week's worth of electricity consumption. Note that calculations are based on single devices only, and values would increase as the number of devices deployed in the fleet increases.

- Based on BLI's testing, it is projected that during a typical week of usage the Ricoh MP C305SPF will consume the least amount of energy, at just 1.44 kWh. The HP Officejet Enterprise Color X585 MFP comes in second, at 2.35 kWh, followed by the Kyocera FS-C2626 MF and the Lexmark X746de at 3.50 kWh; and the Konica Minolta bizhub C35 at 4.90 kWh. In terms of power used while printing, the HP model used the least amount of energy in BLI's test (See Table A).
- As shown in Table A, the Konica Minolta bizhub C35 consumed 108.51 percent more energy than the HP model, while both the Kyocera FS-C2626 MFP and Lexmark X746de consumed 48.94 percent more electricity than the HP model. The Ricoh MP C305SPF, on the other hand, consumed 38.72 percent less electricity than the HP model.

Table A:

Percent Difference in Weekly Energy Consumption Compared to HP

	Power Consumed During Printing (kWh)	Typical Weekly Electricity Consumption (kWh)	Percent More Energy Consumption Versus HP Officejet Enterprise Color X585 MFP
HP Officejet Enterprise Color X585 MFP	0.526	2.35	-
Konica Minolta bizhub C35	2.941	4.90	108.51%
Kyocera FS-C2626 MFP	1.476	3.50	48.94%
Lexmark X746de	1.981	3.50	48.94%
Ricoh MP C305SPF	0.827	1.44	-38.72%

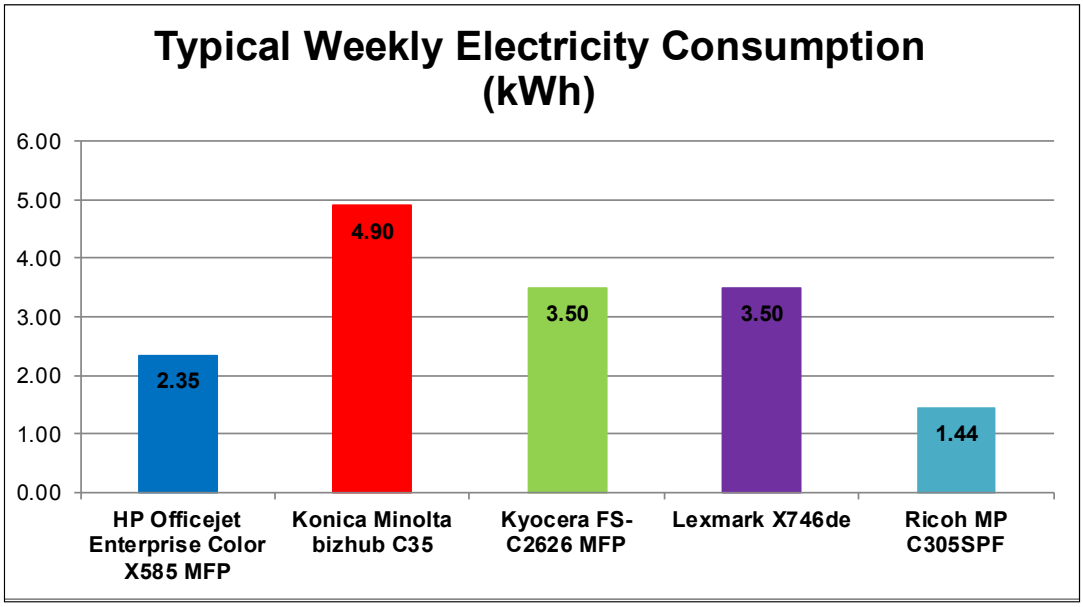
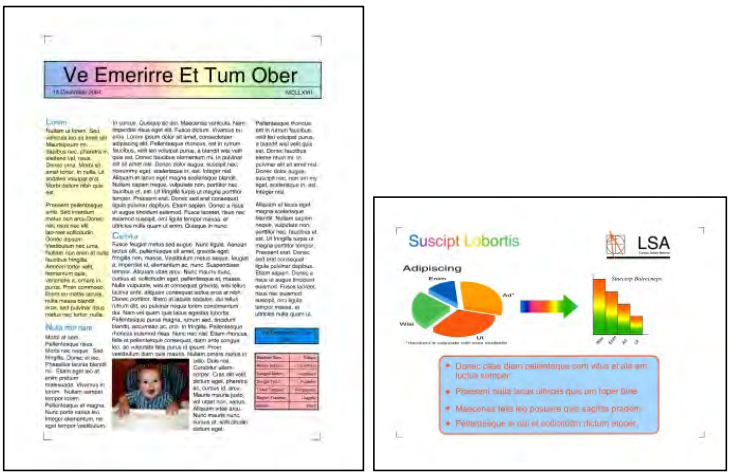


Image Quality

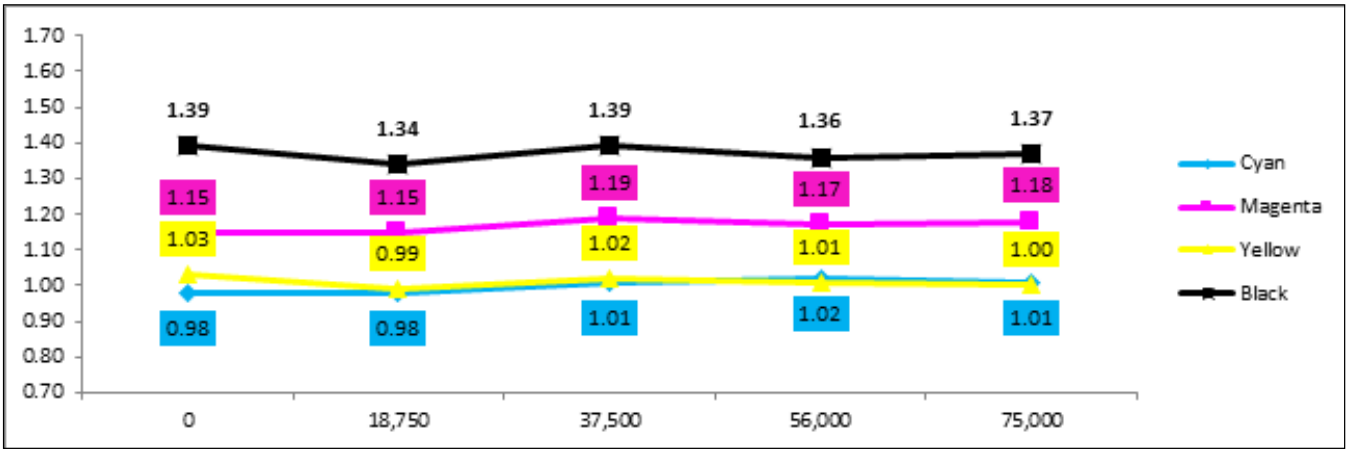
Business users want quality, consistent output, and to get the results they expect the first time; if they have to reprint a page because colors are wrong or quality is lacking, time and resources have been wasted. BLI evaluated PQ from the ISO 24712 test suite for all devices when produced on 24-lb. multipurpose paper with ColorLok technology at 18,750-page intervals throughout testing. While technicians noted that the Officejet Enterprise X585's output was lighter when printed on 20-lb. bond used in the reliability test, when printed on 24-lb. bond paper with ColorLok, output was vibrant and colors were noticeably richer. This was not observed in output from the laser devices, as color density was consistent across both paper types. However, the HP model's output on both paper types used in testing proved to be suitable for general office use for typical applications.



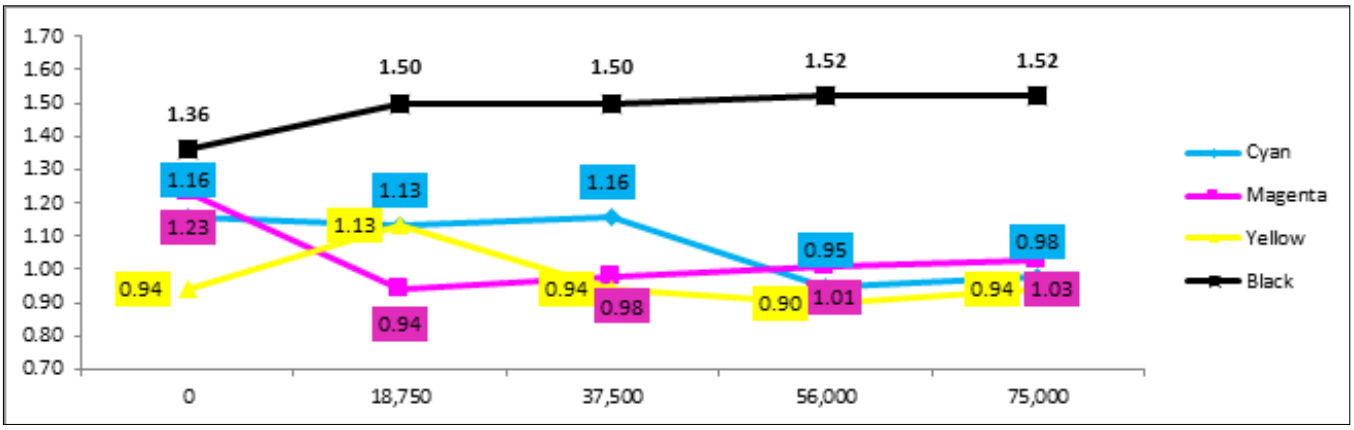
HP output on ColorLok paper exhibited bright colors and vibrant output.

Although the HP, Kyocera, Lexmark and Konica Minolta models produced very good overall color output, the Kyocera model was rated best, due in large part to more accurate color production. The Kyocera, Lexmark and Konica Minolta models were tied for producing the best black output. BLI technicians judged the black image quality produced by the laser models in the test group to be slightly better than that of the HP model, although the HP's was very good overall and certainly suitable for general office use (see exhibits on pages 12 through 15). Over the course of testing, BLI technicians noted that a visual examination showed that output from the HP model remained relatively consistent; black output from the Ricoh model became blotchy as testing progressed, while skin tones produced by the Lexmark model improved slightly near the end of the test period. In terms optical density readings, the HP model produced more stable output, with less variation than the competitive laser models in the test group (see graphs below and tables on pages 15 through 17).

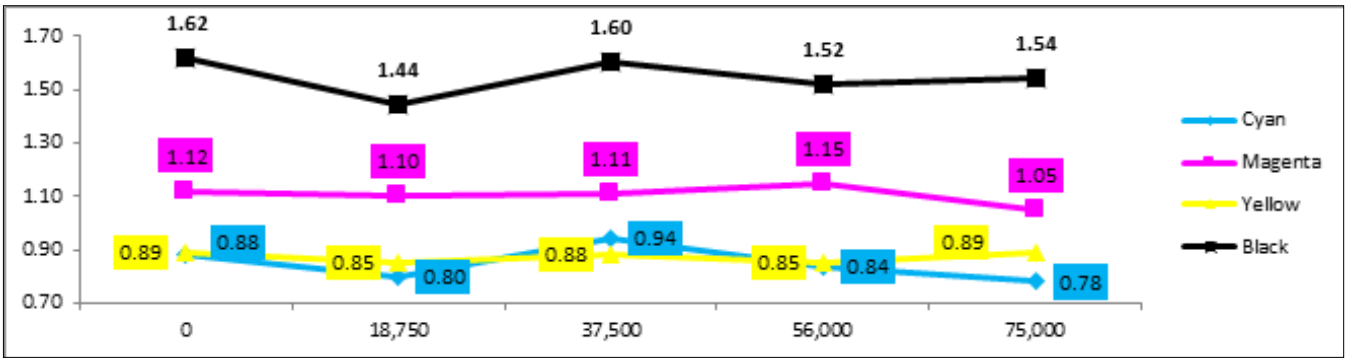
HP Officejet Enterprise Color X585 Density Readings



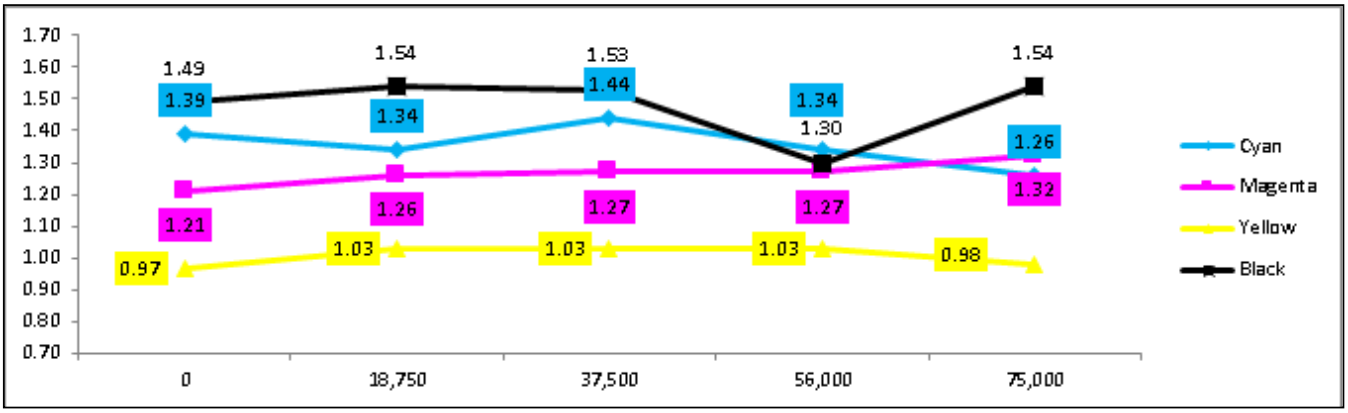
Kyocera FS-C2626 Density Readings



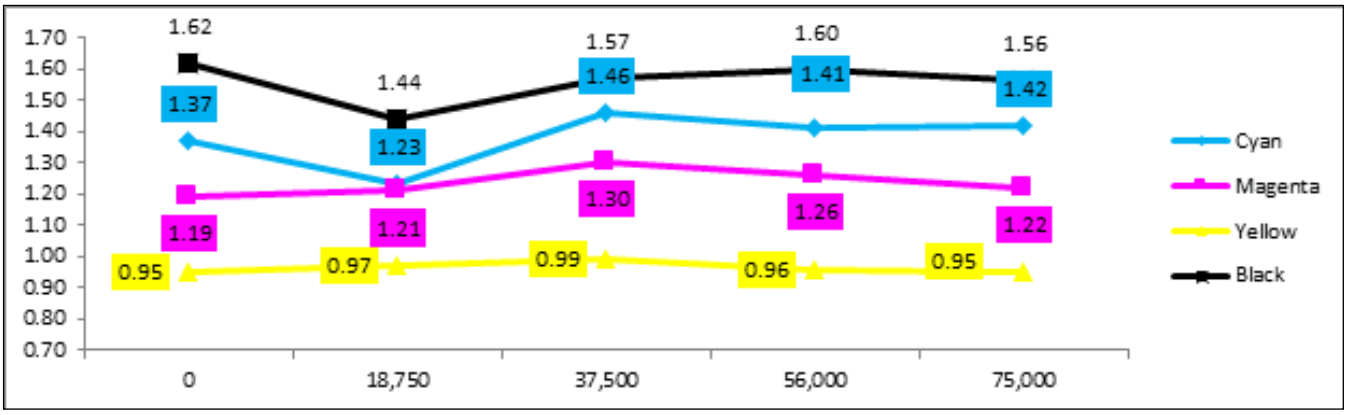
Ricoh Aficio MP C305 Density Readings



Lexmark X746de Density Readings

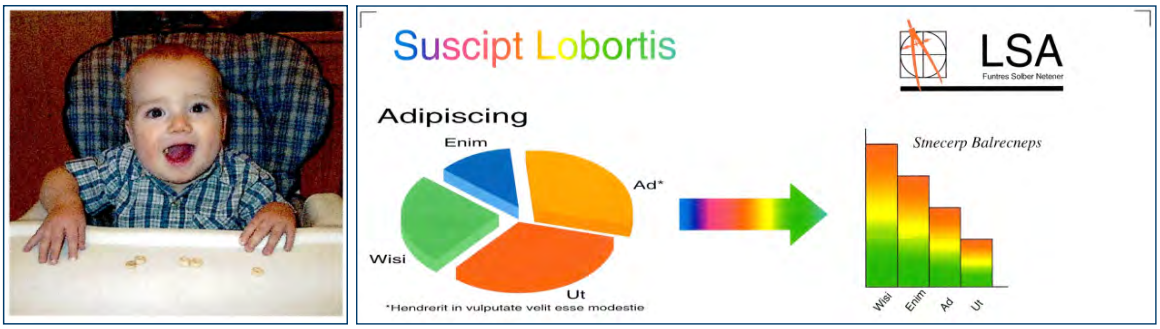


Konica Minolta bizhub C35 Density Readings



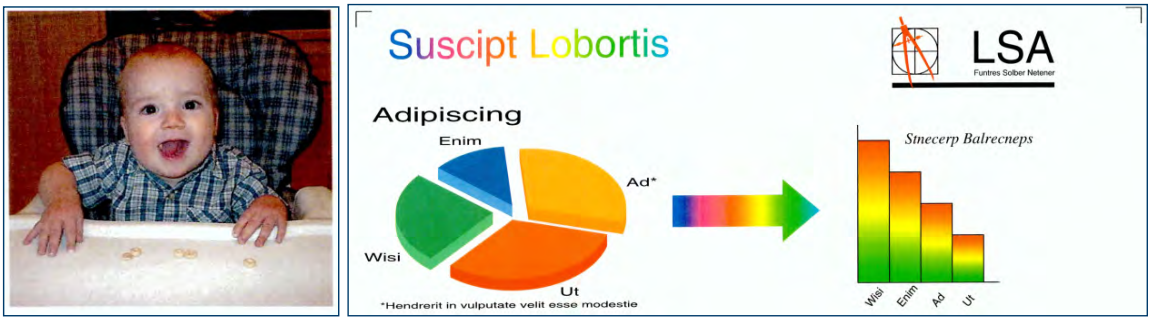
COLOR PRINT SAMPLES

HP



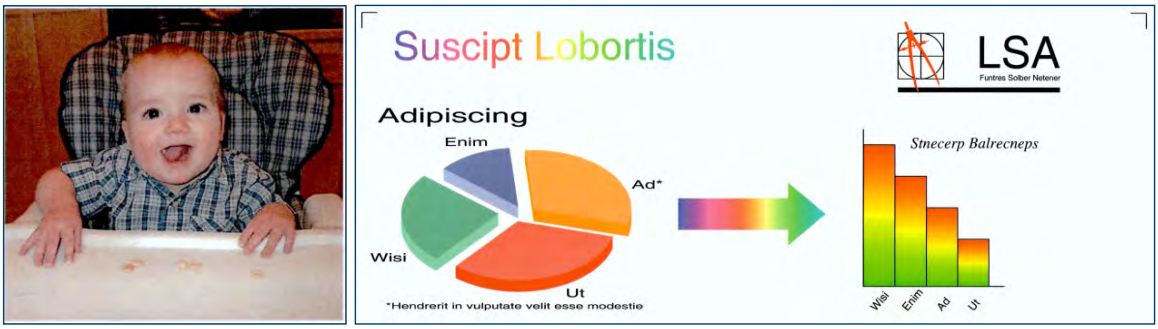
HP color output, though vibrant and clear, exhibited slightly reddish skin tones and some colors were inaccurately produced. For example, cyan had an aqua tone to it, while light blues had a green undertone.

Konica Minolta



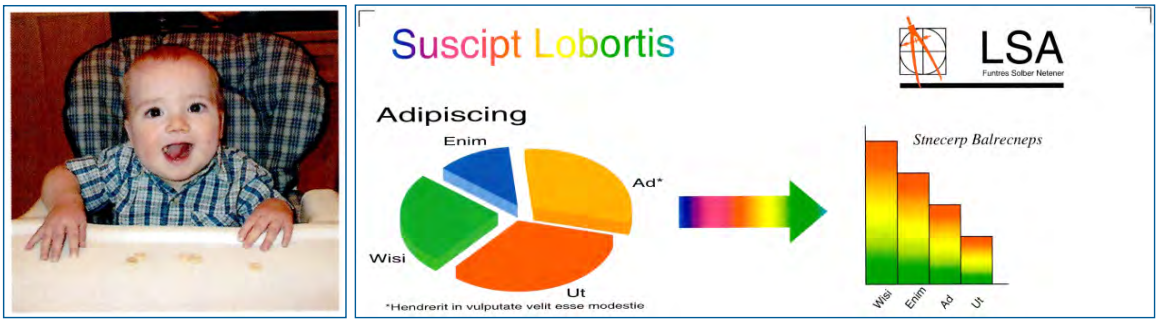
Color output from the Konica Minolta model was oversaturated and inaccurately produced. For example, cyan output appeared bluer and skin tones were reddish.

Kyocera



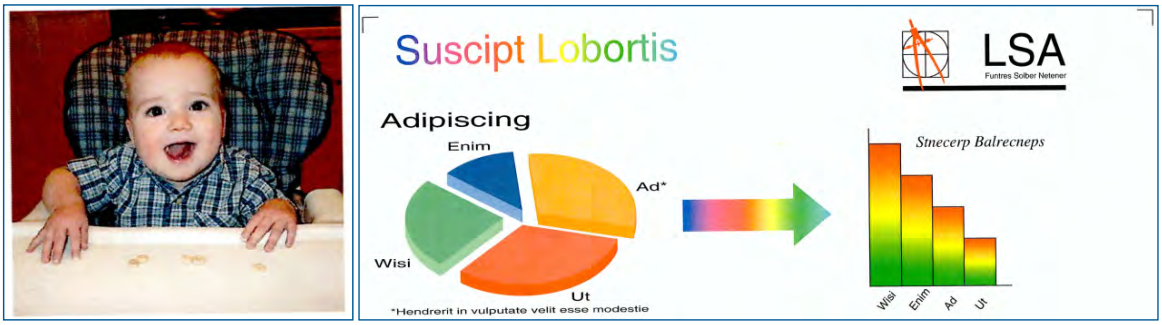
Color output from the Kyocera model, though not as vibrant as output from the other models, had the best accuracy, as colors produced were the closest to the original document. Photographic output did, however, exhibit a slight reddish undertone in skin tones.

Lexmark



Color output from the Lexmark model was oversaturated (cyan and magenta) and skin tones were reddish at the start of the testing. After 17,500 impressions, production of purple and lavender shades shifted toward blue, but skin tones improved slightly; by 56,000 impressions, flesh tones appeared natural, but purples appeared very blue. At the end of testing, colors shifted back to what they had been, with reddish skin tones.

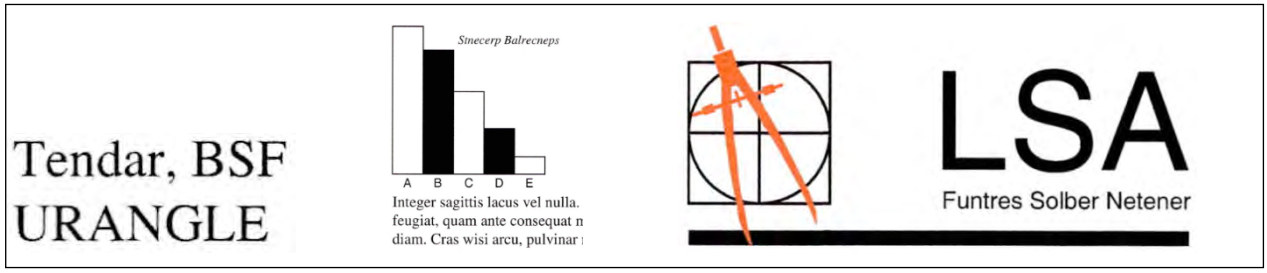
Ricoh



Color saturation in output from the Ricoh model was not as bright as that from the other models, while production of pastel shades and backgrounds was good overall. Skin tones were natural looking.

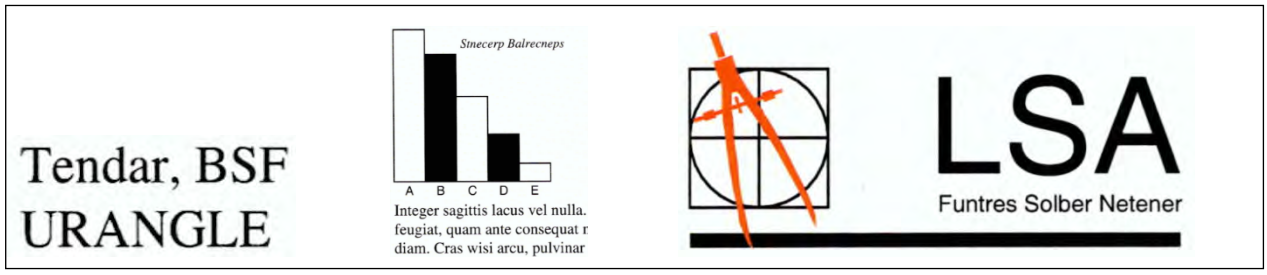
BLACK PRINT SAMPLES (magnified to show detail)

HP



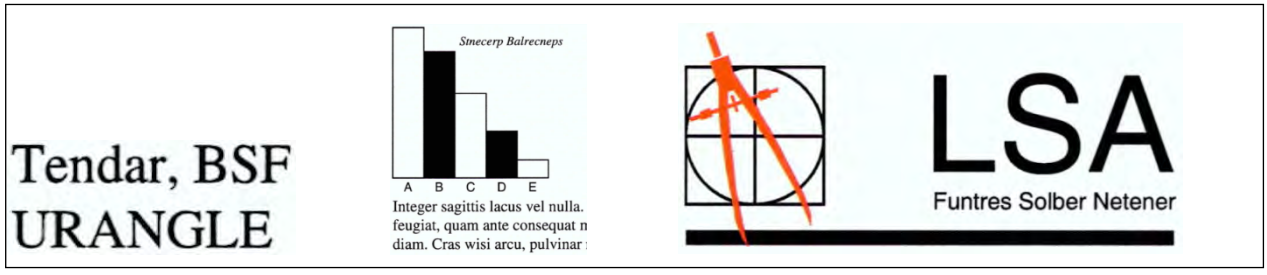
Black output from the HP model exhibited jagged edges and ink overspray when viewed under magnification. To the unaided eye, text was not as crisp as that produced by the laser models.

Konica Minolta



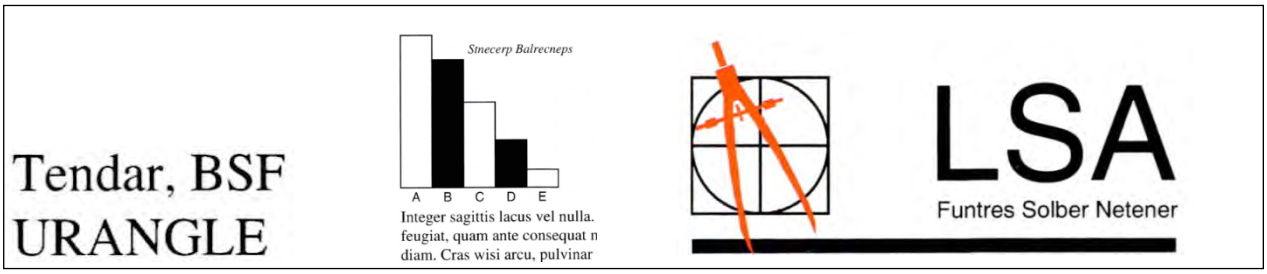
Black output from the Konica Minolta model was dark and fully formed, with above-average sharpness and smoothness.

Kyocera



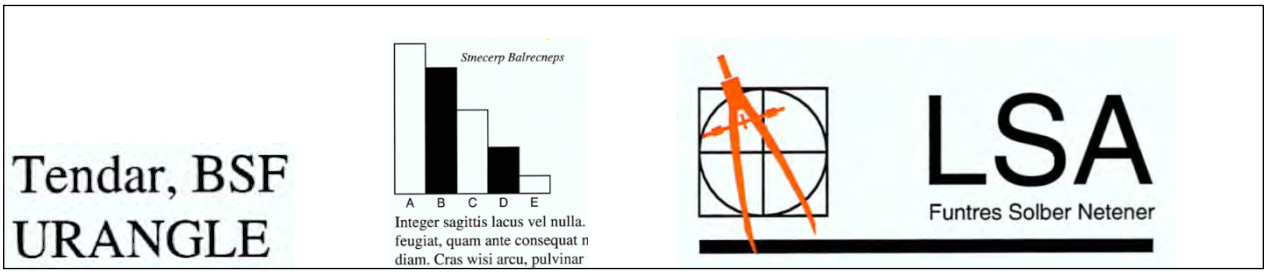
Black output from the Kyocera model was dark and fully formed, with above-average sharpness and smoothness.

Lexmark



Black output from the Lexmark model was dark and fully formed, with above-average sharpness and smoothness, though density readings for black output decreased as testing progressed.

Ricoh



Black output from the Ricoh model at the start of testing was dark and fully formed, with above-average sharpness and smoothness, though solid output quality decreased after 18,750 impressions, becoming visibly blotchy.

Image Quality Scores at Five Intervals*

HP Officejet Enterprise X585	Start	18,750	37,500	56,000	75,000	Average	Total
TEXT	4	4	4	4	4	4.00	20
LINE ART	4	4	4	4	4	4.00	20
SOLIDS	5	5	5	5	5	5.00	25
COLOR BUSINESS GRAPHICS	4	4	4	4	4	4.00	20
COLOR PHOTO IMAGE OUTPUT	4	4	4	4	4	4.00	20
						Total	105

* Numbers in the charts above indicate BLI's standard image quality ratings, where 5 = Excellent, 4 = Very Good, 3 = Good, 2 = Fair and 1 = Poor.

Konica Minolta bizhub C35	Start	18,750	37,500	56,000	75,000	Average	Total
TEXT	5	5	5	5	5	5.00	25
LINE ART	4	4	4	4	4	4.00	20
SOLIDS	5	5	5	5	5	5.00	25
COLOR BUSINESS GRAPHICS	4	4	4	4	4	4.00	20
COLOR PHOTO IMAGE OUTPUT	4	4	4	4	4	4.00	20
						Total	110

Kyocera FS C2626	Start	18,750	37,500	56,000	75,000	Average	Total
TEXT	5	5	5	5	5	5.00	25
LINE ART	4	4	4	4	4	4.00	20
SOLIDS	5	5	5	5	5	5.00	25
COLOR BUSINESS GRAPHICS	5	5	5	5	5	5.00	25
COLOR PHOTO IMAGE OUTPUT	4	4	4	4	4	4.00	20
						Total	115

Lexmark X746de	Start	18,750	37,500	56,000	75,000	Average	Total
TEXT	5	5	5	5	5	5	25
LINE ART	4	4	4	4	4	4	20
SOLIDS	5	5	5	5	5	5	25
COLOR BUSINESS GRAPHICS	4	4	4	4	4	4	20
COLOR PHOTO IMAGE OUTPUT	4	4	4	4	4	4	20
						Total	110

Ricoh MP C305	Start	18,750	37,500	56,000	75,000	Average	Total
TEXT	5	5	5	5	5	5.00	25
LINE ART	5	5	5	5	5	5.00	25
SOLIDS	5	3	3	3	3	3.40	17
COLOR BUSINESS GRAPHICS	3	3	3	3	3	3.00	15
COLOR PHOTO IMAGE OUTPUT	5	4	4	4	4	4.20	21
						Total	103

* Numbers in the charts above indicate BLI's standard image quality ratings, where 5 = Excellent, 4 = Very Good, 3 = Good, 2 = Fair and 1 = Poor.

Density Readings at Five Intervals**

HP Officejet Enterprise X585	Start	18,750	37,500	56,000	75,000	Average
Cyan	0.98	0.98	1.01	1.02	1.01	1.00
Magenta	1.15	1.15	1.19	1.17	1.18	1.17
Yellow	1.03	0.99	1.02	1.01	1.00	1.01
Black	1.39	1.34	1.39	1.36	1.37	1.37

Konica Minolta bizhub C35	Start	18,750	37,500	56,000	75,000	Average
Cyan	1.37	1.23	1.46	1.41	1.42	1.38
Magenta	1.19	1.21	1.30	1.26	1.22	1.24
Yellow	0.95	0.97	0.99	0.96	0.95	0.96
Black	1.62	1.44	1.57	1.60	1.56	1.56

Kyocera FS C2626	Start	18,750	37,500	56,000	75,000	Average
Cyan	1.16	1.13	1.16	0.95	0.98	1.08
Magenta	1.23	0.94	0.98	1.01	1.03	1.04
Yellow	0.94	1.13	0.94	0.90	0.94	0.97
Black	1.36	1.50	1.50	1.52	1.52	1.48

Lexmark X746de	Start	18,750	37,500	56,000	75,000	Average
Cyan	1.39	1.34	1.44	1.34	1.26	1.35
Magenta	1.21	1.26	1.27	1.27	1.32	1.27
Yellow	0.97	1.03	1.03	1.03	0.98	1.01
Black	1.49	1.54	1.53	1.30	1.54	1.48

Ricoh MP C305	Start	18,750	37,500	56,000	75,000	Average
Cyan	0.88	0.80	0.94	0.84	0.78	0.85
Magenta	1.12	1.10	1.11	1.15	1.05	1.11
Yellow	0.89	0.85	0.88	0.85	0.89	0.87
Black	1.62	1.44	1.60	1.52	1.54	1.54

**The higher the number the darker the density.

Key Specifications At-A-Glance





	HP Officejet Enterprise Color X585 MFP	Konica Minolta bizhub C35	Kyocera FS-C2626 MFP	Lexmark X746de	Ricoh MP C305SPF
Purchase Price	$1,999 (X585dn Street price); $2,299 (X585f Street price; configuration tested); $2,799 (Flow MFP X585z Street price, includes standard keyboard)	$3,639 (SRP)	$4,799 (SRP)	$2,199 (Street)	$4,420 (SRP)
Technology	PageWide Inkjet	Laser	Laser	Laser	Laser
Max Monthly Duty Cycle	75,000 impressions	120,000 impressions	65,000 impressions	100,000 impressions	20,000 impressions
System Memory (Std/Max)	1.8-GB RAM / 1.8-GB RAM	1.5-GB RAM, 120-GB HD/1.5-GB RAM, 120-GB HD	1-GB RAM/ 2-GB RAM	512-MB RAM/ 1.5-GB RAM, 160-GB HD	1-GB RAM/ 1-GB RAM, 128-GB HD
Print speed (Color/Black)	44 ppm color/44 ppm black (Professional mode); up to 72 ppm color/72 ppm black (General Office mode)	31 ppm color/31 ppm black	28 ppm color/28 ppm black	35 ppm color/35 ppm black	31 ppm color/31 ppm black
Std Paper Capacity	550 sheets	250 sheets	250 sheets	550 sheets	250 sheets
Paper Weights	16-lb bond to 66-lb photo (60gsm to 250gsm)	16-lb bond to 110-lb index	16-lb bond to 90-lb index	16 to 47 lbs	16 to 43 lbs
Bypass/Paper Weights	16-lb bond to 80-lb photo (60gsm to 300gsm)	100-sheet/16-lb bond to 110-lb index	50-sheet/16-lb bond to 120-lb index	100-sheet/16 to 47 lbs	100-sheet/16 to 58 lbs
Max Paper Capacity	1,050 sheets	1,350 sheets	1,300 sheets	4,300 sheets	1,350 sheets
Max Original Size	8-1/2 x 14	8-1/2 x 14	8-1/2 x 14	8-1/2 x 14	8-1/2 x 14
Black Ink/Toner Yield	10,000	5,200	7,000	12,000	12,000
Color Ink/Toner Yield	6,600	4,600	5,000	7,000	4,000
Power Used While Printing	67 W	INA (1200 W max)	460 W	560 W	496 W

INA = Information not available.

Appendix A: Supporting Test Data

Reliability data for each device

HP OJ X585 MFP Paper Lot/Misfeed Log					
Paper	**Paper Lot**	**Misfeed Location**	**Simplex/Duplex**	**Copy/Print**	**Meter Count**
GP	718				138
GP	721				13,217
GP	722				25,601
GP	724				52,371
GP 30%	715				68,171
				End Testing	75,000
				Total Misfeeds	0

Konica Minolta bizhub C35 Paper Lot/Misfeed Log					
Paper	**Paper Lot**	**Misfeed Location**	**Simplex/Duplex**	**Copy/Print**	**Meter Count**
GP	718				88
GP	718	Cassette Tray	Duplex	Copy	11,839
GP	722				16,742
GP	722	Cassette Tray	Simplex	Print	20,918
		Cassette Tray	Duplex	Print	21,731
		Cassette Tray	Duplex	Copy	28,594
		Fuser	Simplex	Print	30,649
		Other	Simplex	Print	36,515
		Cassette Tray	Simplex	Print	40,022
GP	724				43,699
GP	724	Cassette Tray	Simplex	Print	51,297
		Cassette Tray	Simplex	Print	56,854
		Cassette Tray	Simplex	Print	62,453
		Fuser	Duplex	Print	66,286
GP 30%	715				67,205
				End Testing	75,000
				Total Misfeeds	11

Kyocera FS-C2626 MFP Paper Lot/Misfeed Log					
Paper	**Paper Lot**	**Misfeed Location**	**Simplex/Duplex**	**Copy/Print**	**Meter Count**
GP	718				85
GP	718	Cassette (Triple Feed)	Simplex	Print	13,933
GP	721				14,535
GP	722				23,748
GP	724				42,556
GP	724	Fuser	Simplex	Print	43,759
		Fuser	Simplex	Copy	54,835
				End Testing	75,000
				Total Misfeeds	3

Lexmark X746de Paper Lot/Misfeed Log					
Paper	**Paper Lot**	**Misfeed Location**	**Simplex/Duplex**	**Copy/Print**	**Meter Count**
		Service Call Due to Drum Recognition Problem**			0
GP	718				86
GP	718	Cassette Tray	Simplex	Print	7,702
		Cassette Tray	Simplex	Print	8,732
	721				13,839
	722				25,135
		Service Call Due to Magenta Streaks			26,221
	724				33,226
GP	724	Fuser	Simplex	Print	40,064
GP	725				47,076
GP 30%	715				68,112
				End Testing	75,000
				Total Misfeeds	3
				Total Service Calls	2

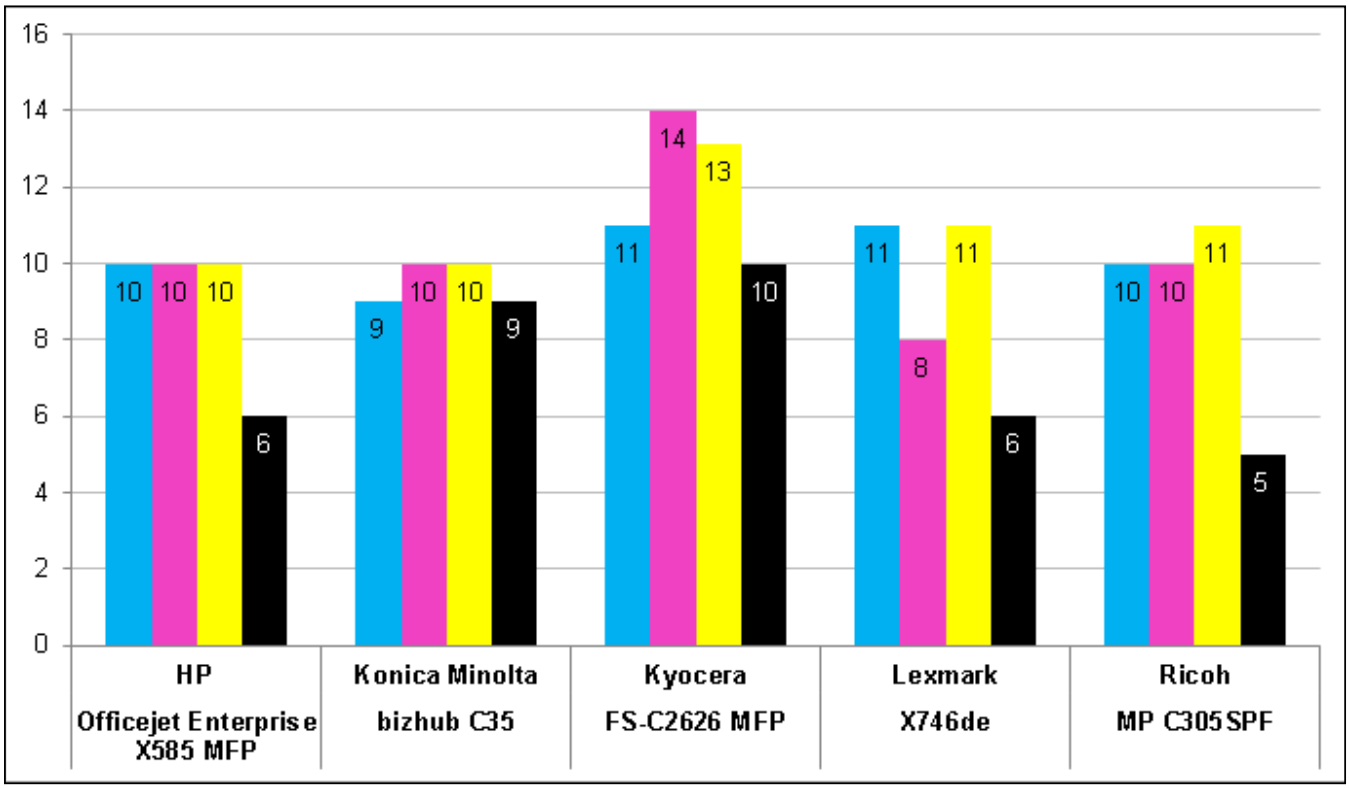
** One service call was required during initial setup of the machine.

Ricoh MP C305 SPF Paper Lot/Misfeed Log					
Paper	**Paper Lot**	**Misfeed Location**	**Simplex/Dulex**	**Copy/Print**	**Meter Count**
GP	718				64
GP	721				15,271
GP	722				23,671
GP	724				41,728
GP	724	Fuser	Simplex	Print	57,909
GP	725				65,071
Boise X9	729				66,041
Boise X9	729	Fuser	Simplex	Print	67,087
GP 30%	715				67,517
				End Testing	75,000
				Total Misfeeds	2

Toner Usage Over 75,000 Impressions

Manufacturer	Model	Total cartridges required to print 75,000 impressions			
		Cyan	Magenta	Yellow	Black
HP	Officejet Enterprise Color X585 MFP	10	10	10	6
Konica Minolta	bizhub C35	9	10	10	9
Kyocera	FS-C2626 MFP	11	14	13	10
Lexmark	X746de	11	8	11	6
Ricoh	MP C305SPF	10	10	11	5

Toner Cartridges Over 75,000 Impressions



Other Consumables

Drum Units

Manufacturer	Model	Total drum units required to print 75,000 impressions			
		Cyan	Magenta	Yellow	Black
HP	Officejet Enterprise Color X585 MFP	0	0	0	0
Konica Minolta	bizhub C35	2	2	2	2
Kyocera	FS-C2626 MFP	0	0	0	0
Lexmark	X746de	4	4	4	4
Ricoh	MP C305SPF	1	1	1	1

- HP OJ Enterprise X585 is an inkjet device, which does not require a drum unit.
- Kyocera uses a MK-590 Maintenance Kit (includes drum and developer) which would require replacement at 200K impressions according to manufacturer specifications.

WASTE TONER CONTAINERS			
Machine Number	Manufacturer	Model	Waste toner containers used during the 75,000-impression reliability test
1	HP	Officejet Enterprise Color X585 MFP	0
2	Konica Minolta	bizhub C35	6
3	Kyocera	FS-C2626 MFP	10
4	Lexmark	X746de	0
5	Ricoh	MP C305SPF	0

Note: The Ricoh MP C305SPF has a waste toner container but it did not require changing during the test.

FUSER UNITS			
Machine Number	Manufacturer	Model	Fuser units used during the 75,000 impression reliability test
1	HP	Officejet Enterprise Color X585 MFP	0
2	Konica Minolta	bizhub C35	0
3	Kyocera	FS-C2626 MFP	0
4	Lexmark	X746de	0
5	Ricoh	MP C305SPF	1

Note: The Ricoh MP C305SPF required a fuser replacement due to image quality issues.

Waste Collected Over the 75,000-impression Test

(Waste includes all exhausted toner cartridges, drum units, waste toner containers and packaging for all)

Manufacturer	Model	Total Waste Weight (Drum Units, Toner/Ink Cartridges Waste Toner and Packaging) in Pounds	Total Waste Weight (Drum Units, Toner/Ink Cartridges Waste Toner and Packaging) in Grams
HP	Officejet Enterprise Color X585 MFP	5.88	2,667.12
Konica Minolta	bizhub C35	38.20	17,327.21
Kyocera	FS-C2626 MFP	19.53	8,858.65
Lexmark	X746de	57.32	25,999.89
Ricoh	MP C305SPF	29.62	13,435.40

Note: Return shipping labels are included with all Lexmark supplies.

Test Environment

Testing was conducted under ambient conditions of 68F to 78F and 45% RH (+/- 10%), with daily conditions monitored by an Extech RH520 temperature/humidity digital recorder and Honeywell Model 61 Seven-Day Temperature/Humidity Chart Recorder, in BLI's test facility located at 20 Railroad Avenue, Hackensack, NJ (U.S.A).

Test Equipment

BLI's dedicated test network, consisting of Windows 2003 servers, Windows XP and 7 Professional workstations, 10BaseT/100BaseTX network switches and CAT5 cabling, Yokogawa WT210 power meter, Powerstat voltage regulator and ESP D5143NT Transient Voltage Surge Supressor.

Test Procedures

For electricity consumption testing, a similar method consistent with ENERGY STAR Typical Electricity Consumption (TEC) principles was used to determine typical weekly energy usage for each device, which is based on printing 288 pages per day, with the device spending the remainder of the time in idle and sleep modes after printing is completed. The Yokogawa WT210 power meter was used to measure energy usage during all modes for each device. Reliability testing was performed using GP Spectrum and/or Boise X9 20-lb. bond and GP 30% recycled paper. Image quality was evaluated on GP ColorLok paper (96 brightness, 24-lb. bond.) For waste calculation, BLI technicians collected and weighed all packaging and cartridges generated during a 75,000-impression test.

About Buyers Laboratory

Since 1961, Buyers Laboratory LLC (BLI) has been the leading global independent office-equipment test lab and business consumer advocate. In addition to publishing the industry's most comprehensive and accurate test reports on office document imaging devices, each representing months of exhaustive hands-on testing in BLI's US and UK laboratories, the company has been the leading source for extensive runnability testing on imaging media and consumables, as well as extensive specifications/pricing databases on MFPs, printers, scanners and fax machines. BLI also has a long-standing reputation for being the industry's most trustworthy and complete source for quality testing services and global competitive intelligence.

In addition to testing over 200 office document imaging devices and related consumables annually for its subscribers, BLI provides consulting services to buyers and a range of private testing services that include document imaging device beta and pre-launch testing, performance certification testing, consumables testing (including toner, ink, fusers and photoconductors), solutions evaluations, and imaging media runnability testing.

For more information on BLI, call (201) 488-0404, visit www.buyerslab.com, or email info@buyerslab.com.

Certificate of Reliability

Awarded to

HEWLETT-PACKARD COMPANY

for the performance of the

HP Officejet Enterprise Color X585 MFP

in BLI's in-house durability test.

Anthony F. Polifrone
Managing Director

March 2014
Date

This is to certify that when subjected to a 75,000-impression Buyers Lab durability test, the Officejet Enterprise Color X585 MFP proved to be a highly reliable product.

BUYERS LABORATORY LLC

THE LEADING INDEPENDENT OFFICE PRODUCTS TEST LAB AND BUSINESS CONSUMER ADVOCATE

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