

Buyers Lab Performance Evaluation:

FEBRUARY 2018

COMPARISON OF INKJET STARTER CARTRIDGES USING THE CANON PIXMA TS5050, DEVICE A AND DEVICE B PRINTERS

Test Objective

Keypoint Intelligence - Buyers Lab was commissioned by Canon Europe Ltd. to conduct comparative starter cartridge yield testing using the Canon PIXMA TS5050, Device A, and Device B. Each printer was subjected to two tests that simulated business workflows, with one test printing in a stop-start fashion and the other printing semi-continuously. The devices were also subjected to two additional workflows that involved printing photographic output semi-continuously and in a stop-start fashion. All testing was conducted at Buyers Lab's European test facility in Wokingham, UK

Executive Summary

The Canon PIXMA TS5050's bundled starter cartridge set performed exceptionally well compared to those of the rival devices tested by Buyers Lab. The tested yields of each individual colour were much higher than the rival devices tested, as were the average CMY and CMYK yields.

Indeed, in the business-oriented stop-start test, the PIXMA TS5050's average CMY and CMYK yields were 141% and 130% higher than those of Device A, respectively, and 14% and 17% higher than Device B's respectively. That's a difference of 274 and 252 pages between Device A and TS5050's average CMY and CMYK yields, and a difference of 57 and 64 pages between Device B and the TS5050.

The average yields were smaller in the photo tests, as one would expect given the increased ink consumption, but the Canon PIXMA TS5050's yields were still significantly higher than those of its rivals. In the photographic semi-continuous test, for example, the PIXMA TS5050's average CMY and CMYK yields were 316% and 298% higher than those of Device A, respectively, and 52% and 54% higher than those of Device B.

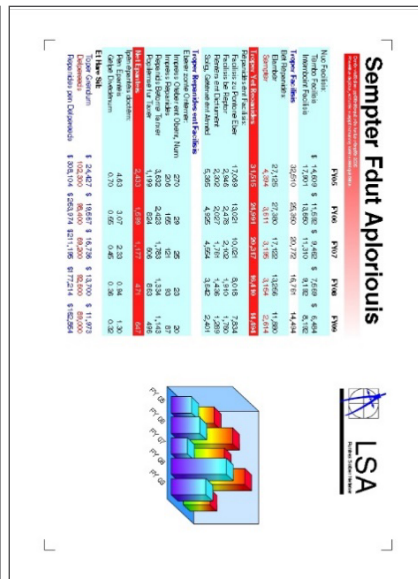
Based on Buyers Lab's test results, it's clear that the starter cartridge set bundled with the Canon PIXMA TS5050 provides significantly higher page yields than those included with Device B and Device A.

Test Files

Buyers Lab used the ISO 24712 test documents to test page yield in the business semi-continuous and stop-start tests. The individual test targets are shown below.



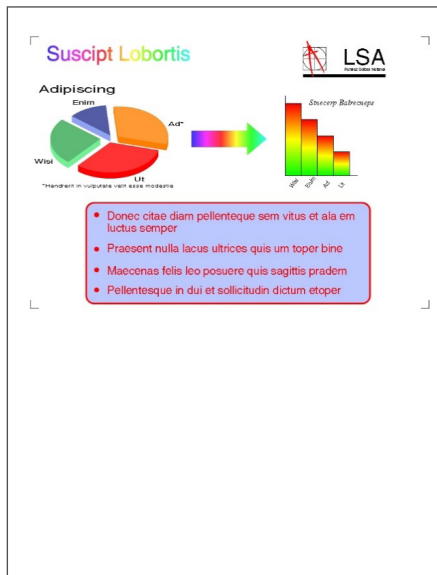
Page One



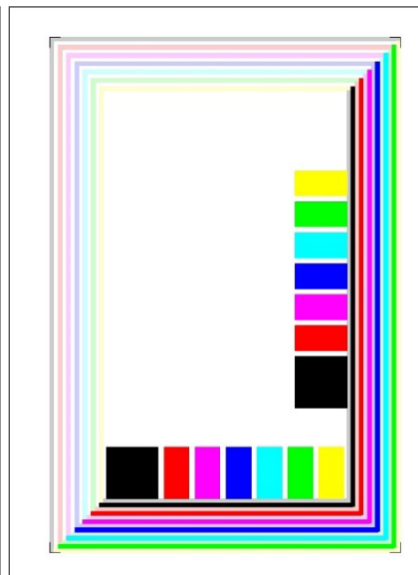
Page Two



Page Three



Page Four



Page Five

Buyers Lab used one of the ISO 29103 test documents to test photo page yield using the semi-continuous and stop-start tests. The test target is shown below.



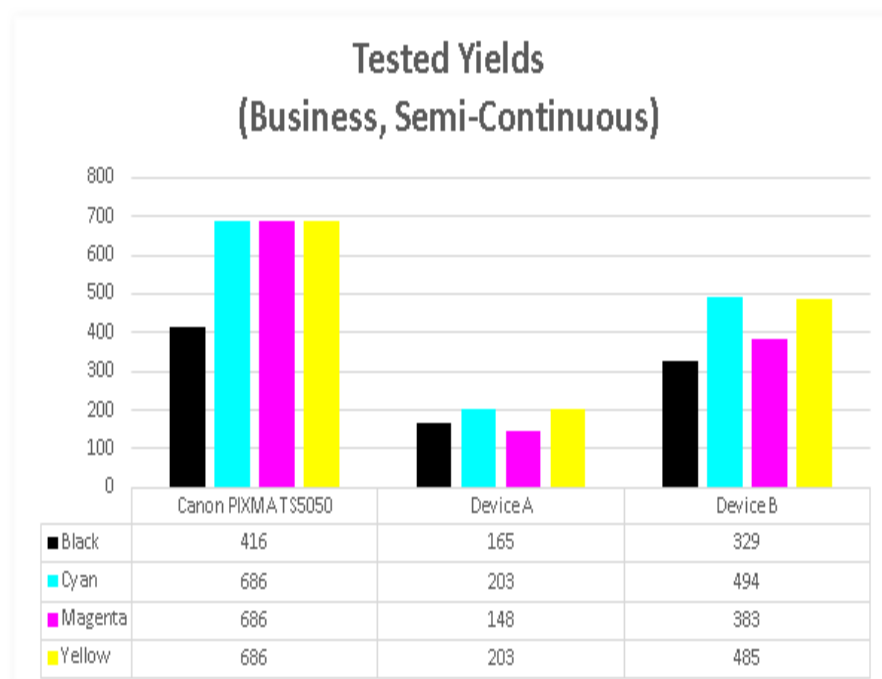
Page One

Page Yields

Semi-Continuous Test (Business)

The Canon PIXMA TS5050's page yields were higher than Device B's yields, and well in excess of Device A's yields. The PIXMA TS5050's yellow yield was 483 pages (238%) higher than that of Device A, for example, and 201 pages (41%) higher than that of Device B. The TS5050's average CMY and CMYK page yields were also much higher than its rivals' yields, and were 271% and 244% higher than Device A's, respectively, and 51% and 46% higher than Device B's, respectively.

Note that yields for the photo black cartridges are not included in these yield calculations, as their use was negligible.

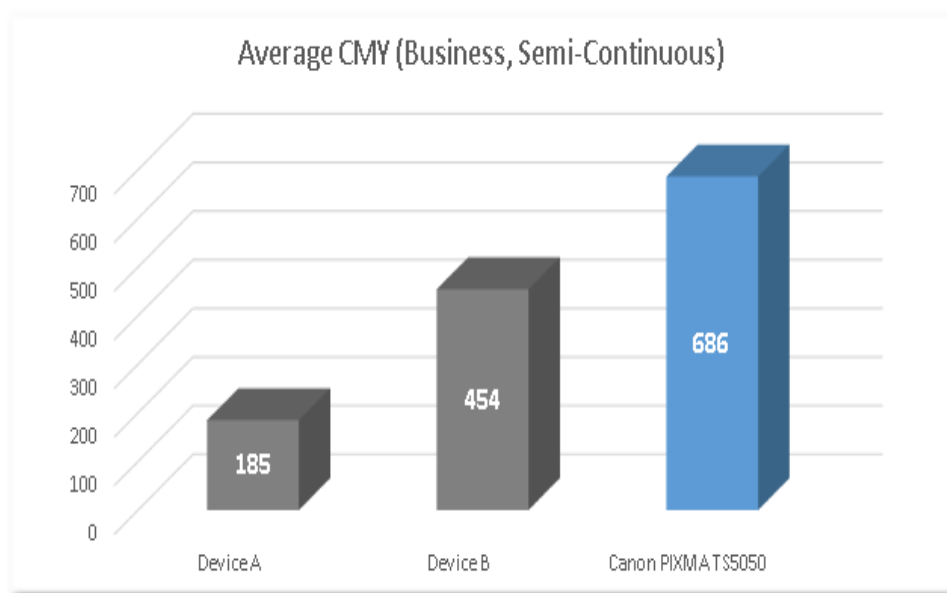


Page Yields (Business, Semi-Continuous)						
	Cyan	Magenta	Yellow	Black	Average CMY	Average CMYK
Canon PIXMA TS5050	686	686	686	416	686	619
Device B	494	383	485	329	454	423
Device A	203	148	203	165	185	180

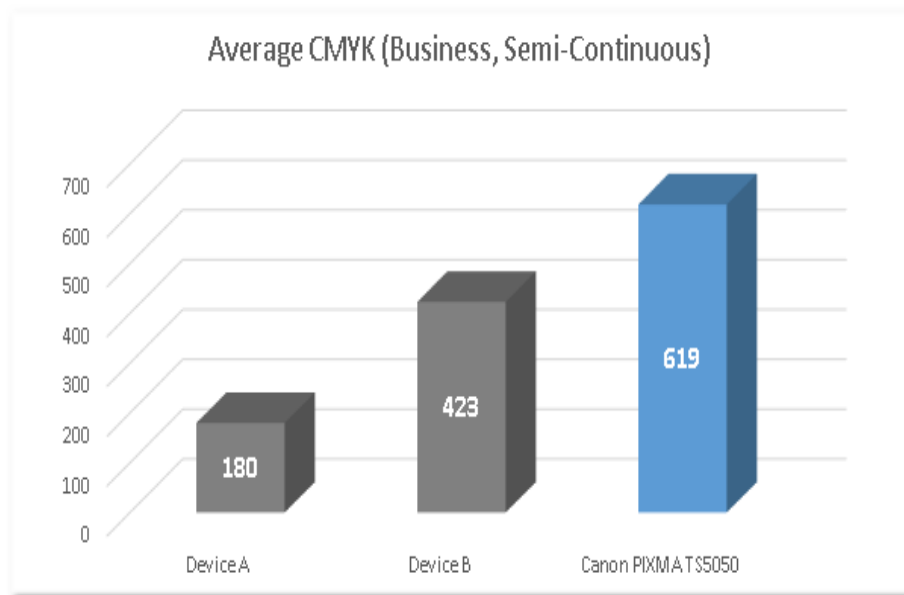
This table shows the individual colour, black, CMY, and CMYK page yields for each printer device.

Yield Comparisons (Business, Semi-Continuous)				
	% Below Canon PIXMA TS5050's Tested Yield		% By Which Canon PIXMA TS5050's Tested Yield is Higher	
	CMY	CMYK	CMY	CMYK
Device B	-34%	-32%	51%	46%
Device A	-73%	-71%	271%	244%

This table compares the non-Canon device's average tested yield against the genuine Canon device's average tested yield as a percentage.



When printing business documents in a semi-continuous manner, the average CMY page yield for the PIXMA TS5050 was the highest of the group.

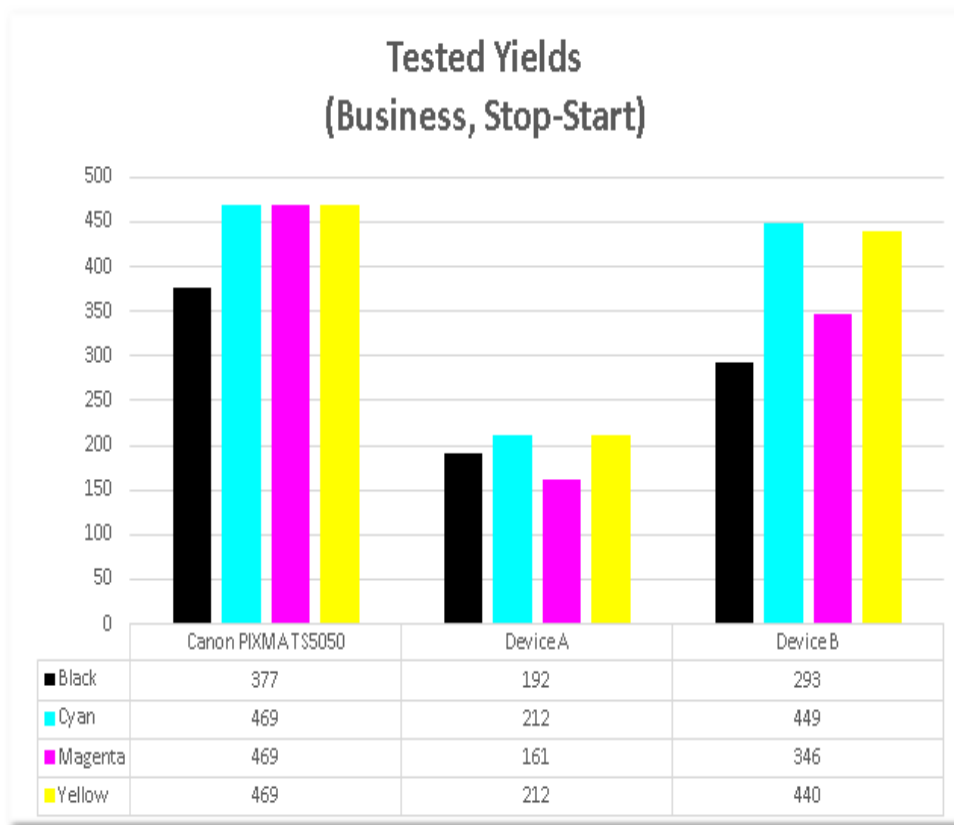


When printing business documents in a semi-continuous manner, the average CMYK page yield for the PIXMA TS5050 was the highest of the group.

Stop-Start Test (Business)

The PIXMA TS5050's yields were once again in excess of its rivals' yields, with its closest rival being Device B. The TS5050's individual cyan, magenta, and yellow yields were 4%, 36%, and 7% higher than those of Device B, for example, but 121%, 191%, and 121% higher than Device A's yields. As for the TS5050's average CMY and CMYK yields, these were 14% and 17% higher than Device B's, respectively, and 141% and 130% higher than Device A's yield.

Note that yields for the photo black cartridges are not included in these yield calculations, as their use was negligible.

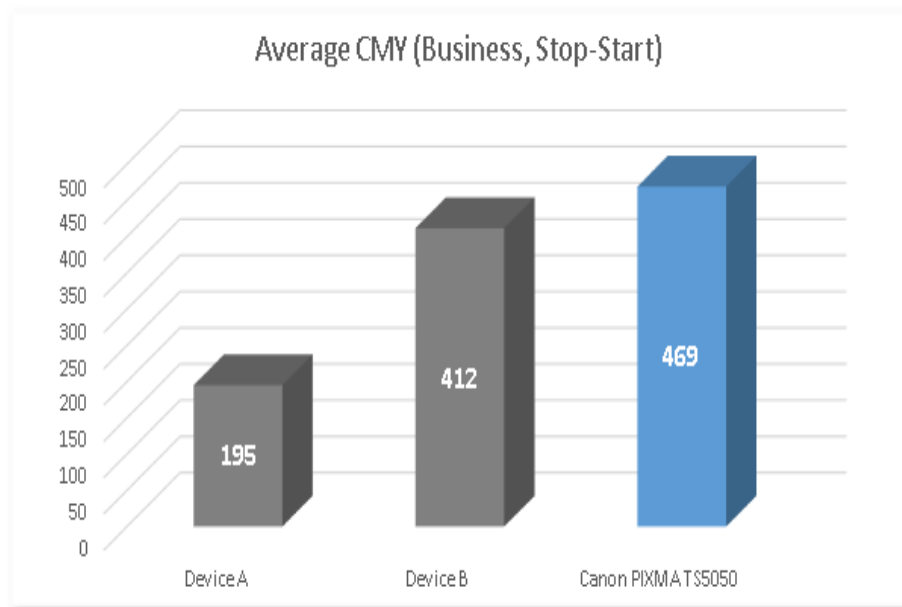


Page Yields (Business, Stop-Start)						
	Cyan	Magenta	Yellow	Black	Average CMY	Average CMYK
Canon PIXMA TS5050	469	469	469	377	469	446
Device B	449	346	440	293	412	382
Device A	212	161	212	192	195	194

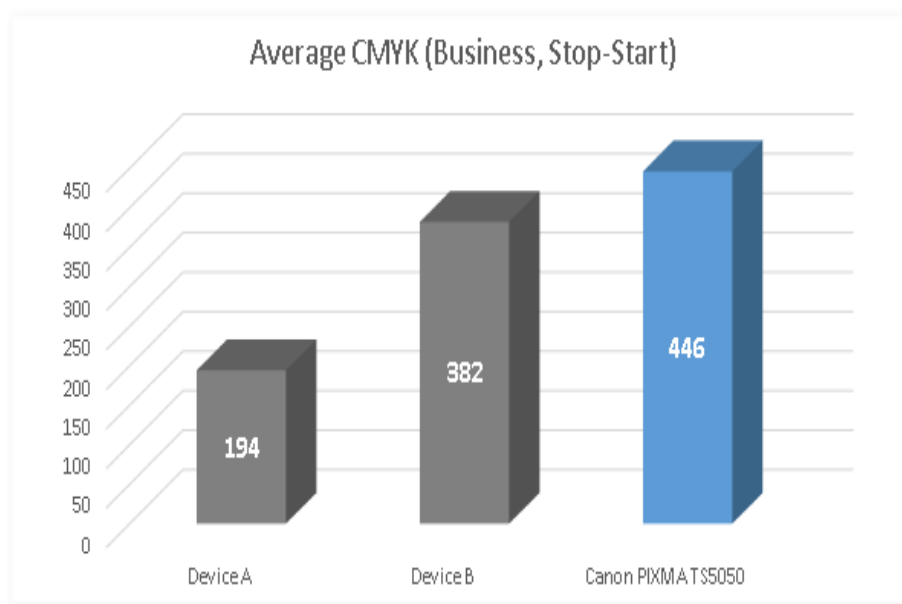
This table shows the average individual colour, black, CMY, and CMYK page yields for each printer device.

Yield Comparisons (Business, Stop-Start)				
	% By Which Canon PIXMA TS5050's Yields are Higher		% By Which Rival Devices' Yields are Lower	
	CMY	CMYK	CMY	CMYK
Device B	14%	17%	-12%	-14%
Device A	141%	130%	-58%	-56%

This table compares the rival devices' average tested yield against the genuine Canon device's average tested yield as a percentage.



When printing business documents in an intermittent, stop/start manner, the average CMY page yield for the PIXMA TS5050 was the highest of the group.

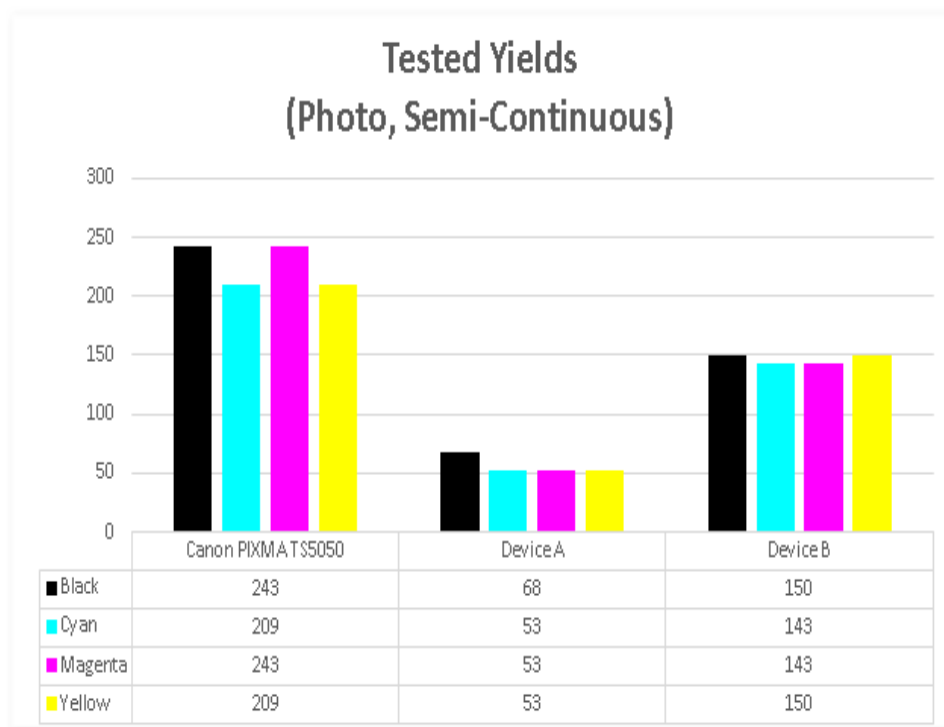


When printing business documents in an intermittent, stop/start manner, the average CMYK page yield for the PIXMA TS5050 was the highest of the group.

Semi-Continuous Test (Photo)

The Canon PIXMA TS5050's yields were remarkably higher than those of Device B and Device A. The TS5050's average CMY and CMYK yields of 220 and 226 pages were 52% and 54% higher than Device B's, respectively, for example, and a huge 316% and 298% higher than Device A's, respectively.

Note that yields for the pigment black cartridges are not included in these yield calculations, as their use was negligible.

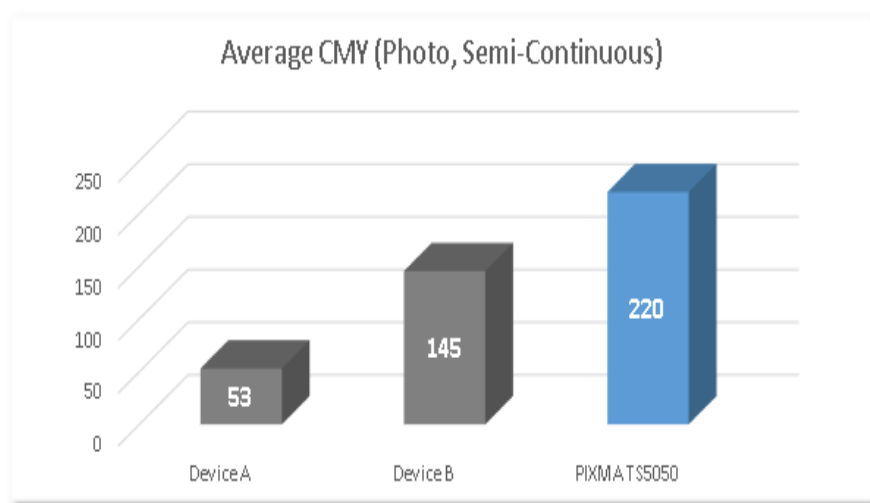


Page Yields (Photo, Semi-Continuous)						
	Cyan	Magenta	Yellow	Black	Average CMY	Average CMYK
Canon PIXMA TS5050	209	243	209	243	220	226
Device B	143	143	150	150	145	147
Device A	53	53	53	68	53	57

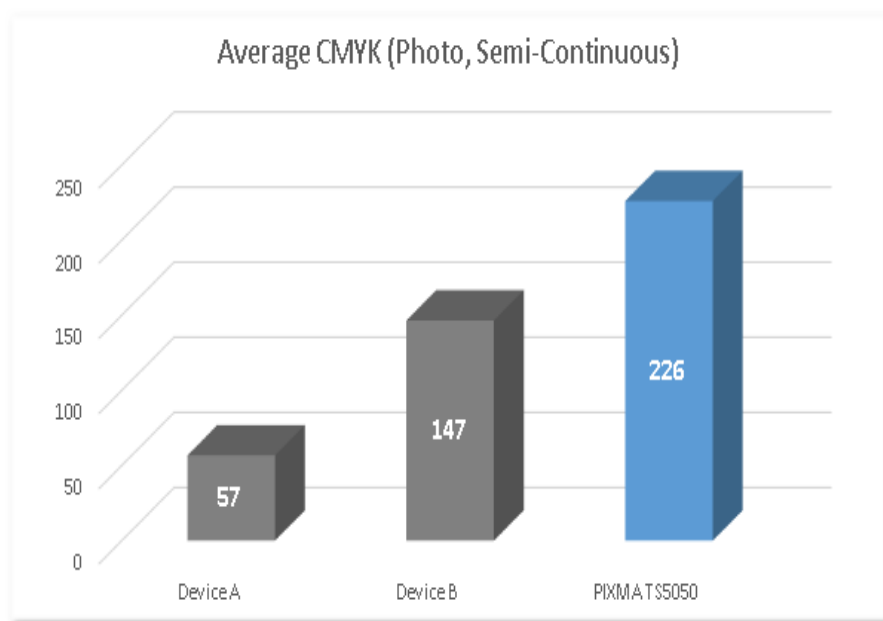
This table shows the average individual colour, black, CMY, and CMYK page yields for each printer device.

Yield Comparisons (Photo, Semi-Continuous)				
	% By Which Canon PIXMA TS5050's Yields are Higher		% By Which Rival Devices' Yields are Lower	
	CMY	CMYK	CMY	CMYK
Device B	52%	54%	-34%	-35%
Device A	316%	298%	-76%	-75%

This table compares the rival devices' average tested yield against the genuine Canon device's average tested yield as a percentage.



When printing photos in a semi-continuous manner, the average CMY page yield for the PIXMA TS5050 was the highest of the group.

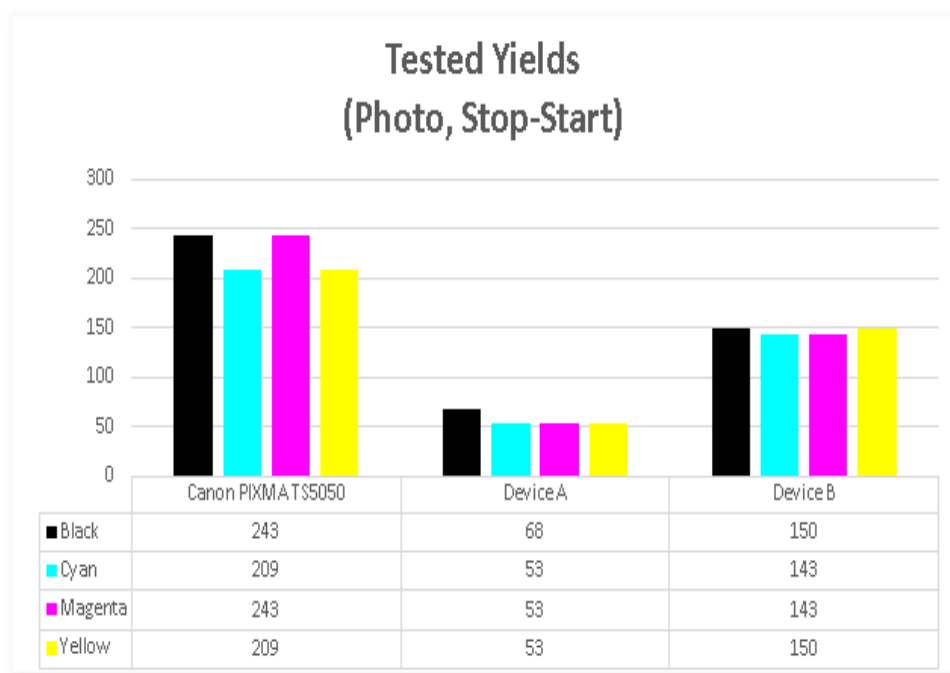


When printing photos in a semi-continuous manner, the average CMYK page yield for the PIXMA TS5050 was the highest of the group.

Stop-Start Test (Photo)

The trend continued with the Stop-Start test, with the PIXMA TS5050 once again the device with the highest yields. The PIXMA TS5050's average CMY and CMYK yields of 209 and 212 pages were 241% and 225% higher than Device A's, respectively, and 59% and 60% higher than Device B's.

Note that yields for the pigment black cartridge are not included in these yield calculations, as their use was negligible.

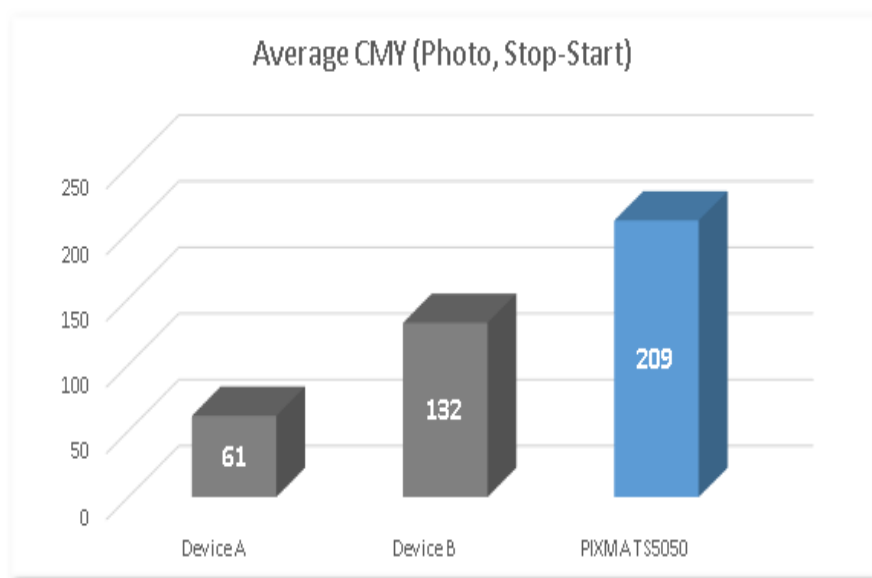


Page Yields (Photo, Stop-Start)						
	Cyan	Magenta	Yellow	Black	Average CMY	Average CMYK
Canon PIXMA TS5050	204	219	204	219	209	212
Device B	127	139	129	135	132	133
Device A	54	54	76	76	61	65

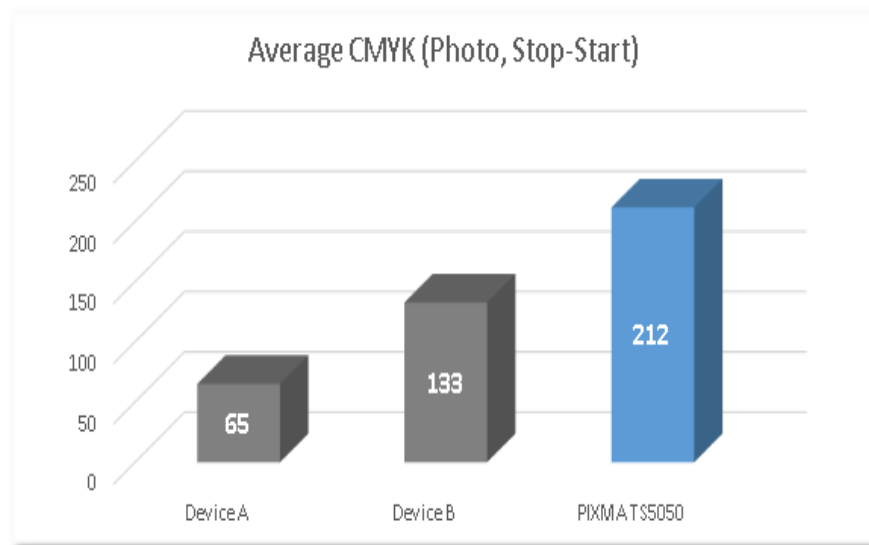
This table shows the average individual colour, black, CMY, and CMYK page yields for each printer device

Yield Comparisons (Photo, Stop-Start)				
	% By Which Canon PIXMA TS5050's Yields are Higher		% By Which Rival Devices' Yields are Lower	
	CMY	CMYK	CMY	CMYK
Device B	59%	60%	-37%	-37%
Device A	241%	225%	-71%	-69%

This table compares the rival devices' average tested yield against the genuine Canon device's average tested yield as a percentage.



When printing photos in an intermittent, stop/start manner, the average CMY page yield for the PIXMA TS5050 was the highest of the group.



When printing photos in an intermittent, stop/start manner, the average CMYK page yield for the PIXMA TS5050 was also the highest of the group.

Supporting Test Data

Business, Semi-Continuous					
	CYAN				
Device	Full Weight (grams)	Empty Weight (grams)	Net Weight (grams)	Total Counter at Start	Total Counter at End
Canon PIXMA TS5050	21.2	13.3	7.9	0	686
Device B	21.9	14.4	7.5	0	494
Device A	20.1	16.9	3.2	0	203

	MAGENTA				
Device	Full Weight (grams)	Empty Weight (grams)	Net Weight (grams)	Total Counter at Start	Total Counter at End
Canon PIXMA TS5050	21.2	13.1	8.1	0	686
Device B	22.0	14.6	7.4	0	383
Device A	20.0	16.7	3.3	0	148

	YELLOW				
Device	Full Weight (grams)	Empty Weight (grams)	Net Weight (grams)	Total Counter at Start	Total Counter at End
Canon PIXMA TS5050	21.2	13.2	8.0	0	686
Device B	21.8	14.2	7.6	0	485
Device A	20.0	16.7	3.3	0	203

	BLACK				
Device	Full Weight (grams)	Empty Weight (grams)	Net Weight (grams)	Total Counter at Start	Total Counter at End
Canon PIXMA TS5050	35.2	18.5	16.7	0	416
Device B	34.6	26.0	8.6	0	329
Device A	23.3	16.7	6.6	0	165

	PHOTO BLACK				
Device	Full Weight (grams)	Empty Weight (grams)	Net Weight (grams)	Total Counter at Start	Total Counter at End
Canon PIXMA TS5050	21.3	20.3	1.0	0	686
Device B	22.2	19.9	2.4	0	494
Device A	N/A	N/A	N/A	N/A	N/A

Business, Stop-Start					
	CYAN				
Device	Full Weight (grams)	Empty Weight (grams)	Net Weight (grams)	Total Counter at Start	Total Counter at End
Canon PIXMA TS5050	21.1	13.4	7.7	0	469
Device B	21.8	14.4	7.4	0	449
Device A	20.1	16.8	3.2	0	212

	MAGENTA				
Device	Full Weight (grams)	Empty Weight (grams)	Net Weight (grams)	Total Counter at Start	Total Counter at End
Canon PIXMA TS5050	21.3	13.3	8.0	0	469
Device B	22.0	14.5	7.5	0	346
Device A	19.9	16.7	3.2	0	161

	YELLOW				
Device	Full Weight (grams)	Empty Weight (grams)	Net Weight (grams)	Total Counter at Start	Total Counter at End
Canon PIXMA TS5050	21.2	13.4	7.8	0	469
Device B	22.0	14.3	7.7	0	440
Device A	20.0	16.7	3.3	0	212

	BLACK				
Device	Full Weight (grams)	Empty Weight (grams)	Net Weight (grams)	Total Counter at Start	Total Counter at End
Canon PIXMA TS5050	35.5	18.5	17.1	0	377
Device B	34.5	25.9	8.6	0	293
Device A	23.3	16.7	6.6	0	192

	PHOTO BLACK				
Device	Full Weight (grams)	Empty Weight (grams)	Net Weight (grams)	Total Counter at Start	Total Counter at End
Canon PIXMA TS5050	21.2	18.9	2.2	0	469
Device B	21.9	20.2	1.7	0	449
Device A	N/A	N/A	N/A	N/A	N/A

Photo, Semi-Continuous					
	CYAN				
Device	Full Weight (grams)	Empty Weight (grams)	Net Weight (grams)	Total Counter at Start	Total Counter at End
Canon PIXMA TS5050	21.4	13.5	7.9	0	209
Device B	21.8	14.6	7.2	0	143
Device A	20.1	16.8	3.4	0	53

	MAGENTA				
Device	Full Weight (grams)	Empty Weight (grams)	Net Weight (grams)	Total Counter at Start	Total Counter at End
Canon PIXMA TS5050	21.4	13.4	8.0	0	243
Device B	21.9	14.4	7.5	0	143
Device A	20.0	16.6	3.4	0	53

	YELLOW				
Device	Full Weight (grams)	Empty Weight (grams)	Net Weight (grams)	Total Counter at Start	Total Counter at End
Canon PIXMA TS5050	21.3	13.8	7.5	0	209
Device B	21.7	14.3	7.5	0	150
Device A	20.0	16.7	3.3	0	68

	BLACK				
Device	Full Weight (grams)	Empty Weight (grams)	Net Weight (grams)	Total Counter at Start	Total Counter at End
Canon PIXMA TS5050	35.5	31.4	4.1	0	243
Device B	34.7	31.7	3.0	0	150
Device A	23.3	20.1	3.3	0	0

	PHOTO BLACK				
Device	Full Weight (grams)	Empty Weight (grams)	Net Weight (grams)	Total Counter at Start	Total Counter at End
Canon PIXMA TS5050	21.3	18.1	3.2	0	243
Device B	21.9	18.4	3.6	0	150
Device A	N/A	N/A	N/A	N/A	N/A

Photo, Stop-Start					
	CYAN				
Device	Full Weight (grams)	Empty Weight (grams)	Net Weight (grams)	Total Counter at Start	Total Counter at End
Canon PIXMA TS5050	21.2	13.3	7.9	0	204
Device B	21.0	15.0	6.0	0	127
Device A	20.1	16.9	3.2	0	54

	MAGENTA				
Device	Full Weight (grams)	Empty Weight (grams)	Net Weight (grams)	Total Counter at Start	Total Counter at End
Canon PIXMA TS5050	21.8	13.3	8.5	0	219
Device B	20.0	14.4	5.6	0	119
Device A	19.9	16.8	3.1	0	54

	YELLOW				
Device	Full Weight (grams)	Empty Weight (grams)	Net Weight (grams)	Total Counter at Start	Total Counter at End
Canon PIXMA TS5050	21.2	13.5	7.7	0	204
Device B	20.1	14.2	5.9	0	129
Device A	20.0	16.7	3.3	0	76

	BLACK				
Device	Full Weight (grams)	Empty Weight (grams)	Net Weight (grams)	Total Counter at Start	Total Counter at End
Canon PIXMA TS5050	35.5	31.2	4.3	0	219
Device B	34.5	31.7	2.8	0	135
Device A	23.3	19.7	3.6	0	76

	PHOTO BLACK				
Device	Full Weight (grams)	Empty Weight (grams)	Net Weight (grams)	Total Counter at Start	Total Counter at End
Canon PIXMA TS5050	21.4	17.6	3.8	0	219
Device B	22.0	18.3	3.7	0	135
Device A	N/A	N/A	N/A	N/A	N/A

Test Methodology

Buyers Lab used the starter cartridge set included in a device's box to test the page yield of each printer device. The cartridge set was weighed at the start of testing, run to exhaustion, and then weighed again. Six devices were used in total. Page yield was evaluated per the following:

A. Ink Yield: The ink cartridge set included with the devices in the box was run to exhaustion using the ISO 24712 test document suite. Two devices of each model type were used to test the yields with the ISO 24712 test suite—one for the semi-continuous test and one for the stop-start test. Two devices were also used to test ink yields using one page of the ISO 29103 test suite, with one device run semi-continuously and the other run in a stop-start manner.

Test Environment/Conditions

All testing was conducted in a controlled environment at Buyers Lab's test facility located at Wokingham, UK, per the following conditions:

Temperature was maintained at 22°C, +/-2.7°C with daily conditions monitored and logged 24/7 by a seven-day temperature/humidity chart recorder. Relative humidity was maintained within 45% +/- 10% with daily conditions monitored and logged 24/7 by a seven-day temperature/humidity chart recorder. Materials conditioning: printers, paper and cartridges were acclimatized to the above conditions for a minimum of 24 hours prior to testing. Prior to acclimatization, packaging and shipping materials were removed from the printer and cartridges. Paper was acclimatized in a ream wrapper.

Test Equipment

Total number of cartridges tested:

10 x Canon PIXMA TS5050 starter ink cartridges (2 x five-ink cartridge set)

10 x Device B starter ink cartridges (2 x five-ink cartridge set)

8 x Device A (2 x four-ink cartridge set)

Total number of printers required:

2 x Canon PIXMA TS5050

2 x Device A

2 x Device B

Test devices were purchased by Buyers Lab on the open market.

About Keypoint Intelligence - Buyers Lab

Keypoint Intelligence is a one-stop shop for the digital imaging industry. With our unparalleled tools and unmatched depth of knowledge, we cut through the noise of data to offer clients the unbiased insights and responsive tools they need in those mission-critical moments that define their products and empower their sales.

For over 50 years, Buyers Lab has been the global document imaging industry's resource for unbiased and reliable information, test data, and competitive selling tools. What started out as a consumer-based publication about office equipment has become an all-encompassing industry resource. Buyers Lab evolves in tandem with the ever-changing landscape of document imaging solutions, constantly updating our methods, expanding our offerings, and tracking cutting-edge developments.

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