

DECEMBER 2019

Canon PIXMA G6050 versus Device A and Device B Reliability Test

Test Objective

Keypoint Intelligence - Buyers Lab was commissioned by Canon Europe Ltd. to conduct a 30,000-impression reliability test on the Canon PIXMA G6050, Device A, and Device B. Testing took place over a period of 20 days and involved printing the ISO 24734 test suite and a batch of proprietary Buyers Lab image quality files. Image quality was checked every 5,000 impressions to assess the consistency of output. The printers were operated in default mode, with any misfeeds, multi-sheet feeding, misalignment skewing, and printer malfunctions or failures recorded. Testing was conducted at Buyers Lab's European test facility. The Canon PIXMA G6050 is also sold as the Canon PIXMA G6040, so this report is also applicable to that device.

Executive Summary

In the reliability test, the Canon PIXMA G6050 performed impeccably, completing 30,000 impressions with no printhead cleanings whatsoever. Device A and Device B also finished the 30,000-impression test, but Device A and Device B required five and 16 printhead cleanings, respectively, giving them service intervention ratios of 1 per 6,000 and 1,875 impressions, respectively.

Buyers Lab technicians also checked the halftone, text, and fine line consistency to see if the quality remained consistent over the course of the test. In all cases, image quality output didn't degrade. Techs checked the optical densities of each device, too. The Canon PIXMA G6050's optical densities were consistent until 15,000 impressions, after which they varied, while Device A and Device B's were consistent throughout testing. Although the Canon PIXMA G6050's average CIE colour gamut reading was competitive with Device A and B's readings, it was nonetheless 2% lower than those of Device A and B.

Although its optical densities varied towards the end of the test and its gamut volume was slightly smaller than that of Devices A and B, the Canon PIXMA G6050 had fewer service interventions than those devices, and on that basis the Canon PIXMA G6050 has the advantage over Devices A and B.

Reliability

Printer reliability is a key concern for buyers because a reliable device means both less downtime and increased productivity. In this test, each device printed 30,000 impressions over 20 days, with the workload split equally between simplex and duplex jobs.

- All devices reached the end of the test with no service required.
- The Canon G6050 needed no printhead cleanings or any other service.
- Device A required five printhead cleanings, which results in a rate of one intervention every 6,000 impressions.
- Device B required 16 printhead cleanings, a 220% increase on the number of Device A's, resulting in a rate of one intervention every 1,875 impressions.

Summary

	Canon PIXMA G6050	Device A	Device B
Impressions	30,000	30,000	30,000
Operator Interventions* (error code clearance; paper sensor cleaning; printhead clean)	0	5	16
Intervention Rate (per impressions)	Not applicable	1/6,000	1/1,875
Total Misfeeds	0	0	0
Misfeed Rate	Not applicable	Not applicable	Not applicable

* Operator interventions do not include ink tank refills.

Image Quality

To assess image quality consistency, the Buyers Lab technician printed Buyers Lab's proprietary test targets on each device, with samples taken at 5,000-impression intervals. Image quality was assessed in several areas, such as text, fine lines, solid density, and colour gamut volume. Photographic and text samples were compared and graded on a three-point scale where 3 is excellent, 2 is good, and 1 is poor. From a user perspective, output with a 3 would be nearly flawless, meeting the higher standard required for distribution to external clients; a 2 would be average, and while showing some slight defects or flaws would be suitable for internal use; and a 1 would have major defects and could be illegible in places, rendering it unusable.

Examples of Image Quality Ratings



3 Rating: Smooth tones, vibrant colours, with fine detailing and good contrast

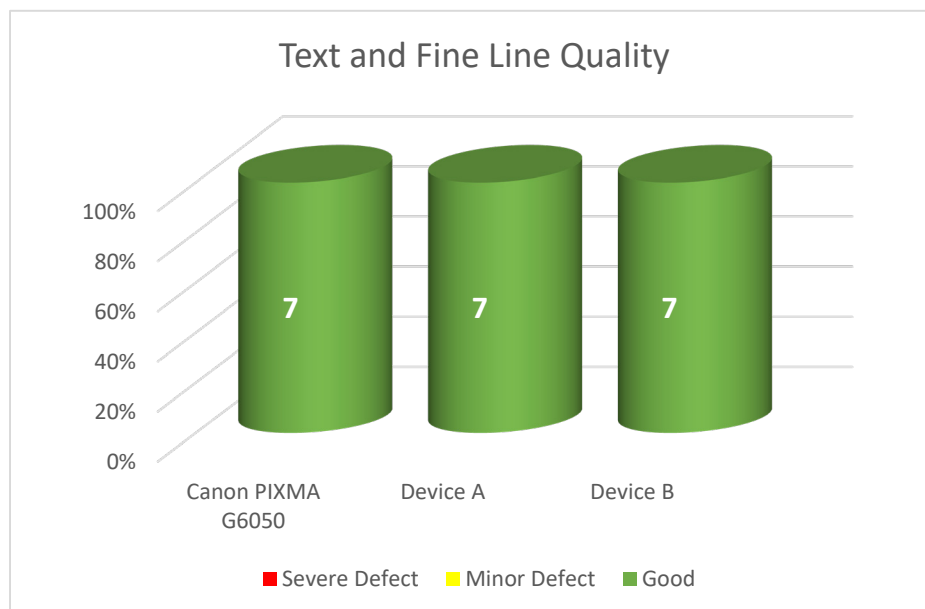


2 Rating: Some localized defects, but overall quality is okay

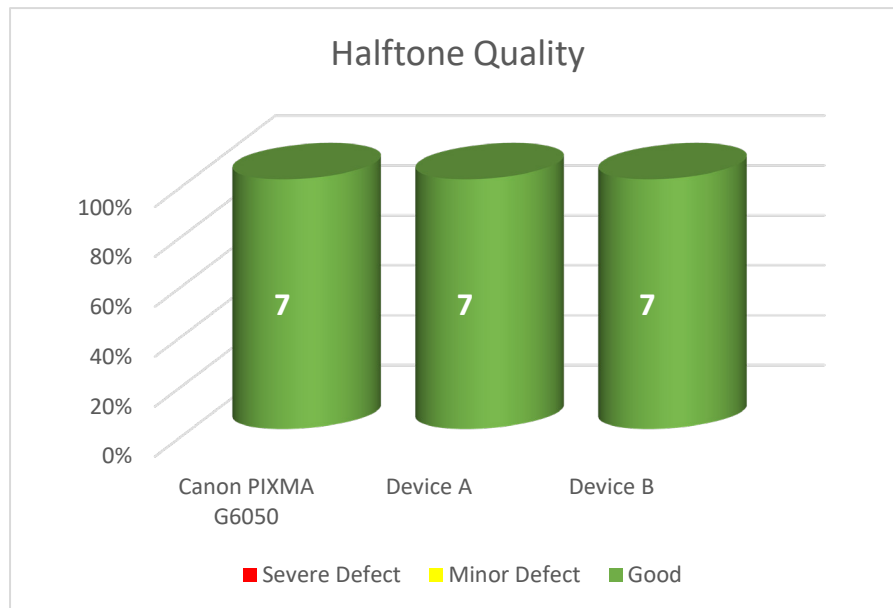


1 Rating: The whole page suffers from poor quality, rendering it unusable

Throughout testing, all three devices produced samples that displayed consistent image quality, with photographs, text, and fine lines that earned a 3 rating.



Grades for text and fine lines are indicated by a colour, such as green, which means there were no defects; yellow, which represents a minor defect; and red, which represents a severe defect. The number on the cylinders relates to the number of image quality samples produced.

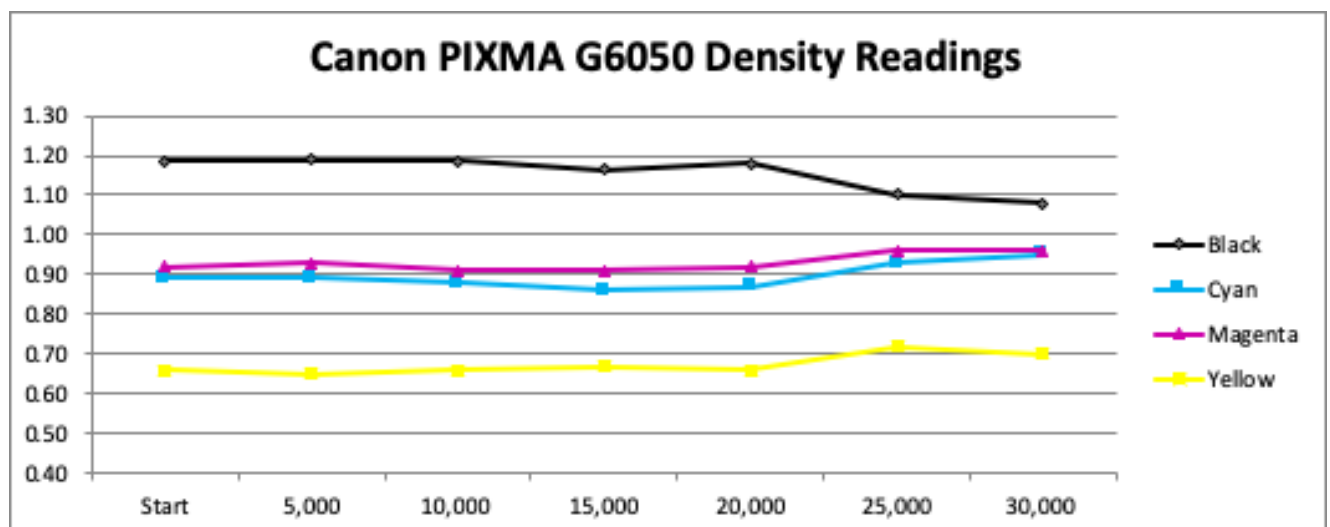


Grades for text and fine lines are indicated by a colour, such as green, which means there were no defects; yellow, which represents a minor defect; and red, which represents a severe defect. The number on the cylinders relates to the number of image quality samples produced.

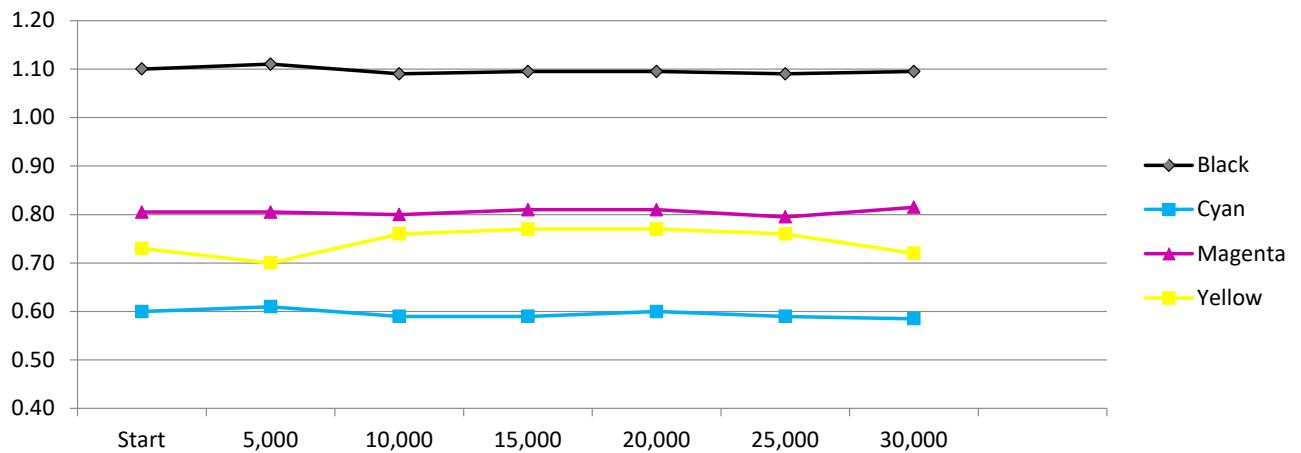
Colour Density

A higher print density reading for black means that output will be darker and/or richer. However, a higher density isn't always better for cyan, magenta, and yellow, because the most desirable density depends on context and the clarity and accuracy of colour production.

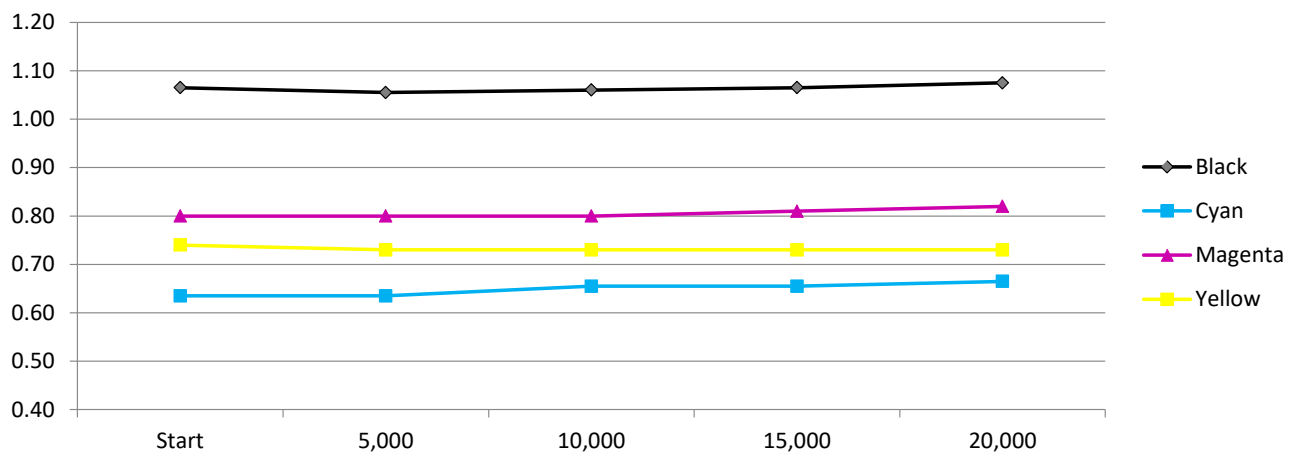
The Canon PIXMA G6050 had consistent density readings until the 15,000-impression mark, after which the optical density of black reduced slightly while the density of the CMY inks increased slightly. The density readings of Devices A and B were consistent throughout testing.



Device A Density Readings



Device B Density Readings



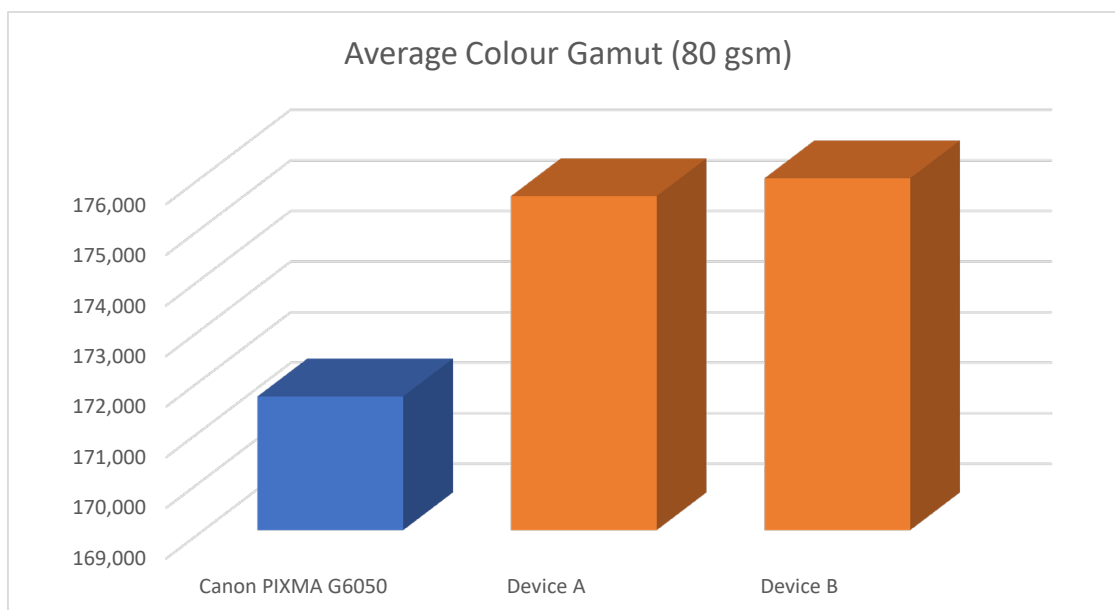
Canon PIXMA G6050				
	Average	Maximum	Minimum	Variance
Black	1.16	1.19	1.08	0.11
Cyan	0.90	0.95	0.86	0.09
Magenta	0.93	0.96	0.91	0.05
Yellow	0.67	0.72	0.65	0.07
Device A				
	Average	Maximum	Minimum	Variance
Black	1.10	1.11	1.09	0.02
Cyan	0.60	0.61	0.59	0.03
Magenta	0.81	0.82	0.80	0.02
Yellow	0.74	0.77	0.70	0.07
Device B				
	Average	Maximum	Minimum	Variance
Black	1.06	1.08	1.04	0.04
Cyan	0.65	0.67	0.64	0.03
Magenta	0.81	0.82	0.80	0.02
Yellow	0.73	0.74	0.72	0.02

Colour Gamut

Colour gamut represents the ability to render a range of colours, with a larger gamut indicating the ability to produce a wider range of shades and hues. The average CIE colour gamut volume of all the devices was similar, although the Canon PIXMA G6050's was 2% lower than that of Devices A and B.

CIE Colour Gamut Volume				
	Average Volume	Min Volume	Max Volume	Variance
Canon PIXMA G6050	171,642	164,886	194,576	29,690
Device A	175,599	165,592	181,567	15,975
Device B	175,952	174,586	177,856	3,270

Max and Min indicate the highest and lowest volumes over the course of testing.



Supporting Test Data

Detailed Reliability Log

Canon PIXMA G6050 Event Log

Date	Task	Action	Meter count
N/A	N/A	N/A	N/A

Device A Event Log

Date	Task	Solution	Meter count
05/07/2019	Head clean required	Conduct head clean	11,758
11/07/2019	Head clean required	Conduct head clean	17,841
23/07/2019	Head clean required	Conduct head clean	18,001
25/07/2019	Head clean required	Conduct head clean	22,872
27/07/2019	Head clean required	Conduct head clean	25,462

Device B Event Log

Date	Task	Solution	Meter count
19/06/2019	Head clean required	Conduct head clean	1,611
25/06/2019	Head clean required	Conduct head clean	4,730
01/07/2019	Head clean required	Conduct head clean	6,850
05/07/2019	Head clean required	Conduct head clean	8,965
08/07/2019	Head clean required	Conduct head clean	10,717
11/07/2019	Head clean required	Conduct head clean	14,607
12/07/2019	Head clean required	Conduct head clean	15,109
17/07/2019	Head clean required	Conduct head clean	19,212

18/07/2019	Head clean required	Conduct head clean	20,822
18/07/2019	Head clean required	Conduct head clean	21,709
19/07/2019	Head clean required	Conduct head clean	23,711
22/07/2019	Head clean required	Conduct head clean	25,419
23/07/2019	Head clean required	Conduct head clean	27,002
23/07/2019	Head clean required	Conduct head clean	27,292
24/07/2019	Head clean required	Conduct head clean	28,427
25/07/2019	Head clean required	Conduct head clean	29,369

Test Methodology

Buyers Lab conducted a 30,000-impression reliability test on three devices: the Canon PIXMA G6050, Device A, and Device B, with a 50/50 split between simplex and duplex. The devices were operated in default mode. All issues, including misfeeds, multi-sheet feeding, skewing, and printer malfunctions were recorded. Image quality samples, along with optical density and gamut readings, were taken at 5,000-impression intervals and then used to assess the devices' consistency over the test period. Pukka Paper Everyday A4 80gsm and Canon Red Label A4 80gsm were used during testing.

Test Environment/Conditions

All testing was conducted in a controlled environment at Buyers Lab's test facility located at Unit 11, The Business Centre, Molly Millars Lane, Wokingham, RG41 2QZ 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 opened in a manner that prevented light damage from occurring to the print cartridge during acclimatization. Paper was acclimatized in the ream wrapper.

About Keypoint Intelligence - Buyers Lab

Keypoint Intelligence is a one-stop shop for the digital imaging industry. With our unparalleled services and unmatched depth of knowledge, we cut through the noise of data to offer clients the independent insights and responsive tools they need.

For over 50 years, Buyers Lab has been the global document imaging industry's resource for unbiased and reliable research, test data, and competitive information services. In addition to publishing the industry's most comprehensive and accurate test reports, each representing months of hands-on testing in our U.S. and UK laboratories, we have been the leading organization for extensive specifications/pricing databases on MFPs, printers, scanners, and software. Buyers Lab also provides consulting services and a range of private testing services that include document imaging device beta and pre-launch testing, performance certification testing, consumables testing (toner, ink, fusers, and photoconductors), solutions evaluations, and media runnability testing.

For more information, please call David Sweetnam at +44 (0) 118 977 2000 or email him at david.sweetnam@keypointintelligence.com