BLI BUYERS LAB

Laser Cartridge Performance Test

LaserMonks
ECO-Q2612A Cartridges for the HP LaserJet 1022

APRIL 2010

Test Objective

Evaluate the page yield, image quality (IQ) and reliability performance of three (3) LaserMonks remanufactured black print cartridges when tested in the HP LaserJet 1022 printer, with all testing conducted with the ISO/IEC 19752 test target in BLI's 10,000-square-foot test lab located in Hackensack, NJ.

Cartridge Type: LaserMonks ECO-Q2612A

Printer Type: Hewlett-Packard LaserJet 1022

Number of Cartridges Tested: 3

Performance Summary

Throughout BLI's tests, each of the three LaserMonks ECO-Q2612A cartridges provided consistently good overall performance. In addition to netting page yields that exceeded LaserMonks' 2,000-page declared yields by an average of 393 pages, there were no reliability issues of any kind encountered. Moreover, the overall image quality of the cartridges earned a rating of very good.

TEST RESULTS AND OBSERVATIONS

Page Yield

BLI's average tested yield: 2,393 pages (using the ISO/IEC 19752 5% toner yield test original)

ISO 90% LCB Yield: 2,240.8 pages.

LaserMonks' declared yield: 2,000 pages.

CARTRIDGES TESTED

Cartridge	Net Weight (Grams)	Cartridge Yield (Impressions)	Impressions Per Gram
A1	105.8	2,123	20.1
A2	113.0	2,603	23.0
A3	112.8	2,453	21.7
Overall Average	110.5	2,393	21.6
LCB Yield		2,240.8	

Overall Image Quality

The overall image quality performance of the LaserMonks ECO-Q2612A cartridges was rated very good. While occasional toner overspray was observed around lines and characters, the great majority of the image quality samples had text that was consistently bold and fully formed, with no overspray or breakup. In addition, line art was uniform, halftones had minimal banding and only slight graininess, and solids, which had an average density reading of 1.52, were consistently dark and showed no mottling.

Print Quality	
Text	Very Good
Line Art	Very Good
Halftones	Very Good
Solids	Excellent
Overall Average	Very Good

DENSITY READINGS*

Print density	Density for units in this class tested to date
1.46 to 1.58	1.15 to 1.54

*Measurements are based on four readings corresponding to four different solid black locations on the output. The higher the density reading, the darker the image and better the density.

Reliability

Throughout testing, all three of the LaserMonks ECO-Q2612A cartridges performed reliably, with no failures of any kind encountered.

Cartridge	Out-of-Box Failure	Premature Expire	Image Quality Failure
A1	0	0	0
A2	0	0	0
A3	0	0	0
Total Reliability Issues	0	0	0

Exhibit

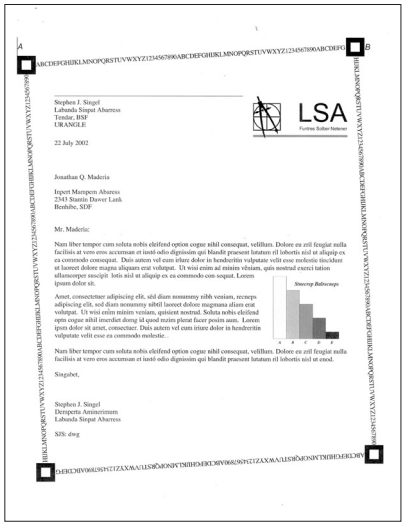

Exhibit A: ISO/IEC 19752 Test Target

TEST RESULTS AND OBSERVATIONS

Test Methodology:

BLI tested three print cartridges for up to seven hours per day to evaluate page yield, image quality and cartridge reliability performance, per the following:

A) Toner yield: Page yield is evaluated using the ISO 19752 5% black test target (see Exhibit on page 3). Printer model and serial number, as well as cartridge name, type and serial number for each cartridge are recorded prior to start of test. BLI also records start and end weights for each cartridge to obtain net toner amounts for each. In accordance with ISO methods, each cartridge is run until the first "fade" occurrence after the second "toner low" warning is displayed on the printer LCD, providing that image quality remains acceptable and no reliability problems are encountered. Following the first "toner low" warning, the cartridge is removed from the printer, agitated and reinstalled in the printer. Printing is continued until the second "toner low" warning is displayed on the LCD, after which the cartridge is again removed, agitated and reinstalled in the printer, and printing is again restarted. A toner cartridge is considered depleted upon the first "fade" occurrence after the second "toner low" warning, at which time testing is halted and a page count is recorded (unless image quality degrades to an unacceptable level earlier). Paper used is Georgia-Pacific Spectrum Multi-use Letter (20-lb., 92 brightness).

B) Reliability: Throughout testing, BLI monitors cartridge performance for malfunctions, such as mechanical failures, toner leakage, component breakage, background on printed pages, extraneous imaging and impact on printer performance, such as damage to fusers. A cartridge that does not function out of the box, is damaged or produces 20 or fewer acceptable pages is classified as an out-of-box failure (OOBF). A cartridge yielding less than 75% of the manufacturer declared yield is classified as a premature expire (this is typically due to either image quality degradation, premature fade or a physical cartridge malfunction).

C) Image quality: Image quality (IQ) is monitored daily and visually evaluated at the start of testing and at 25%, 50% and 75% of specified life (page yield) for clarity and definition of text and line art, and production of halftones and solids, as well as for image quality defects, such as toner overspray, background, smearing, graininess, banding, text break-up, extraneous imaging, inconsistencies and serif fill. Visual evaluations of IQ samples are conducted under a Graphic Lite D5000 Standard Viewer and Standard Scientific Solid State 3X Camera, and image density is measured with an X-Rite 500 Series Densitometer.

Test environment/conditions: All testing was conducted in BLI's U.S. test facility located at 20 Railroad Avenue, Hackensack, NJ, with daily conditions monitored by an Extech Digital Temp/RH recorder and Honeywell Model 61 Seven-Day Temperature/Humidity Chart Recorder.

Temperature: Testing room average, 23.0ºC (73°F) ± 2ºC. All running average temperatures were between 20.0°C and 26.0°C (68˚F to 78˚F) and data was logged on a per-cartridge basis.

Relative Humidity: Testing room average, 50% ± 15% RH. Running average was between 35% and 65% and data was logged on a per-cartridge basis.

Conditioning: Printers, paper and cartridges were acclimated to the above conditions for a minimum of eight hours prior to testing. Prior to acclimation, packaging and shipping materials were opened in a manner that prevented light damage from occurring to the print cartridge during acclimation. Paper was acclimated in the ream wrapper. Printers, printer components, paper and cartridges were handled in a manner that prevented exposure to water condensation.

About Buyers Laboratory Inc.

Since 1961, Buyers Laboratory Inc. (BLI) has been the leading global independent office-equipment testing 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 databases of specifications and pricing on copiers, printers, fax machines and multifunctional products. The company has a long-standing reputation for being the industry's most trustworthy and complete source for quality testing services and global competitive intelligence. BLI's reports and databases are available to its subscribers via the company's online bliQ competitive information service. This encyclopedic resource also provides quick and easy access to BLI's First Look Reports, Field Test Reports, Lab Test Reports, Solutions Reports, Consumables Reports and articles.

In addition to testing over 200 office machines and related consumables annually for its subscribers, BLI provides consulting services to buyers and a vast array of private testing services that include document imaging device beta and pre-launch testing, product performance certification testing, consumables testing (including toner, ink and photoconductors), software and solutions evaluations, and imaging media runnability testing (including virgin and recycled papers in sizes ranging from letter to ledger).

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