

## Extended Reliability Performance Test

SEPTEMBER 2016

### Lexmark CX860dte

with Multi-position Staple Hole Punch Finisher

"Based on the results of our 1,000,000-impression test, BLI analysts firmly believe the Lexmark CX860 can be counted on for outstanding reliability performance in high-volume office environments requiring a color MFP. "

**Marlene Orr, BLI Director of Office Equipment Product Evaluation**



### Executive Summary

Buyers Laboratory LLC (BLI), Fairfield, NJ (USA), was commissioned by Lexmark to evaluate the reliability performance of the CX860dte model, configured with the optional Multi-position Staple Hole Punch Finisher, when subjected to a 1,000,000-impression reliability test over a 46-business-day period.

In contrast to BLI's normal reliability test, which is conducted for a volume equivalent to one half of a unit's monthly duty cycle, in this extended-term test, BLI subjected the Lexmark CX860 to an extended term test that was nearly six times as long. In real-world usage, this translates to almost two years of volume (based on an average volume of 50,000 pages per month). And, in fact, since many environments wouldn't output at this rate consistently, BLI's reliability test likely simulates several years of volume at real world rates.

Remarkably, the CX860 displayed virtually flawless performance throughout the test, misfeeding only 4 times, for a misfeed rate of just one per 250,000 impressions, which is better than that of most competitive devices tested to date by BLI. Based on average monthly print volumes of 50,000 pages, this would mean users would only experience a misfeed every five months or so.

While BLI technicians did encounter one error message and some image quality issues during testing, these were easily resolved by rebooting the device to clear the message and replacing defective components to improve image quality. These components were fully investigated by the Lexmark engineering team and adjustments were made to the device firmware and production of components to avoid future issues.

In addition, technicians found print and copy quality to be competitive to above average for this category. Output quality and color production remained consistent throughout the course of the test.

In addition, BLI lab tested other CX800/CS800 series models for reliability, by producing half the monthly duty cycle on each device over 20 business days. The CS820de, CX820dtfe and CX825dtfe all proved highly reliable.

## Supporting Test Data

### Test Overview

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Buyers Lab's reliability performance test was conducted using a mix of documents and file types from BLI's standard test suite. The unit was tested at varying daily print and copy volumes designed, with periods of high, low and no usage, designed to replicate real-world usage. The unit was operated in default mode, with BLI technicians recording any misfeeds, multi-sheet feeding, misalignment/skewing, machine malfunctions, printer errors and consumable or cartridge failures.

### Lexmark CX860 Series Reliability Rating: **Excellent**

The Lexmark CX860dte model, configured with the optional Multi-position Staple Hole Punch Finisher completed BLI's reliability lab test, completing 1,000,000 impressions and 100,000 scans over 46 business days, with only four misfeeds and one error code (which has been addressed via new firmware). Although BLI's testing did encounter two components that expired prematurely, replacement parts resolved the issues. Based on this testing, BLI certifies that the CX860 engine is highly reliable overall.

	Meter Count (Impressions)	ADF Count (Scans)
Starting Meter Count	0	0
Error code: "980.04 service option communication error." Appeared while printing in simplex mode using hole-punch. Technician powered off and back on to clear error.	464,426 <sup>1</sup>	
Transfer module and fuser replaced (end of life)	622,027	
Transfer module replaced (defective/premature expire)	641,623 <sup>2</sup>	
Magenta streaking on pages; replaced photoconductor (defective/premature expire)	799,128 <sup>3</sup>	
Fuser replaced (end of life)	941,916	
Transfer module replaced (end of life)	942,002	
Ending Meter Count	1,000,000	100,000
Total Misfeeds	4 <sup>4</sup>	0
Misfeed Rate	1 per 250,000 impressions	Not applicable
Defective Components	3	
Errors	1	
Service Calls	0	

Comments in red indicate service/intervention outside of routine maintenance. Defective parts were returned to Lexmark for full troubleshooting and evaluation.

1. According to Lexmark engineers, this error was seen in early FW release for the new product. Improvements were implemented to improve this communication issue in later firmware releases. See LXX release notes for EC1 firmware.
2. According to Lexmark engineers, the root cause of this issue was a plastic part used to tension the belt that was made just below the allowable tolerances. This part is only used in aftermarket image transfer units (ITUs). By being out of spec, the part failed to tension the ITU correctly, causing the print quality defect. As a result of this discovery, the parts have been reviewed and manufacturing process changes are in place to ensure this part is made to specifications in all future production.
3. According to Lexmark engineers, this early life photoconductor failure has been well researched and was caused by a lower than expected force internal to the photoconductor. This issue has been remedied in more recent production by a force optimization and is not expected to occur in future components.
4. According to Lexmark engineers, BLI's accelerated testing did not follow normal routine maintenance schedules. The maintenance that a normal customer undergoes would have a periodic replacement of the pick and separator roller for each tray. The test that BLI ran used a worst case scenario where the rollers were not replaced. In the analysis of the paper jams, three of the four occurred after the roller usage was two times past the recommended life.

### Detailed misfeed information

The Lexmark CX860dte experienced four misfeeds throughout testing:

- One misfeed occurred in the finisher at 53,110 impressions when copying in simplex mode on Georgia-Pacific Spectrum 20-lb. letter-size paper.
- One misfeed occurred in the paper drawer at 535,615 impressions when printing in simplex mode on Georgia-Pacific Spectrum 20-lb. letter-size paper.
- One misfeed occurred in the paper drawer at 673,797 impressions when copying in duplex mode on Georgia-Pacific Spectrum 20-lb. letter-size paper.
- One misfeed occurred in the paper drawer at 809,530 impressions when printing in simplex mode on Georgia-Pacific Spectrum 20-lb. letter-size paper.

### Lexmark CX825dte Reliability Rating: **Excellent.**

The Lexmark CX825dte completed BLI's reliability lab test, completing 125,000 impressions and 12,500 scans over 20 business days, with no misfeeds and no service required.

	Meter Count (Impressions)	ADF Count (Scans)
<b>Starting Meter Count</b>	0	0
<b>Ending Meter Count</b>	125,000	12,500
<b>Total Misfeeds/Misfeed Rate</b>	0/Not applicable	0/Not applicable
<b>Service Calls</b>	0	

### Lexmark CX820dte Reliability Rating: **Excellent.**

The Lexmark CX820dte completed BLI's reliability lab test, completing 100,000 impressions and 10,000 scans over 20 business days, with no misfeeds and no service required.

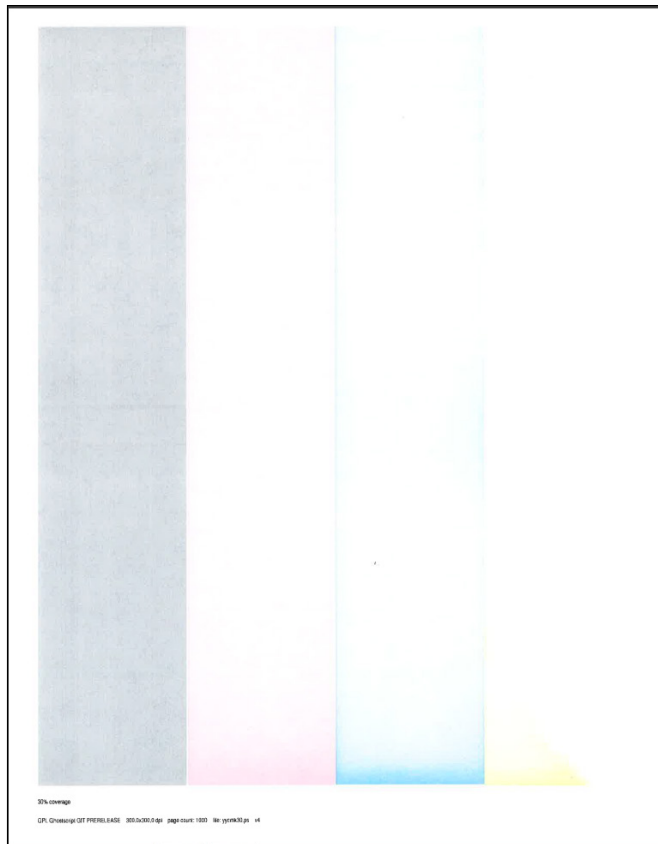
	Meter Count (Impressions)	ADF Count (Scans)
<b>Starting Meter Count</b>	0	0
<b>Ending Meter Count</b>	100,000	10,000
<b>Total Misfeeds/Misfeed Rate</b>	0/Not applicable	0/Not applicable
<b>Service Calls</b>	0	

## Lexmark CS820de Reliability Rating: Excellent.

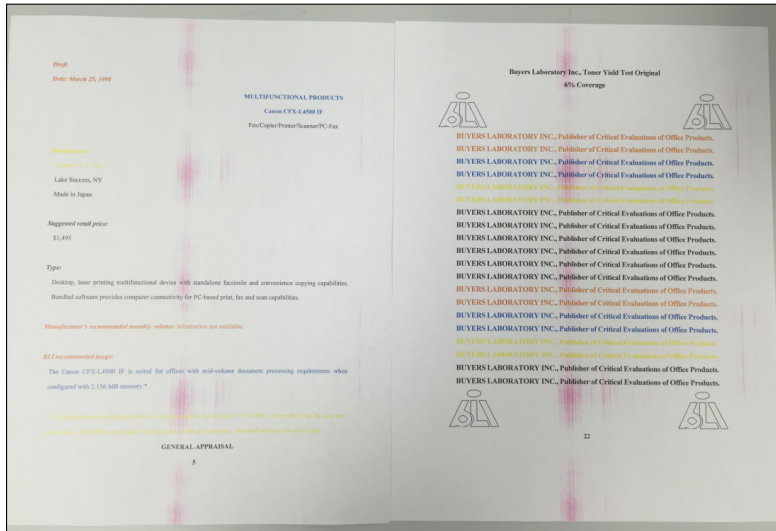
The Lexmark CS820dte completed BLI's reliability lab test, completing 125,000 impressions over 20 business days, with only one misfeed encountered and no service required.

	Meter Count (Impressions)
Starting Meter Count	0
Ending Meter Count	125,000
Total Misfeeds/Misfeed Rate	1/Not applicable
Service Calls	0

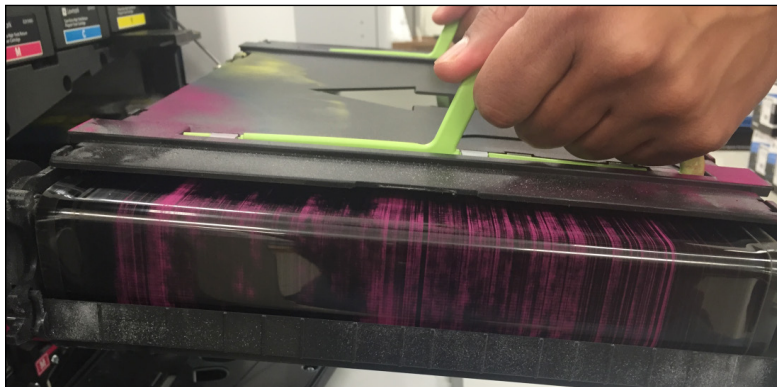
## Additional Observations: CX860dte Testing



At meter count 622,027 impressions into testing on the CX860dte, BLI technicians replaced the Image Transfer Unit, which had reached end of life. Shortly thereafter, at meter count 641,623, BLI technicians noted that toner was not being properly transferred to pages. The page shown above should contain four solid bars of black, magenta, cyan and yellow. BLI technicians installed a replacement transfer unit and the issue was resolved.



At meter count 799,128 impressions into testing, BLI technicians noted streaking on output.



Technicians noted that the transfer unit was contaminated with magenta toner.



At meter count 799,128 impressions into testing, BLI technicians noted streaking on output. Upon further investigation, technicians noted that the magenta drum unit was defective. Replacing it with a new unit resolved the issue.

# CERTIFICATE OF RELIABILITY

Awarded to

Lexmark International, Inc.

for the performance of the

**Lexmark CX860 Series**

in BLI's in-house durability test



A handwritten signature in black ink, appearing to read "Gerry Stoia".

GERRY STOIA, CEO

FEBRUARY 2016

DATE

This is to certify that when subjected to a 1,000,000-impression and 100,000-scan Buyers Lab durability test, the Lexmark CX860dte, configured with the optional Multi-position Staple Hole Punch Finisher 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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## Test Procedures

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### Test Environment

Testing was conducted under ambient conditions of 68F to 78F and 45% RH (+/- 10%), monitored daily 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 80 Little Falls Road, Fairfield, NJ (U.S.A).

### Test Equipment

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

### Test Duration

The Lexmark CX860dte was tested for 1,000,000 impressions over 46 working days. BLI's daily test usage is designed to replicate real-world use over an eight-hour workday, and as such includes a mix of various-size documents, simplex and duplex modes, and a mix of short, moderate and long run lengths, and on/off cycles, throughout the day.

### Tested Configuration

Lexmark CX860dte base unit, configured with multi-position staple hole-punch finisher.

Note: This report is based on BLI testing one representative test sample at a specific point in time. BLI is not responsible for differences in performance that may be the result of lot-to-lot variation, changes in production and machine modifications implemented by the manufacturer, service issues or any other reason beyond BLI's control. Test unit serial #: 75645500101HZ

## About Buyers Laboratory

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Since 1961, Buyers Laboratory LLC (BLI) has been the leading global independent office-equipment test lab. 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 (973) 797-2100, visit [www.buyerslab.com](http://www.buyerslab.com), or email [info@buyerslab.com](mailto:info@buyerslab.com).