

Dell 2335dn Multifunction Laser Printer

33 PPM Printer • Copier • Scanner • Fax



Reliability.....	Excellent
Multitasking.....	Very Good
Administrative Utilities	Very Good
Feedback to Workstations	Excellent
Ease of Network Setup.....	Very Good
Print Drivers.....	Very Good
Applications Compatibility.....	Excellent
Scan Functions	Good
Print/Copy Quality	Good/Good
Print/Copy Productivity.....	Very Good/Good
Ease of Use.....	Very Good
Feature Set.....	Very Good
Security Features.....	Not Rated
Environmental Features	Not Rated
Toner Yield.....	Very Good

PERFORMANCE SUMMARY

Geared toward small workgroups, the Dell 2335dn Multifunction Laser Printer proved to be a very good overall performer during its lab evaluation. The A4 laser desktop device, which has a rated speed of 33 ppm and offers network print and scan, copy and PC and walk-up fax functionality all as standard, demonstrated flawless reliability throughout its 17,500-impression durability test. Easy to set up and use, the 2335dn Multifunction Laser Printer is also productive, as evidenced by its above average job stream productivity using the PCL driver, as well as the fastest first-print times for several files, compared to competitors. The company has dramatically improved feedback to workstations from the previous version of Status Monitor Console by providing more detailed information in the utility and the types of alerts that users can configure. Additionally, the unit has very good multitasking capabilities and offers automatic duplexing as standard and an above average tested toner yield that exceeded the rated yield. Based on these findings, BLI highly recommends the 2335dn Multifunction Laser Printer for small workgroups with monthly volumes of up to 5,000 impressions.

Test duration:

Two months, including a 17,500-impression durability test.

Maximum monthly duty cycle:

35,000 impressions.

Manufacturer's recommended monthly volume:

500 to 5,000 impressions.

BLI's recommended monthly volume for optimum performance: Up to 5,000 impressions.

More information on the Dell 2335dn Multifunction Laser Printer is available through bliQ (www.buyerslab.com/bliQ).

Strengths

- Highly reliable—flawless durability performance
- Above average job stream productivity using the PCL driver; above average productivity when printing multiple sets in simplex mode; fastest first-print times for Word document and PowerPoint and JPEG files
- Highest standard memory capacity; standard automatic duplexing
- Above average tested toner yield, which exceeded the rated yield; toner-save mode in the drivers
- PCL 5e/6 and true Adobe PostScript 3 drivers
- Scan-to-USB functionality
- Improved Status Monitor Console provides more detailed information in the utility and types of alerts that users can configure
- Users can program multiple copy jobs while a print or copy job is in progress
- Highly automated driver installation routine
- Straightforward procedures for adjusting drawers, loading paper and removing misfeeds; simple and clean process for replacing the print cartridge

Weaknesses

- Below average halftone range in copy mode
- Among the lowest job stream productivity using the Adobe PostScript driver

PERFORMANCE OVERVIEW

+, – and ○ represent positive, negative and neutral attributes, respectively.



RELIABILITY

EXCELLENT

+ The 2335dn Multifunction Laser Printer is certified highly reliable by BLI, completing a 17,500-impression durability test without experiencing any misfeeds or requiring any service.



MULTITASKING

VERY GOOD

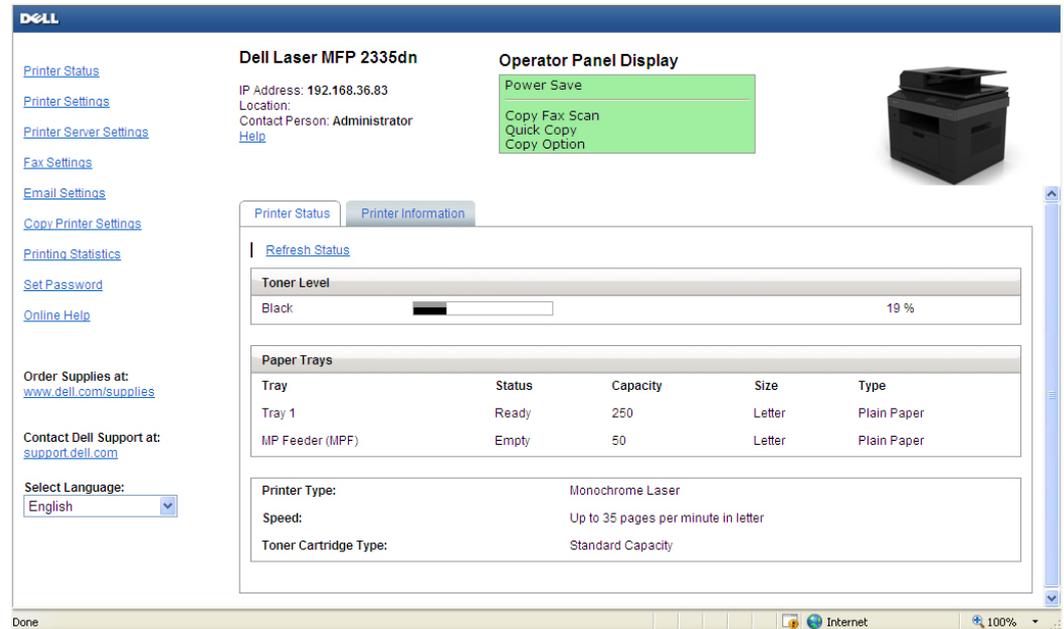
- + Users can program copy jobs up to memory capacity while printing or copying.
- Common to devices in this class, the 2335dn Multifunction Laser Printer lacks an interrupt key.



ADMINISTRATIVE UTILITIES

VERY GOOD

- Dell OpenManage Printer Manager allows administrators to remotely manage multiple Dell and compatible devices on the network via a Web browser. Though the fleet management utility provides great detail about Dell devices, its capabilities in terms of compatibles is more limited than with other competitive tools. OpenManage Printer Manager is available as a download on the company's Web site.
- + The embedded Web page, Dell Web Printer Configuration Tool, lets administrators configure the unit remotely on the network and monitor paper status—"Okay" or "Add Paper"—and remaining toner, as indicated in a percent gauge.



The screenshot shows the Dell Laser MFP 2335dn web interface. The top navigation bar includes links for Printer Status, Printer Settings, Printer Server Settings, Fax Settings, Email Settings, Copy Printer Settings, Printing Statistics, Set Password, and Online Help. The main content area displays printer information such as IP Address (192.168.36.83), Location, and Contact Person (Administrator). A green 'Operator Panel Display' box shows 'Power Save' and 'Copy Fax Scan' options. A 'Printer Status' tab is active, showing a 'Toner Level' gauge for Black at 19%. Below this is a 'Paper Trays' table:

Tray	Status	Capacity	Size	Type
Tray 1	Ready	250	Letter	Plain Paper
MP Feeder (MPF)	Empty	50	Letter	Plain Paper

Additional printer details include: Printer Type: Monochrome Laser; Speed: Up to 35 pages per minute in letter; Toner Cartridge Type: Standard Capacity. The interface also includes a 'Select Language' dropdown set to 'English' and a 'Done' button at the bottom.

Embedded Web Page—Printer Status Tab (U.S. model pictured)

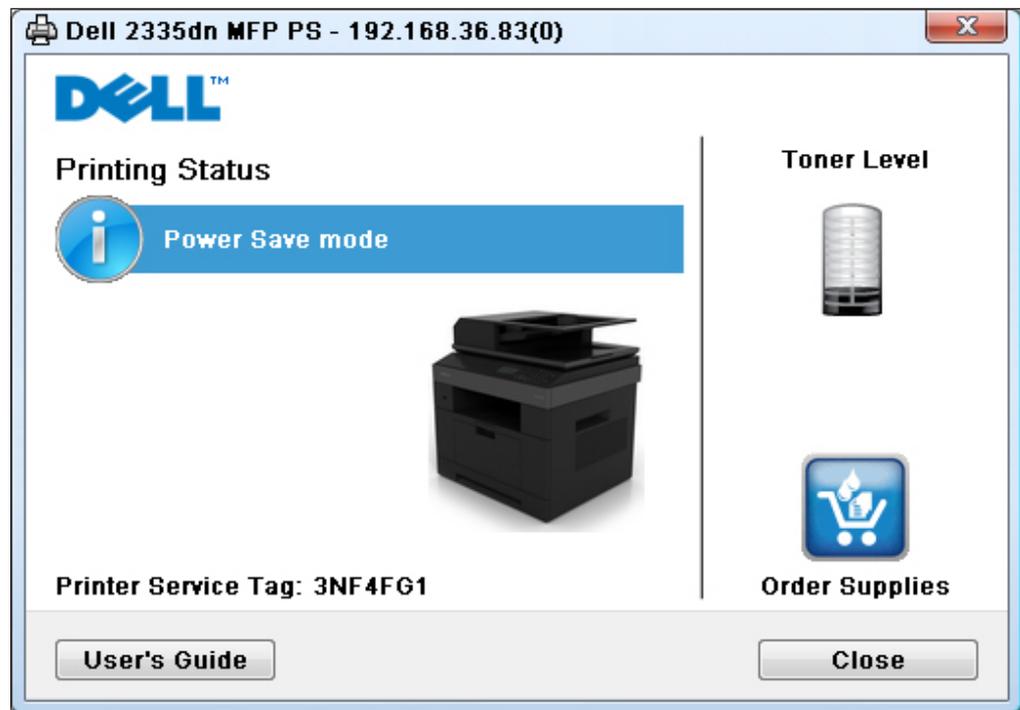
- + Status Monitor Console (SMC) displays information for devices that have bi-directional support enabled. Administrators and users can proactively check SMC for status, names of the print jobs, toner supply level, guidance for reordering toner and the user's manual for troubleshooting details.



FEEDBACK TO WORKSTATIONS

EXCELLENT

+ SMC is installed simultaneously with the driver and allows for pop-up messages or icon alerts that notify users of errors and warnings, to be configured. When a job is sent, the utility pops up so that users can see paper status—“Okay” or “Add Paper”—and remaining toner, as indicated in a percent gauge. Users can enable the pop-ups to appear during printing or disable the functionality altogether. The utility can also be proactively accessed.



Status Monitor Console—Printing Status (U.S. model pictured)

- Pop-ups for print job completion aren't available, but this is common for devices in this class.
- Administrators can set up e-mail alerts so that key operators receive messages when consumables are depleted or an error has occurred.
- + Audible alerts are available and can be configured to beep when a job is complete or an error has occurred, among others.
- + Dell Quick Launch Utility, which is loaded during installation and available on the desktop, includes shortcut keys to access SMC, Dell Tool Box, Updater Utility and a troubleshooting guide.
- + Tool Box provides users with access to information such as reports and menu, network and tray settings. Printer Maintenance and Diagnosis tabs are also available. However, when using the Tool Box, users can't open SMC for devices connected to the same port.



EASE OF NETWORK SETUP

VERY GOOD

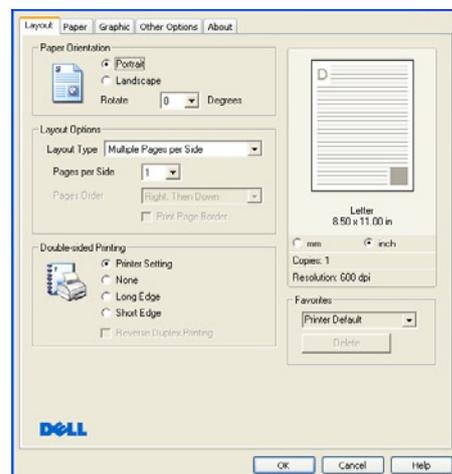
- Physical setup is simple as the 2335dn Multifunction Laser Printer ships fully assembled save for stacking it on top of the optional paper drawers, but note that Dell recommends at least two people lift the unit out of the box and place it in the desired location due to weight concerns. Users then remove the packing tape and open the side cover to access the pre-loaded print cartridges.
- ✦ The CD launches upon insertion in the drive, and the automated installation routine will have users up and running in a matter of minutes. It takes six clicks to install the PCL and Adobe PostScript drivers, as well as included software, using the default routine; the port is automatically created, and the IP address is assigned using DHCP. Furthermore, the drivers automatically detect configured accessories.
- ✦ Dell provides a utility whereby administrators can remotely install the drivers on workstations for uniform operation across the organization.
- The CD contains the PCL, Adobe PostScript and scan drivers, a supplies management system, Quick Launch Utility, printer settings utility, Dell ScanManager and network/PC fax software, as well as a user's manual in PDF format so that it can be printed.
- OpenManage Printer Manager can be downloaded from the company's Web site.



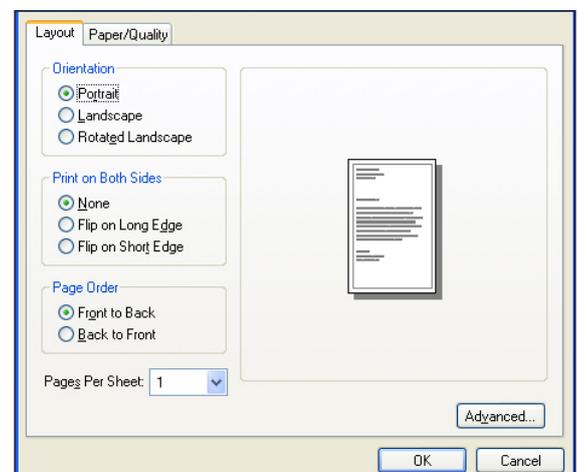
PRINT DRIVERS

VERY GOOD

- ✦ The 2335dn Multifunction Laser Printer ships with PCL 5e/6 and Adobe PostScript 3 drivers for various Windows and Mac operating systems, as well as environments that run Linux or UNIX. The drivers, which were tested on a Windows XP platform, were well laid out and easy to use.



**PCL 6 Print Driver—
Paper/Output Tab
(U.S. model pictured)**



**Adobe PostScript 3 Print Driver—
Paper/Output Tab
(U.S. model pictured)**

- The PCL driver is graphical and provides most of the selections for a typical job on the main screen. So too is the Adobe PostScript driver, which is atypical of this variety in that it's usually text-based. Still, the fact they're virtually identical helps boost ease of use in those environments that frequently switch between them.
- The drivers, which have a good overall feature set compared to A4 laser/LED monochrome printers in this speed range and class, both include booklet and N-up—1 to 16—printing. The PCL driver also has overlays, quantity selection up to 999, reduction and enlargement from 25 to 400 percent and the abilities to save settings for frequently used jobs and add watermarks, while the Adobe PostScript driver has quantity selection up to 9,999 and reduction and enlargement from 1 to 1,000 percent.
- Although there's a collate selection in the Adobe PostScript driver, it didn't function in testing; collate must be selected from the print screen within the application for output to be collated. This isn't uncommon, as most are written to allow the application settings to override the driver's.
- File size increased from one set printed using a 10-page document when producing multiple collated sets with collate selected from the print screen within the application, but the number of pages sent to the unit didn't increase, both of which are typical of devices in this class.



APPLICATIONS COMPATIBILITY

EXCELLENT

- + No problems were experienced with any of the test files used in the applications compatibility tests. Units are tested for compatibility on Windows XP platforms with Microsoft Word 2000, PowerPoint 2000 and Excel 2000, as well as Adobe PageMaker 7.0, Photoshop 6.0 and Acrobat 6.0, using 25 application test files that contain text, graphics, halftone images, tables, etc., enabling BLI technicians to evaluate memory usage, file processing, font rendering and greyscale capability.



SCAN FUNCTIONS

GOOD

- The 2335dn Multifunction Laser Printer offers colour and monochrome scanning of documents to e-mail or network folder via FTP, in JPEG, PDF and TIFF formats at 75, 150, 200, 300 or 600 dpi.
- The unit was awkward to use for scanning of documents to e-mail. Destinations must be programmed at the control panel via the alphanumeric keypad. This can be very time consuming as users must press each numeric key multiple times to enter the desired letter.

- + Administrators can enter e-mail addresses and e-mail groups within the Address Book tab of the embedded Web page, which allows users to retrieve the address at the control panel.
- + Users can scan a document to a USB memory key via a port on the front of the unit.
- + Standard PaperPort 11 software provides users with advanced scanning and document management features such as scan to PDF, Word, Excel, Word Pad, Photoshop and FTP, as well as OCR capability.
- + Dell ScanCenter lets users quickly scan documents over the network into applications such as e-mail and photo and text editors.



PRINT/COPY QUALITY

GOOD/GOOD

- Image quality in print mode was good overall. Text was rated Good, with above average darkness and average sharpness and smoothness of curves and serifs, while characters displayed some breakup. Line art was also good overall, as fine lines didn't always remain distinct, consistency of line thickness was average, circles showed some breakup and diagonal lines exhibited an average amount of stair-stepping. Halftone pattern and range were both rated Good; greyscale was clearly visible from the 2 to 97 percent dot-fill levels with distinct transitions between most levels, while coverage within levels displayed some graininess and minimal banding. Solids were good overall due to above average darkness and average consistency of coverage.
- Image quality in copy mode was good overall. Text was rated Good, with average darkness, sharpness and smoothness of curves and serifs, while characters showed some breakup. Line art was also good overall, as fine lines didn't always remain distinct, consistency of line thickness was average, circles exhibited some breakup and diagonal lines displayed an average amount of stair-stepping. Halftone pattern and range were rated Good and Fair, respectively; greyscale was clearly visible from the 29 percent—15 being the minimum coverage area on the original—to 91 percent dot-fill levels with distinct transitions between few levels, while coverage within levels showed some graininess and minimal banding. Solids were good overall due to above average darkness and average consistency of coverage.



PRINT/COPY PRODUCTIVITY

VERY GOOD/GOOD

- + The 2335dn Multifunction Laser Printer's productivity using the PCL driver to print BLI's job stream, which replicates typical traffic in a multi-user environment, is above average compared to A4 laser/LED monochrome multifunction printers in this class tested to date; in fact, its actual tested running speed is the fastest.
- However, its productivity using the Adobe PostScript driver in this test is among the lowest. BLI technicians attribute this to the unit pausing between jobs in the test suite.

- + The unit's productivity when printing multiple sets in simplex mode using the PCL driver is above average compared to A4 laser/LED monochrome multifunction printers in this speed range and class tested to date. Its productivity when printing multiple sets in duplex mode is competitive.
- The 2335dn Multifunction Laser Printer's productivity when copying multiple sets in 1:1, 1:2 and 2:2 modes is competitive compared to A4 laser/LED monochrome multifunction printers in this speed range and class tested to date.
- + The unit's first-print times for the Word document and PowerPoint and JPEG files used in testing are the fastest compared to A4 laser/LED monochrome multifunction printers in this class tested to date, while its first-print times for the TIFF and PDF files are the second fastest.
- The 2335dn Multifunction Laser Printer's first-copy times from the platen and document feeder are competitive compared to A4 laser/LED monochrome multifunction printers in this class tested to date.
- The unit's first-print time out of energy-save mode is competitive compared to A4 laser/LED monochrome multifunction printers in this class tested to date.



EASE OF USE

VERY GOOD

- The control panel has 10 hard keys—Back, Cancel, Start, Enter, Pause, Directory and up, down, right and left arrows—and a numeric keypad. Users can select a specific function by highlighting it on the four-line, menu-driven display, then programming the features for that particular job, but if they want to make a copy using the default settings they can simply press Start.
- + The unit is easy to use from the desktop via the well-laid-out drivers.
- + Adjusting drawers for different size media is straightforward. Although there's a spring-loaded ramp, it locks down to allow users to add paper. Users simply press down on the blue tab for the length guide and slide it accordingly; the tab doesn't have to be removed and reinserted. Furthermore, the side guides move in sync and can easily be adjusted for paper that's narrower in width. As with most devices in this class, users must confirm the paper size via the control panel.
- + Removing misfeeds from any of the four access locations is easy; a misfeed code displayed on the control panel indicates the jam location (users may need to refer to the user's guide for the exact location), but users aren't prompted or instructed how to clear them. The imaging drum might have to be removed to access a misfeed in that part of the unit.
- + Replacing the print cartridge is clean and straightforward: users simply open the front door, pull out the old cartridge and insert the new one.



FEATURE SET

VERY GOOD

- + While the 2335dn Multifunction Laser Printer's standard memory capacity of 128 MB is the highest compared to A4 laser/LED monochrome multifunction printers in this speed range and class tested to date, its maximum memory capacity of 384 MB is competitive.
- The unit's standard and maximum paper capacities of 250 and 550 sheets, respectively, are competitive for the group.
- The capacity of the 2335dn Multifunction Laser Printer's bypass tray, at 50 sheets, is competitive for the group.
- The unit can accommodate up to 90 gsm through both the drawers and bypass, which is competitive for the group.
- The capacity of the 2335dn Multifunction Laser Printer's ADF, at 50 sheets, is competitive for the group.
- + Automatic duplexing is standard.
- + ID copying allows users to copy two sides of a document onto a single sheet.
- + Users can scan to or print from a USB memory key via a port on the front of the unit.
- + Toner-save mode in the drivers helps to extend the life of the print cartridges.



SECURITY FEATURES

NOT RATED

Security Features	
Administrator password length (characters)	8 alphanumeric
AUTHENTICATION	
Network user authentication	Yes
Windows	Yes
Novell NetWare NDPS	Yes
LDAP authentication	No
802.1x wireless authentication	No
Kerberos protocol support	Yes
Authentication via department or user ID codes that are registered on the machine	No
Number of codes	Not applicable
Restrict usage of colour	Not applicable

Restrict usage of other features	No
Authenticated printing	No
Common Criteria Certification	No
Control panel lock/disablement	Yes
Digital user signature	No
Encrypted PDF mode/encrypted scanning	No
Encrypted secure print	No
Hard drive encryption	Not applicable
Hard drive lock	Yes
Hard drive overwrite	Not applicable
Max number of overwrites after every job	Not applicable
Overwrite method	Not applicable
IP address filtering	Yes
IPsec	Yes
Job logs (e.g., activity monitoring, compliance auditing)	Yes
MAC address filtering	No
Password-protected mailboxes	Yes
Password-protected Web page	Yes
Port disablement	Yes
Removable hard drive	Not applicable
SECURE FAX	
Encrypted TX/RX	No
Fax forwarding	Yes
Fax line access prevention	No
Fax memory lock	Yes
Confidential mailbox	No
Secure print	No
Secure Sockets Layer (SSL)	Yes
SNMPv3 support	Yes
Third-party security features	No
Transport layer security	Yes
Unauthorised copy prevention (secure watermark)	Not applicable
USB block	Not applicable



ENVIRONMENTAL FEATURES

NOT RATED

Specified capable of running 30% post-consumer recycled paper	Yes
Specified capable of running 50% post-consumer recycled paper	Yes
Specified capable of running 100% post-consumer recycled paper	Yes
Instant/Quick Fusing	No
Duplexing	Yes
Toner-save mode	Yes
Energy-save mode/modes	Yes
Eco-Label Certifications	
Germany Blue Angel	Yes
WEEE Directive compliant	Yes
RoHS compliant	Yes
Recycled materials/parts used in the product	Yes
Product designed for recycling (easily disassembled, no binding agents)	Yes
Hardware remanufacturing program for this product	Yes
Toner cartridge recycling program for this product	Yes
Pre-paid label for return of toner cartridges/bottles for this unit	Yes
Toner recycling system	Yes
Ability to program features such as duplexing and auto shut-off over entire fleet	Yes
Polyvinyl Chloride used in any aspect of the product or its packaging	No
Recyclable packaging materials for the product	Yes
Recyclable packaging materials for its consumables	Yes
Packaging materials used: No CFCs (chlorofluorocarbon), HCFCs (hydrofluorocarbons) or other ozone depleting substances; no halogenated plastics or polymers; complies with EU directive 94/62/EEC	
Tested energy consumption levels of the device (in watts):	
Power	450
Standby/Sleep	80/18
During Printing	450
Emissions output from this device for the following substances (in mg/h):	
Ozone	Below quantifiable limits
Styrene	Below quantifiable limits
Benzene	Below quantifiable limits
TVOC	Below quantifiable limits
Dust	Below quantifiable limits



TONER YIELD

VERY GOOD

+ The tested toner yield of the 2335dn Multifunction Laser Printer's high-yield print cartridge is above average compared to A4 laser/LED monochrome multifunction printers in this speed range and class models in its speed range tested to date. Furthermore, the cartridge exceeded its rated yield by just over 1,000 impressions.

SUPPORTING TEST DATA

Test Environment

This product was tested in BLI's 929-square-metre test lab, in an environment monitored by a Honeywell Temp/RH chart recorder, which replicates typical office conditions.

Test Equipment

BLI's dedicated test network, consisting of Windows 2000 and Microsoft Exchange servers, Windows XP workstations, 10BaseT/100BaseTX network switches and CAT5 cabling.

Test Duration

Products are tested for two months, a portion of which consists of a durability test during which the product is run at half of its manufacturer-rated maximum monthly volume, with varying daily test volumes designed to replicate real-world use over an eight-hour workday. This variable schedule 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

The Dell 2335dn Multifunctional Laser Printer base model.

Test Procedures

The test methods and procedures employed by BLI in its lab testing include BLI's proprietary procedures and industry-standard test procedures, which include a BLI-developed variation of ASTM's 1318-90 Test Method for Determination of Productivity using Electrostatic Copy Machines. In addition to a number of proprietary test documents, BLI uses an industry-standard KATUN test original for evaluating black image quality and test suites from Quality Logic to evaluate applications compatibility. In addition to a visual observation under a Graphiclite D5000 Standard Viewer, colour print quality is tested using a colour test target, which is read using the X-Rite Eye-One/iO Colour Spectrophotometer, and samples are analysed using the CIE XY Chromaticity Diagram. In addition, density of black and colour output is measured using an X-Rite 500 Series Densitometer. Georgia-Pacific Spectrum Multi-Use Paper is used in the tests, 10 percent of which is recycled paper containing 30 percent post-consumer content. Image quality is tested using Georgia-Pacific Printing Paper.

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RELIABILITY

PMS/Malfunctions	Service Required	Meter Count (Impressions)
Meter Count (Beginning of Test)		0
End of Test Period		17,500
Total Misfeeds/Misfeed Rate	0/Not applicable	
Service Calls	0	



MULTITASKING

Primary Function	Secondary Function	PRINT	SCAN	COPY
PRINT		Yes	Yes	Yes
SCAN		Yes	1	1
COPY		Yes	Yes	Yes

¹ As soon as the document feeder is free, the secondary function can be programmed but the primary function is complete. (2)

NOTE: (X) indicates number of occurrences. A "Yes" indicates that the user can initiate the secondary function while the primary function is taking place and that no further user intervention will be required for the secondary function to take place.



ADMINISTRATIVE UTILITIES

VERY GOOD

Included Software:

Dell OpenManage Printer Manager allows administrators to remotely manage multiple Dell and compatible devices on the network via a Web browser. Though the fleet management utility provides great detail about Dell devices, its capabilities in terms of compatibles is more limited than with other competitive tools. OpenManage Printer Manager is available as a download on the company's Web site.

Status Monitor Console (SMC) is either resident or activated manually, displaying information for devices that have bi-directional support enabled. Administrators and users can proactively check SMC for status, names of print jobs, level of toner, guidance for reordering toner when necessary and the user's manual for troubleshooting details.

SMC is installed simultaneously with the driver and allows for pop-up messages or icon alerts, which notify users of errors and warnings, to be configured. When a job is sent, the utility pops up so that users can see paper status—"Okay" or "Add Paper"—and remaining toner, as indicated in a percent gauge. Users can enable the pop-ups to appear during printing or disable the functionality altogether. It can also be proactively accessed.

The Printer Settings Report tab includes the Printer Information, Menu Settings, Reports, Network Settings, and TCP/IP Settings pages. The Printer Information page displays device information including the service tag number, printer serial number, printer type (colour or monochrome), asset tag number, memory capacity, processor speed, firmware version and print speed. The Menu Settings Page provides information on System Settings (time before the unit goes into power-saver mode; whether audible alerts are turned on for errors, print job completion or when the device is out of paper or toner; control panel language; and tray substitution for when the required paper size is not available); Paper Density (plain paper or labels); Auto Registration Adjustment; Altitude Adjustment; Non-Dell Toner; and Tray Settings (displays settings for paper size and type for each tray—including custom sizes—and whether a pop-up menu to set the paper size and type when paper is loaded is displayed at the control panel). The Reports page allows printing of printer settings, control panel settings, job history list, error history, and meter count, as well as a test page. TCP/IP Settings displays the IP Address, Subnet Mask and Gateway Address. The Printer Maintenance Tab allows users to change configuration settings for all of the settings displayed on the Menu Settings page.

Embedded Web page:

The embedded Web page, Dell Web Printer Configuration Tool, lets administrators configure the unit remotely on the network and monitor paper status—"Okay" or "Add Paper"—and remaining toner, as indicated in a percent gauge.

Consumables monitoring:

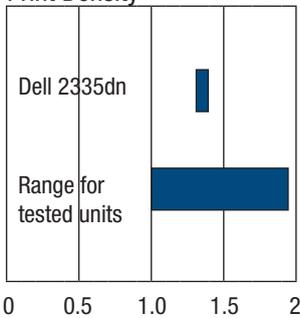
Yes, via SMC or the embedded Web page.



IMAGE QUALITY

Print Quality	
Text	Good
Line Art	Good
Halftone Range	Good
Halftone Fill	Good
Solids	Good

Print Density



Print Density

Dell 2335dn Multifunction Laser Printer	Density for units in this class tested to date
1.39 to 1.44	1.00 to 1.94

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.

Halftone Range

	Visible halftone range
Dell 2335dn Multifunction Laser Printer	2% to 97%
Typical range for competitive units	3% to 93%

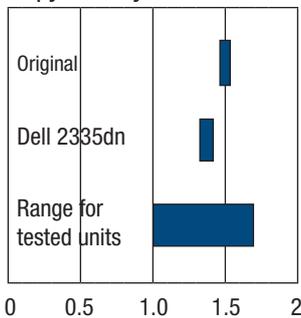
The halftone test target contains blocks of increasing halftone dot-fill levels (1% to 100% in 1% increments).



COPY QUALITY

Copy Quality	
Text	Good
Line Art	Good
Halftone Range	Fair
Halftone Fill	Good
Solids	Good

Copy Density



Print Density

Original	Dell 2335dn Multifunction Laser Printer	Density for units in this class tested to date
1.57 to 1.64	1.38 to 1.44	1.03 to 1.70

Measurements are based on two readings corresponding to two different solid black locations on the output. The higher the density, the darker the image.

Halftone Range

Visible halftone range	
Dell 2135dn Multifunction Laser Printer	29% to 91%
Halftone increments on test original	15%, 29%, 53%, 77%, 84%, 91%, 95% and 100%

The halftone range test original consists of eight blocks of increasing dot-fill levels.



PRINT/COPY PRODUCTIVITY

First-Print Time from Energy-Save Mode (Seconds)

Dell 2335dn Multifunction Laser Printer	Average for units in this class tested to date
22.94	20.97

Device sits idle overnight; a single-page black Word document is sent to the device; first-print time indicates the time it took to RIP, image and deliver the first page of the test document to the output tray.

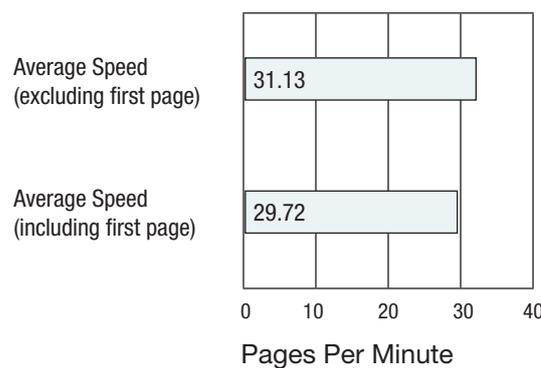
First-Print Times (Seconds)

Windows XP	Word	PowerPoint	Photoshop	Acrobat	Photoshop
File Type	Black Text	Colour Graphic/Text	Colour Graphic	Black Graphic/Text	Colour Graphic
File Extension	DOC	PPT	TIF	PDF	JPG
Pre-Raster File Size	114 KB	99 KB	20 MB	426 KB	245 KB
Post-Raster File Size	11.8 KB	747 KB	7.95 MB	525 KB	269 KB
First-Print Time	8.03	8.12	12.66	8.56	8.66

First-print time indicates the time it took to RIP an image and deliver the first page of the test document set to the output tray. The unit's print speeds were tested at the default 600 dpi using the PCL driver.

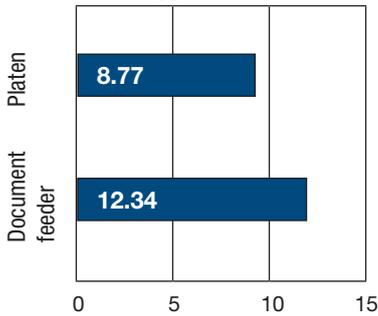
Dell 2335dn Multifunction Laser Printer's rated speed:
35 ppm

BLI's Tested Print Speeds



Print speed is tested using BLI's Monochrome Test Original with 6% page coverage. The test page is printed in a quantity equal to double the vendor's rated print speed for the device in each mode tested (e.g., if the vendor's rated print speed is 20 ppm, 40 pages are printed). The unit's print speeds were tested at the default 600 dpi using the PCL driver.

First-Copy Time



First-copy time:

8.77 seconds from the platen.

12.34 seconds from the document feeder.

Copies per minute:

30, excluding first copy.

36, including first copy.

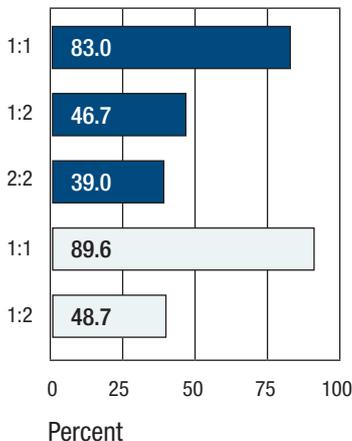
Document feeding speeds (A4 originals):

1:1 copy mode: 21.18 originals per minute.

1:2 copy mode: 21.10 originals per minute.

2:2 copy mode: 3.78 originals, or 7.56 images, per minute.

Overall Efficiency



BLI obtains the overall efficiency for each copy/print mode by averaging the efficiency ratings (derived by dividing the tested speed of the device by the rated speed and then multiplying by 100) for each run length (1, 5, 10 and 20 sets in copy and print modes).

■ Copy
□ Print

Copy/Print Efficiency for Multiple Sets

Sets	Time	PPM	Efficiency	Overall Efficiency
COPY 1:1				
1	0:32.66	18.4	55.7%	55.7%
5	1:44.32	28.8	87.1%	71.4%
10	3:15.60	30.7	93.0%	78.6%
20	6:18.91	31.7	96.0%	83.0%
COPY 1:2				
1	0:48.84	12.3	37.2%	37.2%
5	3:8.41	15.9	48.3%	42.8%
10	6:3.06	16.5	50.1%	45.2%
20	11:52.22	16.8	51.1%	46.7%
COPY 2:2				
1	2:48.81	7.1	21.5%	21.5%
5	7:33.19	13.2	40.1%	30.8%
10	13:16.10	15.1	45.7%	35.8%
20	24:55.87	16.0	48.6%	39.0%
PRINT 1:1				
1	0:26.03	23.1	69.88%	69.8%
5	1:36.79	31.0	93.9%	81.9%
10	3:8.12	31.9	96.7%	86.8%
20	6:11.31	32.3	97.9%	89.6%
PRINT 1:2				
1	0:42.69	14.1	42.6%	42.6%
5	3:2.50	16.4	49.8%	46.2%
10	5:57.06	16.8	50.9%	47.8%
20	11:45.93	17.0	51.5%	48.7%

Efficiency is tested using a 10-page document. In print mode, the document is printed at the default 600 dpi using the PCL driver.

Job Stream Evaluation

BLI's job stream includes Word documents, Outlook e-mail messages, Excel spreadsheets, PowerPoint, HTML and Acrobat PDF files, totalling 19 pages. This test simulates the type of traffic a typical device might experience in a real-world, multi-user environment. All of the files are sent to the printer as a group, at which time the stopwatch begins; timing ends when the last page of the last file exits the device. Job stream efficiency is determined by the percentage of the rated speed at which the unit operates when producing real-world jobs. The closer the rate is to 100%, or if it exceeds 100%, the more efficient the unit.

Job Stream in Black Mode:

The unit completed the job stream using the Adobe PostScript driver in 2 minutes 2.44 seconds, running at 9.3 ppm, which translates to an efficiency rate of 26.6%.

The unit completed the job stream using the PCL driver in 41.53 seconds, running at 27.5 ppm, which translates to an efficiency rate of 83.2%.

Problems encountered:

The unit paused between jobs using the Adobe PostScript driver.



PRINT DRIVERS

Dell 2335dn Multifunction Laser Printer Print Driver Features

Windows XP	PCL 6	Adobe PostScript 3
Auto Feature/Device Detection	No	No
Booklet Printing	Yes	Yes
Collate Sets	No	Yes*
Max Paper Sources per Job	2	1
N-up Printing	1 to 16	1 to 16
Overlay	Yes	No
Paper Gauge	No	No
Print and Save	No	No
Proof Print	No	No
Quantity Selection	Up to 999	Up to 9,999
Reduction/Enlargement	25% to 400%, Auto	1% to 1000%
Resolution Modes (dpi)	600; 1200	600; 1200
Save Settings	Yes	No
Secure Printing	No	No
Watermarks/Custom Watermarks	Yes/Yes	No/No

* Although there's a collate selection in the driver, it didn't function in testing; collate must be selected from the print screen within the application for output to be collated. This isn't uncommon, as most drivers are written to allow the application settings to override the driver's.

Send once/print many:

No. File size sent to the unit from the PC increased when printing multiple collated sets with collate selected from the print screen within the application. Output was properly collated.



SCAN FUNCTIONS

Scan speed (black, 300 dpi, PDF):

1:1 mode: 20.4 originals per minute.

2:2 mode: 3.45 originals, or 6.9 images per minute.

Scan speed (full colour, 300 dpi, PDF):

1:1 mode: 20.2 originals per minute.

2:2 mode: 3.5 originals, or 7.0 images per minute.



TONER YIELD

Toner Yield

Colour	Rated Yield (Impressions)	Toner Yield (Impressions)	Net Weight (Grams)	Impressions per Gram
Black	6,000	7,089	134.9	52.55

CERTIFICATE OF RELIABILITY

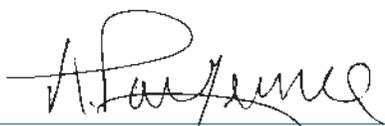
Awarded to

DELL INC.

for the performance of the

Dell 2335dn Multifunction Laser Printer

in BLI's in-house durability test.



ANTHONY F. POLIERONE
MANAGING DIRECTOR



FEBRUARY 2009

DATE

This is to certify that when subjected to a 17,500-impression Buyers Lab durability test in a networked environment, the Dell 2335dn Multifunction Laser Printer proved to be a highly reliable product.

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