



Lab Test Report

A Comprehensive Keypoint Intelligence Laboratory Evaluation

KYOCERA ECOSYS P2235dw

35 PPM Laser Printer



● Reliability		Excellent
● Image Quality	Print Quality	Very Good
● Usability	Serviceability/Management	Very Good
	Walk-up Experience	Very Good
	Workstation Experience	Very Good
● Mobility		Not Rated
● Security		Not Rated
● Features		Good
● Speed	Print Speed	Very Good
● Power Consumption		Very Good
		Not Rated



OUR TAKE

The 35-ppm KYOCERA ECOSYS P2235dw is a robust device that offers mid-size workgroups a strong performance and competitive entry-level feature set. The unit proved to be highly reliable, being based on an engine that gave a flawless performance over the course of BLI's two-month, 10,000-impression durability test. With a compact footprint that's ideal for environments where space is at a premium, this model includes a USB port that allows for direct printing of files from a flash drive. Support for workers on the move is provided by Mopria Print Service, Google Cloud Print 2.0, KYOCERA Mobile Print and Apple AirPrint. The unit is very easy to use at the desktop via the universal KX 7.x print driver and also easy to manage using KYOCERA NetViewer, which can assign specific alerts to different recipients, and KYOCERA Command Center RX, which provides administrators with details about device and consumables status. Its straightforward interface makes walk-up activity simple as well. Output produced by the ECOSYS P2235dw was impressive overall, with crisp and cleanly formed text, very good halftone range and above-average production of closely spaced fine lines and circles. KYOCERA employs long-life drums to further minimize the unit's environmental impact and reduce TCO and downtime. BLI highly recommends the KYOCERA ECOSYS P2235dw.

KYOCERA ECOSYS P2235dw Fast Facts*

Max Monthly Duty Cycle	10,000 impressions
Manufacturer's Recommended Monthly Volume	3,333 impressions
Rated Speed	35 ppm
Std Paper Source(s)	2 drawers
Std Paper Capacity	350 sheets
Paper Weights	60 to 163 gsm
Bypass/Paper Weights	100-sheet/60 to 220 gsm
Max Paper Sources/Capacity	4/850 sheets
System Memory (Std/Max)	256-MB/256-MB
Hard Drive	
PDL/PCL	PCL 5e/6, KPDLPost-Script 3 Emulation, XPS
At time of publication	

Test Duration: Two months, including a 10,000-impression durability test. More information on the KYOCERA ECOSYS P2235dw is available through bliQ (www.buyerslab.com/bliQ).

*Reliability is based on the KYOCERA ECOSYS M2735dw, which uses the same print engine.

BENEFITS

Perfect reliability, simple routine maintenance procedures, and strong ease of use all increase uptime

Excellent value proposition based on performance and features

High-quality output should more than meet the needs for general office environments

Standard wireless interface with flexible mobile print support including KYOCERA Mobile Print, Google Cloud Print and Apple AirPrint

Graphical and easy-to-use universal KX 7.x driver simplifies programming jobs and makes it easy to swap between PCL and PostScript

PRESCRIBE page design and control language lets users create complex graphics, logos and multipart forms independently of the system, and save and update them on device storage for reprinting on demand

KYOCERA Net Viewer provides alerts to different recipients for specific events, either on a device-by-device basis or for an entire group of devices; KYOCERA Command Center RX provides users with detailed feedback on consumables

ADVANTAGES

Fast first-page-out times for PowerPoint and PDF files

Longer-life consumables means minimized environmental impact and fewer user interventions

Accommodates above-average paper weights through the bypass tray

LIMITATIONS

Lower than average standard and maximum paper capacity in this class

Memory capacity is smaller than average and non-upgradeable

RELIABILITY

Excellent

The unit is certified highly reliable by BLI as it's based on a print engine that completed a 10,000-impression durability test with no misfeeds recorded or service required.

The maintenance kit, which includes the drums and developer units, is rated for 100,000 impressions (coinciding with the PM schedule), which is far higher than most rival models in this class.

	Meter Count (Impressions)
Starting Meter Count	0
Ending Meter Count	10,000
Total Misfeeds/Misfeed Rate	0/Not applicable
Service Calls	0

IMAGE QUALITY

Very Good

Text	Very Good
Line Art	Very Good
Halftone Pattern	Very Good
Halftone Range	Very Good
Solids	Very Good

Characters in text were cleanly formed, with above average darkness and sharpness.

Vertical and horizontal lines were smooth, circles were fully formed and diagonal lines showed no evidence of stair-stepping. Closely spaced fine lines were of average distinctness and line weight consistency was above average.

Line thickness varied under magnification due to overspray

An average amount of toner overspray was visible in text and line art when output was viewed under magnification, but none could be seen without magnification.

Halftones were visible from the 10 to 100 percent dot-fill levels, with distinct transitions between all levels.

Halftone pattern wasn't grainy, but displayed a minimal amount of banding.

Darkness of solids was above average, as was consistency of coverage.

▲ PRINT QUALITY

Very Good

PRINT DENSITY

KYOCERA ECOSYS P2235dw	1.11 to 1.27
Average for devices in this class tested to date	1.20 to 1.62

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

PRINT DENSITY AVERAGE

KYOCERA ECOSYS P2235dw	1.22
Devices in this class tested to date	1.44

The higher the density reading, the darker the image.

HALFTONE RANGE

KYOCERA ECOSYS P2235dw	10% to 100%
Halftone increments on test original	10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%

The halftone range test original consists of 10 blocks of increasing dot-fill levels.

▲ USABILITY

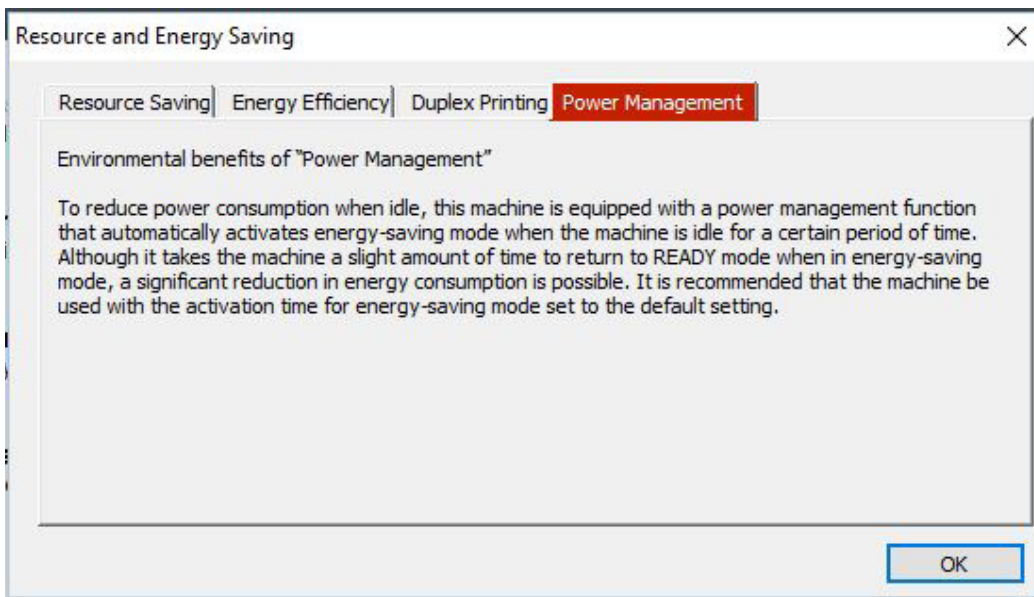
Very Good

▲ SERVICEABILITY/MANAGEMENT

Very Good

Set up of the unit is simple, as it ships fully assembled allowing users to be up and running in a few minutes. Two people can easily lift the ECOSYS P2235dw out of its box to place it in the desired location. Packaging is not excessive. A starter cartridge with a rated yield of 1,000 impressions is packed together with the unit and needs to be installed, but no packing strips need to be removed.

The Product Library DVD contains the administrative utility suite, which includes KYOCERA Net Viewer, Job Status Monitor and KYOCERA Command Center RX, the embedded web server, as well as the drivers and documentation. The disc auto-runs and detects available KYOCERA devices on the network (either icon driven or as a list). After selecting the device with the Express Install option, just five clicks are required to install the KX driver, Status Monitor, Fonts and an Uninstall utility. The port is created automatically. Users should be up and running in minutes.



When the Product Library DVD is inserted, administrators are notified about the best means of ensuring environmental best practice, including power management options (see above), the use of recycled media and duplex printing.

KYOCERA Net Viewer allows administrators to clone device settings from one device to another, plus they can deploy drivers to multiple workstations on the network, so that they don't have to be installed on each machine individually.

Net Admin is a unified solution for network device management for KYOCERA and third-party devices. Administrators can view page counts and device status, as well as view and configure alerts for groups of devices on the network. They can also access detailed information on individual devices such as the amount of toner remaining, configuration settings and event logs.

Net Admin supports a map view that allows each device to be dragged and dropped to its specific location, allowing faster navigation for technical support.

Net Viewer allows administrators to create groups of products based on reporting or error notification requirements. Within a "report group", an administrator can receive email reports outlining a wide variety of device statistics, including printed page volumes and consumable levels, at time intervals of their choice.

Users can expect to change consumables more frequently than they would with competitive models tested to date, according to BLI's calculations.



Command Center RX provides administrators with information about the unit and lets them handle tasks such as changing device settings, viewing device status, and monitoring toner and paper supplies. It also allows administrators to configure email alerts that can be sent to up to three recipients for error conditions, including paper jam, cover open and add toner/paper



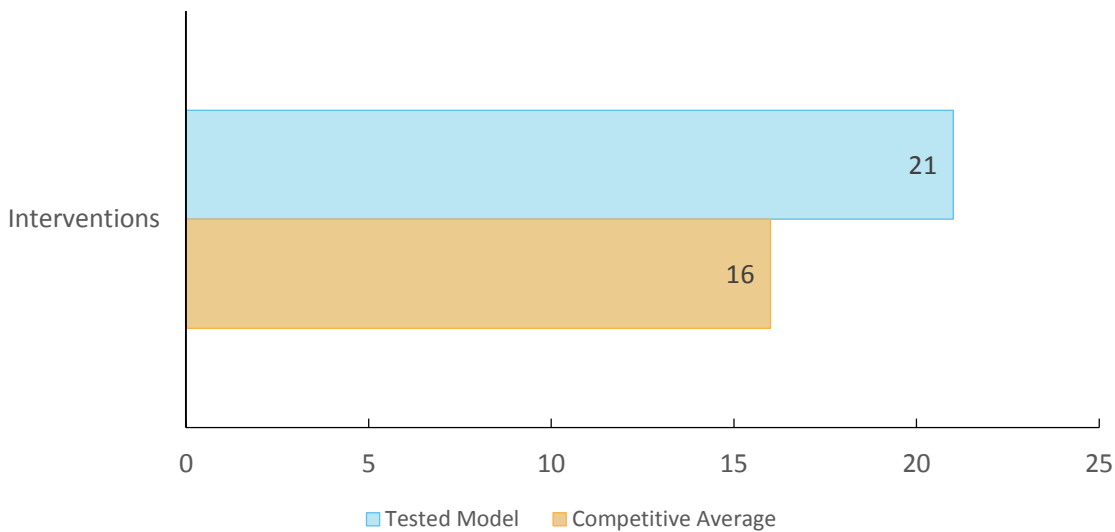
Misfeed access is either at the front (shown above) or at the rear of the device. If accessed at the front, the drum unit needs to be removed, but the surface of the drum is not exposed to any risk of damage during removal.



BLI technicians noted that loading paper trays is easy, with sliding paper guides, which move in sync. As is typical of models in this class, paper sizes must be confirmed on the LCD screen.

Procedures for replacing toner are easy. Although it can't be replaced while the unit is running, the cartridge is accessible from the front and lifts out easily, after a blue lever on the left has been released.

Estimated User Interventions (Over 36 Months)



User interventions are calculated based on manufacturer's rated toner yields (in accordance with ISO/IEC 19752), as well as the manufacturer's rated yields for other consumables (drums, developer units, waste containers, etc.). BLI calculates the total number of supplies and maintenance parts that would be required to output 5,000 pages per month over 36 months. Each individual cartridge or other consumable is counted as one intervention. Long-life maintenance parts, such as fuser kits and rollers, and paper supply replenishments, aren't included in BLI's calculations. Depicted scenario is for illustrative purposes only. The actual number of interventions over three years will vary based on a number of factors, including (but not limited to) page coverage, run lengths, usage patterns, periods of inactivity and calibrations performed.



WALK-UP EXPERIENCE

Very Good

Print from USB is standard; the port is located on the front of the unit. The USB flash drive is auto-discovered; users can browse folders to select files—PDF, JPEG, XPS or TIFF—to output.



The KYOCERA ECOSYS P2235dw has a very simple, intuitive control panel design

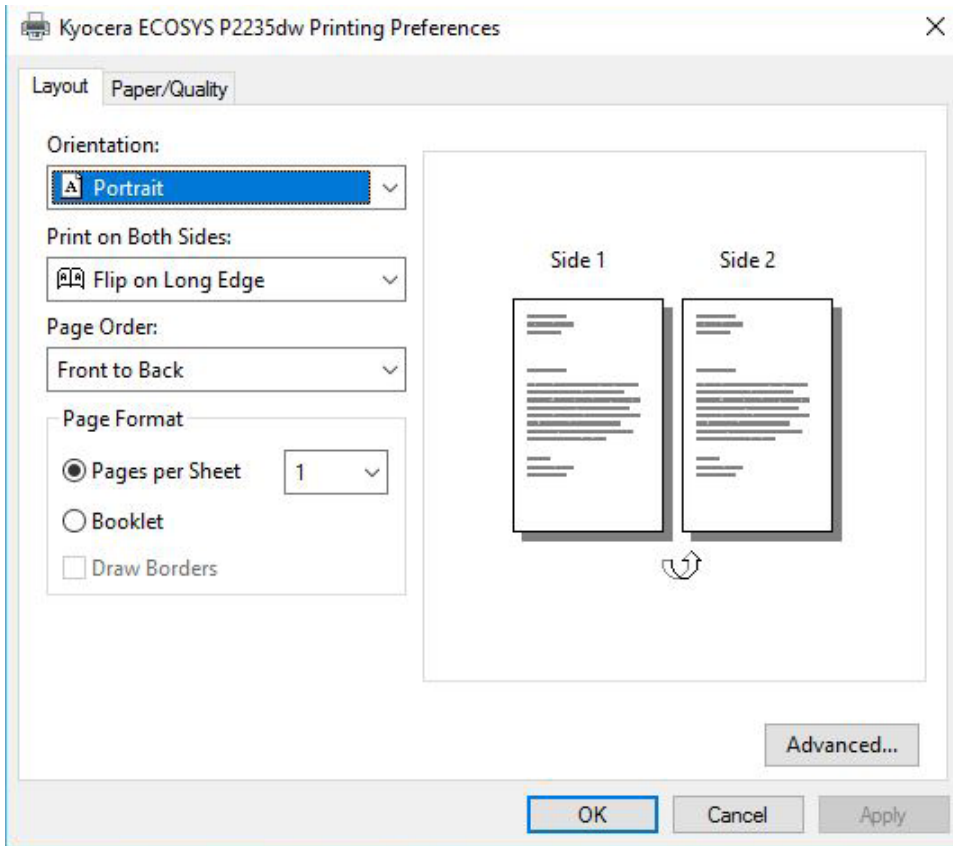
WORKSTATION EXPERIENCE

Very Good

Command Center RX provides users at the desktop with a good level of feedback regarding the P2235dw, including device status, paper size, remaining paper and toner supplies.

The pop-up Job Status Monitor utility, which can be placed on the desktop via the driver, is an icon representing the device that provides toner and device status information, as well as audible alerts and print job completion notification. Device status (such as add paper, add toner, sleep, toner low, not connected, paper jam and cover open) is displayed graphically. However, the messages appear on all PCs that have the utility actively running, which could be distracting to users who may not care if the device is out of toner if they aren't actively or imminently printing to it. The utility also provides a link to the web page and can be placed anywhere on the screen and enlarged and adjusted for various degrees of opacity.

KYOCERA Net Direct Print, a software utility, is also included on the Library DVD that enables direct printing of PDF, PostScript, PRN and PRESCRIBE files without having the respective applications installed on the PC. Using this utility, users can send multiple files at one time and alter settings such as quantity, duplexing, N-up printing and resolution. Users can also set up print profiles that further simplify the submission process and are ideal for users operating the device as a short run print-on-demand resource.



All features required by typical users are available on the Basic screen of the driver, and its layout tab (above) is clear and intuitive.

The unit comes with KYOCERA's universal KX 7.x driver for various Windows operating systems, as well as Mac OS X 10.5 or later. Other supported environments include UNIX and Linux. The driver combines PCL XL (PCL 6 emulation), PCL 5e and KPDL (the company's PostScript emulation) into one, which uses less network bandwidth than installing separate drivers.

The KPDL (PostScript) and PCL XL drivers have an identical interface, and users can switch between the PDL settings from the Printing Preferences dialog box. Eco Print lets users reduce the amount of toner used per job and can be set as the default setting.

The KX 7.x driver enables users to configure settings from the Printing Preferences dialog box with a clickable button that opens up the PDL Settings dialog and displays the current user-selected setting: KPDL, PCL XL, or PCL 5c. UI settings that were previously hidden such as the Security Watermark button are now shown but disabled if they are not supported by the PDL currently selected. Note that on client PCs in a client-server environment, users with administrative privileges can change the PDL from the Properties > Device Settings menu.

File size remains the same when printing multiple sets, regardless of whether “collate” is selected from the properties screen of the driver or from the print screen within an application.

The PCL XL and KPDL drivers feature PRESCRIBE—a page design and control language—which enables graphics, logos and forms, including multi-part forms, to be created independently of the system and saved and updated on the device memory to allow for printing on demand from the desktop.

MOBILITY

Not Rated

The device is Mopria-certified with a standard wireless interface. Mobile printing is supported via AirPrint, Google Cloud Print, KYOCERA Mobile Print, and Wi-Fi Direct. A USB host port supports direct printing of a variety of file formats including PDF, JPEG, TIFF, and XPS.

SECURITY

Not Rated

SECURITY FEATURES

AUTHENTICATION	
802.1x wireless	Standard
SMTP	Standard
Biometric	No
ID Card	Optional
HID	Yes
Common Access	INA
Other	PaSoRi, RFIDEAS, ELATEC, Omnikey
Registered department or user ID codes	No
Number	NA
ACCESS CONTROL	
Restrict colour	NA
Control panel lock/disablement	Standard
Restrict USB port	Standard
Restrict direct printing	Standard
Restrict other	Network port restrictions

HARD DRIVE	
Encryption	NA
Maximum level	NA
Overwrite	NA
Method	NA
Maximum number after a job	NA
Maximum number at end of lease	NA
Lock	NA
Removable	NA
Password-protected mailboxes	NA
Data auto-deletion in mailboxes	NA
JOB TRACKING	
Job logs	Standard
Digital signature	No
Verify document came from device	NA
Verify document came from specific user	NA
JOB PROTECTION	
Encrypted secure print	Standard
Secure print	Standard
Unauthorised scan/copy protection block (watermark)	Standard
Compatible with same-brand devices	Yes
Compatible with third-party devices	INA
NETWORK SECURITY/PROTOCOLS	
Protocol disablement	Standard
Port disablement	Standard
IP address filtering	Standard
MAC address filtering	No
HTTPS	Standard
Self-signed certificate	Yes
Certificate signing request	Yes
IPsec	Standard
IPv6	Standard
Secure Sockets Layer (SSL)	Standard
S/MIME encryption	INA
SNMPv3 support	Standard
Transport Layer Security (TLS)	Standard
Trusted Platform Module (TPM)	INA
CERTIFICATIONS	
Common Criteria	No
EAL level	NA
Capabilities certified	NA
FIPS 140-2	No
Level	NA
IEEE 2600	No

OTHER	
Administrator password length	Up to 64 alphanumeric characters (UTF-8)
Password-protected web server	Yes
Additional features	NA
Third-party features	NA

INA: The vendor declined to provide this information
 NA: Not applicable

FEATURES

Good

Automatic duplexing is supported, as with the vast majority of models in this class.

The ECOSYS P2235dw has a below average 350-sheet standard paper capacity, while its maximum paper capacity of 850 sheets is also below average.

The 100-sheet bypass tray handles up to 220 gsm media, which is heavier media than accommodated by most of its peers.

Standard output capacity is 250 sheets.

The unit's standard and maximum memory capacity of 256 MB is below average for models in its class.

KYOCERA's RAM Disk feature allows a portion of the device's RAM to be treated like a hard disk to facilitate secure job storage without incurring the extra expense of a hard drive. As RAM is volatile memory it can only retain data while connected to a power supply or a device, so users need not be concerned about confidentiality or data security.

SPEED

Very Good

PRINT SPEED

Very Good

When using the PCL driver to print BLI's job stream, which simulates the typical workflow experienced in a busy multi-user environment, the unit's running speed is among the fastest in its class.

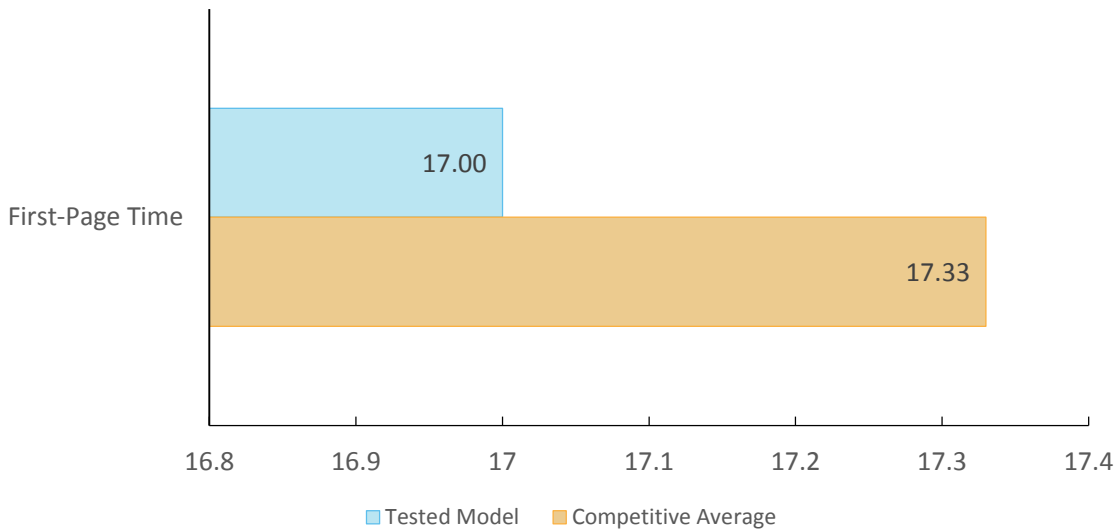
When printing multiple sets of 10-page and 3-page documents from the PCL driver, the ECOSYS P2235dw's running speed is faster than average in simplex, whilst duplex speeds are competitive.

First-print times for the PDF and PowerPoint files are faster than average, but Word is slower than average.

The unit is also among the fastest of its competitive group when printing a single simplex set using a 3-page original.

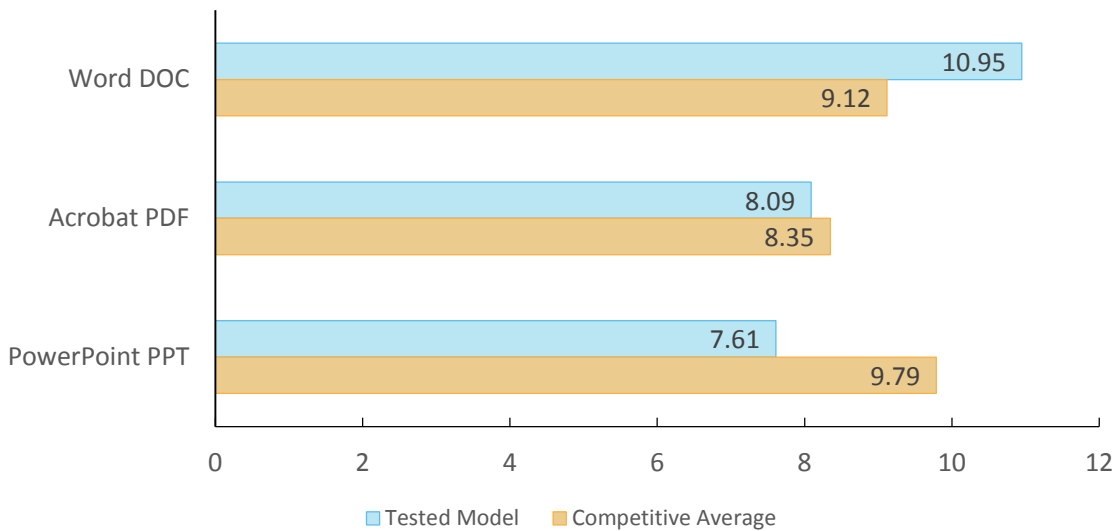
First-page time from overnight sleep is competitive.

First-Page Print Time From Overnight Sleep (in Seconds)



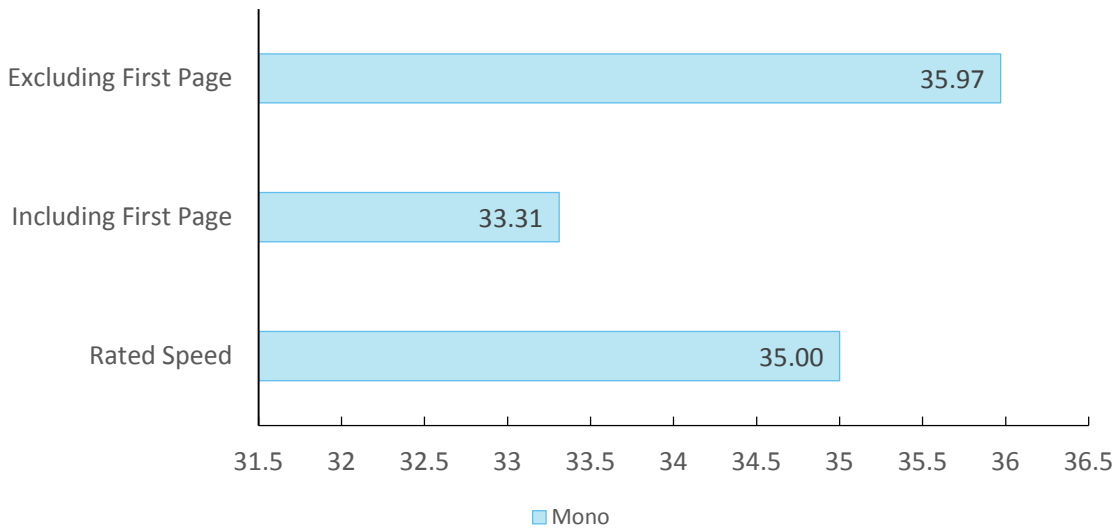
Device sits idle overnight; a single-page black Word document is sent to the device; first-print time indicates the time it took to warm up, process, image and deliver the test document to the output tray.

First-Page Print Time From Ready Mode by File Type (in Seconds)

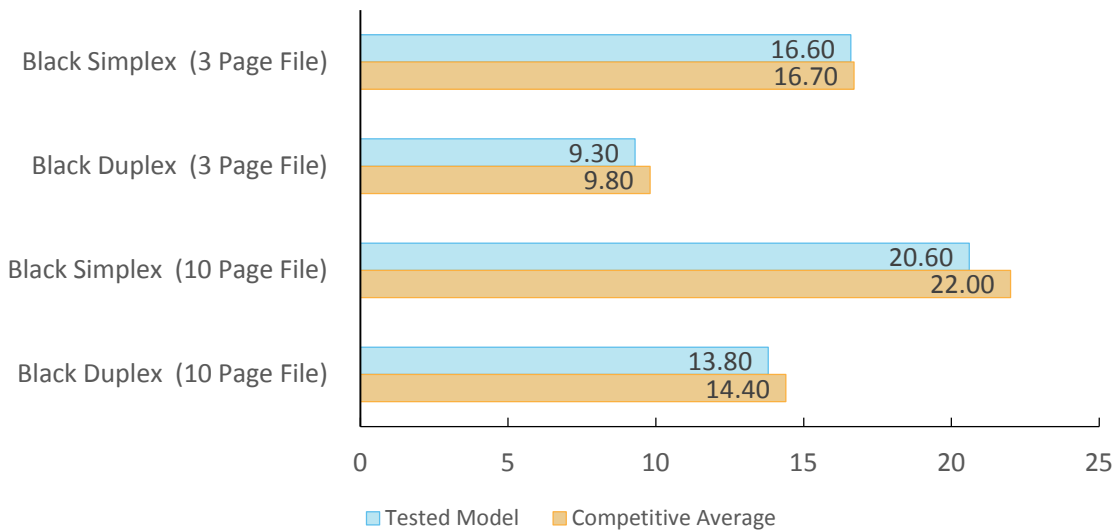


First-print time indicates the time it took to process, image and deliver a single-page document to the output tray. The unit's print speeds were tested at the default 600 dpi using the PCL driver.

BLI's Tested Print Speed (in PPM)

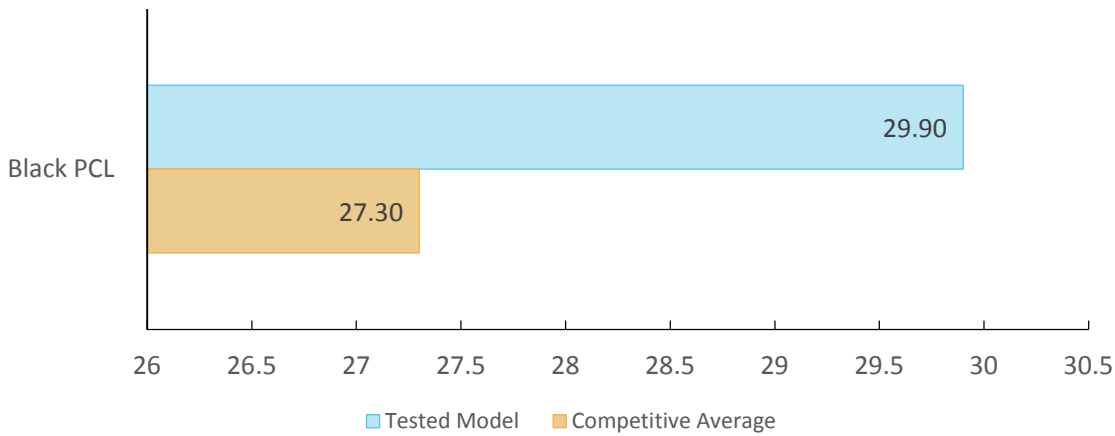


First-Set Print Productivity



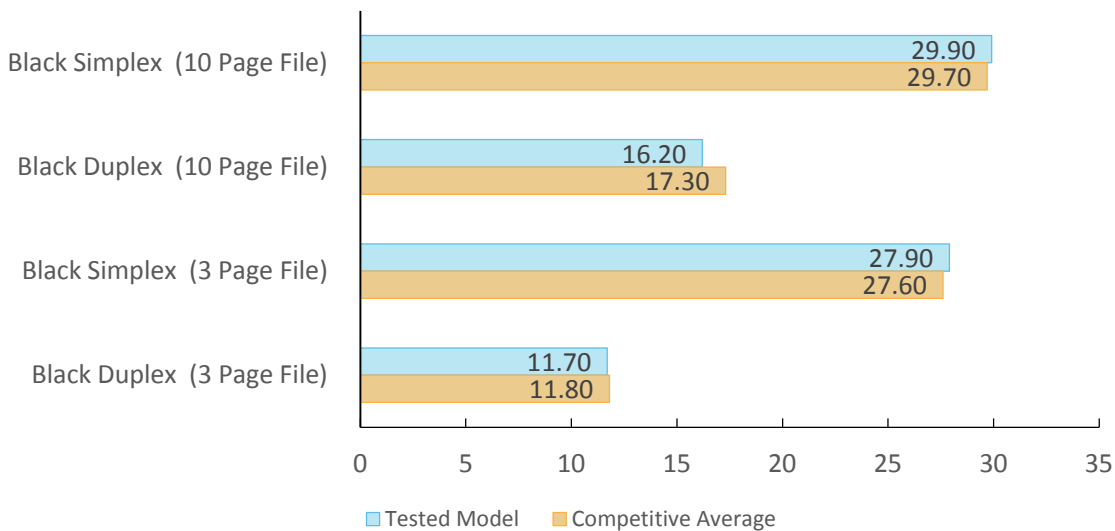
Single-set speed is tested using a 3-page and a 10-page black document. The unit was tested using the PCL driver.

Job Stream (Speed in PPM)



The unit was tested with the PCL driver. BLI’s job stream includes Word documents, Outlook email 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 device 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 device operates when producing real-world jobs. The closer the rate is to 100%, or if it exceeds 100%, the more efficient the device.

Average Print Speed (Multi-Set Average; in PPM)



Average print speed is tested using 3-page and 10-page black documents. BLI obtains the overall speed for each mode by averaging the tested speed for each run length (1, 5, 10 and 20 sets). The unit was tested using the PCL driver.

POWER CONSUMPTION

Not Rated

PROJECTED ANNUAL ENERGY CONSUMPTION (IN KWH)

Total Annual Energy Consumed	18.6560 kWh
Competitive Average	28.0191 kWh

Calculations based on printing BLI's job stream test suite over a four-hour period, with the machine set to go into its energy-save and/or sleep modes at the shortest intervals possible. Total yearly energy consumption is calculated based on the total energy used during a typical workday, plus overnight and weekend sleep energy.

Pages Printed: 114 total—6 jobs of 19 pages each

Test Documents Used: DOC, XLS, PPT, HTML, PDF, Outlook email messages

Output Modes: 50% simplex, 50% duplex

Total number of pages run is based on a BLI survey of average monthly volumes by speed range.

ENVIRONMENTAL FEATURES

Specified capable of running recycled paper (30%/50%/100% post-consumer content)	Yes
Instant/Quick Fusing	No
Duplexing	Yes
Toner-save mode	Yes
RoHS compliant	Yes
Toner cartridge recycling program for this product	Yes
Ability to program features such as duplexing and auto shut-off over entire fleet	Yes
What tool can be used to do this?	System Menu, KX Printer driver, KYOCERA Net Viewer, KYOCERA Net Admin
Eco-Label Certifications	
ENERGY STAR	Yes
Other	Germany Blue Angel, ECMA-370/The Eco Declaration, ENERGY STAR, Montreal Protocol

INA: The vendor declined to provide this information

NA: Not applicable

SUPPORTING TEST DATA

Test Environment: Testing was conducted under ambient conditions of 22°C (+/-2.7°C) and 45% RH (+/-10%); monitored daily by two Seven-Day Temperature/Humidity Chart Recorders, in Buyers Lab's test facility at Unit 1 Station Industrial Estate, Wokingham, Berkshire RG41 2YQ. All products lab tested by BLI are powered by dedicated circuits that are protected by ESP (Electronic Systems Protection, Inc.) surge protectors to prevent transient power and communication disturbances from affecting equipment under test.

Test Equipment: BLI's dedicated test network in Europe, consisting of Windows 2008 servers, Windows 7 workstations, 10/100/1000BaseTX network switches and CAT5e/6 cabling. 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.

Test Duration: Products are tested for two months, three weeks of which consists of a durability test during which the product is run at half of its manufacturer-rated maximum monthly volume. 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. All products lab tested by BLI are powered by dedicated circuits that are protected by ESP (Electronic Systems Protection, Inc.) surge protectors to prevent transient power and communication disturbances from affecting equipment under test.

Tested Configuration: For reliability, the KYOCERA ECOSYS M2735dw base unit, which uses the same engine as the KYOCERA ECOSYS P2235dw base unit. For image quality, productivity and energy the KYOCERA ECOSYS P2235dw base unit with two additional paper sources.

Test Procedures: The test methods and procedures employed by BLI in its lab testing include BLI's proprietary procedures and industry-standard test procedures, including 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, density of output is measured using an X-Rite 508 Densitometer. Units are tested for compatibility on Windows 7 with Microsoft Office Suite 2010, as well as Adobe Acrobat Reader 10.0.

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 #: VCV6X00514.

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

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CERTIFICATE OF RELIABILITY

Awarded to

KYOCERA Document Solutions Inc.

for the performance of the

KYOCERA ECOSYS P2235dw

in BLI's in-house durability test



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

GERRY STOIA, CEO

JANUARY 2018

DATE

*Reliability is based on the KYOCERA ECOSYS M2735dw, which uses the same engine.

This is to certify that when subjected to a 10,000-impression Buyers Lab durability test, the KYOCERA ECOSYS P2235dw proved to be a highly reliable product.

BUYERS LABORATORY

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