



Test Report

MONOCHROME LASER PRINTERS

Kyocera Mita FS-9100DN

36 PPM



Test period duration:

Three months, including
a 270,000-impression durability test



Manufacturer:

Kyocera Mita America, Inc.
Fairfield, NJ
Made in Hong Kong

Manufacturer's suggested retail price: \$2,999; \$7,565 as tested with the optional 3,000-sheet large-capacity tray (\$1,470), optional 3,000-sheet finisher (\$2,617) and optional hard disk (\$479).

Serial number: XBF1Y00660

Type: Desktop, laser printing, cut-sheet bond paper, dry toner, monocomponent developing system, heat and pressure fusing device.

Controller: Kyocera Mita controller based on a 350-MHz PowerPC 750cx processor.

Manufacturer's rated engine life: Not available.

Manufacturer's maximum recommended monthly volume: 180,000 impressions.

BLI's recommended monthly volume for optimum performance: Up to 90,000 impressions.

GENERAL APPRAISAL

The laser-based Kyocera Mita FS-9100DN provided a solid overall performance in BLI's three-month evaluation, requiring no service and misfeeding only three times during the 270,000-impression test period, for an impressive misfeed rate of one per 90,000 impressions. Also notable are the FS-9100DN's efficiency rates. In fact, the 36-ppm test unit recorded the highest efficiency rate in duplex mode of any printer tested by BLI to date, and the third-best efficiency rate in simplex mode. The FS-9100DN also provides a generous maximum paper capacity of 4,200 sheets, which is the highest maximum paper capacity of any printer in this speed range (31 to 41 ppm) on the market today.

continued

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General Appraisal *continued*

Particularly impressive is the FS-9100DN's economy. Its per-page supplies cost is one of the lowest for printers tested by BLI to date, and only one other tested printer can better its five-year total cost of ownership (excluding service costs). Indeed, the FS-9100DN's outstanding supplies cost per page, at .443¢, is more than four times lower than the average (1.79¢) for monochrome printers tested by BLI to date. (In fact, it's bettered only by that of the 9100DN's higher-end counterpart, the FS-9500DN).

With a maximum true resolution of 600 x 600 dpi and an interpolated resolution of 1200 x 600 dpi, which Kyocera Mita refers to as Fast 1200, the FS-9100DN earned BLI's highest rating for all types of print jobs (text, line art, halftones and solids). BLI's test unit also offered easy and straightforward procedures for loading paper, adjusting paper drawers, clearing paper jams and replacing toner. Furthermore, the FS-9100DN offers good ease of use from the desktop. It should be noted that, unlike with most other monochrome workgroup printers in this speed range, the FS-9100DN employs a driver which includes emulations of PostScript 3 (KPD3), PCL XL (default) and PCL 5e. Because there is not a separate driver for each emulation, the user must change emulations by accessing the printer's properties and cannot change emulations from within the application or the driver. The FS-9100DN's print management utility, KM-Net Viewer (also referred to as PrintMonitor), provides good feedback to workstations regarding device and/or print job status through pop-up messages and/or icon alerts, including information on paper status. The Remote Operation Panel utility

can be configured to appear on the taskbar, generate pop-up messages or an audible tone, or appear always on top (i.e., never behind other windows) when an error occurs. Operating system support is available for all Windows platforms, Macintosh, and various flavors of both Unix and Linux, as well as Novell NetWare.

Additional noteworthy features of the Kyocera Mita FS-9100DN, which was connected to BLI's test network via its standard 10/100BaseT Ethernet interface, include a standard memory of 32 MB, which is expandable to 256 MB, and a number of other features, such as booklet printing, cover mode, N-up printing (two to 16 images per page) and reduction/enlargement from 20 percent to 500 percent. When configured with the optional hard disk, as BLI's test unit was, the FS-9100DN also provides secure print (private print) and proof print capabilities, as well as quick copy, job storage, virtual mailbox and job code features. The FS-9100DN also offers an energy-save mode, which can reduce power consumption from 1,400 watts to 18 watts after a specified period of time.

Kyocera Mita offers a number of options for the FS-9100DN, including a choice of two finishers: the 3,000-sheet stacker/stapler with two- and three-hole punch (configured with BLI's test unit), or the 1,000-sheet stapler/stacker that was configured with the FS-9500DN, which was also reviewed by BLI in recent testing (see the Kyocera Mita FS-9500DN test report). Also available as options are a 3,000-sheet large-capacity tray and a 3.2-GB hard disk (included on the tested configuration), dual 500-sheet drawers and a

continued

General Appraisal *continued*

two-/three-hole punch kit (both included on the configuration tested of the FS-9500DN), as well as a bar-code reader.

Shortcomings

The only shortcoming of the Kyocera Mita FS-9100DN is that the unit’s “Documentation” received a “Fair” rating due to the fact that none of the manuals provided with the FS-9100DN contain an index, making some information difficult to locate.

Pricing Analysis And Summary

The Kyocera Mita FS-9100DN has a base suggested retail price that is competitive with that of other monochrome printers in this speed range offering the same standard features, such as duplexing and network connectivity. As mentioned earlier, the FS-9100DN’s supplies cost per page is more than four times lower than the average for monochrome printers tested by BLI to date. It should be noted that this low supplies cost per page is due in large part to Kyocera Mita’s ECOSYS design, wherein only the toner and waste toner receptacle are replaced by the user. The drum and other consumable components must be replaced by service. In contrast, with most other printers, users must periodically replace the drum (whether an individual cartridge or contained in an all-in-one imaging cartridge), as well as other consumable components. Therefore, when considering this low cost per

page for supplies, buyers should also consider the service-related costs that are associated with this design. Kyocera Mita does, however, provide a one-year, on-site warranty covering parts and labor with the purchase of the unit.

Because of its exceptional economy and solid overall performance in testing, BLI concludes that the FS-9100DN represents an excellent value and recommends it for print volumes of up to 90,000 impressions per month.

Print Quality:

- Text:** Good
- Line art:** Good
- Halftones:** Good
- Solids:** Good

Ease of use: Good

Ease of maintenance: Good

Estimated waste: Low

Estimated downtime: Low

Misfeeds: 3

Misfeed rate: One per 90,000 impressions

Total service calls: 0

Mean Impressions Between Failures (MIBF): Not applicable

Mean Impressions Between Service (MIBS): Not applicable

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FEATURES

Automatic features: Auto tray switching, auto emulation switching and automatic duplexing.

Client operating system support: Microsoft Windows 95 (OSR2), 98, 98 SE, NT 4.0, 2000, Me and XP (must use driver version 1.2.10); Macintosh OS 8.6 to 9.0 (using standard Ethernet connection); Caldera eDesktop 2.4; Red Hat Linux 6.1, 6.2 and 7.0; SuSE 6.3, 6.4 and 7.0; and TurboLinux Workstation 6.0 and 6.1 using the PDQ print system.

Control codes/tracking: None.

Duplex: Standard.

Energy-save mode: Reduces power consumption from 1,400 watts while printing to 18 watts after 15 minutes of non-use (user-selectable from five to 240 minutes in five-minute increments). Kyocera Mita refers to this feature as "Sleep Mode."

Fonts: 136 PostScript 3 and 80 PCL.

Interface(s): Standard Centronics IEEE-1284 bidirectional parallel port, DB25 serial port, and 10/100BaseT Ethernet interface; optional 10Base2 Ethernet interface.

Job management features: None.

Languages: The following languages are available from the control panel: English, French, Dutch, Italian and German.

Memory: Standard 32 MB of RAM (expandable to 256 MB).

Network operating system support: Microsoft Windows NT 4.0 Server, 2000 Server and Advanced Server; Novell NetWare versions 3.x, 4.x and 5.x including NDS support; Caldera eDesktop 2.4; Red Hat Linux 6.1, 6.2 and 7.0; SuSE 6.3, 6.4 and 7.0; Macintosh OS 8.6 to 9.0.

Printer languages: PCL 5e, PCL XL (default) and a PostScript 3 emulation (KPDLL3).

Resolution: 1200 x 600 dpi (Fast 1200), 600 x 600 dpi and 300 x 300 dpi.

Secure print: Yes (enabled only if optional hard disk is installed).

Other features: N-up printing (two, four, six, nine, 12 or 16 images per page); reduction/enlargement from 20% to 500%; stapling, hole-punch and offset stacking when

the optional document finisher is installed; quick copy (holds job in memory to be printed later at any time), proof and hold (proof print), private print (secure print), job storage, virtual mailbox and code jobs (for printing bar-codes) are enabled when the optional hard drive is installed.

Control Panel

Type: Eight hard keys ("MENU," "▲," "▶," "▼," "◀," "ENTER," "CANCEL," and "GO") are used to view and/or change the network configuration and/or printer settings of the FS-9100DN.

Indicators/prompts: There are three LEDs: "READY," "DATA" and "ATTENTION." When flashing, "READY" indicates that an error has occurred, remaining lit (not flashing) indicates that the printer is on-line, while not being lit indicates that the printer is off-line). When flashing, the "DATA" LED indicates that a data transfer is taking place, while remaining lit (not flashing) indicates that data is being processed or written to a memory card. A flashing "ATTENTION" LED indicates that the printer requires attention or the device is warming up, while remaining lit (not flashing) indicates when a problem or an error has occurred that can be cleared by the administrator or end user. A graphic representation of the printer indicates that paper is out or a drawer



Kyocera Mita FS-9100DN Control Panel

FEATURES *continued*

needs attention when flashing, that a paper jam has occurred when fast-flashing, or that a specific tray or item

has been selected when remaining lit and not flashing. A 32-character LCD (two lines of 16 characters each) allows the user to access the operation panel menus.

Kyocera Mita FS-9100DN Accessories

3,000-Sheet Large-Capacity Tray: Suggested retail price, \$1,470.

Dual 500-Sheet Drawers: Suggested retail price, \$1,286.

3,000-Sheet Stacker/Stapler With Two-/Three-Hole Punch: Suggested retail price, \$2,617.

1,000-Sheet Stapler/Stitcher: Suggested retail price, \$2,850.

Two-/Three-Hole Punch: Suggested retail price, \$670.

3.2-GB Hard Disk: Suggested retail price, \$479.

Bar-Code Reader: Suggested retail price, \$275.

Expansion Memory: Suggested retail price not available.

Memory Card: Suggested retail price not available.

TEST RESULTS AND OBSERVATIONS

Test equipment: BLI's dedicated test network, consisting of Windows NT 4.0 servers and Windows 98, 2000 and NT 4.0 workstations, 10/100BaseTX network switches and CAT5 cabling.

Reliability

PMs/Malfunctions	Service Required	Meter Count (Impressions)	Impressions Between Service
Meter count (beginning of test)		0	
End of test period		270,000	
Total misfeeds/misfeed rate	3 / 90,000		
Service calls	0		
PMs	*		
Total service calls (including PMs)	0		
M.I.B.F. ¹	Not applicable		
M.I.B.S. ²	Not applicable		
* <i>Kyocera Mita does not have scheduled PMs.</i>			
¹ <i>Mean Impressions Between Failures (To obtain this number, BLI divides the total number of impressions produced during the test period by the number of service calls required. In actuality, it reflects the average number of impressions produced without a malfunction.)</i>			
² <i>Mean Impressions Between Service (To obtain this number, BLI divides the total number of impressions produced during the test period by the number of service calls, including preventive maintenance calls, required. In actuality, it reflects the average number of impressions produced without a service call.)</i>			

TEST RESULTS AND OBSERVATIONS *continued*

Maintenance

Kyocera Mita does not schedule PMs; instead, the user performs any preventive maintenance required when replacing a toner cartridge. See “Ease of replacing toner cartridge.”

User-Replaceable Consumables

Toner cartridge: Suggested retail price, \$129. Manufacturer’s rated yield, 40,000 pages at 5% coverage.

Ease of replacing toner cartridge: Good. When output appears faded or the “Toner Low” message appears at the control panel, the user should replace the toner cartridge. To remove the empty toner cartridge, the user opens the front cover, pushes the blue lock lever up and pulls out the toner cartridge until the handle on top of the cartridge appears, at which time the user grabs the handle on the toner cartridge, while still holding in the lock lever, and slides the cartridge out of the machine. To replace the toner cartridge, the user holds the car-

tridge by both hands and slides it into the FS-9100DN. When replacing the toner cartridge, the user is also expected to change the waste toner bottle (Kyocera Mita refers to it as a waste toner box), in addition to performing a number of other maintenance tasks, including cleaning the device out with a cleaning knob (similar to a plastic rod), placing the grid cleaner into the keyed notch and pulling the main charger roller back and forth across the grid cleaner several times (Kyocera Mita does not specify how many times). The user must ensure that he or she pushes the main charger back into the machine and removes the grid cleaner. Lastly, the user takes the blue-colored cleaning brush from the holder in the FS-9100DN, opens the left side of the machine and cleans the separator from left to right with the cleaning brush. Once these tasks are complete, the user closes the side cover, replaces the cleaning brush in its holder and closes the front cover. Kyocera Mita recommends waiting for at least five minutes before resuming printing to allow for the main charger to dry.

TONER YIELD (BASED ON 5% PAGE COVERAGE)

Imaging Cartridge Weight			Toner Yield (Impressions)	Impressions Per Gram
Full	Empty	Net Weight		
2,721.3 grams	894.0 grams	1,827.3 grams	39,963	21.9

Guarantee/Warranty: The Kyocera Mita FS-9100DN is backed by a one-year on-site parts and labor warranty, and a three-year or 500,000-part guarantee for the drum and fuser unit.

Ease of Operation

Documentation: Fair. The Kyocera FS-9100DN comes bundled with one CD-ROM, printed manuals for the IB-2x network interface and installation manuals for the optional finisher. The printed manuals all have tables of contents, but none have indexes. The CD-ROM contains the print driver for all Windows platforms, details of how to install in a client/server environment, information on how to install server drivers, driver tools for removing print drivers and creating diskettes for the drivers, the ICLink and KM-NET utilities, and the FS-9100DN/FS-9500DN Operation Guide (along with the Prescribe II and PDF 417 Barcode Programming Manu-

als, all of which are in PDF format and can be read online or printed out). The CD-ROM also contains information regarding Linux and OS/2 that is not accessible through the startup menu.

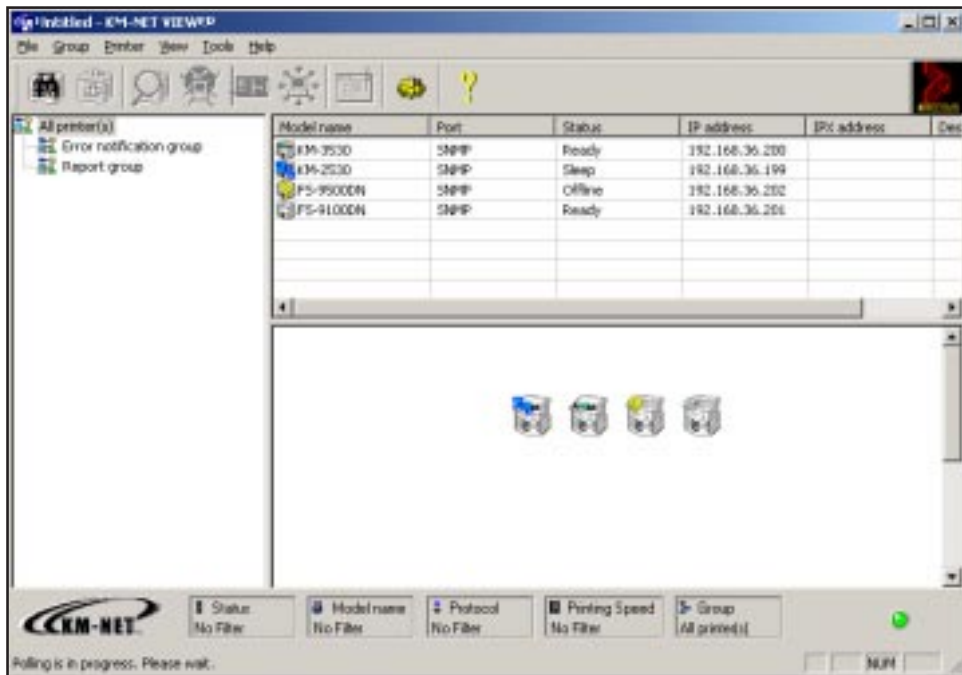
Ease of use: Good. The KX driver supports PCL XL (default), PCL 5e and the PostScript 3 emulation (KPD3). The user can change the driver by accessing the printer properties, selecting the “Device Settings” tab, clicking on the “User” button and selecting the desired emulation from the drop-down list. For Macintosh environments, the user is required to use the LaserWriter driver (available from Apple’s Web site) and the PPD for the appropriate Kyocera Mita printer model. The only disad-

TEST RESULTS AND OBSERVATIONS *continued*

vantage that BLI technicians found when using the KX driver was that the user must access the printer properties to change the PDL/emulation, unlike with most printers that offer drivers for each page description language (PDL) and/or emulation.

Unlike other Kyocera Mita printers tested, if the user wants the more traditional PCL and/or PostScript drivers, they are not available on the Kyocera Mita Web site. The KX driver loads on Windows 95, 98, NT 4.0, 2000, Me and XP, and looks and acts the same across all platforms.

Feedback to PC workstations: Good. Information on device and/or job status is available at the workstation when the KM-Net Viewer utility (also referred to as PrintMonitor) or the Remote Operation Panel utility is used. The KM-Net Viewer is designed more as a network administrator's tool, displaying the status and configuration of all printers along with any Kyocera Mita devices installed on the network. KM-Net Viewer is password-protected and the utility will not even launch until the correct password is entered. KM-Net Viewer allows the administrator to monitor the status and configuration of all Kyocera Mita devices



KM-Net Viewer Utility



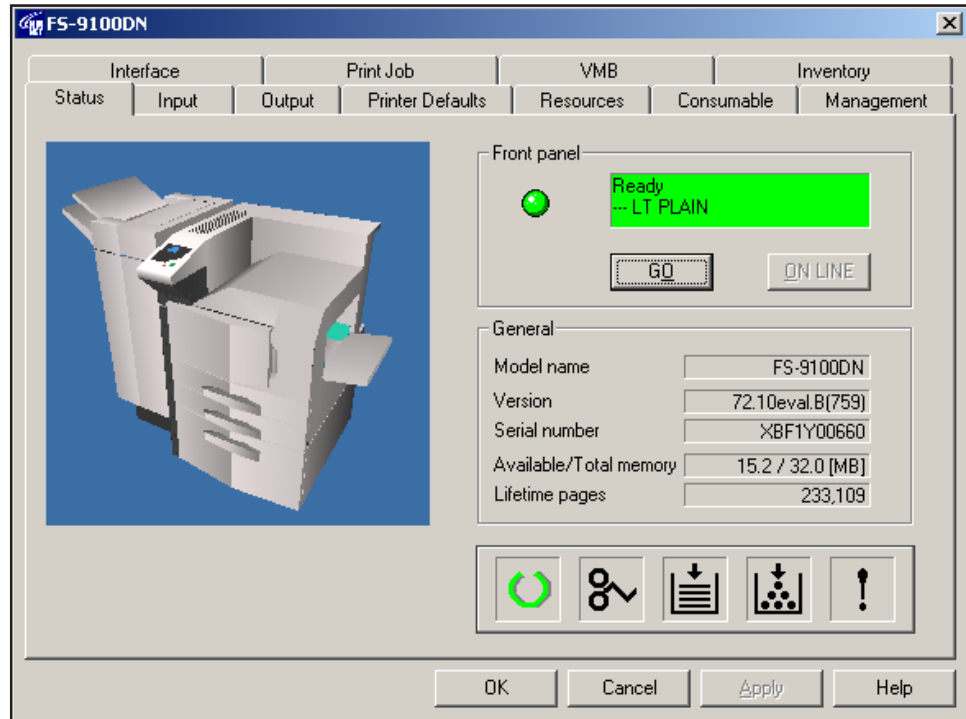
KM-Net Viewer (Web Edition)

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TEST RESULTS AND OBSERVATIONS *continued*

detected on the network, although the information regarding other printers on the network will vary. KM-Net Viewer comes in two different versions and the user selects which version to load; the standard version of the KM-Net Viewer software loads like any other utility or application software, while the Web-enabled version allows the user to view and/or change status information via a Web browser.

Both the standard and Web versions of KM-Net Viewer are similar in the information they provide to the end user. The standard version gives the administrator more printer specifics (i.e., paper supply, virtual mail boxes and stored print jobs) and also allows the administrator to view and/or manage the printer(s) he or she chooses by allowing the administrator to delete and/or add printers, and create printer groups. The Web version, which comprises server and client software, gives the user/administrator more information pertaining to the network (the server software requires Windows NT or 2000). The administrator first starts the KM-Net Viewer Web Version server software running on the workstation or server. Any user can then attach to the KM-Net Viewer software using his or her Web browser, which must support Java. The administrator can determine what each user can view and what he or she can edit. In addition, the administrator can password-protect his or her own view of the KM-Net Viewer. The standard version of KM-Net Viewer appears to be designed primarily for the network administrator, as when the application is installed a password has to be assigned, and the application will ask for a password before it launches at the desktop.



KM-Net Viewer “Status” Window

The same information provided through the KM-Net Viewer utility is also available when using the Remote Operation Panel utility, which provides a graphical representation of the control panel. The Remote Operation Panel can report on the status of only one printer at a time (simply by clicking on the “Menu” button) and details for the selected device appear in a Windows Explorer layout; the Remote Operation Panel is not password-protected, however, allowing access to anyone who has loaded the program on his or her workstation. The user can view and/or change the configuration and settings of the printer, or check on supply items such as toner. The Remote Operation Panel utility can be configured to appear on the taskbar, generate pop-up messages or an audible tone, or appear always on top (i.e., never behind other windows) when an error occurs.

Device status: Information on device status is available when using either the KM-Net Viewer or the Remote Operation Panel utility. (See “Feedback to PC workstations.”)

TEST RESULTS AND OBSERVATIONS *continued*

Control panel status messages/job access: A job menu is not available at the printer to allow the viewing and/or management of print jobs; anyone can cancel the current job simply by pressing the “Cancel” key, unless the administrator has locked the control panel.

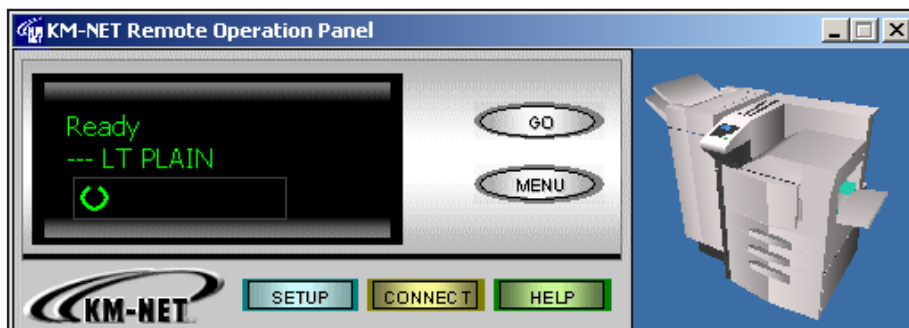
Paper status: Although information on paper size and/or paper remaining in the drawer is not available from either the print driver or the control panel, both the KM-Net Viewer and Remote Operation Panel utilities provide this information either directly or through pop-up messages.

Status of jobs in the queue: There is no access to print jobs from the control panel or through either of the utilities supplied with the printer.

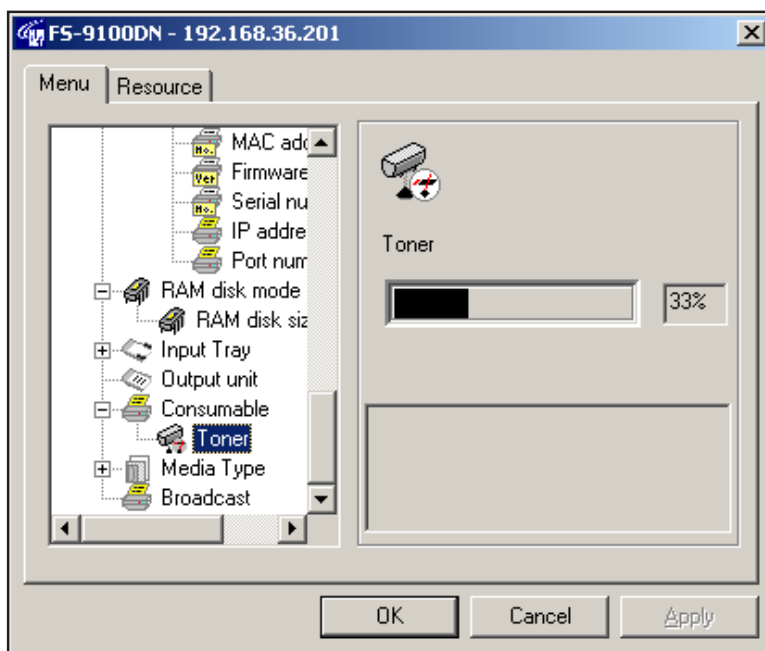
Error messages: Error messages are displayed at the workstation if the user is running the KM-Net Viewer or the Remote Operation Panel utility, both of which can be set up to generate pop-up alert messages (see “Feedback to PC workstations”). The KM-Net Viewer utility also offers the ability to create a log file that records all errors at the device. Error messages are also displayed at the FS-9100DN’s control panel.

Ease of removing misfeeds: Good. Non-clamshell design with eight access points for removing misfeeds, including two for the DF-71 Finisher. The error message that appears at the control panel gives the user an idea of which location to access; if the user presses the “?” key at the control panel, a text message will walk him/her through removing the misfeed. Access to all possible misfeed areas is simple and easy.

Ease of loading paper: Good. Loading paper into the drawers was easy. The user simply places a full ream of paper into the drawer. There are no corner separators to hinder access when adding paper.



Remote Operation Panel



Remote Operation Panel “Menu” Selections

Ease of adjusting paper drawers: Good. The paper drawer is pulled out and has two separate slide guides—one for length and one for width—to accommodate sheets ranging in size from 5-1/2" x 8-1/2" to 11" x 17". The FS-9100DN will automatically detect the new paper size. If a selected paper size does not reside in the drawer, the FS-9100DN will inform the user to insert the requested paper size into the multipurpose tray.

Operator error: (1) If the user selects mirror image or

TEST RESULTS AND OBSERVATIONS *continued*

negative image from within the driver properties and forgets to de-select either feature after printing, all future print jobs will remain the same. (2) If the user attempts to add paper while the FS-9100DN is printing, a jam may result. (Kyocera Mita recommends that paper be added only when the paper drawers are empty.)

Throughput Capabilities/Materials

Standard paper supply: Two 500-sheet paper drawers and a 200-sheet multipurpose tray (bypass). The 500-sheet paper drawers are user-adjustable for sheets ranging in size from 5-1/2" x 8-1/2" to 11" x 17" and in weight from 16-lb. to 28-lb. bond. The multipurpose tray is user-adjustable for sheets ranging in size from 3-1/2" x 6-1/2" to 11" x 17" and in weight from 16-lb. bond to 110-lb. index.

Maximum number of available on-line paper sources with options: Five.

Maximum on-line paper capacity with options: 4,200 sheets.

Paper output: The standard output tray holds up to 500 sheets. Print jobs are output facedown in the correct order.

Ability to process self-adhesive address labels: Avery 5351 labels performed satisfactorily in testing.

Ability to process transparencies: 3M PP2500 transparencies performed satisfactorily in testing.

Productivity

Warm-up: About 58.73 seconds from a cold start.

BLI'S TESTED RIP TIMES/PAGES PER MINUTE

Microsoft Word Text File

First-page time	5.18 ppm (11.58 seconds)
Speed including first-page time	33.18 ppm
Speed excluding first-page time	35.91 ppm

BLI's 6% test original (115 KB), a black-and-white text file, printed using Microsoft Word 2000.

PageMaker 6.5 Graphics File

First-page time	7.96 ppm (7.54 seconds)
Speed including first-page time	34.25 ppm
Speed excluding first-page time	35.93 ppm

ASTM F 1423 test original (116 KB), a black-and-white graphics file, printed using Adobe PageMaker version 6.5.

Photoshop 6.0 TIFF Graphics File

First-page time	0.73 ppm (1 minute, 22.43 seconds)
Speed including first-page time	21.49 ppm
Speed excluding first-page time	35.92 ppm

ISO N3.TIFF test original (20 MB), a color graphics file, printed using Adobe Photoshop version 6.0.

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TEST RESULTS AND OBSERVATIONS *continued***PageMaker 6.5 TIFF Graphics File**

First-page time	2.82 ppm (21.29 seconds)
Speed including first-page time	30.87 ppm
Speed excluding first-page time	35.91 ppm

ISO N2.TIFF and N3.TIFF test originals (combined in one PageMaker document, 40.6 MB total), a color graphics file, printed using Adobe PageMaker 6.5. (Note: Printed using the PCL XL Driver)

Acrobat 4.0 PDF Graphics File

First-page time	4.42 ppm (13.57 seconds)
Speed including first-page time	32.68 ppm
Speed excluding first-page time	35.91 ppm

Motorcyc.PDF test original in 8-1/2" x 11" format (5.04 MB), a color graphics file, printed using Adobe Acrobat 4.0.

Photoshop 6.0 JPEG Graphics File

First-page time	1.77 ppm (33.93 seconds)
Speed including first-page time	28.30 ppm
Speed excluding first page time	35.88 ppm

Rockies.JPG test original (246 KB), a color graphics file, printed using Photoshop 6.0.

Acrobat 4.0 PDF Graphics File

First-page time	1.22 ppm (1 minute, 0.49 seconds)
Speed including first-page time	15.78 ppm
Speed excluding first-page time	18.96 ppm

Motorcyc.PDF test original in 11" x 17" format (5.44 MB), a graphics file, printed using Acrobat 4.0.

Manufacturer's rated speed: 36 ppm.

All files are printed in a quantity equal to twice the manufacturer's rated speed for the device. The Kyocera FS-9100DN print speeds were tested at 600 x 600 dpi using the PostScript (KPD) driver.

First-page time indicates the time it took to RIP, image and deliver the first page of the test document set to the output tray.

Speed excluding first-page time indicates the time for printing the entire set of test originals, excluding first-page RIP and print times.

Speed including first-page time indicates the time for printing the entire set of test originals, including first-page RIP and print times.

TEST RESULTS AND OBSERVATIONS *continued*

**KYOCERA MITA FS-9100DN
PRINT QUALITY INDEX**

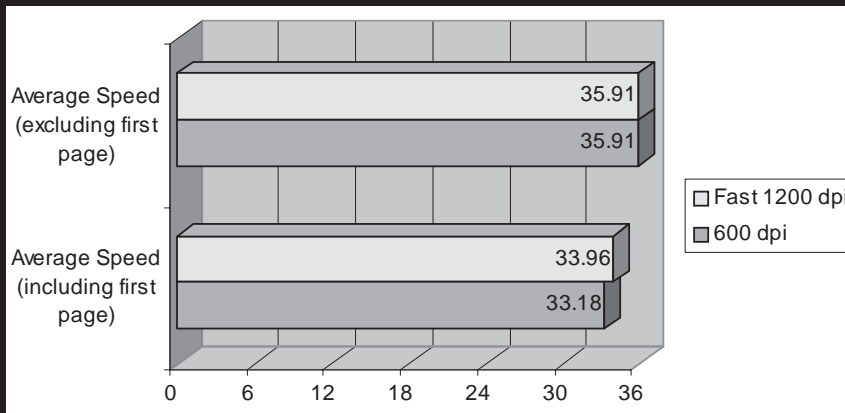
BUYERS LABORATORY INC.

Magnified view of black text.
600 dpi.
Printed on plain-paper stock.

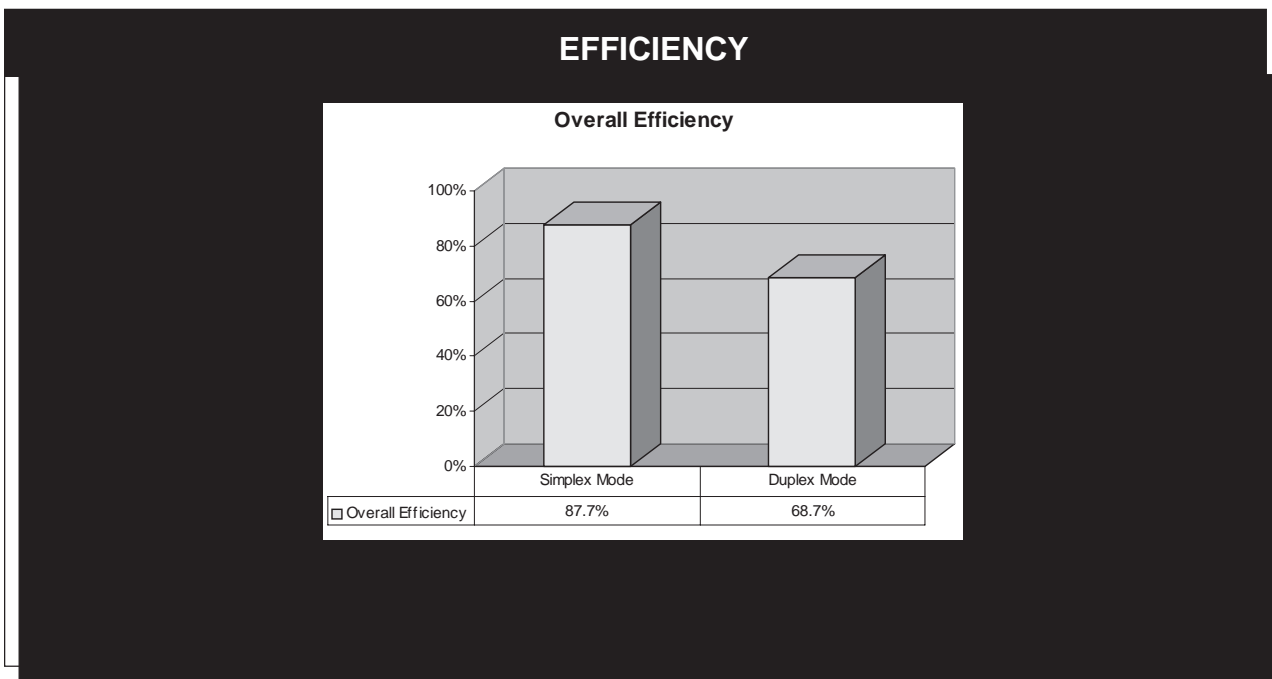
BUYERS LABORATORY INC.

Magnified view of black text.
Fast 1200.
Printed on plain-paper stock.

BLI'S TESTED PRINT SPEEDS



TEST RESULTS AND OBSERVATIONS *continued*



Print Quality

Text: Good

Line art: Good

Halftones: Good

Solids: Good

Comments: Output produced by the Kyocera Mita FS-9100DN's KPD (PostScript) driver at 600 x 600 dpi was good. Vertical and horizontal lines were clean and well-defined. Line art did not display any stair-stepping, and circular images had smooth edges. The grayscale output in the lesser dot-fill areas of the chart was visible from the 3%-fill area, transitions were well-defined, and grayscale output in the heavier dot-fill areas also showed well-defined transitions. Overall, the grayscale chart appeared to have a slightly grainy texture to it.

Density of solid black printed image (based on four readings corresponding to four different locations on the original): Range, 1.27 to 1.29 (on a scale of 0 to 2.5, with 2.5 being as dark as would be possible under most circumstances).

Density range for laser/LED printers tested to date: 1.00 to 1.64.

Networking and Connectivity

The FS-9100DN connects to networks via a standard 10/100BaseT Ethernet interface. The KX print driver was easy to install and offers choices such as paper size, paper source and N-up printing. The Kyocera KM-Net Viewer network management utility (PrintMonitor) that comes bundled with the FS-9100DN is password-protected and can be installed to allow the administrator to monitor the status of and/or manage all Kyocera Mita devices on the network. (If the end user requires the ability to monitor the status of and/or manage a device, then the Remote Operation Panel or KM-Net Viewer Web version utilities would be more appropriate. See "Feedback to PC workstations.") After the KM-Net Viewer utility is launched, it will ask the administrator for a password; if the correct password is entered, the utility will open and display all Kyocera Mita devices on the network. The administrator can add printers or arrange printers into groups. KM-Net Viewer can show all device groups when first opened or display only a select group of devices. The administrator can obtain a quick overview of the status of all devices displayed. If more detail on a given device is required, the administrator can double-click on the device icon and a detailed status window will open.

TEST RESULTS AND OBSERVATIONS *continued*

Using the selected device's status window, the administrator has the ability to view and/or change settings using 11 different tabs: "Status," "Input," "Output," "Printer Defaults," "Resources," "Consumable," "Management," "Interface," "Print Job," "VMB" and "Inventory." The "Status" tab offers an overview of the LCD screen, model, firmware version, serial number, and lifetime pages printed. The "Input" tab allows the status of all paper sources to be viewed, and selection of the default paper drawer. The "Output" tab shows the output destination, face (up or down) and allows the user to select the default output tray. The "Print Defaults" tab allows the administrator to change default settings for print quality, page control and/or emulation. The "Management" tab allows the user to view and/or change system, security and identification information. The "Resources" tab shows memory, storage and data information. The "Consumable" tab shows the printer's current toner level. The "Interface" tab shows and allows the user to change some of the information regarding general, TCP/IP and/or serial configurations; other protocols will be displayed if they are being used. The "Print Job" tab allows the user to view any permanent or temporary jobs stored on the FS-9100DN's optional hard drive. The "VBM" tab allows the user to view any mailboxes created and what data resides in them (virtual mail boxes work only when the optional hard drive is installed and jobs have to be in PCL XL or PCL 5e format). The "Inventory" tab allows the user to create and store (in a CVS format) a file that will take inventory of the settings and configuration of the printer.

Compatibility (units are tested for compatibility with Microsoft Word 2000, Microsoft PowerPoint2000, Adobe PageMaker 6.5, Adobe Photoshop 6.0 and Adobe Acrobat 4.0 using 50 application test files, which contain graphics, halftone images, tables, etc., enabling BLI technicians to evaluate memory usage, file processing,

font-rendering and grayscale capabilities): Good. The Kyocera FS-9100DN was found to be fully compatible with all five Windows programs used in testing, with no problems encountered. (It should be noted that although no problems were encountered when printing BLI's compatibility files, the PostScript 3 driver, referred to as KPDL3 by Kyocera Mita, could not print one of the TIFF graphics files from PageMaker 6.5 in BLI's rasterization tests. See "BLI'S Tested RIP Time/Pages Per Minute."

Print drivers: The Kyocera Mita FS-9100DN ships with the KX driver that supports emulations of PCL XL (default), PCL 5e and PostScript 3 for Windows 95, 98, NT 4.0, 2000, XP and Me operating systems. The device supports the Windows, Novell and Macintosh environments, as well as various flavors of Linux, including Caldera eDesktop 2.4; Red Hat Linux 6.1, 6.2 and 7.0; and SuSE 6.3, 6.4 and 7.0. For the Macintosh environment, the user must use the LaserWriter driver (available from Apple's Web site) and the PPD supplied on the CD-ROM. The Windows drivers that were tested were well-laid-out and easy to use, and featured the same layout and appearance regardless of platform. Users who frequently switch between emulations may find it inconvenient to access the printer properties (from the "Printer Settings" tab under the "Start" menu) to change emulations. The auto-install feature made the setup and installation of the Windows drivers easy.

The KX driver supports all three emulations (PCL XL, PCL 5e and PostScript 3). The FS-9100DN's default emulation is PCL XL, although PCL 5e or PostScript 3 can be selected by accessing the printer properties. None of the emulations offer a resolution selection; the device will print at the default resolution set at the printer's control panel.

TEST RESULTS AND OBSERVATIONS *continued*

KYOCERA MITA FS-9100DN PRINT DRIVER FEATURES CHART

Features	Windows 95/98 PCL XL	Windows 95/98 PostScript 3 (KPD3)	Windows 2000 PCL XL	Windows 95/98 PostScript 3 (KPD3)
Auto Feature/Device Detection	No	No	No	No
Booklet Printing	Yes	Yes ¹	Yes	Yes ¹
Collate Sets	Yes ²	Yes ²	Yes ²	Yes ²
Correct Page Order Output	Automatic	Automatic	Automatic	Automatic
Cover Mode (Different Paper Source for First/Other Page)	Yes (First Page)	Yes (First Page)	Yes (First Page)	Yes (First Page)
Duplex	Yes	Yes	Yes	Yes
Mirror Image	No	Yes ¹	No	Yes ¹
Negative Image	No	Yes ¹	No	Yes ¹
N-up Printing	2 to 16	2 to 16	2 to 16	2 to 16
Output Tray Selection	Yes	Yes	Yes	Yes
Overlays	No	Yes	No	Yes
Paper Gauge	No	No	No	No
Quantity Selection	Up to 999	Up to 999	Up to 999	Up to 999
Reduction/Enlargement	20% to 500%	20% to 500%	20% to 500%	20% to 500%
Resolution Modes	Yes ¹	Yes ¹	Yes ¹	Yes ¹
Secure Print	Yes ²	Yes ²	Yes ²	Yes ²
Proof and Print	Yes ²	Yes ²	Yes ²	Yes ²
Hole Punch	Yes ³	Yes ³	Yes ³	Yes ³
Stapling	Yes ³	Yes ³	Yes ³	Yes ³
Transparency Interleaving	Yes	Yes	Yes	Yes
Watermarks/Custom Watermarks	No/No	No/No	No/No	No/No

¹ Accessible only through the driver properties and not from within the application.

² The optional hard drive must be installed or the RAM-disk must be enabled.

³ Capabilities depend upon the optional finisher chosen.

The drivers and documentation supplied on the CD-ROM with the FS-9100DN are geared toward a client/server installation. Kyocera Mita did not provide a utility with the test unit that will allow the user to create printer ports on Windows 95/98 machines; however, a utility called IB-2x, which is used to create a K-Port on Windows 95/98 machines, is available from Kyocera Mita.

RIP once/print many: Yes. When the user selects collate in the driver, the document is sent only once to the printer, keeping file sizes to a minimum instead of mul-

tiplying the file size by the number of sets selected and using valuable memory resources. It must be noted that the user must use the collate selection from within the driver and not from within the application; if collate is selected from within the application rather than from within the driver, the print job will not be collated. (It should be noted that this capability is enabled only when the optional hard disk is installed or when the RAM-disk is enabled.)

Job log/accounting: None.

PERFORMANCE OF TESTED SPECIAL FEATURES

Multipurpose Tray

Satisfactory. The 200-sheet multipurpose tray accommodates sheets ranging in size from 3-5/8" x 6-1/2" to 11" x 17" and in weight from 16-lb. bond to 110-lb. index. The user must select the multipurpose tray as the paper source from the print driver and then wait for the print job to be spooled and RIPPed, after which "Add Paper MP Tray" will appear in the display panel. The user then inserts paper and the job will print.

Document Finisher DF-71

Satisfactory. The document finisher provides a 3,000-sheet stacking capacity, stapling and/or punching of up to 50 sheets. The DF-71 supports stapling of top right, top left and booklet, in addition to 2-hole or 3-hole punching. All options are selectable from the print driver.

COST ANALYSIS

Rental: None.

Service pricing: Not available.

COST PER PAGE (PURCHASE)

Monthly Volume	Depreciated Purchase Price ¹	Paper ²	Supplies and Consumables ³	Total Per Page*	Life-Cycle Cost ^{4*}
30,000	0.420¢	0.619¢	0.443¢	1.482¢	\$26,676
60,000	0.210	0.619	0.443	1.272	45,792
90,000	0.140	0.619	0.443	1.202	64,908
120,000	0.105	0.619	0.443	1.167	84,024
150,000	0.084	0.619	0.443	1.146	103,140
180,000	0.070	0.619	0.443	1.132	122,256

¹ The SRP of the unit as tested, \$7,565, with the optional 3,000-sheet large-capacity tray, 3,000-sheet stacker/stapler/hole punch and hard drive, was depreciated over a five-year period using a straight-line method.

² The cost of paper was based on an estimated price for 5,000-sheet cartons of 8-1/2" x 11" 20-lb. bond: 1-4 cartons, \$36.15 each; 5-9 cartons, \$34.80 each; 10-19 cartons, \$33.05 each; 20-49 cartons, \$31.35 each; and 50 or more cartons, \$30.95 each.

³ The cost of supplies and consumables was based on BLI's tested toner yields when using an original with 5% coverage, Kyocera Mita's rated yields for the maintenance kit (includes the drum, fuser, transfer and developer) and Kyocera Mita's pricing for each. (See "User-Replaceable Consumables.")

⁴ Life-cycle cost for each monthly volume is calculated by multiplying the total cost per page by the monthly volume by 60 months (five years).

* Includes depreciated purchase price, supplies and paper. BLI does not include service cost in the cost analysis as of February 2001 because of variations in pricing from provider to provider, coverage provided by various contracts and policies of various manufacturers/vendors regarding whether or not they publish suggested pricing for their contracts. Buyers who intend to purchase a service contract should factor that cost in based on the actual pricing offered by their vendor. Please keep this in mind when comparing this model's cost-per-page information with that of other models tested.

ENVIRONMENTAL SPECIFICATIONS

Electrical system: 120 V, 60 Hz, 10.8 amps. The unit tested had a three-wire cord (grounded), 7' and 8" in length, and carried UL approval for the United States and Canada.

Energy Star compliance: Kyocera Mita states that the FS-9100DN meets Energy Star requirements.

Noise: Scale A, 65 db (single-point reading; running noise). Range for printers tested to date, 57 db to 69 db.

Paper fault: None. (Georgia-Pacific Spectrum Xerographic Bond and Georgia-Pacific GeoCycle recycled paper containing 20% post-consumer fiber were used in this test unit.)

PHYSICAL SPECIFICATIONS

DIMENSIONS AND WEIGHTS				
Printer	Height	Width	Depth	Weight
Kyocera Mita FS-9100DN	23"	25-1/8"	24-1/2"	150 lbs.
3,000-Sheet Stacker/Stapler/Hole Punch	41-1/2"	27-1/8"	23-9/16"	110 lbs.
3,000-Sheet Large-Capacity Tray	23"	23.2"	12.4"	48 lbs.

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