



LABCHECK

Sharp AR-275 Imager 27cpm Digital Copier-Printer-Fax-Scanner

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This LabCheck report provides User-Relevant test analysis and constitutes a Summary of the Product, its Position within its Target Sector and its Performance during Benchmarked Testing.

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OVERALL SUMMARY

Pros	<p>Fast simplex copy speeds compared to rival units. Good image quality across print and copy jobs. Copy image quality; especially good on fine line and detail work. Printer driver has user friendly interface. Booklet-making capabilities from the printer drive.</p> <p>Good Scanning capabilities for its market sector. Easy to use control panel for copying, fax, scanning and printer settings.</p> <p>Delivered the fastest simplex printing, in its sector, on standard office documents.</p> <p>One of the only copier-printers to offer true Rip Once Print Many; it interacts properly with the print menus in applications such as Word, Word Perfect, etc.</p>	 <p>Sharp AR-275 with Finisher and extra paper trays</p>
Cons	<p>No next job copy reservation memory. No Saddle Stitcher Finisher. Scan to email has no keypad for ad-hoc emails. Low standard printer RAM (16Mb) compared to competitors. Lacks Job Build to combine copy documents.</p>	

This report covers the 27cpm Sharp AR-275 Imager tested with external finisher , 10/100BaseT network connection and PCL driver. In USA , Sharp add 'Imager' after the model but this differs in other countries which retain just the model number.

BERTL believes that the Sharp AR-275 is a reasonable product that delivers most functionality that the average small office needs. In the Sharp AR-275's favor is its standard trayless duplex unit and two 500 sheet paper trays which are not standard on some of the cheaper units. Paper is also a bonus on the Sharp. Sharp advise that the AR-275's paper drawers can handle paper types up to 28lb bond / 105 gsm , which is higher than a number of competing systems

What you get for your money, from Sharp, has to be carefully balanced against alternative systems. For example, some competing products have standard parallel port printing on their lower cost entry level products but they work via Windows GDI printing which is not suitable for many small offices. This tends to swing the cost equation back towards Sharp because, with other units, you may still have to buy the printer upgrade to use the printer in an office,

While discussing price, Sharp's AR-275 looks a bit under specified compared to one competitor that delivers a higher speed processor at relatively low cost. Finally, it is worth noting that other copiers generally come with higher standard RAM than Sharp's 16 Mb. You can upgrade until you have a massive 272 Mb RAM but it would have been nice to have higher than 16Mb in the basic price.

Sharp's AR-275 is designed as a desktop copier which upgrades to include printing, scanning and fax capabilities. When fully configured, it is a complete floor-standing office copier / multifunctional device (see photo above). Sharp designed the AR-275 for medium volume workgroups. The maximum speed is 27 ppm (or cpm) while maximum print resolution is 1,200 dpi. The entry level product starts with 1,000 sheets of paper (in two 500 sheet drawers) which can be upgraded to hold 2,100 online paper supply via a 100-sheet bypass and up to four 500-sheet trays. Other optional extras include a 1,100 sheet Stapler Finisher, a Reversing Single Pass Document Feeder or Single Pass Document Feeder. The Sharp AR-275 can produce black and white reverse imaging (like a photo negative), Dual Page Copy (2-in-1 or 4-in-1), Rotation copy, Margin shift and Scan Once Print Many. Rip Once Print Many is supported via PCL5e and PCL6 emulations with an additional optional Postscript 3 printing capability. Fax capabilities include an optional Super G3 Fax with Duplex Faxing (provided you have a duplex document feeder).

Sharp's Administration Utility Suite includes remote email diagnostics, Sharp Printer Status Monitor, Image Home Page and Printer Administration utility for enhanced functionality. A neat touch includes optional Barcode printing.

Like most modern Sharp multifunctional systems, if you take the scanning upgrade you get Sharp's desktop management software 'SharpDesk'. This is compatible with SharpFind document management system (which is only sold in Europe).

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Zoom Options: Because the AR-275 is a 1,200dpi system it's zoom capabilities (reduction / enlargement) vary according to the dpi used. At 600dpi setting you get 25 to 400% with 5 reduction and 5 enlargement preset ratios through platen. This drops to 50 to 200% with 4 reduction and 4 enlargement preset ratios at 1,200 dpi on the platen. **Via the document feeder(s)** you get an overall lower capability. 50 to 200% with 4 reduction and 4 enlargement preset ratios is supported via the document feeder at 600dpi which drops to 50 to 141% with 4 reduction and 3 enlargement preset ratios when using 1,200 dpi.



ARFN5 Finisher

Finishing options are not the highest in its sector but are on par with most people's expectations for a 27ppm copier / printer. The ARFN5 finisher sits outside the central output area of the AR-275 and provides single corner stapling of up to 30 sheet documents. The second / top bin is a simple paper catch tray. At this level of the market most copier-printers have low stapling / finishing options though at least one manufacturer offers a choice of finishers including an automatic booklet maker / saddle-stitch-folder finisher. If you need to make booklets the Sharp AR-275 includes imposition software that automatically lays the pages out for a magazine style booklet (you just have to fold and staple the booklet manually).

COPIER FUNCTION

The control panel on the Sharp AR-275 proved simple to navigate by BERTL analysts. There are clearly marked buttons which you press to send Faxes or Scanned images. There is also a print button which shows the printer settings.



AR-275's control panel

Central to the copier control panel is a 4 line LCD display which shows what you have selected.

Rather than including an LCD touch screen panel for alphanumeric keys, etc) the Sharp AR-275 has a large keypad (see left of image) which is used for fax 'dial memories'.

Missing from the Sharp AR-275 is the capability to store copy jobs into the queue while a copy job is already in progress. This will decrease the productivity of the Sharp within busy office environments. However, keep in mind the fact that advance / next job copy memories are not that common on products at this sector of the market. Also missing is any form of Job Build which would allow users to join document sections at the document feeder or from the copier platen.

BERTL measured the Sharp AR-275 as delivering reasonable, if not outstanding, productivity compared against other units.

Sharp AR-275 Copier Productivity Comparison Table All speeds expressed in copies per minute (CPM)					
	Sharp AR-275	Digital Copier 1	Digital Copier 2	Digital Copier 3	Digital Copier 4
Advertised CPM	27	28	27	25	25
First Page Out - via ADF	9.88 secs	9.97 secs	DATA NOT AVAILABLE		
1 x 5 (1:1) 5 images	15.69	12.35	17.8	10.99	16.21
5 x 5 (1:1) 25 images	23.43	22.07	24.6	17.09	21.18
1 x 5 (1:2) 10 images	11.27	14.04	12.77	5.24	18.02
1 x 5 (2:1) 10 images	11.53	13.38	12.74	6.82	13.27
1 x 5 (2:2) 10 images	10.01	11.73	7.26	5.03	12.17
5 x 5 (2:2) 50 images	13.33	21.20	16	8.83	18.86
1 x 20 (2:2) 40 images	11.41	14.20	7.86	5.58	14.68
Average Copy Speed	13.81	15.57	14.15	8.51	16.34
PPM versus advertised maximum speed	51.15 %	55.60 %	52.40 %	34.04 %	65.36 %

IMAGE QUALITY

The AR-275 delivers both 600x600dpi printing and 1,200 x 1,200 dpi printing which guaranteed that image quality was above average on all jobs.

COPYING: Photo mode image quality was one of the better qualities seen in the marketplace. Text / Photo mode was a good default selection and produced good image quality across most office documents. Photos were reproduced somewhat dark in text / photo mode. Greyscale shades were also reproduced well.

The reproduction of fine lines and general clarity at low point / pitch sizes was very good, with the Sharp AR-275 outperforming many rival units.

PRINTING: Like the copy feature, printed image quality was high across virtually all image types. Digital Photo reproduction was clear and crisp; interpretations of screen colors in shades of grey was good with no banding nor toner clash where different shades met.

PRINTER FUNCTION

Sharp's AR-275 can be upgraded to full network printing capability by adding the optional print controller which includes 10/100BaseT ethernet connections, PCL6, PostScript emulation level 3 plus Sharp's Administration Utility Suite. The printer kit uses a 200 MHZ processor and 32 Mb RAM and prints at 600 x 600dpi or 1,200 x 1,200dpi. The unit provided to BERTL for testing was configured with driver level 4.9.3000.

BERTL had no problems connecting to the Sharp AR-275. The network settings of the device could all be viewed and changed via the main copier control panel. In contrast to a number of competing units tested by BERTL, the Sharp AR-275 delivered a completely glitch free test.

PRINTER PRODUCTIVITY

The table below shows the print speeds on the Sharp AR-275. On standard simplex office work, the Sharp AR-275 proved faster than all comparison units.

Printer Comparison Table (all results recorded in PPM)					
	Sharp AR-275	Digital Copier 1	Digital Copier 2	Digital Copier 3	Digital Copier 4
Advertised Engine Speed	27 ppm	28 ppm	27 ppm	25 ppm	25 ppm
35 page Word 2000 document (simplex)	23.56	21	22.15	22.37	21.73
5 sets of 6 page Word Perfect document (duplex)	12.15	17.04	16.6	10.07	11.04
Network Load Test Mixed Work from Multiple Applications	2.89	4.03	3.39	4.53	2.15
Average Print Speed	12.86	14.02	14.11	18.43	11.57

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PRINTER DRIVER

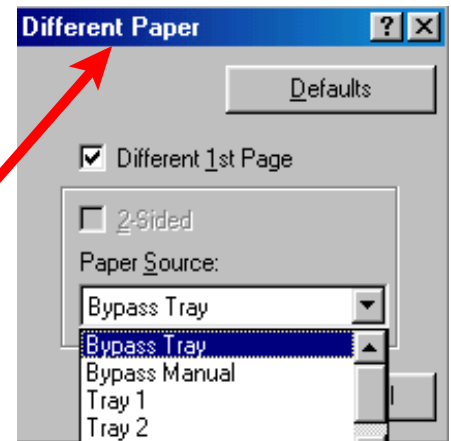
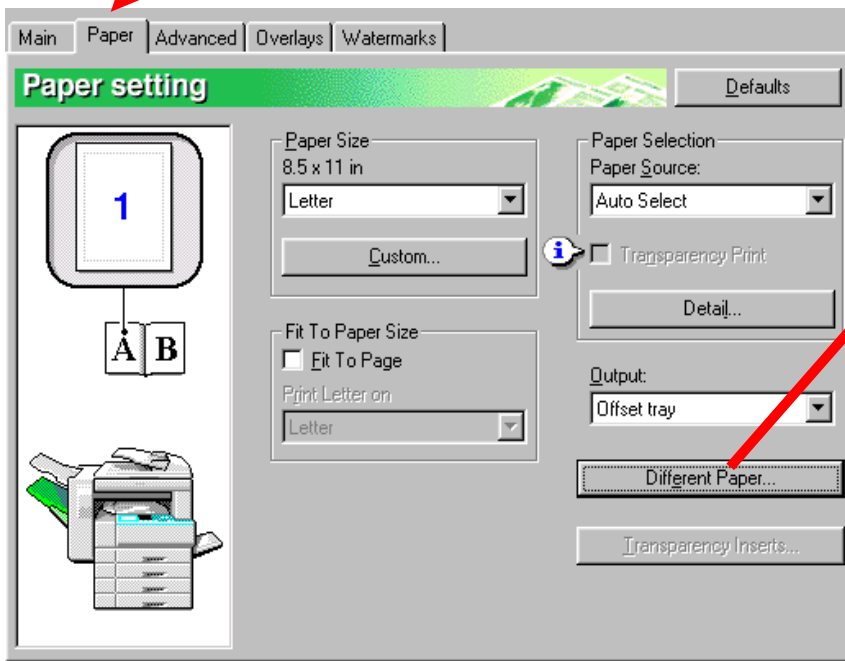
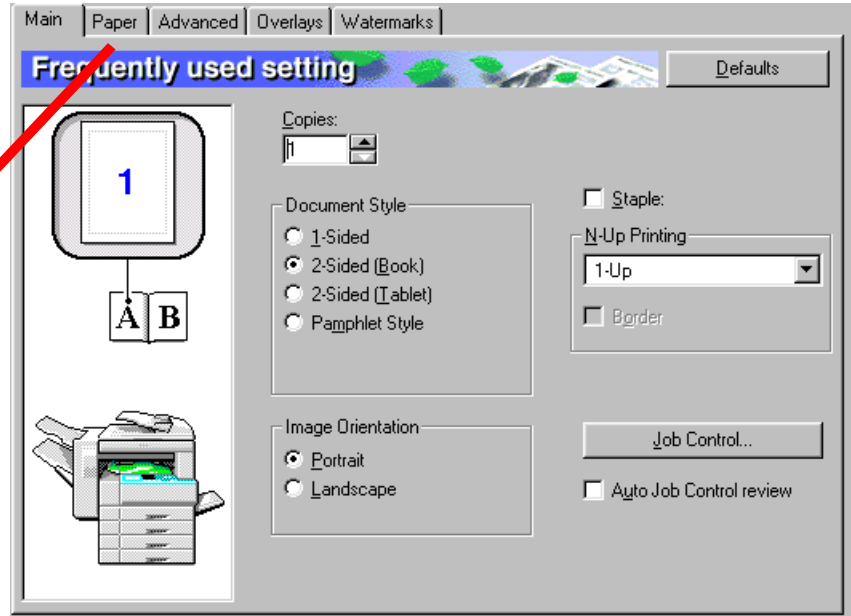
An initial impression was user friendly and simple to follow printer driver. The main tab contained the required basics

The paper tab delivered most of what was needed from a small office printer including the capability to choose from two different paper stocks in one document. These comprised a separate paper source for the 1st page (i.e.: letter headed paper) but did not go as far as some competing units which offer up to four paper options in one document.

- 1) Front Cover
- 2) Second Page
- 3) Other Pages
- 4) Back Cover

Insert and chapter options are also missing from the driver.

Counter balancing minor limitations was the fact that the driver lets you produce a magazine style booklet with all pages in the correct order, ready to fold and staple



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Bandwidth Usage

Bandwidth usage was good overall. On standard word processing documents the Sharp AR-275 was better than virtually all other digital-copier printers. However, on more complex / graphical documents the Sharp AR-275 created larger files than some competing units.

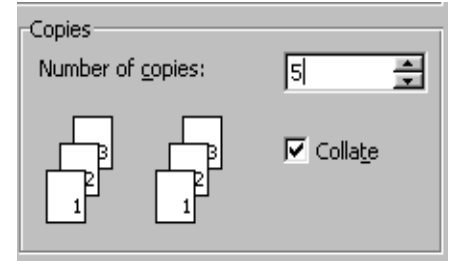
One of the things that BERTL liked best about the Sharp AR-275 was that it is one of the only copier-printers tested that interacts properly with the application which produces the document.

To understand this issue you must consider the fact that there are two print menus used to produce a printed page. In the application (i.e.: Word) there is a print menu which offers basic functionality. For many people this is as far as they go when printing a document. If the printer has been configured to the users preference they can choose all of the basic print commands from this menu.

Having chosen to print multiple sets (i.e.: 5 copies) of a document some applications automatically default to 'collate' mode within the print menu, while others offer you the choice of ticking a box for collation. By clicking on 'Properties' the user can go to a second print menu which contains similar options plus additional capabilities that are configured by the printer manufacturer. Within this second (and deeper) print menu there exists an additional collation or grouping command/option.

Some copier-printers and some network printers have not been programmed to properly interact with the first print menu (the main one presented to the user when printing a document). A common error is the failure to correctly interpret the collation command.

When print driver programmers have not properly integrated the print driver with the first print menu (in the application) the print driver creates a gigantic single data file that contains as many copies of the document as were sent to print.



Microsoft Word
Print Menu - Multicopy Default

This means that instead of getting a 25 page document with a command to print 100 copies in duplex mode, the print driver may erroneously produce a single 2,500 page duplexed document which in turn creates the following problems:

- Massive use of bandwidth
- Documents that are too big for the stapler units to staple
- Multiple documents treated as one document resulting in incorrect finishing
- Page 1 of the second copy is printed on the back of page 25 (as page 26 of 2,500) which makes the document unusable.

Most copier-printers have this limitation and do not accurately recognizes the collation command. In many cases the manufacturer tells users that the application collation option must be disabled and that users should use the automatic collation capability built within their drivers. To use this facility users must remember to select the group printing mode rather than accepting the application / drivers default settings.

This may remove the problem 'if and when' people remember to circumvent the limitation in the printer driver. However, in the real world people work in general office environments with untrained staff, temporary workers and users who can not remember how to disable problems / bugs, or limitations, in the printer driver. The result is increased use of network bandwidth, paper, time and resources which can be a real problem.

Sharp's AR-275 does not have this limitation and operated properly. This makes Sharp's AR-275 one of the only copier-printers on the market to work properly. When we printed multiple sets of a document we always got the same size print file regardless of how we sent the job to print. The effect on the network can be seen in the following table.

Printer Bandwidth Comparison Table All jobs sent to print using default / most likely settings		
	Sharp AR-275	Competing Copier Printer
35 page Word 2000 document	425 Kb	906 Kb
5 Page Acrobat PDF File	9.92 Mb	8.95 Mb
Network Load Test - Multiple Mixed Jobs	19.50 Mb	20.63 Mb
50 copies of 35 Page Word Document	425 Kb	44.23 Mb

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FAX OPTION

Sharp offers the AR-275 with the option of a built in single line fax with up to 33,600bps modem , MH, MR, MMR and JBIG compression are supported. JBIG is a bonus for modern documents which have lots of images. Our tests measured standard text documents as being slower transmission in JBIG than MMR but mixed text and graphics has been faster (this applies to all JBIG faxes tested).

Fax scanning takes place via the standard document feeder or copy glass and you can scan, fax, Ledger or A3 sized faxes plus get the benefit of the duplex capability in the scanner unit.

While the fax option on the Sharp AR-275 offers many useful features it does not offer the same degree of flexibility as found on some competing units. However, it is questionable how much of the additional functionality would actually be required in most offices.

Single Fax Line - Several rival devices include a second line option, (some include a third line option) allowing one line to be used for incoming faxes and the other(s) for outgoing faxes. This can increase the productivity of the fax within a busy workgroup environment.

ISDN / 64k Option - Several devices also offer the capability to increase to add / upgrade the fax modem speed to 64,000 bps using an ISDN connection. ISDN capability can further reduce transmission rates and hence phone costs. It should be noted that faxes will communicate at the rate of the slower unit. Hence, if the ISDN fax is communicating with a fax operating on 14,400 bps, the ISDN will slow down to the speed of the slower modem.

The majority of ISDN fax usage is likely to be seen between inter-company offices, where large volumes of fax traffic (with large phone bills) are being sent to other ISDN systems. This requires the purchase of both ISDN equipment and telephone lines at both ends.

Internet Fax There is no internet fax capability. Some other 25-30 CPM systems have this function.

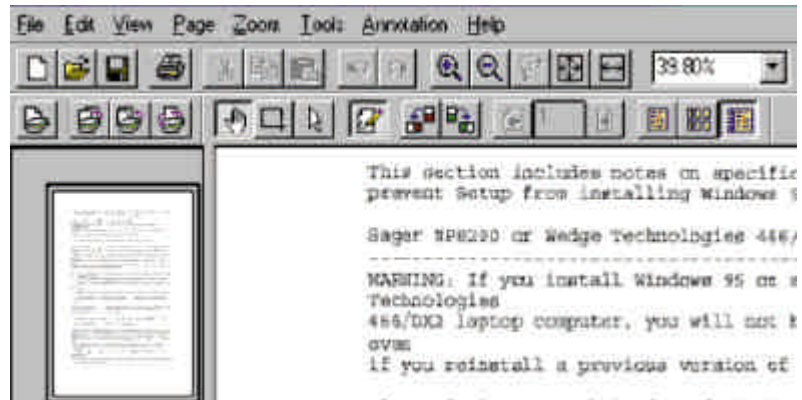
SCANNER BASED OPTIONS (SCANNING & COPYING)

For simplicity we start our evaluation **from the user terminal** where we were presented with the following applications:

Sharpdesk is Sharp's desktop management program for the scanning options. From Sharpdesk we could browse, save or retrieve jobs using the standard Windows filing system. All arriving scan jobs were automatically placed onto the desktop of Sharpdesk as thumbnail images with a linked name and file date. This meant that we did not have to go looking for any documents nor rely upon a coded index system (a common limitation on some competing units) across the network. With Sharpdesk we could instantly see the documents at a glance and to open the document to full size we simply double clicked it. This opened 'Imaging for Windows' which is a standard component within Windows. It is worth noting that some competing products have nothing comparable to Sharpdesk but make you browse to the copier hard drive, retrieve a coded document blind (ie: no thumbnail image), copy it to your PC and then rely upon 'Imaging for Windows' as the sole scanned document utility. Imaging for Windows gave us reasonable control over the document / scan. From Sharpdesk we could simply drag and drop scanned images into OCR, send to email, print or send to other locations or programs. All Sharp scanner users get a choice of two 'Expert Vision™' OCR packages with the installation CD. The standard free OCR package is Expert Vision Lite which delivered pretty much everything that most users will need. Also included with the CD is Expert Vision Pro which requires registration and payment of a small fee but delivers a superior OCR package with more professional capabilities.

Within SharpDesk 2.0, Sharp include 'Composer' which allows you to merge documents that have been produced from different applications. You can renumber / rearrange pages to change and edit the document. At the end of the merge you have a new document which can be saved.

Network Scanner Tool is a macro / programming tool that allows you to configure automated routines for arriving documents. For example: When sending text based documents back to the PC you can have the document arrive, be auto sensed, sent to OCR and sitting waiting as a word processing document on your screen by the time you get back to the terminal. When configured with MicroSoft 'Front Page' and their scan to web program you can have a usable web page on your PC by the time you get back to your PC (example only - not included with Sharp AR-275).



Windows Imaging Tool

Web Based Administration: The Sharp AR-275's Imager Home page allows you to choose pre-set destinations, email addresses and desktops. Authorised users and administrators can browse to the scanner configuration settings and enter, or alter, email addresses and other locations. In practice it was quite easy to set up.

From the copier control panel you have a reasonable amount of control over the scanned documents and it was relatively simple to use. Simple menus let us choose the dpi of the scanned image or select from three large tabs marked: **e-Mail, FTP or Desktop**. Whichever we chose presented the destination in a simple format. On the screen we could see several buttons which contained the name of the location, email or person that we could send to. All we did was press the appropriate button and our scan started and sent. For names that were off-screen we could scroll up and down the lists of names. This scrolling was not ideal but was functional. Names and emails are entered via the PC screen; once entered the details appear within the scanner address buttons in the copier control panel screen.

QWERTY Keypad for email addresses: Unlike Sharp's higher specified / faster copier based MFP's, there is no QWERTY keypad to enter email addresses 'on the fly'.

Productivity Tests (shown to internal finisher - external finisher shown in body of report)			
Output Origin	Job		
Single Copy	First Page Out	9.88	Sec
Copying A4/Letter	5 pages	15.69	CPM
Copying A4/Letter	5 sets of 5 pages	23.43	CPM
Copying 1:2	10 single to 5 double	11.27	CPM
Copying 2:1	5 double to 10 single	11.53	CPM
Copying 2:2	5 double to 5 double	10.01	CPM
Copying 2:2 Short documents	5 sets 5 double to 5 sets 5 double	13.33	CPM
Copying 2:2 Long Documents	20 double to 20 double	11.42	CPM

Printing Tests Using PCL6 Driver			
Printing Multiple Sets in Duplex	5 sets of 6 pages WP 9 Collated at Print Driver	12.15	PPM
Printing Various Networked Jobs	Mixed Network Workload	2.89	PPM
Printing Simplex:	35 Page Word 2000	23.56	PPM

Production Efficiency & Network Usability / Capability	
Copier: Scan Once Print Many	Yes
Copier: Max Jobs Auto Scanned into memory	1
Print: 1 st page from a different tray than rest of page	Yes
Print: Insert dividers for chapters from the driver	No
Print: Insert front and back cover from the driver	No
Print: Offset separate finished documents	Yes with finisher
Print: Send to physical mailbox for later collection	No
Print: Send to virtual mailbox & print with a password	Yes

Remote Control from Client Terminals / Network	
View Toner Levels before printing	% level
Estimate max pages printed from toner	No
View paper levels in trays	% level
Specify problem (paper jam, door open)	Yes
Obtain departmental management figures	Yes
See \ View 3 rd party products	Yes
Check page throughput \ copy totals	Yes
Estimate toner usage	Via Sharp Monitor

Bandwidth \ File Sizes & Send Once Print Many		
Print Job	Best Network Printer	This Printer
Network Load Test	3.64 MB	19.50 Mb
1 copy of 6 pages WP-9	367 Kb	371 Kb
5 copies of 6 pages WP-9 Collated at Application	367 Kb	371 Kb
35 Page Word 2000	811 Kb	425 Kb

Reproduction Quality		
	Printing	Copying
Banding \ Screen Clash	None Visible	None visible
Small Text \ Lines	Good to 4 point text	Good to 4 point text
Color Definition (in grey)	Very Good	Good
Photo Fine detail	Very Good	Good
General impression	Very Good	Good