

An Analysis of Laser Toner Savings Using the PretonSaver Enterprise™ Software.

Performed by bradham 360 Limited and Industry Analysts, Inc.

September 2010

Purpose of this Report

Preton Ltd, a software manufacturer, has developed a software solution called **PretonSaver™**, which offers users of Printers and Multifunctional Printers the ability to drastically reduce toner and ink use in a Microsoft Windows print environment, without compromising perceived print quality. PretonSaver™ uses proprietary pixel positioning technology to achieve these savings.

To validate these savings, Preton Ltd engaged the services of an independent Industry Consultancy; bradham 360 Ltd, and the Technical Services Division of Industry Analysts, Inc., an independent market research and testing company, to analyze the difference in laser toner usage using the printer manufacturer's print driver in default mode, and printing the same document using the printer manufacturer's print driver with PretonSaver™ software.

The results of this test are presented in this report.

METHODOLOGY

For the purposes of these tests, a brand new Hewlett-Packard LaserJet Enterprise P3015 was purchased anonymously from a local channel provider, along with multiple toner cartridges.

Testing was conducted in a secure, controlled environment. Temperature and humidity levels were monitored. All print jobs were sent to the printer using Microsoft Word on a PC equipped with Microsoft Windows XP Professional. All output was printed on 20lb. (75 gm), 96 brightness rating, Hammermill Fore MP paper.

Toner usage was measured by weighing the toner cartridge before and after a predetermined number of pages were printed and attributing the weight difference to the amount of toner consumed by those prints. The test was conducted using a one-page Word document supplied by Preton Ltd, which is reproduced in the Appendix of this report.

This Word document was designed with text, graphics and a photographic image, making it possible to judge the print quality of the different elements. PretonSaver™ enables different savings levels to be set for each element of a printed document, text, graphics and images, to achieve maximum savings and quality.

The tests were performed at the default PretonSaver™ settings, which provided no noticeable print quality degradation. (Saving levels - Text: 35%, Graphics and image: 20%) Additional tests were also performed at a higher savings setting. It was determined that printing text at a 70% savings and graphics and image at a 50% savings setting was the best way to achieve maximum savings while still maintaining acceptable readability.

The testing protocol used was to print 1,500 pages using Hewlett-Packard's Universal Print Driver with the driver's default settings, another 1,500 pages using the PretonSaver™ software set to a 70% savings on text and 50% savings on graphics and image, and a final test of 1,500 pages with PretonSaver™ set at its default settings.

The cartridge was weighed after printing 500 pages so that any cartridge start-up toner usage did not skew the results. After every 500 pages during the test run, the cartridge was removed and weighed on a precision laboratory scale and the results were recorded. These results are shown tabulated and graphically, later in this report.

This procedure was repeated three times, each time with a new cartridge, and the results averaged to determine the percentage savings in toner usage that a user could reasonably expect when using the PretonSaver™ software.

All testing was performed at the Industry Analysts Technical Services Division in Fairfield, NJ, USA.

FINDINGS

+ Default Settings Test

Two similar tests were conducted: One using PretonSaver™ (set to default settings, configured to 35% Text savings and 20% graphic and image savings) and one without PretonSaver™. For each test, 4,500 pages were printed on a Hewlett-Packard LaserJet Enterprise P3015 printer using HP's Universal Printer Driver.

Toner **savings of 26.3% was achieved** using PretonSaver™.

+ Enhanced Savings Test

An additional two tests were conducted: One using PretonSaver™ (configured to 70% Text savings, 50% graphic and image savings) and one without PretonSaver™. For each test, 4,500 pages were printed on a Hewlett-Packard LaserJet Enterprise P3015 printer using HP's Universal Printer Driver.

Toner **savings of 68.8% was achieved** using PretonSaver™.

- + In corporate environments, **savings of 25% - 40% should be expected** depending on the document content and usage type:

Normal high quality printing: software's default settings

Documents for internal use: higher savings rate

- + As a result of these tests, bradham 360 Ltd and Industry Analysts Technical Services Division feel comfortable in verifying the validity of Preton Ltd's claim of up to a 70% savings in toner usage when using PretonSaver™.

- + It should be noted that individual toner savings will vary. It is unlikely that any user will print all of their output using PretonSaver™ set to the highest toner savings possible. (PretonSaver™ allows the user to select different saving levels, and an easily accessible button allows users to quickly reset the software back to default settings at any time.)

"After extensive investigation into products of this nature on the market, we can comfortably state that in our opinion PretonSaver™ is a unique product that lives up to its claims of cutting costs of supplies for its customers and is the best fit solution available today"

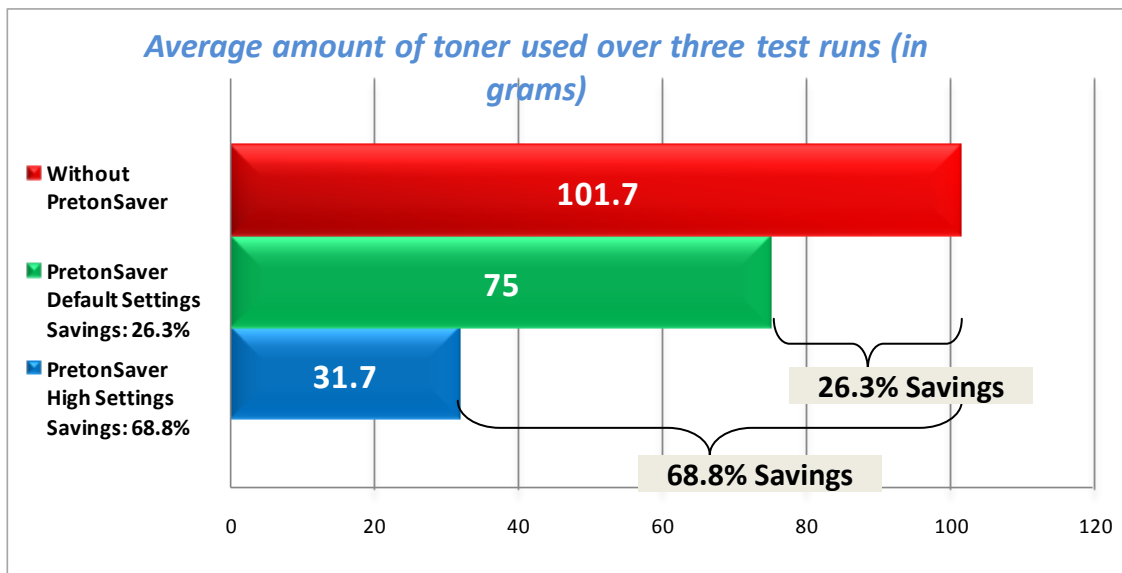
Malcolm Hancock – Director – bradham 360 Ltd

SUMMARY TEST RESULTS

	Toner Used
HP Driver (Default Settings)	
Cartridge #1	106.0 grams
Cartridge #2	94.0 grams
Cartridge #3	105.0 grams
Total Toner used in 3 runs	305.0 grams
Average Toner used in 3 runs	101.7 grams

HP Driver (Default Settings) with PretonSaver™ Settings - Text: 70%, Graphics & Image: 50%	
Cartridge #1	35.0 grams
Cartridge #2	30.0 grams
Cartridge #3	30.0 grams
Total Toner used in 3 runs	95.0 grams
Average Toner used in 3 runs	31.7 grams

HP Driver (Default Settings) with PretonSaver™ Default Settings - Text: 35%, Graphics & Image: 20%	
Cartridge #1	79.0 grams
Cartridge #2	73.0 grams
Cartridge #3	73.0 grams
Total Toner used in 3 runs	225.0 grams
Average Toner used in 3 runs	75.0 grams



DETAILED TEST RESULTS (1)

CARTRIDGE # 1

HP Driver (Default Settings)

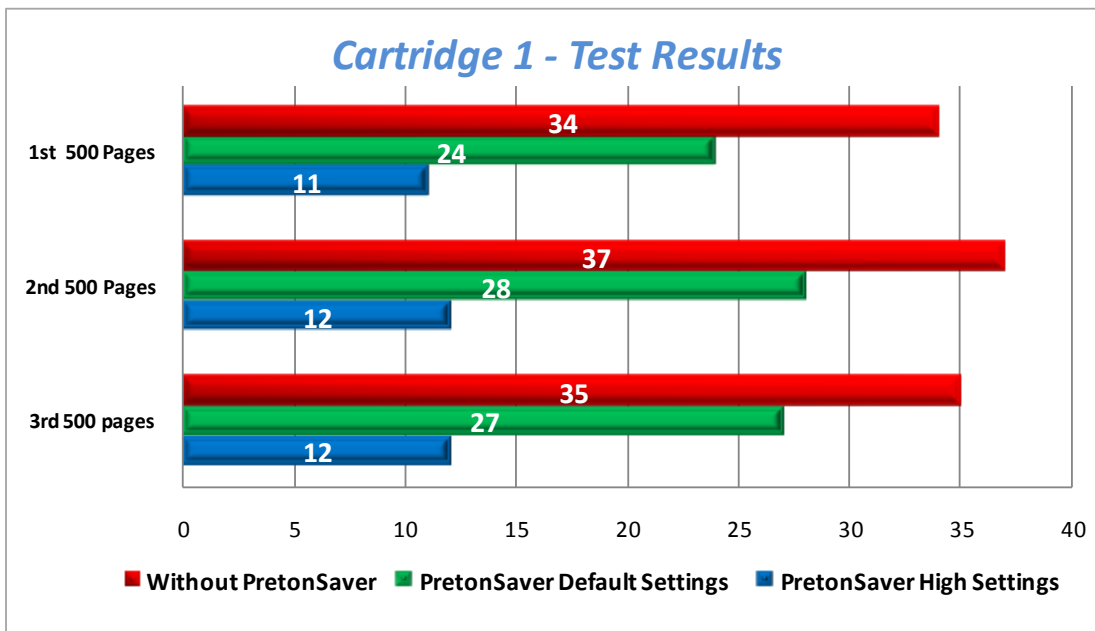
	Start Weight (grams)	End Weight (grams)	Toner Used (grams)
First 500 Pages	1220 g	1186 g	34 g
Second 500 Pages	1186 g	1149 g	37 g
Third 500 pages	1149 g	1114 g	35 g
Total Toner Used (grams) for 1,500 page run = 106 grams			

HP Driver (Default Settings) with PretonSaver™ (Saving Levels: Text, 70%; Graphics & Image, 50%)

	Start Weight (grams)	End Weight (grams)	Toner Used (grams)
First 500 Pages	1114 g	1103 g	11 g
Second 500 Pages	1103 g	1091 g	12 g
Third 500 pages	1091 g	1079 g	12 g
Total Toner Used (grams) for 1,500 page run = 35 grams			

HP Driver (Default Settings) with PretonSaver™ (Default Savings: Text, 35%; Graphics & Image, 20%)

	Start Weight (grams)	End Weight (grams)	Toner Used (grams)
First 500 Pages	1079 g	1055 g	24 g
Second 500 Pages	1055 g	1027 g	28 g
Third 500 pages	1027 g	1000 g	27 g
Total Toner Used (grams) for 1,500 page run = 79 grams			



DETAILED TEST RESULTS (2)

CARTRIDGE # 2

HP Driver (Default Settings)

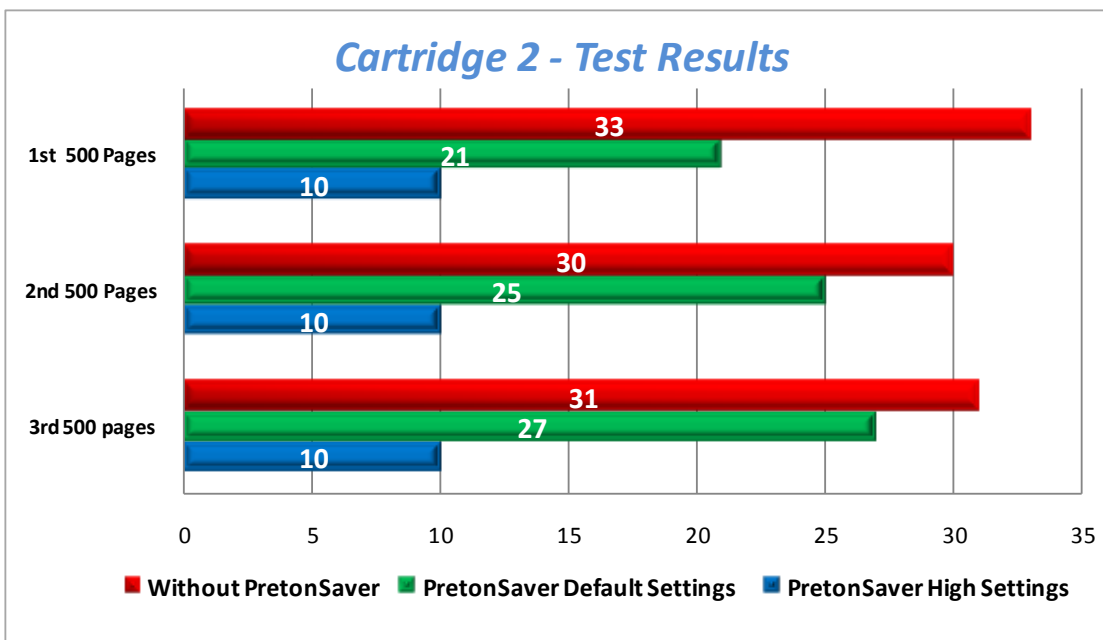
	Start Weight (grams)	End Weight (grams)	Toner Used (grams)
First 500 Pages	1211 g	1178 g	33 g
Second 500 Pages	1178 g	1148 g	30 g
Third 500 pages	1148 g	1117 g	31 g
Total Toner Used (grams) for 1,500 page run = 94 g			

HP Driver (Default Settings) with PretonSaver™ (Saving Levels: Text, 70%; Graphics & Image, 50%)

	Start Weight (grams)	End Weight (grams)	Toner Used (grams)
First 500 Pages	1117 g	1107 g	10 g
Second 500 Pages	1107 g	1097 g	10 g
Third 500 pages	1097 g	1087 g	10 g
Total Toner Used (grams) for 1,500 page run = 30 grams			

HP Driver (Default Settings) with PretonSaver™ (Default Savings: Text, 35%; Graphics & Image, 20%)

	Start Weight (grams)	End Weight (grams)	Toner Used (grams)
First 500 Pages	1087 g	1066 g	21 g
Second 500 Pages	1066 g	1041 g	25 g
Third 500 pages	1041 g	1014 g	27 g
Total Toner Used (grams) for 1,500 page run = 73 grams			



DETAILED TEST RESULTS (3)

CARTRIDGE # 3

HP Driver (Default Settings)

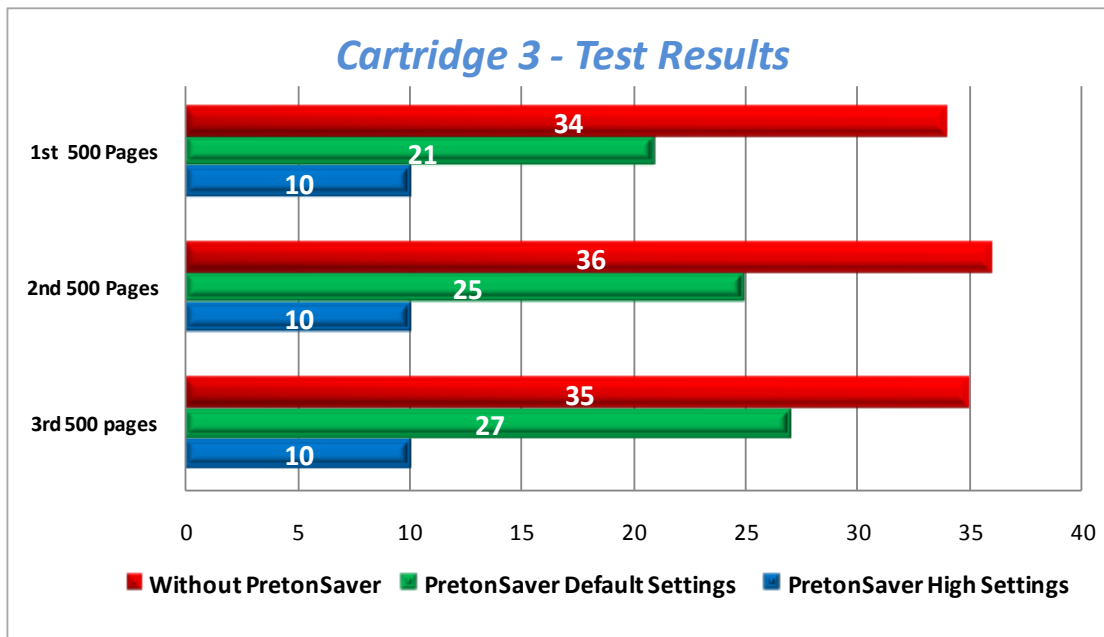
Run	Start Weight (grams)	End Weight (grams)	Toner Used (grams)
First 500 Pages	1210 g	1176 g	34 g
Second 500 Pages	1176 g	1140 g	36 g
Third 500 pages	1140 g	1115 g	35 g
Total Toner Used (grams) for 1,500 page run = 105 grams			

HP Driver (Default Settings) with PretonSaver™ (Saving Levels: Text, 70%; Graphics & Image, 50%)

Run	Start Weight (grams)	End Weight (grams)	Toner Used (grams)
First 500 Pages	1115 g	1105 g	10 g
Second 500 Pages	1105 g	1095 g	10 g
Third 500 pages	1095 g	1085 g	10 g
Total Toner Used (grams) for 1,500 page run = 30 grams			

HP Driver (Default Settings) with PretonSaver™ (Default Savings: Text, 35%; Graphics & Image, 20%)

Run	Start Weight (grams)	End Weight (grams)	Toner Used (grams)
First 500 Pages	1085 g	1064 g	21 g
Second 500 Pages	1064 g	1039 g	25 g
Third 500 pages	1039 g	1012 g	27 g
Total Toner Used (grams) for 1,500 page run = 73 grams			



About bradham 360 Limited

bradham360 is a best in class provider of strategic advice and market intelligence to users and providers of hardware, software and services related to the print and imaging markets in the Europe, Middle East and Africa region. Its strategic alliances and partnerships have recently expanded its scope to the US Market. bradham360's Directors and Associates' years of industry experience bring a level of knowledge and expertise unrivalled in other print and imaging market research organisations. bradham360 provides advisory services, strategic consulting, thought leadership, industry expertise and insight to the vendor, channel and end-user communities.

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About Industry Analysts, Inc.

Industry Analysts, Inc. (IA, Inc.) is a market research and product testing firm specializing in the office automation industry. Founded in 1974, IA, Inc. provides “real-world” third party testing and evaluations, market research and focus groups from our offices in Fairfield, New Jersey, and Rochester, New York.

IA, Inc. is a veteran member of the Business Technology Association. Our staff regularly attend industry trade shows and analyst meetings. The firm has offered a unique blend of product testing, research and training since 1974. Senior Technical Director Ted Needleman has written more than 4,000 product reviews, articles and columns as well as two books.

Industry Analysts, Inc. does not believe in subjective awards based on arbitrary findings. Because of this, Industry Analysts is one of the few testing organizations that do not confuse test results with the need to market certificates. Industry Analysts understands the need for unbiased, real-world test data. Because the firm's revenue is not dependent on vendors buying awards, Industry Analysts can confidently state that our test results are just that—test results, which can be replicated anywhere. To visit Industry Analysts' testing laboratory, please call for an appointment.

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About Preton Ltd.

Preton Ltd. is a leading provider of print management and toner optimization solutions. Founded in 2005 by a team of engineering and business professionals with almost 40 years of successful software experience, Preton is headquartered in Tel Aviv, Israel.

Preton's patent-pending technology, Pixel Optimizer™ incorporates state of the art mathematical algorithms to identify and delete wasteful pixels during printing, offering substantial savings on toner and ink.

Preton's award-winning products PretonSaver Enterprise™, PretonSaver Standard™, PretonSaver Premium™, and PretonSaver Home™ offer revolutionary savings of up to 70% on printing costs. The product is sold in four continents through its partner network and serves hundreds of thousands of users every day.

Preton Ltd. is committed to the highest standards of software development and to providing the best possible software solution to its customers. The company is in the process of developing additional products that will help companies to further control and manage their print resources.

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Budapest Street Lighting Case Study



Budapest, the capital city of Hungary, has a population of over 1.8 million. In the recent years, the city is undergoing through several renovation projects including public lighting infrastructure. Improvement of public lighting includes replacement of old mercury lamps to new and more efficient HPS lamps and the installation of energy saving solutions for street lighting. The project is managed by BDK Kft., a joint venture between ELMU (Budapest Power Company) and the city municipality. BDK maintains about 150,000 (out of 260,000) street lights in Budapest.

In 2003, Power Electronics Systems (PES) and Bricks&Bits Hungary (PES' distributor) approached BDK with the proposal to incorporate PES Lighting Energy Controllers to save energy in Budapest street lighting installations. After thorough evaluation of PES technology in ELMU laboratories, BDK agreed to conduct an extensive field test project at Arpad bridge (981m) that connects two parts of the city across the Danube river.



Fig 1. Arpad Bridge

One of the important requirements in this project was to provide a flexible saving scheme for adjusting lighting intensity to the traffic density. For this purpose, LEC B Super for HPS lamps had been selected. The

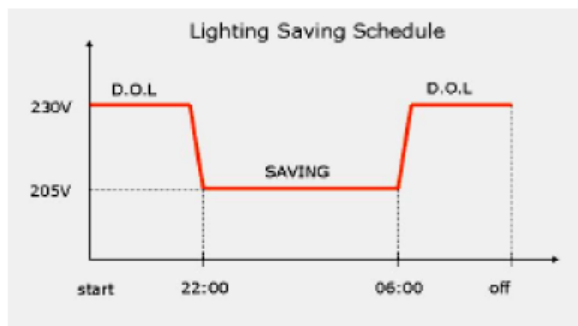


Fig 2. Saving Schedule

The devices were programmed to work at the maximum saving mode between inactive traffic hours (10:00PM - 06:00AM). The graph below shows the saving schedule. During the test, BDK measured energy consumption and lighting intensity in saving and D.O.L (Direct on Line) modes. Results showed saving while all measurements of lighting intensity along the bridge were within the required range.

The results of this test showed 27% reduction in electricity consumption. All measurements of lighting intensity along the bridge were within the required range.