Report

Competitive set selection and performance testing methodology: HP LaserJet Pro M402, 403n/dn series

HP LaserJet Fall 2015 New Product Claims

This document describes HP test methodology as well as definitions of the competitive sets for the HP LaserJet Pro M402/403 that was publically introduced on September 10, 2015

Competitive Set Definition

Performance data shown is based on leading competitors as well as the HP predecessor product. Leading competitors for each category of products were defined based on the top unit shipment data for products currently in the market that started shipping WW on or after April 2012. The top 3 shipment vendors* besides HP were selected: Kyocera, Brother, and Samsung.

HP further refined the products within the top 3 shipment vendors: For each of the top 3 the highest volume product from the most recent quarter was selected. If there was a faster product from that vendor within 25% of the highest volume product it was selected instead. If there was a replacement product for the top selected product it was selected instead.

All product testing was completed in August, 2015.

*Top 3 shipment vendors:
Quarter=2014Q2-2015Q1
Product Detail=Monochrome Laser
Product Category=Printer
Format=A4
Letter Mono Speed=36-44ppm
Source: IDC WW Quarterly HCP Tracker 2015Q2 Final Historical Release

Performance test methodology

The exact speed varies depending on the system configuration, software applications, driver and document complexity. Performance was tested on identical system configurations on dedicated network 1000Base-T EEE (energy efficient Ethernet) switches connected to a low traffic network uplink. Identical software applications and revisions were used with the driver installed on a clean system image, using the test files defined by the test standards to ensure consistent complexity across all devices. Testing was done using letter size paper (8.5”x11”).

The following defines the method used to test each performance metric

- **Ready mode FPOT (First Page Out Time)**
  - Measured using ISO/IEC 17629-2014: “Method for measuring first page out time of a digital printing device”
- **Sleep mode FPOT (First Page Out Time)**
  - Measured using pdf file from ISO/IEC 17629-2014: “Method for measuring first page out time of a digital printing device” at 60 minutes from entering sleep.
- **Print PPM (Pages Per Minute) and Duplex IPM (Images Per Minute)**
  - Measured using ISO/IEC 24734-2009: “Method for measuring digital printing productivity”
- **Typical Electricity Consumption (TEC)**

  –Based on HP testing using the ENERGY STAR® program’s Typical Electricity Consumption (TEC) method or as reported in energystar.gov as of July 2015. Actual results may vary. HP testing is based on using the default Sleep Timer setting for all products. Default Sleep Timer setting is 5 minutes for the LaserJet M402 series. Increasing the Sleep Timer setting longer than the default value can increase TEC.

- **TEC Watt hours per page**
  - TEC W hrs/week divided by the number of pages per week printed in the TEC test. The number of pages printed is determined by the TEC test standard for the device speed.
  - Formula: TEC W hrs/page = TEC(kWhrs)*1000/(pages_per_wk) – or - TEC(Whrs)/(pages_per_wk).
- **Volume (size)**
  - The volume of the product is measured using a bounding rectangular cuboid in a typical operating condition.

Test results based on competitive set selection and testing methodology described above:

	Print Performance (First page out time, first page to copy from sleep mode)				Duplex efficiency	
Product comparisons	**Ready FPOT (First Page Out Time in seconds)**	FPOT improvement of new HP device vs. predecessor and leading competitors	**Sleep FPOT (First Page Out Time from sleep in seconds)**	Sleep FPOT improvement of new HP device vs. predecessor and leading competitors	**Printing duplex efficiency measured by IPM (Images per minute)**	Duplex improvement of new HP device vs. predecessor and leading competitors
HP LaserJet Pro M402-M403 n/dn series	**5.6**		**8**		**32**	
Predecessor Device: HP LaserJet M401	**8**	30%	**8**	0%	**16**	100%
Leading competitors based on IDC market share data						
Kyocera ECOSYS P2135dn	8.94	37%	32.11	75%	19.8	62%
Brother HL-5450DN	11.16	50%	12	33%	20.6	55%
Samsung ProXpress M4020ND	7.66	27%	16.55	52%	18.3	75%

	Volume (Size)		TEC (Typical electricity Consumption) Energy Star metric		TEC per page	
Product comparisons	**Volume (Size)**	Percentage smaller new HP device vs. predecessor and leading competitors	**Energy Star TEC rating**	Percentage of energy saved of new HP device vs. predecessor and leading competitors	**TEC Watt hours per page**	Percentage of energy saved of new HP device vs. predecessor and leading competitors
HP LaserJet Pro M402-M403 n/dn series	**29.4**		**1.540**		**0.385**	
Predecessor Device: HP LaserJet M401	35.9	18%			**0.459**	16%
Leading competitors based on IDC market share data						
Kyocera ECOSYS P2135dn	39.47	26%	2.07	26%	0.616	38%
Brother HL-5450DN	34.68	15%	2.481	38%	0.620	38%
Samsung ProXpress M4020ND	35.00	16%	1.9	19%	0.440	12%

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4AA6-1291ENW, September 2015, Rev.1