

Report

Competitive set selection and performance testing methodology: HP Color LaserJet Pro MFP M277



HP LaserJet Spring 2015 New Product Claims

This document describes HP test methodology as well as definitions of the competitive sets for the HP Color LaserJet Pro M277 that was publically introduced on March 10, 2015

Competitive Set Definition

Performance data shown is based on leading competitors and the predecessor device. 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 on or after January 2012. The relative unit shipments were compared using the average of the most recent 4 quarters of IDC data (Q1-Q4 2014) from the IDC Worldwide Quarterly Hardcopy Peripherals Tracker. If a product has started shipping recently, the predecessor product average units was included in the average unit shipment calculation. All derivatives of a platform were grouped together as one for comparison. If multiple competitive products from the same brand appeared in the top three, the lead product was selected and the next competitor was added to the set to ensure three different competitor companies were part of each competitive set. Relevancy was further refined by looking at a speed range for the competitive set (+/- 10% of the HP printer speed), single-function or multi-function, color or black-and-white, page size (A3 or A4) and technology consistency (laser vs. laser). All product testing was completed in January, 2015.

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 and Sleep mode FPOT (First Page Out Time)

– Measured using ISO/IEC 17629-2014: “Method for measuring first page out time of a digital printing device”

• Ready mode FCOT (First Copy Out Time) & Copy ppm (pages per minute)

– Measured using ISO/IEC 29183-2010: “Method for measuring digital copying productivity of a single one-sided original”

• Sleep mode FCOT (First Copy Out Time)

– Because there is no standard for measurement of FCOT from sleep mode, results are based on HP internal testing modeled after the ISO/IEC 17629 process for testing sleep FPOT.

Test Procedure

1. Determine time required for the device to reach the lowest power level.
2. Place original on the flatbed.
3. Set the default color mode as Mono or Color.
4. Wait for the time required for the device to reach the lowest power level.
5. Wake the device by touching the control panel or button.
6. If there is a start button on the home screen or physical key, press it as soon as it is enabled. Otherwise enter the copy app and start the job.
7. Measure time from waking device until page in bin.
8. Repeat the measurement a second time.
9. Check consistency to make sure it is within 5%. If not, run a third measurement and average all 3 results.
10. Average all measurements taken and report as Sleep FCOT.

• Print PPM (Pages Per Minute) and Duplex IPM (Images Per Minute)

– Measured using ISO/IEC 24734-2009: “Method for measuring digital printing productivity”

• Copy Duplex IPM

– Measured using ISO/IEC 24375-2009: “Method for measuring digital copying productivity”

• Typical Energy 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 January 2015. Actual results may vary.

• Sound level (acoustics)

– Based on HP testing and measured using ISO 9296 and ISO 7779 using a simplex (single-sided) print. Actual results may vary.

• 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:

| Copy Performance (First page out time, first page to copy from sleep mode) | | | | | | | | |
|--|--|--|--|---|---|--|---|---|
| Product name (HP new product, prior generation product, and top three leading competitors) | Monochrome Ready FPOT (First Page Out Time in seconds) | HP Leadership for Monochrome FPOT against leading competitors and prior generation product | Color printing Ready FPOT (First Page Out Time in seconds) | HP Leadership for color FPOT against leading competitors and prior generation product | Monochrome Sleep FPOT (First Page Out Time from sleep in seconds) | HP Leadership for monochrome Sleep FPOT against leading competitors and prior generation product | Color printing Sleep FPOT (First Page Out Time from sleep in seconds) | HP Leadership for color Sleep FPOT against leading competitors and prior generation product |
| HP Color LaserJet Pro MFP M277 | 11.5 | | 13 | | 13 | | 14 | |
| Prior Gen: HP LaserJet color MFP M276 | 18.5 | 38% | 19 | 32% | 25 | 48% | 25 | 44% |
| Brother MFC-9130cw | 15.5 | 26% | 16.09 | 19% | 24.6 | 47% | 24.85 | 44% |
| Canon imageClass MF8580Cdw | 16.36 | 30% | 16.43 | 21% | 23.34 | 44% | 23.47 | 40% |
| Samsung Multifunction Xpress C1860FW | 15.74 | 27% | 18.09 | 28% | 25.98 | 50% | 25.75 | 46% |

| Product name (HP new product, prior generation product, and top three leading competitors) | Duplex efficiency | | | Volume (Size) | | TEC (Typical electricity Consumption) | |
|--|---|--|---|---------------|---|---------------------------------------|---|
| | Monochrome printing duplex efficiency measured by IPM (Images per minute) | Color printing duplex efficiency measured by IPM (Images per minute) | HP Leadership for Duplex efficiency against leading competitors | Volume (Size) | Percentage smaller HP device is than leading competition and prior generation product | Typical Electricity Consumption | Percentage of energy saved on HP device vs. leading competitors |
| HP Color LaserJet Pro MFP M277dn | 11 | 11 | | 51.9 | | 0.84 | |
| Prior Gen: HP LaserJet color MFP M276 | | | | 88.48174 | 41% | 0.99 | 15% |
| Brother MFC-9130cw | n/a | n/a | n/a | 80.70613 | 36% | 1.2 | 30% |
| Canon imageClass MF8580Cdw | 10.5 | 10.5 | 5% | 100.5646 | 48% | 0.9 | 7% |
| Samsung Multifunction Xpress C1860FW | n/a | n/a | n/a | 79.9 | 35% | 1.5 | 44% |

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