

Technical Disclosure Commons

Defensive Publications Series

October 2019

AUTOMATIC MICRO-RECIRCULATION CALIBRATION

HP INC

Follow this and additional works at: https://www.tdcommons.org/dpubs_series

Recommended Citation

INC, HP, "AUTOMATIC MICRO-RECIRCULATION CALIBRATION", Technical Disclosure Commons, (October 29, 2019)

https://www.tdcommons.org/dpubs_series/2610

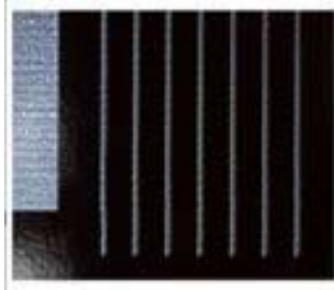


This work is licensed under a [Creative Commons Attribution 4.0 License](https://creativecommons.org/licenses/by/4.0/).

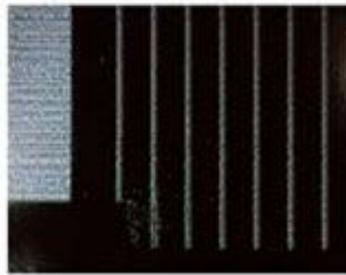
This Article is brought to you for free and open access by Technical Disclosure Commons. It has been accepted for inclusion in Defensive Publications Series by an authorized administrator of Technical Disclosure Commons.

Automatic Micro-recirculation Calibration

Decap is a known issue across the printing industry. When a nozzle has not been exercised for a period of time, the water present in the ink near the nozzle might evaporate thus leaving denser ink in the nozzle. Once the nozzle needs to fire a drop, this drop will be more difficult to eject and cause image quality defects.



Good decap performance. The portion of the line printed without refresh is present.

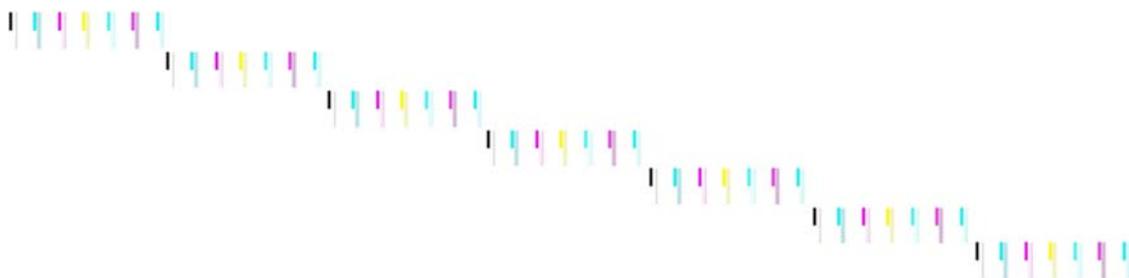


Bad decap performance. The portion of the line printed without refresh is not present.

Micro-recirculation is very effective to solve decap. It consists in connecting the nozzle to a channel and a secondary resistor that will move ink through the channel when the nozzle is not exercised thus keeping the ink near the nozzle always fresh.

How often micro-recirculation is used and how it is used depend on the ink, the printhead and the printer itself and small changes in any of the parts might affect micro-recirculation effectiveness.

The proposed solution consists in an automatic diagnostic to calibrate the micro-recirculation settings as it is needed. The automatic diagnostic, available in the printer menu, will print several patterns containing lines at different positions of the scan axis. A portion of the line will have been previously refreshed while the other portion will not.



These patterns will be read with a sensor present in the carriage and translate

the data to good/bad decap performance.

Depending on the result, the algorithm will print again the pattern using different micro-recirculation settings until the decap performance is acceptable along the scan axis.

A first step solution could be also a non-automatic calibration, similar to the Printhead Alignment Plot, that would allow the user to manually modify the micro-recirculation settings based on the plot printed.

With this solution the user is able to always keep micro-recirculation correctly calibrated and avoid undesired image quality defects.

Disclosed by Alexandre Rodriguez and Diana Canto Estany, HP Inc.