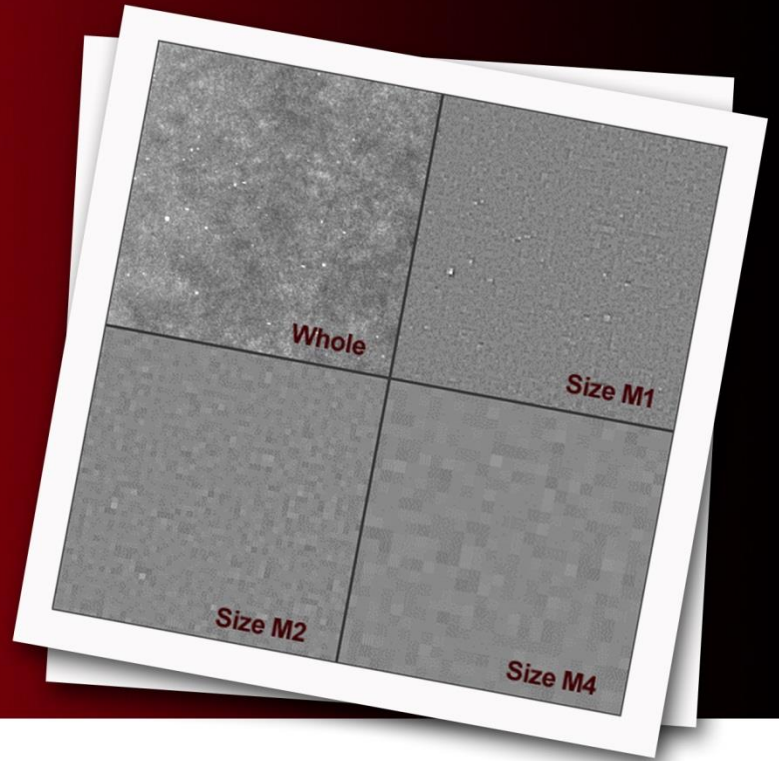




**OpTest Equipment Inc.**

## ***Print Mottle Analyzer***

*OpTest Print Mottle Analyzer (PMA) revolutionizes the measurement of print mottle! Using advanced wavelet algorithms, the PMA quickly quantifies print non-uniformity over a range of mottle sizes from 0.5 mm to 16 mm. Comparisons with reference samples are performed automatically providing the user with a rapid determination of print mottle intensity and size scale differences.*



***The OpTest PMA uses a wavelet-based technique that partitions print mottle into its size components.***

Print mottle is typically determined by visual ranking. These procedures are time-consuming and expensive. They are also difficult to carry out beyond a small number of samples. The OpTest Print Mottle Analyzer, PMA, offers a fast, repeatable, objective instrumental determination of print mottle that emulates human perception.

### **ADVANTAGES:**

- ***Comparison with user selected reference samples of solid prints***
- ***Windows™ based, bitmap storage and retrieval, Excel™ ready data and print-outs***
- ***Faster, more precise and more objective compared to visual testing***
- ***High correlation with visual assessment***
- ***Factory calibrated & certified industrial scanner***

# Print Mottle Analyzer

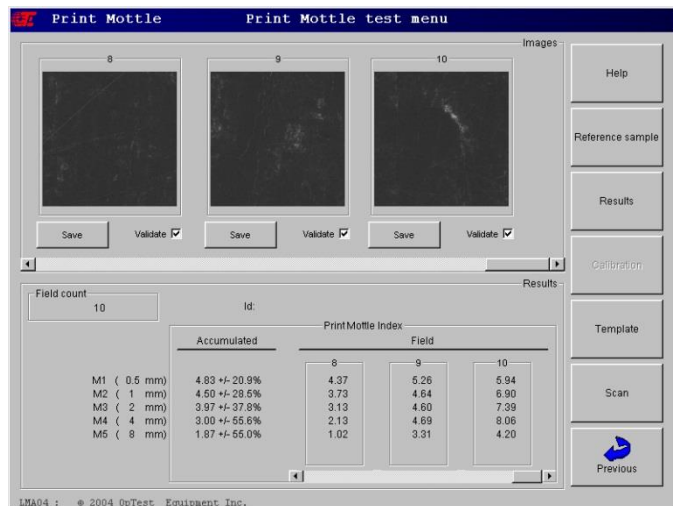
“The OpTest Print Mottle Analyzer, combined with the Paper PerFect Formation Analyzer, allows papermakers to optimize quality more efficiently, saving time and money!”

## PRINCIPLES

A mathematical technique for frequential analysis, called ‘wavelets’, appeared in the 1980s and is now widely used. Researchers in signal processing have developed wavelet methods for several applications, such as filters for de-noising old musical records, compression of image or video data for file transmission and storage.

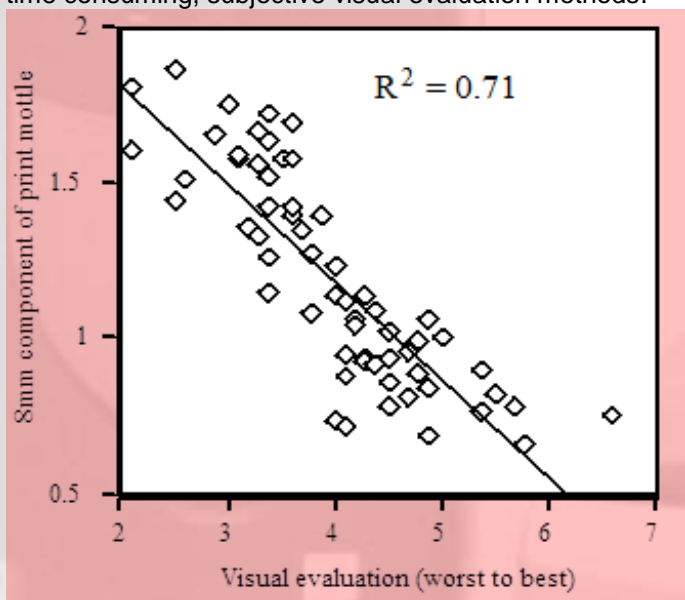
The PMA, consists of standalone software and a high quality colour document scanner. The PMA measures solid print areas up to 100 mm x 100 mm. It calculates the Print Mottle Intensities for 6 size ranges, or components, ranging from 0.5 to 16 mm.

Component	M1	M2	M3	M4	M5	M6
Scale (mm)	0.5	1	2	4	8	16



Print Mottle Analyzer Test Menu

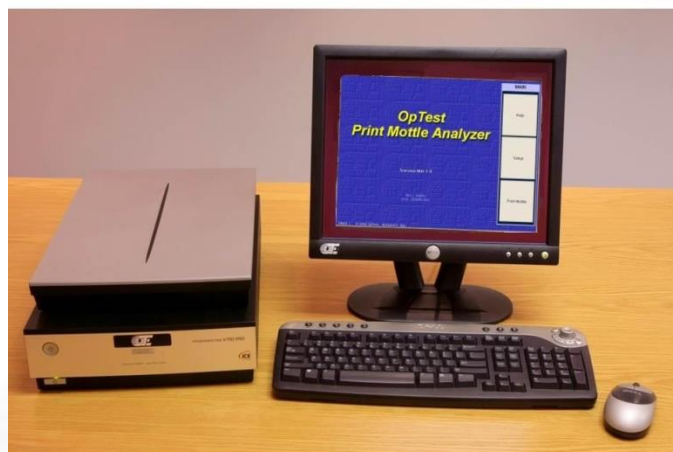
Published reports have demonstrated excellent agreement between visual panel rankings and the PMA Indices. The PMA was found to be faster and more precise compared to visual ranking techniques. Therefore the PMA can advantageously replace these time consuming, subjective visual evaluation methods.



Significant correlation between the M5 PMA Mottle Intensity and a visual panel assessment (Bernie et al, Paper Physics Conf., Victoria, BC, Canada, Sept. 03)

## ACKNOWLEDGEMENT

The wavelet algorithm was developed by Dr. Jean-Philippe Bernié of Ondimagine Inc.



Print Mottle Analyzer

## SYSTEM REQUIREMENTS

- Computer with minimum of two USB 2.0 ports, CD drive, Microsoft Windows™ 7 Pro or higher, Microsoft Office™ (2007 or higher).

## OPTIONS

- Certified computer with Excel™, Active X and turn-key ready.



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