OpTest Equipment Inc.

Large Sheet In-speck-tor – A4 Visible Dirt

Analysis

The Large Sheet In-speck-tor - A4 (LSI-A4) measures dirt specks in pulp and paper according to ISO/CEN 5350-4, TAPPI T563 & Paptac D35 standard methods. The LSI measures the number, size and equivalent black area (EBA) of visible dirt specks far more precisely than the human eye. Operating on flat and smooth sheets. Brightness with ISO >40%. it measures dirt specks on sheets in a single scan. The LSI provides the information you need to assure a high quality product.



A certified sheet scanner:

- High precision industrial scanner with <u>serviceable</u> <u>parts</u>, neutral backing, and precise mechanics compared to consumer-type scanners
- Certified and calibrated at OpTest, it scans an A4 sheet in 30 s, or less, at an optical resolution 16 µm/pixel (1600 dots per inch)

ADVANTAGES:

- No need to precisely place the sample
- Rapid pre-scan with "click and drag" sheet boundary location for both round and rectangular sheets
- Retrievable "sheet boundary" templates
- Allows viewing of the full-resolution image exactly as recorded by the scanner
- Pans and zooms around the image
- The operator can "mask" out portions of the image such as hand-written labels or creases
- Traceable EBA calibration standards

LSI -A4

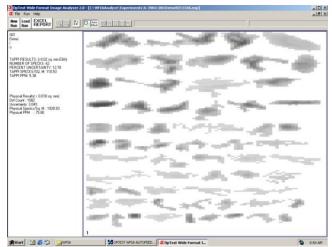


Figure 1: Typical LSI-A4 results window

OpTest provides a set of traceable calibration standards that meet the requirements of the standard methods.

The LSI-A4 software runs in the Windows™ computer environment. It processes images acquired by the certified scanner. It coexists equally well with other applications and the Windows desktop.

RESULTS AND REPORTS

The LSI-A4 provides the most important dirt results in the Operation Viewer, Figure 1. These include:

- Physical and EBA speck count / m² and PPM (mm² / m²)
- Percent counting uncertainty
- Shive counts
- Digital images of the sheet & specks

All data can be viewed and manipulated by Microsoft Excel[™]. An Excel template and auto-load macro is provided with the LSI-A4 software, Figure 2.

	t Format Icols Qa	Q. Σ · 01 14 Q	H i sul		/ U = = = = 3 \$ % #	
	2 -2 2 - ワー	2 · 24 14 W	Arid	• 10 • 1	12世界會通過3%年日,3	· <u>A</u> ·
TAPPI RESULTS ((+0.00 sq. mm)	(FPM)	110.11		
Specks / sq. m	1006.50	0000000000	Actual uncertainty	1.66%	A server of server and server	
PPM	74.92	20	o. Specks Detected	3615	ADDALED AND ADDALES NOT	22.3
No. Specks Detected	572		1.8 exp ratio = 3.1): PPM			-46
Actual uncertainty	4.10%	where cutoff =0	1 sq. mm V sh	ives 135	and the second second second	hear
STOM EBA RESULTS Spec	s / sum 2147 585				the second se	page Carrier
Cutoff (>) 0.01	PPM 90.98					-97
# Spe	ks 1220				Allower and the second second	in the second
M 100 -				20		
60 -	0			1	and the state of the second	
40					122	
20		BBBBBB			The state of the second	
vsical Size 0	0.12 0.24	0.36 0.48	0.60 0.72	0.84	and the state of the second second	
(mm.pe	0.12 0.24	0.36 0.48	0.90 0.72	0.84	"These " was his farm of the second second	
ecks/sq.m. 4000 r				5	have a service of the	- A-
3000						
2000					and the state of t	and the second second
1000					and the rest of the state and a	p-mare.
	I management		a a ana ana an	a a anaisin		
	0.12 0.24	0.36 0.46	0.60 0.72	0.84	and a man age and were a	
	0.12 0.24	0.30 0.40	0.00 0.72	0.04	第二部 二部 第二部 第二部	1.2
(ad'uuu) 000					the second secon	2.10
PM 10 10						NAME &
PM 10 8 6					100 - 10 million (10 - 10 - 10 - 10 - 10 - 10 - 10 - 10	NAME &
PM 10 10	8800				and the second of the first of the second se	
PM 10 8 6 4 2 0 0	1.1.1.1.	n	B.B		Carried Contraction	
PM 10 8 6 4 2 0	0.05 0.08	0.11 0.14	0.17 0.2	0.23	and the second of the first of the second se	
PM 10 6 4 2 0 0.02	0.05 0.08		0.17 0.2		$\begin{array}{c} \mathcal{F}_{1} \rightarrow \mathcal{F}_{2} = \mathcal{F}$	
PM 10 6 4 2 0 0.02	0.05 0.08		0.17 0.2		$\label{eq:second} \begin{split} & (2-i) $	
PM 10 6 4 2 0 0.02 PPI EBA Size ecks/ing/m 400 (m	0.05 0.08		0.17 0.2			
PM 10 8 4 2 0 0.02 ecks/sig.m 400 300			0.17 0.2		$\begin{array}{c} (x^{2},x^{2},y^{2$	
PPI EBA Size ecks/vg.m 400 300 200	0.05 0.08		0.17 0.2			
PM 10 6 4 2 0 0.02 PPI EBA Size 0.02 ecks/sq.m 400 200 100 0 0			0.17 0.2 0.17 0.2		$\begin{array}{c} (x^{2},x^{2},y^{2$	
PPI EBA Size	0.05 0.08	0.11 0.14		0.23	$\begin{split} & (\phi_{ij},\phi_{ij}) = (\phi_{ij$	

Figure 2: Excel[™] opens automatically with reports that can be customized by the user.

SYSTEM REQUIREMENTS

 Computer with two available USB 2.0 ports & CD drive, Microsoft Windows[™] 7 (32-bit), Windows 7 compatible version of Microsoft Office[™] (2003 and up).

DIMENSIONS

- LSI-A4 Scanner:
 60 cm L x 35 cm W x 14 cm H
 (23" L x 14" W x 5" H)
- Computer (optional)
 80 cm L x 70 cm W x 45 cm H
 (32" L x 28" W x 18" H)

CONNECTIONS

 120V/60HZ or 240V/50Hz, 1 phase, 750 W min. The power must be stable, within 3%, and transients below ± 10 %.



OpTest Equipment Inc.

900 Tupper St. Hawkesbury, ON Canada K6A 3S3 P: 613-632-5169 F: 613-632-3744 E-mail: sales@optest.com