Press Acceptance Tests

Master of Science
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General Remarks
IFRA Acceptance Tests

- **Aim:** helping newspapers buying and checking investments
- **Acceptance tests for CTP, press, and mailroom**
- **Test procedures were developed and approved by the IFRA Newspaper Production committee**
- **Members in the committees:**
  - Press Manufacturers
  - Newspapers
  - IFRA
- **Results are published in Special Reports:**
**IFRA Acceptance Tests**

- **The test should be performed:**
  - After new installation
  - After reconstructions
  - In parts as necessary

- **Different tests for:**
  - Acceptance of print quality
  - Checking of the folder performance

- **It should be determined weather:**
  - Press performance in accordance with sales contract
  - Waste is in accordance with contract
  - Quality is in accordance with guaranteed values
IFRA Acceptance Test Benefits

- Find hidden problems
- Security for further processing (mailroom)
- Independent checking of investments
- Detailed report gives documentation of status for future reference which is useful for the buyer, manufacturer, operators etc.
IFRA Acceptance Tests Organisation

- **Presence of:**
  - Press manufacturer representative
  - Buyer representative
  - Experienced printers from buyer/manufacturer
  - Third neutral party (WAN-IFRA)
IFRA Press Tests Organisation

- Manufacturer and buyer must agree on:
  - Materials
  - Underpacking
  - Blankets
  - Roller and impression settings
  - Tension controls
  - Dampening values/curves (temperature, ...)
  - Press hall air conditions

- If necessary manufacturer must be given opportunity to check and change settings and materials
IFRA Press Tests

- **Conditions during test:**
  - Use a warm press
  - Print measuring targets on one side only
  - Go up to specified speeds
  - No big changes (web lead, inks, plates) during test
  - Particular tests should be collected from one paper reel
  - No adjusting or changes during sampling

- **Random set of 5 copies are evaluated from each sample set (20 copies)**

- **Always run some minutes in same conditions before taking samples (not valid for changing speed tests)**
Quality Acceptance Tests
Subparts of Quality Acceptance Tests

- A1 – Pre-setting according to scanner or RIP data
- A2 – Pre-setting according to stored data
- B – Register repeatability
- C – Increasing speed
- D – Max. production speed
- E – Decreasing speed
- F – Safety stop
Sequence of Press Quality Tests

- **O**: Dampening adjustments permitted
- **☐**: Taking samples
- **X**: Adjustments permitted
- **☆**: Safety stop

If settings and materials did not change, the following samples can be combined:
3+4, 5+6, 8+9, 10e+11
Test A1 – Presetting to RIP Data

Only dampening adjustments allowed
Test A2 – Presetting to stored Data
Test B – Register Repeatability

- + 1 mm
- 0 mm

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Test C – Increasing Speed
Test D – Process Quality and Stability

![Diagram showing process quality and stability over time with speed levels and stages labeled A through F.](image-url)
Test E – Decreasing Speed
Test F – Emergency Stop
# Tested Parameters

<table>
<thead>
<tr>
<th>Key quality indicators</th>
<th>A1</th>
<th>A2</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density deviation from target value</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Density deviation from initial value</td>
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<td>X</td>
<td></td>
<td>X</td>
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<td>X</td>
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<td>Doubling/Slurring</td>
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<td>Starvation</td>
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<td>Ghosting</td>
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<td>4c Mid-tone spread (4 Farben)</td>
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<td></td>
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<td>X</td>
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<tr>
<td>Dot-gain</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td>(X)*</td>
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<td>Colour register from initial value:</td>
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<tr>
<td>- circumferential</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td></td>
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<td>X</td>
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<tr>
<td>- lateral</td>
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<td>X</td>
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<td></td>
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<tr>
<td>- circumferential</td>
<td>(X)*</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- lateral</td>
<td>(X)*</td>
<td></td>
<td></td>
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<tr>
<td>- diagonal</td>
<td>(X)*</td>
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<tr>
<td>Standard deviation of densities</td>
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<td>(X)*</td>
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<tr>
<td>Safety stop behavior</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Testform

First printed edge →
Testform

Custom made to:
- page size
- press ink zones

Aims:
- Even distribution of ink across press
- Check printing problems
- Evaluate quality indicators
Testform

- Information fields
Testform

- Slurring
- Dot doubling
Testform

• Ghosting
Testform

- Starvation
Testform

- Greybalance bar = C 30%, M 24%, Y 24%
- Black halftone bar = K 34%
- Horizontal solid bars to adjust ink distribution
- Aim dry solid densities: C, M, Y = 0,90; K = 1,10
Testform

Monochrome halftones:

- Plate curve
- Print curve
Testform

Vernier marks/Techkon dots:
- Color-to-color register
- Register stability
- Fan-out
- Register in each page
Testform Placement Example 4/2 press
### Average Density Deviation from Target Value

<table>
<thead>
<tr>
<th>Cyan</th>
<th>Operating side</th>
<th>B</th>
<th>C</th>
<th>Dive side</th>
<th>Standard deviation</th>
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<tbody>
<tr>
<td></td>
<td>Actual value copy 1</td>
<td>0.64</td>
<td>0.67</td>
<td>0.70</td>
<td>0.82</td>
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<td></td>
<td>Actual value copy 2</td>
<td>0.64</td>
<td>0.70</td>
<td>0.76</td>
<td>0.82</td>
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<td></td>
<td>Actual value copy 3</td>
<td>0.72</td>
<td>0.73</td>
<td>0.76</td>
<td>0.83</td>
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<td></td>
<td>Actual value copy 4</td>
<td>0.71</td>
<td>0.75</td>
<td>0.76</td>
<td>0.83</td>
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<tr>
<td></td>
<td>Actual value copy 5</td>
<td>0.69</td>
<td>0.75</td>
<td>0.77</td>
<td>0.84</td>
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<tr>
<td></td>
<td>Average</td>
<td>0.68</td>
<td>0.72</td>
<td>0.75</td>
<td>0.83</td>
</tr>
<tr>
<td></td>
<td>Target value</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<tr>
<td></td>
<td>Dev. from target value</td>
<td>-0.22</td>
<td>-0.18</td>
<td>-0.15</td>
<td>-0.07</td>
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<td></td>
<td>Upper limit</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
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<tr>
<td></td>
<td>Lower limit</td>
<td>-0.10</td>
<td>-0.10</td>
<td>-0.10</td>
<td>-0.10</td>
</tr>
</tbody>
</table>

### Density Deviations from Target Values Across Cylinder

![Graph showing density deviations across cylinder](image-url)
4c-Midtone Spread

<table>
<thead>
<tr>
<th></th>
<th>C</th>
<th>M</th>
<th>Y</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dot gain of print in %</td>
<td>22,24</td>
<td>28,77</td>
<td>32,65</td>
<td>27,93</td>
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<tr>
<td>Midtone spread</td>
<td>10,41</td>
<td></td>
<td></td>
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<tr>
<td>Upper limit</td>
<td>6,00</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Performance Tests
Performance Tests

- **Aims:**
  - Achieved net production (folder capacity)
  - Quality check at different productions
  - Test P1: paper waste level(s)

- **Tests run conditions:**
  - constant speed
  - changing speed
  - minimum pagination
  - maximum pagination
Performance Tests Conditions

P2 Constant Speed

- Minimum pagination
- Maximum pagination

X: Manual adjustments permitted
Performance Tests Conditions

P3 Changing Speed

Start

Time

X: Manual adjustments permitted

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Performance Tests Indicators

- **Tested indicators:**
  - Pasting/splicing failures
  - Waste during reel splice, press start, press restart
  - Fold quality:
    - Fold height
    - Over fold
    - Former fold registers
    - Cylinder fold registers
    - Quarter fold registers
  - Slitting register
  - Cylinder cut-off register
  - Shingle stream delivery
Performance Tests Indicators

- Former fold register
Performance Tests Indicators

- Cylinder fold register
- Quarter fold register
Performance Tests Indicators

- Cut-off register
- Slitting deviations
- Cylinder cut-off deviations
Performance Tests Indicators

- Shingle stream quality for single and double production
  - a: longitudinal distance
  - b: tolerance
  - c: inclined position
  - d: lateral offset
Performance Tests Indicators

- Prefold accuracy:

- h: height of folded edge
Performance Tests Indicators

- Web wander

- Size and position of pinholes on product
Further readings

Special Report 1-2008 includes:

- Acceptance test description
- Evaluation method
- Testform layout
- Tolerances applicable on an average modern press
Further readings

Special Report 4.11.2

Guidelines for Acceptance Testing of Mailroom Equipment

Ifra Special Report 4.11.2