



Pira/APACS
Printer Qualification
Service:
Test Protocol

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1. Background

Until now APACS Standard 3 only authorises the use of certain laser printers for the MICR codeline and does not recommend the use of laser printers for infilling.

Research at Pira has established that the print from some non-impact printers is comparable in permanence with that of an average impact print. A qualification service is currently provided by Pira/APACS for printer manufacturers to assess the performance of their printers and, if the printer qualifies, to obtain a certificate showing the grade achieved under test conditions.

2. Test programme

A non-impact printing trial will be conducted with one set of conditions (print densities, fuser temperatures, etc). Blank Pira test cheques will be provided. After non-impact printing the test cheques will be assessed and graded.

3. Test methodology

3.1 Grades of paper

The printer qualification test will be carried out under one set of test conditions, which should be recorded.

PIRA/APACS standard cheque forms should be used although other cheque forms may also be included if required.

The cheque forms should be representative of current paper and ink technology, with cheque designs conforming to APACS Standard 3.

3.2 Laser printing

The tests will be preferably run in the presence of a Pira Consultant to ensure the conditions are satisfactory.

A description of the printer type and model number shall be provided, together with details of the print engine, speed and type of toner used.

A new toner cartridge is loaded into the printer and the image density and fuser roll temperatures are set to the desired levels.

The printer should be run continuously prior to the test run to ensure that it is at its normal operating condition.



3.3 Number of prints

20 A4 sheets are required for laboratory testing. For low speed printers these shall be selected from the end of a test run of at least 1 minute duration. For high speed printers, the minimum practical sample size shall be run, preferably at the end of a waste run of at least 1 minute.

3.4 Test print area

The test print should cover all those areas of the cheque which are normally printed with variable information and should include both text and numerical data. For convenience, the word 'Zero' and the numbers '01234' have been used in many cases, although some printers have their own proprietary alphanumeric test charts which may be used.

3.5 Paper conditioning

Paper is conditioned to room temperature before printing.

3.6 Test methods

Three manual test methods, Blu-tack, scalpel and tape resistance are used to remove toner selectively from the test areas of the cheques. Results are then assessed visually.

4. Assessment of samples

Samples are assessed visually using a video microscope by at least two observers. Toner adhesion grades are awarded by reference to a set of standard sample images, and may be confirmed by image analysis.

4.1 Blu-tack

| | |
|---------|-----------------------------|
| Grade 1 | less than 10% toner removal |
| Grade 2 | 10-50% removal |
| Grade 3 | 50-90% removal |
| Grade 4 | more than 90% removal |



4.2 Scalpel

| | |
|---------|--|
| Grade 1 | slight toner removal with much paper surface damage required for complete removal |
| Grade 2 | little toner removal with a fair amount of paper surface damage required for complete removal |
| Grade 3 | partial toner removal with a little amount of paper surface damage required for complete removal |
| Grade 4 | almost complete toner removal without paper surface damage |

4.3 Tape

| | |
|---------|-----------------------------|
| Grade 1 | less than 10% toner removal |
| Grade 2 | 10-50% removal |
| Grade 3 | 50-90% removal |
| Grade 4 | more than 90% removal |

5. Printer gradings

Printer gradings are derived from the toner adhesion gradings as follows:

- Grade 1 - adhesion grades 1 and 2 only
- Grade 2 - adhesion grades between 1 and 3
- Grade 3 - adhesion grades between 1 and 4

Note: only 'Grade 1' printers can produce cheques which are comparable with average impact printed cheques in their resistance to fraudulent attack.

6. Reporting

A report containing the results of the laboratory testing is provided together with a certificate showing the grade achieved under test conditions.

7. Terms and conditions

Any contract arising from acceptance of a proposal based on this protocol will be subject to the general terms and conditions of Pira International which are available on request. No responsibility is accepted for any loss, damage, cost or expense arising from the use of the information generated by the qualification service