

# ESTA MEMBERS REQUIREMENTS FOR STANDARDIZATION OF CASH DEGRADATION SYSTEMS

## 1. PREAMBLE

This document aims at defining CIT requirements on a possible upcoming standard of cash degradation systems; this document is destined to the CEN Task Group members of CEN TC 263 WG4, for discussion.

This document contains information and data that must be treated as confidential and is not meant for onward circulation.

## 2. PRELIMINARY FINDINGS

- Ink staining degradation, even if mostly used at the present time, is not satisfactory and this Standard should encourage the development of new technologies for cash degradation that will achieve better performance levels than the ink dye currently in use.
- The Standard's specifications and methodology should be formulated in such a way that prescribed performance apply to other kinds of degradation techniques (acid, glue, pyrotechnic...).
- Special attention must be given to the upcoming ES2 whose substrate might be more resilient to liquid dye staining and to the fact that polymer and hybrid substrates are already used worldwide by numerous countries.
- Cooperation of Central Banks should be sought to render stained notes illegal tender.
- ATM protection should be included in this upcoming standard.
- Due consideration has been given to possible multiple standards but our industry has not been able to define its possible criteria beyond packaging requirements which vary substantially from one country to the other. Keeping also in mind possible criminal displacement, we have elected to opt for a high quality standard but we are not opposed to consider the feasibility of multiple standards, if adequately defined.
- The CIT industry cannot afford to standardize equipment that has in-built weaknesses or an "Achilles' Heel", so it is essential that the testing programme is very thorough and rigorous to provide us with the confidence that the products are truly fit for purpose.



- The confidentiality issues raised by the content of this drafted standard, - potential harm to our industry, and management of the list of cleaning agents – must be resolved.

### **3. EXECUTIVE SUMMARY**

Our Industry will focus on 5 major issues, which are summarized hereafter and amplified in the subsequent items.

#### **3.1 Visual, Mechanical Detection & Traceability**

The CIT end-users wish to stress that the drafted requirements are not verified by their findings and that the systems currently in use do not seem to meet those requirements at all.

It is stated that degradation should be sufficient to allow detection, with or without presence of additives in the dying substance.

The 20% staining coverage does not allow detection (and rejection) by machines!

Contacts have been established with major machines manufacturers and EVA to assess the “sufficient” level expected by ESTA members. Their contribution is expected before end of October 2007.

It is recommended to use a classification grid to qualify the tested systems (see further).

Traceability is seen as an option, a “nice to have” rather than a prerequisite.

#### **3.2 Irreversibility of degradation**

It is felt that all testing should be conducted by a neutral Lab and reviewed annually.

The concentration of tests in one single lab would also allow for appropriate investments in adequate IT and machinery.

Work is under way with a University in the UK to develop formal testing procedures and, once completed, this may be used to carry out formal testing on behalf of the industry.

#### **3.3 Sustainability of systems and their qualification as “Fit for Purpose”**

It is concluded that the only comprehensive criteria to define sustainability should be related to the use of the systems, end-to-end or pavement systems, and that their life expectation and servicing requirements should be set in accordance with the number of closing/opening of the security cases.

#### **3.4 Reliability**

The manufacturers should be required to declare a maximum percentage of unintended activations per annum, as a percentage of the number of openings/closings.

The end-user shall be allowed and equipped to read the log files and verify the causes of all possible unintended activations.

#### **3.5 Health & Safety**

4 parameters seem to require a special attention:

- Weight
- Chemical component(s)
- Pyrotechnic
- Explosives

A certificate or official authorization (or possible derogation), issued by the relevant European or National authority will be submitted by the manufacturer.

#### 4. METHODOLOGY

The following comments/questions/remarks are made to the CEN working document draft 2, dated of June 22 2006.

##### 4. Neutralisation – General Requirements

- page 10, item 4.1: the examples of neutralisation methods to include “Acid or any chemical solution other than ink”
- Page 10, item 4.2.1: see 3.1 It is also noted that Swedish regulation provide for 30% of coverage on 95% of notes, which is higher that the drafted standard and should even been raised to 100% of banknotes. The 25% of capacity is a new criteria that calls for explanation (ATM?).
- Page 10, item 4.3.1: visual detection criteria need to be listed and completed by other possible means of detection, such as manual (feel).

##### 5. Specific requirements

- Page 11, item 5.1.2.2: temperature and liquid detection must be compulsory.

##### 6. Environmental Conditions

- Page 12, item 6.1: should be removed as proposed.

##### 7. Testing – General Requirements

- Page 13, item 7.4: The listed testing mainly apply to dying systems and not to other possible technologies.

##### Annex A – Neutralisation Testing

- Page 15, item A1: see above for the 25% capacity
- Page 15, item A1 & A2: geometrical aspect, size and mixed size of notes have an impact on the results, not only paper or ink type. The testing should be conducted on brand new notes or brand new substitute notes, in mixed denominations, with the maximal packaging currently used (e.g. Belgium).
- Page 15, item A.2.1 & A.2.2: a 10% ratio is more adequate unless substitutes notes have exactly the same specs as genuine, brand new notes.
- Page 16, 3<sup>rd</sup> paragraph: instead of scanning that implies direct contact with the notes, digital photography is seen as more suitable, certainly whenever other degradation means than ink are utilised.
- Page 16, 4<sup>th</sup> paragraph: software technology should used to qualify trained eye specifications.
- Page 16, method of measurement: computer performances and image processing algorithms will provide means to have a standard evaluation software.
- Page 17: a more realistic grid proposal is attached for discussion.
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##### Annex B – Irreversibility of neutralisation testing

- Page 18, B.1.1: as already stated, this only applies to ink/dye systems which are indeed reversible! Why using aged ink only and not both new and aged? Please clarify.
- Page 19, B.1.1.2: all tests should be conducted with notes from exploded boxes, since pyrotechnics and other factors may change ink resilience. The +/- 2 seconds variance

- represents a 28,6% error and is not realistic. Testing must be done in pre-set conditions (fixed temperature and humidity)
- Page 19, B.1.1.3: additionally to chemical agents, ultrasonic cleaners should be used. Drying the notes –after washing- must be done in pre-set conditions (fixed temperature and humidity).
  - Page 20, B.1.1.4 & B.1.1.5: two stars on a+b+c tests must be required.

#### Annex C – Neutralisation trigger & Resilience testing

- Page 24, C.4.2.2: an upcoming new Belgian requirement will specify 3 different tests up to 2 kV.
- Page 25, C.4.3.2: it is recommended to differentiate between environmental and attack testing requirements. The Swedish requirements (50kV 350mJ) are way above current Belgian and French requirements! WHY?
- Page 31, 1<sup>st</sup> paragraph: please explain why you would stop evaluation process!
- Page 32, C.4.7.2: This is a copy and paste of Swedish regulations which seems inappropriate. About explosive, one needs to be more specific.
- It would also be necessary to contemplate other types of possible attacks, such as computers, crypto... Belgium seems to be at the vanguard of such testing and ANPI (the Belgian testing lab used by the authorities) has issued a confidential memorandum on this issue. It is therefore recommended to seek assistance of the Belgian authorities and require communication of this document.

#### Annex D – Resilience to unintended activation testing

- Page 35: see item 3A.  
The manufacturer should also guaranty a MTBF (Mean Time Before Failure) expressed as a number of months and/or a number of open/close cycles.
- Page 36, D.4.1.a: again confusion between environmental and attack testing – no current system is likely to resist a 100V/m. Environmental testing (lower) requirements should apply and it is noted that the drafted requirements are again the Swedish-ones which are way above both Belgian and French.
- Page 37, D.5.4.b: the Belgian requirements seem more appropriate (2m – 6 faces – and 0,75m).

#### Enclosures:

- CEN Working document of 22 June 2006
- Grid proposal

21/09/2007