

## Judgment

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### DISTRICT COURT OF THE HAGUE

Civil law Section

Case number / Cause-list number: 269923 / HA ZA 06-2495

#### Judgment of 12 March 2008

In the case of

The institute incorporated in accordance with Article 107, second paragraph of the Treaty Establishing the European Community (EC Treaty),

**THE EUROPEAN CENTRAL BANK,**

based in Frankfurt am Main, Germany,

Plaintiff,

Docket attorney: *mr.* A. Killan,

Lawyers: *mr.* A. Killan and *mr.* M. Rieger-Jansen, in The Hague,

Versus

The company incorporated under foreign law

**DOCUMENT SECURITY SYSTEMS, INC.,**

based in Rochester, New York, United States of America,

Defendant,

Docket attorney: *mr.* W. Heemskerk,

Lawyers: *mr.* J.J. Allen and *mr.* A.M.E. Verschuur in Amsterdam.

Parties will be referred to hereinafter as “ECB” and “DSS.”

#### 1. The Proceedings

##### 1.1. The course of the proceedings appears from:

- the summons dated 23 March 2006;
- the document containing exhibits on behalf of ECB dated 26 July 2006, including ten exhibits;
- the statement of defence dated 18 October 2006, including four exhibits;
- the statement of reply dated 13 December 2006, including five exhibits;
- the rejoinder dated 14 February 2007, including four exhibits;
- the document containing the submission of exhibits on behalf of ECB dated 14 December 2007, including twenty exhibits;
- the document containing the submission of exhibits on behalf of DSS dated 14 December 2007, including two exhibits;
- the pleading by *mr.* A. Killan and *mr.* M. Rieger-Jansen, in which are struck out paragraphs 54-55, 105, 133-145, 151-157, and 159-163, which are not argued, and the pleading by *mr.* J.J. Allen and *mr.* A.M.E. Verschuur; also present at the court hearing were ECB’s patent agents, *ir.* R. Wijnstra and *ir.* H.V. Mertens.

During the hearing, ECB objected to three additional exhibits sent by DSS shortly before the counsel's plea (received by the Court Registry on 13 December 2007), which according to DSS are a response to the large number of exhibits ECB brought into the legal proceedings by deed ten days before the plea. During the hearing, the Court decided that the exhibits would be rejected now that ECB brought forward that it did not have the opportunity to discuss the content of the exhibits with their – foreign based – experts, and that if they were accepted, this would be contrary to the requirements of due process. In its decision, the Court took into consideration that, because of the typographical technique used, the documents can only be sent in their original format, and not via fax or any other electronic means.

1.2. Subsequently, the Court made its decision.

## 2. The Facts

2.1. DSS is holder of European patent numbered 0 455 750 B1 (hereinafter to be referred to as “the patent” or “EP 750”), pertaining to a “*Method of making a nonreplicable document*” (not entirely correctly (source: Court) translated into Dutch as “*Niet kopieerbaar document en werkwijze voor het maken daarvan*” [*non copyable document and method for the making thereof*]). The grant of the patent was published on 24 November 1999 as a result of a (PCT) application on 16 January 1990, invoking priority of 18 January 1989 based on US 298020. The patent is also valid in the Netherlands.

2.2. The claims included in the original (PCT) application are as follows:

1. A method for making a nonreplicable image comprising placing on a suitable medium visible and distinct lineations formed into various patterns of lines, dots and swirls to create said image, said lineations having a predetermined lineation pitch which varies from a conventional copy machine scanning pitch by as little as the thickness of a scanning line of said machine and as much as 50% of the spacing between said machine's scanning lines, whereby when said image is copied by said machine, a moire-skewed copy of the image results thus frustrating the photocopy replication of said nonreplicable image.

2. A method for making an image that appears on a document or a printing plate and is not replicable accurately by photographic or photocopier techniques, said method comprising: selecting a suitable substrate medium; and placing on said suitable substrate medium; by conventional methods, visible and distinct lineations comprising various patterns of lines, dots and swirls in a predetermined lineation pitch which is calculably out of registry with the scan pitch of conventional electro-optical scanning devices, said lineations further interlined by more than five times the thickness of said lineations with lighter, brighter hues, whereby when said image is copied by a scanning machine, a moire [meant will have been: moire, DC] -skewed copy of the image results because of the misregistration of said machine's scanning pitch and the lineation pitch of said image and noticeable omissions occur, when photographed as well, thus frustrating photographic reconstruction of said image and the photography thereof.

3. The method of Claim 1 wherein said placing step is accomplished by depositing said lineations on an environmentally mutable matte and further, said matte is dimensionally altered by subjecting it to variations in heat and moisture.

4. A method for detecting a copy machine counterfeit of an authentic species of noncopy-protected, commonly available, face-valued documents such as currency notes, banknotes, licenses and the like that have images formed thereon of myriad lineations, said method

comprising: first viewing and recording the suspected counterfeit by means of a scanning and imaging device such as a copy machine, a television opticon and the like; and comparing an authentic species of said documents with the record of said suspected counterfeit made in the first step of viewing and recording so as to determine if said record reveals moire distortions and omissions relative to said authentic species and, if so, thereby confirming said suspect as counterfeit.

5. A method for making a nonreplicable image in a face-value document comprising the following steps: determining an image lineation pitch  $d$  that is dissonant from conventional copy machine scan line pitches by first determining a copy machine scanning pitch, that is not used in any conventional copy machine, by taking the scanning pitch  $p$  of any said copy machine and adding or subtracting therefrom an amount ranging from about one-half a scan line thickness to about one-half the spacing between said machine scan lines; and placing lineations, the pitch of which was determined in the step of determining onto a suitable medium while further shaping said lineations into various desired patterns.

6. The invention of Claim 5 wherein said placing of said image is printing onto said suitable medium.

7. The invention of Claim 5 wherein said image placing includes the creating of inclusions within the desired image medium and wherein said medium is a substrate comprising a paper-type matte.

8. A document image deposited on a suitable medium, said image comprising lineations of varying pitch and which are directionally dissonant from a scanning pitch of any conventional and known electro-optical scanning device that is used by video opticons and photocopy machines.

9. A method for making an image that will upon replication thereof by electro-optical and photographic copy means reveal numerous omissions and distortions so that a photo-replica produced therefrom is visibly distinguishable from said image, said method comprising the steps of: selecting a suitable medium for the positioning thereon of said image; and depositing said image onto said medium in the form of lineations, said lineations varying in azimuth and having therebetween a pitch distance  $d$  ranging from about  $p$ , which is the distance between any conventional electro-optical device's scan lines, plus or minus one-half the thickness of such a scan line to plus or minus one-half the spacing between said scan lines.

10. The method of making an original certificate that is capable only of electro-optically inaccurate replication, said method comprising the step of placing on a substrate a lineate pattern of visible image-defining lines, said lineate pattern being of predetermined omission-creating, moire-producing, mismatched pitch relative to the scanning pitch and pitch azimuth of an electro-optic copy device.

11. The method of Claim 10 including first determining the pitch of an electro-optical copying device scanner, said device being of the machine to be frustrated by the method of Claim 10, so that it will produce said inaccurate replication of said original certificate.

12. An electro-optically nonreplicable document comprising an image defined by a plurality of lineations which comprise lines, dots and swirls, said lineations of predetermined omission-creating, moire-producing pitch which is linearly mismatched in pitch and pitch azimuth relative to a scanner line pitch of a conventional electro-optic copy device, said moire-producing pitch  $d$ , in said document, further defined by the spacing between said lineations and which differs from the spacing between the scan lines of said scanner, said moire-producing pitch  $d$  differing from and therefore calculably in misregistration with  $p$ , the pitch of said scanner, by a difference which ranges from about one-half the thickness of one said scan line to about 50% of the spacing between said scan lines.

13. A method for making a replicant document that will only be subsequently replicated inaccurately and obviously bogus by photocopier or other electro-optical scanning devices relative to the image content, color and tone of said replicant document, said method comprising: obtaining a true and original face-value document that is not protected by the invention of Claim 9; and copying said true and original face-value document on a photocopying machine, whereby said copying produces a resultant replicant document which will be made of image lineations that are dissonant relative to the image lineation pitch of said true document and said replicant becomes, in effect, like unto a true document but of nonreplicable form, whereby further attempts to subsequently copy said replicant document by photocopying machine or other electro-optical scanning devices will produce a copy that is visibly untrue having therein omissions, distortions and moire skewing of the images that appear in said replicant document.

- 2.3. On 18 July 1995, the Examining Division of the European Patent Office (hereinafter referred to as "EPO") rejected the application because of lack of inventive step.
- 2.4. The Examining Division's decision was appealed. During the oral proceedings, DSS amended its claims. On 5 February 1999, the Technical Board of Appeal of the EPO decided that the new claims met all requirements for the grant of the patent and referred the case back to the first authority, requesting that the patent be granted based on the new set of claims presented during the oral proceedings (T 0933/95).
- 2.5. The claims of the patent as granted are as follows, in the original English text:

1. A method of making a document that is not faithfully replicable by scanning-type copy-ing devices, the document using a visible original image (10, 40) comprising art, pictures and/or image forms made of curvilinear lines, dots and/or swirls, the method comprising the steps of determining the scanning pitch distance (p) and width of the scanning lines (36) of the copying devices; producing a grid pattern of parallel lines (32) having a pitch distance (d) minutely more or less than the scanning pitch distance (p), the difference between the pitch distance (d) of the parallel lines and the scanning pitch distance (p) being within a range from about one-half the width of the scanning lines to about one-half the scanning pitch distance (p); and overlaying the grid pattern on the original image to produce on the document a printed image which comprises the original image having a superimposed transmitted or obstructed print pattern conforming to the grid pattern and in which the print pattern normally is not discernible by the naked eye, such that the original image and the printed image appear to the naked eye to be generally the same, the print pattern causing visibly discernable interference (e.g., moire) patterns and/or false tones, colors or omissions to be produced in the printed image in copies of the document made by the copying devices.

2. A method in accordance with claim 1 characterized by the parallel lines being uniformly spaced.

3. A method in accordance with claim 1 characterized by the pitch of the parallel lines being at an azimuth angle different from the main axis of the document.

4. A method in accordance with claim 1 characterized by the print pattern having parallel lines in more than one azimuth angle.

The official Dutch translation of the claims as granted is as follows:

*[Translator's Note: Below is the English back-translation of the Dutch translation]*

1. A method of making a document that is not faithfully replicable by scanning-type copying devices, the document using a visible original image (10, 40) comprising art, pictures and/or image forms made of curvilinear lines, dots and/or swirls, the method comprising the steps of determining the scanning pitch distance (p) and width of the scanning lines (36) of the copying devices; producing a grid pattern of parallel lines (32) having a pitch distance (d) minutely more or less than the scanning pitch distance (p), the difference between the pitch distance (d) of the parallel lines and the scanning pitch distance (p) being within a range from about one-half the width of the scanning lines to about one-half the scanning pitch distance (p); and overlaying the grid pattern on the original image to produce on the document a printed image which comprises the original image having a superimposed transmitted or obstructed print pattern conforming to the grid pattern and in which the print pattern normally is not discernible by the naked eye, such that the original image and the printed image appear to the naked eye to be generally the same, the print pattern causing visibly discernable interference (e.g., moiré) patterns and/or false tones, colors or omissions to be produced in the printed image in copies of the document made by the copying devices.

2. A method in accordance with claim 1 characterized by the parallel lines being uniformly spaced.

3. A method in accordance with claim 1 characterized by the pitch of the parallel lines being at an azimuth angle different from the main axis of the document.

4. A method in accordance with claim 1 characterized by the print pattern having parallel lines in more than one azimuth angle.

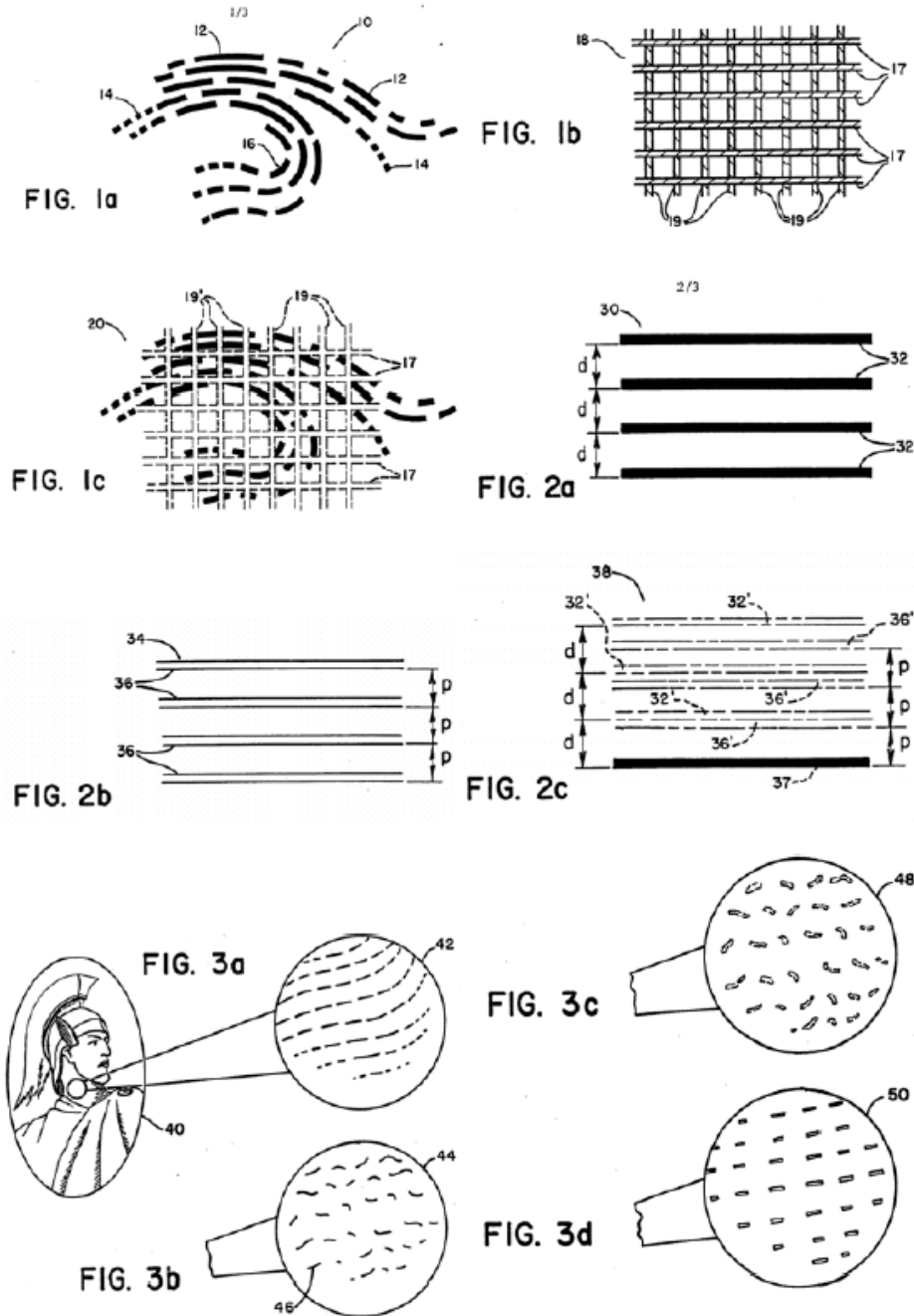
2.6. Claim I as granted of EP 750 has the following sub-characteristics:

- A. A method of making a document that is not faithfully replicable by scanning-type copying devices,
- B. the document using a visible original image (10, 40) comprising art, pictures and/or image forms made of curvilinear lines, dots and/or swirls,
- C. the method comprising the steps of determining the scanning pitch distance (p) and width of the scanning lines (36) of the copying devices;
- D. producing a grid pattern of parallel lines (32) having a pitch distance (d) minutely more or less than the scanning pitch distance (p),
- E. the difference between the pitch distance (d) of the parallel lines and the scanning pitch distance (p) being within a range from about one-half the width of the scanning lines to about one-half the scanning pitch distance (p); and
- F. overlaying the grid pattern on the original image to produce on the document a printed image which comprises the original image having a superimposed transmitted or obstructed print pattern conforming to the grid pattern
- G. and in which the print pattern normally is not discernible by the naked eye, such that the original image and the printed image appear to the naked eye to be generally the same,
- H. the print pattern causing visibly discernable interference (e.g., moiré) patterns and/or false tones, colors or omissions to be produced in the printed image in

copies of the document made by the copying devices.

Between Parties, there is no dispute regarding the fact that sub-characteristics F and G were added to the main claim by means of proposed amendments made during the oral proceedings before the Technical Board of Appeal of the EPO (refer to legal ground 2.4.).

2.7. The following figures are part of the patent:



- 2.8. No opposition was filed against the grant of EP 750.
- 2.9. DSS is in the business of designing innovative security technology for documents offering protection against piracy, unauthorised and illegal copying, scanning and imaging of negotiable instruments, such as, without being limited to, bank notes and traveller cheques.
- 2.10. Pursuant to Article 106, first paragraph, of the EC Treaty, ECB has the exclusive right to authorise the issuance of bank notes within the European Community.
- 2.11. DSS summoned ECB to appear in the Court of First Instance on 1 August 2005, asserting that with the production of Euro bank notes, ECB is infringing EP 750. On 5 September 2007, the Court of First Instance declared DSS's claims for patent infringement inadmissible and dismissed the claims in all other respects. In summary, the Court of First Instance considered that only the national Court has the authority to take note of the patent infringement claims.
- 2.12. ECB initiated procedures for annulment of EP 750 in nine countries, more specifically Germany, the United Kingdom, France, Austria, Italy, Spain, Belgium, Luxembourg and the Netherlands. For England, EP 750 was nullified by Kitchin J in its judgment of 26 March 2007, considering that there is added subject matter (the non-novelty and non-inventive step arguments were rejected). The next day, on 27 March 2007, the Bundespatentgericht upheld the German part of the patent. According to the Bundespatentgericht, there is no added subject matter and the invention is new and inventive in all other respects. In its official capacity, the Court is aware that Le Tribunal de grande instance de Paris (troisième chambre) nullified EP 750 for France by means of a judgment dated 9 January 2008 (i.e. a date after the plea in this case) because of added subject matter.

### **3. The Dispute**

- 3.1. By means of a judgment having immediate effect, ECB requests the annulment of the patent for the Netherlands, ordering DSS to pay the procedural costs, including the translation costs.
- 3.2. The underlying reason for ECB's claim is that, in its opinion, the patent is null and void as the subject of the patent is not covered by the content of the original application, the invention is not new, and in addition there is a lack of inventive step.
- 3.3. DSS put forward a reasoned defence. Parties' statements are, in so far as they are important, explained in more detail below.

### **4. The Opinion**

#### Introduction to the technique

- 4.1. The Court shall give a brief introduction to the technique under discussion, based on an explanation given by Parties (and on the instructive summary given by Kitchin J in the aforementioned judgment).

- 4.2. In summary, the invention as recorded in the patent is related to a printing technique for making a document that is not faithfully replicable by scanning-type copying devices (scanning type – hereinafter also referred to as scanning type copier). The claimed method comprises the steps to make copies of the original document made with a scanning type copier immediately recognisable as counterfeiting. The steps of the method use physical effects, especially those known in optics, particularly the so-called moiré effect which will be explained below.
- 4.3. Since the beginning of negotiable instruments (such as bank notes, driving licences, passports, etc.), there have been attempts to protect them from forgery and counterfeiting.
- 4.4. On the priority date of the patent (i.e. 18 January 1989), a number of techniques in the field of optical document security were generally known. In this respect, DSS stated that these techniques include, without being limited to:
- the use of specialised substrate materials such as high-quality paper, the use of watermarks, and the introduction of coloured security fibres;
  - the use of specialised ink types, such as magnetic and fluorescent ink types, which are expensive or hard to obtain;
  - the use of refined and expensive (plate) printing techniques such as intaglio printing; with these techniques, printing with very fine details became possible;
  - the use of irising and thin layer structures, such as e.g. holograms, which show a colour or image change when looked at from different angles;
  - the use of portraits and serial numbers;
  - the use of so-called “screen traps” incorporated in paper money and other secured documents to protect them against reproduction using screen offset printing techniques (“halftone screening”).

#### *Printing techniques*

- 4.5. *Letterpress/relief printing.* This printing technique has been used since the 13<sup>th</sup> century. The letters and numbers to be printed are somewhat printed in relief compared to the printing plate surface (therefore, there is no incision / gravure in the printing plate with this printing technique). The plate is subsequently inked and pressed on to a substrate to obtain the image. Said technique is still used to imprint serial numbers on to bank notes.
- 4.6. *Intaglio.* Intaglio is a printing technique where the image to be printed is incised in the surface of a metal (usually copper or zinc) plate. The incisions can be made manually or with a laser, or can be etched by having the plate react with an acid. To print an intaglio plate, the surface is submerged in ink, so that the incisions are filled and subsequently the excess ink is removed from the plate surface. Then the plate is brought in contact with the substrate using a high pressure printing press. Intaglio printing is commonly used to print bank notes, often combined with other printing techniques. This creates a unique structure on the substrate, which is hard to imitate.
- 4.7. *Offset lithography.* Lithography is based on the principle that oil and water are not compatible. The part of the printing plate where an image to be placed is treated in such a way that it holds ink, whereas non-image sections are chemically treated to accept water and to reject ink. In offset lithography, the inked image is transferred (“offset”) from the

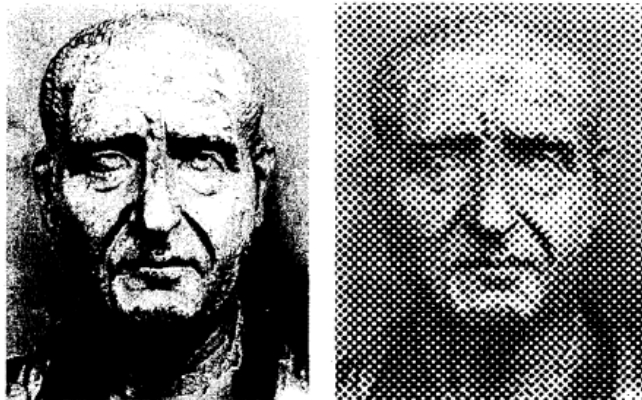


printing plate to a rubber roll and then to the substrate to be printed. A number of separate plates with different colours can be superposed to create the final image.

- 4.8. When printing bank notes, a dry offset lithography version is applied. In this case, a rubber layer is also used to transfer the image from the printing plate to the substrate through this layer. The image areas on the printing plate stick out from the plate surface (more or less as with the relief printing technique). The ink is applied to the elevated plate parts with a number of ink rollers. The plate transfers the image to the rubber layer, which in turn prints the image on the substrate. In bank note technology, offset printing is used to be able to apply security ink types which do not emulsify rapidly, like ultra-violet fluorescent ink types do.
- 4.9. *Inkjet printing.* This technique sprays ink droplets on to the substrate under high pressure. The problem with this technique is that the ink does not adhere well to the substrate. Most ink types are watery and rapidly make stains.
- 4.10. *Laser printing.* Laser printing is a digital process using a chip in the printer receiving data and converting them into dots. This is also called a screen image. In addition to the laser unit itself, the laser printer includes a rotating electrostatic drum of which the external portion can carry a positive or a negative charge. As soon as the chip converts the data it received into a screen image, the laser is ordered by the chip to “draw” the image on the charged drum as a number of lines or dots, in the same way as halftone screening, a process which will be explained below. On the spots aimed at by the laser beam, the drum surface is discharged. The toner applied as a powder to the drum, will only adhere to the non-discharged portions. The toner parts are transferred to the substrate by rolling the drum over it. The transferred toner is attached to the substrate by two hot rollers.

#### *Halftone printing*

- 4.11. The regular printing of a picture on paper for example creates problems because the printer is unable to show hundreds of grey tones (in the case of black-and-white pictures) or the millions of different colour shades (in the case of colour pictures). Halftone printing solves this problem. With this reproduction method, an image (such as a picture) is converted into a very fine pattern of dots or lines (“dots”). Through variation in the dot size, an almost infinite variation of colour nuances in a certain colour is created. In the case of the colour black, through variation in the dot size an abundance of grey tones can be obtained optically. This technique is illustrated below.

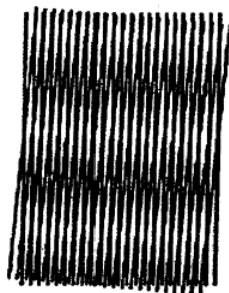


- 4.12. The main advantage of halftone printing is a feature allowing to show an infinite amount of colour shades from a relatively small number of ink colours.
- 4.13. *Halftone screening*. This is the process where an image is converted into a series of dots. This was originally realised by using a *contact screen* (grid screen) consisting of mesh material placed over the photographic film, hence the term *photographic halftoning*. With this technique, the original image is projected onto the film through the grid screen, breaking the image into series of dots, i.e. a *halftone image*. The amount of light possibly falling onto the film through the grid screen corresponds with the dot size on the film. Parts of the image are lost with this method, however when using sufficiently fine grid screens, this is not noticeable to the human eye. The quality of the image eventually converted into dots therefore depends on the choice of grid screen.
- 4.14. The screen frequency is expressed in lines per inch (“*lpi*”). The finer the screen (i.e. the higher the *lpi*), the more precisely the image can be shown. In 1989, the most common frequency was 100 *lpi*. A 65 *lpi* frequency was considered inferior and a 150 *lpi* frequency was seen as excellent.
- 4.15. Originally, the conversion of source documents into dot patterns took place using photographic techniques. During the last decades, this process was digitised and in the repro industry high quality “dot generating” colour scanners are used which fully automate the process of separating colours at the time of conversion. They scan with a high resolution. These scanners, which arrived on the market at the beginning of the 70s, were and are extremely expensive and complex devices which can only be operated by specially trained staff. Although this equipment digitised the first steps in the reproduction process, the printing plate production method described above has remained largely the same. Whether the printing plates are made in the traditional fashion or using a high quality dot generating colour scanner, a physical (or later: a laser generated) grid screen will always be applied to split the image into series of dots.

#### *Moiré effect*

- 4.16. Moiré is an optical interference effect created as multiple similar patterns are superposed under a slightly different angle, or when they have a slightly different line distance. Because the lines or dots of the two screens are next to each other in certain spots, are superposed in others, a pattern of light and dark bands is created, which appear to be projected over the underlying lines. More complex moiré patterns are created if the lines are curved or are not entirely parallel.

The figure shown below represents a moiré pattern of two sets of parallel lines, whereby one set is placed under an angle of 5 degrees compared to the other set.



- 4.17. One moiré feature is that a relatively small (angle) change in the overlaying structure shows a relatively large image change. In other words, moiré magnifies an originally relatively minuscule change and makes it discernible by the naked eye.
- 4.18. In 1989, it was known that discernable moiré effects could occur if the pattern of the original image had a line distance which was almost identical to the line distance of the halftone screen. Designers of bank notes and other secured documents took advantage of this phenomenon. They intentionally used fine line patterns in the bank note design (so-called *screen traps*), intended to cause discernible moiré interference if the secured document had been reproduced using halftone screening.
- 4.19. One known disadvantage of using screen traps was the fact that the line distance used in screen traps had to be close to the line distance of the screen used in order to create the moiré effect, but that it was not known in advance which halftone screen a forger would apply. A professional forger would have access to several grid screens with different types of screens. On more modern machines, the screen can be set by the user. For this reason, the usefulness of a screen trap was limited if it used only one specific line distance and the lines were applied in only one specific direction on for example a bank note. A forger would then be able to avoid the moiré effect by selecting a specific screen setting or another screen orientation. In order to eliminate this possibility, the secured document had to contain several screen traps with different lines, line distances and orientations. The forger therefore had to find the screens with line distances which would not cause any (well discernible) moiré effects, whereas on the other hand bank note designers tried to make this as difficult as possible by introducing screen traps with always different (and in addition variable) line distances and orientations. This varied approach is also called the "*shower of shot approach*" because in the different screen traps a maximum number of screen settings and orientations must be "hit" during the screen offset process.
- 4.20. Screen traps have additional disadvantages. For example, the screen traps must take up a significant portion of the document to make the occurring moiré effect clearly discernible by the naked eye. In addition, the screen traps must also have sufficient line contrast and line thickness in order to be able to create a significant (discernible) moiré effect. At the same time, the space available for a screen trap on a document, which ideally should be in areas with less dense printing, is rather limited. The use of such screen traps limited the designer's freedom to use the bank note surface used for the screen traps for an additional purpose. Patterns with changing line spacing and changing orientations will only create moiré when a screen has the correct line spacing and orientation, but only in the small portion of the document where this specific screen trap will be "activated"; it is therefore important to locate the entire screen trap in a "quiet" part of the document, where a small moiré interference will also be discernible. Such patterns are not always compatible with the desired esthetical qualities of a bank note, and certainly not when the screen traps also need sufficient line contrast and line thickness to be able to create the desired moiré effects.

*Scanning type copiers (CCD)*

- 4.21. In the 70s and early 80s, the first generation Xerox and Canon colour copiers became commercially available. These devices were analogue and projected an image of the illuminated original on an electrostatically charged printing roll using lenses and mirrors.
- 4.22. As of 1987, digital scanning type copiers were introduced. When using digital scanning type copiers the original image is scanned by a “CCD” (Charge Coupled Device) sensor consisting of a row of thousands of light sensitive diodes. Using the light falling onto the CCD photo diodes, an original document is scanned line by line and the information generated as a result is sent to a processor. The processor processes the information for further use in the printing process with a laser or inkjet printer. For example, in the CLC series scanning type copiers, a laser printer was used.
- 4.23. Around 1988, it was generally admitted that digital scanning type copiers would mean a threat which had not to be underestimated for the document security industry. Although these devices still were too expensive at that time for the average user (unless they were professional forgers) and the copies made with such machines still lacked sufficiently high quality in order to pass a very thorough inspection, it was however clear that, as the quality of scanning type copiers would improve and the price would decrease, these devices would quickly become a real threat. “Amateurs” with access to a scanning type copier would be able to use photocopied bank notes as real bank notes. Therefore, a thorough search was made for new ways to fight this specific threat.

*The average expert*

- 4.24. In the court documents, both Parties extensively focussed on the qualities of the expert concerned on the priority date. Their positions regarding such qualities on the whole correspond with each other.
- 4.25. In imitation of Parties, the Court will start from the following qualities. The average expert is specialised in the area of security printing techniques. Said person may have a background in physics, materials science, optics or comes from the industry. He is familiar with existing security measures and will be involved with the testing and printing of secured documents. He is further familiar with all existing reproduction techniques, including analogue and digital image processing and also has a general knowledge of future reproduction techniques. Furthermore, the average expert has knowledge of the application of existing security characteristics in design.
- 4.26. Parties however have a substantially different opinion regarding the knowledge of the average expert with respect to scanning type copiers. It has not been established that on the priority date, the expert had thorough knowledge of how scanning type copiers operate, as stated by ECB and as disputed by DSS. It would have been up to ECB to further substantiate its statements to the contrary given the reasoned challenge by DSS, for example by submitting relevant professional literature showing the accuracy of its statement. Since ECB failed to do so, the Court will assume that the average expert at the time of the priority date, as these second generation scanning type copiers had just been commercially introduced, only had basic knowledge of the scanning type copiers, such as for example regarding the resolution of the device.

Grounds for nullity

a. Added subject matter – Art. 123, second paragraph of the EPC in conjunction with Art. 75, first paragraph., sub c, of the Netherlands Patent Act of 1995

- 4.27. For the assessment, it is assumed that under Art. 123, second paragraph of the European Patent Convention (EPC) a patent application cannot be amended in such a way that the subject is no longer covered by the content of the application as submitted. In this respect, further to established case law, it must be examined (also refer to Guidelines for Examination in the European Patent Office – December 2007, Part C, Chapter VI, no. 5.3.1.) whether the content of the application as a whole changed in such a way as a result of an addition, modification or deletion that the expert receives information which he cannot derive directly and unambiguously from what was explicitly and implicitly disclosed in the application. The rationale of Art. 123, second paragraph of the EPC consists of the fact that an applicant is not allowed to improve his position by adding matter which was not disclosed in the original application as this would give him an unjustified advantage and could damage the legal certainty of third parties relying on the content of the original application (refer to G1/93, OJ 8/1994, 541). The Court will take this criterion as the starting point.
- 4.28. The average expert, with qualifications as described above in legal grounds 4.24. to 4.26., will interpret the patent as follows:
- The method according to Claim 1 is related to the production of a document using a printing process, in accordance with sub-characteristics F, G, and H. Copying a document printed in this manner with a scanning-type copying device will show discernible defects.
- 4.29. In order to be able to execute the claimed method, according to sub-characteristic B, a visible original image made of curvilinear lines, dots and/or swirls is required. Simply put: the method uses an already existing image. In contrast with the state of the art, the line patterns creating moiré are not processed in the image itself by adding screen traps (compare legal ground 4.18.), but an existing image can be used – which is the advantage that the invention intends to offer.
- 4.30. Sub-characteristic C describes the steps of determining the scanning pitch distance (p) and width of the scanning lines of potential scanning-type copying devices. These parameters considerably determine the resolution of the copying device.
- 4.31. According to sub-characteristic D, a grid pattern of parallel lines is produced having a pitch distance minutely more or less than the scanning pitch distance of the copying device; according to sub-characteristic F, said grid pattern is overlaid on the original image to produce a print of the document. The image in the printed document comprises the original (already existing) image according to sub-characteristic B (i.e. made of curvilinear lines, dots and/or swirls) as well as an overlaying print pattern according to the grid pattern of parallel lines, made as per sub-characteristics D and F, subject to the provisions of Sub-characteristics C and E.

- 4.32. The curvilinear lines, dots and/or swirls according to sub-characteristic B refer to an independent component of the original image. They are completely independent of the grid pattern produced according to the sub-characteristic D method, which is overlaid on the original image according to sub-characteristic F.
- 4.33. The first part of sub-characteristic G claims that the pattern overlaying on the document, is not discernible by the naked eye. The second part of sub-characteristic G claims that the original image and the printed image (the one with the overlaying grid pattern) cannot be distinguished from each other, so that no distortions can be observed by the naked eye between the printed and the original image.
- 4.34. Finally, sub-characteristic H claims that, in the event of reproduction of the (first generation) copy (i.e. the grid pattern placed over the original image), visible defects will be produced.
- 4.35. To establish the content of the original disclosure, the original application, i.e. WO 90/08046, must be considered in its entirety. Disclosure sources are the included claims, the description (both the general part and the specific sections related to the described examples) and/or the drawings.
- 4.36. Between Parties, there is no dispute regarding the disclosure of sub-characteristics A-E and H of the method according to Claim 1 in the original application. The dispute pertains to the question whether this is also the case for sub-characteristics F and G, i.e. an *"overlay of a grid pattern over an original image for creating a printed image on the document whereby the printed image contains the original image having a superimposed transmitted or obstructed print pattern conforming to the grid pattern and in which the print pattern normally is not discernible by the naked eye"*. In this respect, the following is considered.

Sub-characteristic F

- 4.37. In the original application, a number of methods are disclosed for the production of a non-forgable document. The objective of all these methods is for the produced documents to have clear deviations from the original if they are copied using a scanning-type copying device.
- 4.38. In the methods as claimed in Claims 1-12, the images of the original document (i.e. in the design stage) consist of line structures (lineations, refer to claims 1-5, 8-10, and 12) with specific regular spacing. The images are drawn here as a grid structure or grid pattern. It uses the fact that moiré patterns will appear in the copies of these documents made by a scanning-type copying device, if the line structures (in specific areas) have a specific regular distance.
- 4.39. The method of placing a grid pattern over an original image to produce a document according to sub-characteristic F is recorded in Claim 13 of the original application. This claim refers to the production of a document that cannot be copied reliably using a copying process. Copying an original document – not protected by the content of Claim 9, i.e. no *"depositing said image in the form of lineations"*, *underline added, DC*) – with a copying device results in a copy of the original document (replicate) with a grid pattern in the image (*image lineations*). Further copies of this first generation copy appear to be

inaccurate forgeries as visible defects, deformations and moiré effects are found in the image areas. The average expert will understand the intentional production of line structures in the replicate of the original image using the copying process, as overlaying over the original image (refer to sub-characteristic F, stating the following in the English text: *the original image having a superimposed transmitted or obstructed print pattern conforming to the grid pattern*) of a line pattern.

- 4.40. Furthermore, the clear and unequivocal disclosure of sub-characteristic F for the claimed printing method according to Claim 1 of the patent as granted results for the average expert, using his expertise at that time, from the original description. Pages 7 (lines 22-27) and 8 (lines 1-3) of PCT 90/08046 describe how the inventor invented the basic phenomenon behind the invention (and recorded it in Claim 13). The following is said in this respect:

*“The instant inventor in the course of searching for a solution to this problem accidentally discovered that a color copier replication of an original travelers cheque cannot itself be used to produce a closely matching copy. Actually, it was found, surprisingly, that no matter how the color copier was adjusted to eliminate blemished or defects apparent to the casual observer, the copies made from the first copy always had such prominent tell-tales, in one form or another.”*

- 4.41. The inventor realised that with this invention he had found the key to solving the fight against forgery. As said in the description (page 8, lines 7-15):

*“Thus, he conceived the idea of using the bane of the printer to the advantage of the counterfeit preventor. He would use the moire effect to reveal the bogus color copy of a genuine banknote, for example, by producing the note image lineations in mismatch to the scanner of a color copier. The mismatch would be slight and not noticeable to the naked eye and thereby both basic requirements, which no one else was ever able to meet, could be totally satisfied.”*

- 4.42. In addition, on page 8, under lines 21-24, it is underlined that the production of the original document generally, but not always, will take place using a printing process (*“generally, but not always printed”*).

- 4.43. Finally, the average expert can find one last indication on page 9 of the description (lines 3-19):

*“The basic method of counterfeit protection teaches the inclusion of lines, dots and/or swirls embodied and integrally formed into art, pictures and other forms of images. The grid lines are made so as to differentiate minutely in vertical and/or horizontal pitch from the linear grids employed by the scanning mechanisms of the machines used to replicate these black – white or coloured documents. (...) After creation of the authentic document, that is, one including the grid lines of predetermined pitch, the primary method of counterfeit protection, as well as the product thereof, have been realised.”*

- 4.44. From this paragraph, the average expert will also understand that the authentic document must include a *grid* with a *predetermined pitch*, more specifically a pitch which is *minutely different* from the pitch distance of the scanning type copier, which would read in the document slightly differently.

Sub-characteristic G

- 4.45. ECB's position that sub-characteristic G would not have been disclosed either is not accepted by the Court. On page 7 it is described that:

*“In particular, no one heretofore has found a way to provide an original banknote or important document which embodies the two often-sought features of a copy-proof instrument; for example, one which to the unaided eye is both indistinguishable from a prior (genuine) item and which is capable only of obviously bogus copier replication [underlining added, DC].”*

and

*“Consequently, it is now possible, for the first time, to produce legal tender paper currency, genuine travelers cheques, original post stamps, government issued food stamps, important documents or certificates and the like, which to the naked eye are identical to prior items of the same kind but, in fact, have characteristics which reveal copier (especially color) replications to be obvious counterfeits [underlining added, DC].”*

- 4.46. On page 8, sub-characteristic G is also disclosed, more specifically in lines 12-15:

*“The mismatch would be slight and not noticeable to the naked eye and thereby both basic requirements, which no one was ever able to meet, could be totally satisfied. [underlining added, DC].”*

Conclusion regarding added subject matter

- 4.47. The above paragraphs of the description correspond with the content of the matter claimed in Claim 13. The sub-characteristics F and G whereby the grid pattern is placed over the original image for the production on the document of a printed image comprising the original image with an overlaying printing pattern transferred or made non transparent in accordance with the grid pattern and where the printing pattern is not normally discernible by the naked eye, so that the original image and the printed image appear to the naked eye to be generally the same, are therefore *directly and unambiguously* disclosed.
- 4.48. The Court is aware of the deviating opinion of the English court in this respect, and subsequently also of the French court. However, this opinion does not modify this Court's decision. It can be admitted that the term “overlay”, as also established by the Bundespatentgericht, as such cannot be found in the original claims. In addition, in contrast with the Bundespatentgericht, this Court is of the opinion that such does not apply to the term “grid”, which can be translated as “*tralie*”, therefore a line pattern. Claim 13 of the original application refers to a replicant document “*which will be made of image lineations*”, therefore a line pattern. Therefore, the term “grid” is also disclosed as such in the original application. The fact that the term “overlay” cannot be found immediately in it, does not mean that sub-characteristic F would not have been disclosed in the original application in view of the standard to be used (compare legal ground 4.27.). In contrast with the English and the French courts, this Court is of the opinion that



the average expert, with the qualifications as indicated in legal grounds 4.24.-4.26. and mindful of the problem the patent attempts to solve, would of course understand sub-characteristics F and G from the found printing method described on pages 7-9 of the original application for the production of an original secured document (replicant document) and the further copies made using a scanning-type copying device in conjunction with Claim 13. The English court's decision, especially paragraph 119, does not make it clear why it apparently does not consider this combination as the disclosure of the creation of a secured document by placing a line pattern over an original document, as referred to in Claim 1 of the patent as granted.

- 4.49. ECB's position that referring to certain paragraphs of the description in combination with Claim 13 would be an unauthorised mosaic method in order to look for coverage of the modified claim after all, is being rejected. The broader formulation of the original claims which concern the production in several ways of a document that cannot be reproduced reliably, do not stop the applicant from referring to such parts of the description during the granting procedure in which characteristics the applicant wishes to transfer to the claim are described. It would be different if the boundaries of the frameworks given by the EPO in this respect (see legal ground 4.27.) were transgressed, more specifically if the position of the patent holder were improved in an unjustified manner or if the legal certainty of third parties is in danger, however such is not the case in the current proceedings. The applicant's preference for a method with characteristics F and G can be derived sufficiently clearly and unambiguously from the original application, in view of the laying down thereof in a further claim and the wording of the above mentioned paragraphs. Therefore, there is no undisclosed and therefore unauthorised selection of characteristics from the application.
- 4.50. Invoking the nullity of Claim 1 because of added subject matter is therefore rejected.

*b. Lack of inventive step (Art. 75, first paragraph, sub a of the Netherlands Patent Act of 1995 in conjunction with Articles 52 and 54 of the European Patent Convention)*

- 4.51. To substantiate the nullity of EP 750, ECB alleged in the writ of summons that the invention is not new because all characteristics had already been disclosed in a series 1976 20 Swiss Francs bank note. In its statement of reply, ECB also invoked GB 1,138,011 (hereinafter called GB 011). In addition, not until the plea, it invoked the disclosure of the invention with a 10 British pound bank note. The Court considers the following.

*Swiss and British bank notes*

- 4.52. Invoking that the invention was disclosed in the Swiss and British bank notes is being rejected. In fact, ECB only substantiated this by stating that it can be observed later that a colour copy made with a laser colour copier of the Canon 700L type (300 dpi) shows clear changes in the original image, discernible by the naked eye. According to the ECB, this can only mean that in the image section a non-discernible grid pattern has been included, which causes moiré. This statement however does not lead to the conclusion that the method claimed in EP 750 has been disclosed by means of the bank notes: the method cannot be deduced from the bank notes as such. In addition, DSS correctly put forward in this respect that the existence of moiré effects does not imply that the bank notes concerned have been produced using the invention as described in the patent. The bank notes would not disclose to the average expert what he did not already know at that

time. He would recognise the line patterns in the area of the portrait of the queen's face as a screen trap, and he would realise that this was designed to interfere with halftone screens used in conventional reproduction processes. However, the average expert would neither have any reason to believe that a determination of the pitch distance and the width of the scanning lines of a scanning type copier would have taken place, nor would he assume that a grid pattern of parallel lines is produced having a pitch distance minutely more or less than the scanning type copier pitch distance and that such a grid is placed over the original image. In short: now that the invention of EP 750 has not been clearly and unambiguously disclosed in the bank notes, the expert does not learn anything about the problem he is facing with the new generation scanning type copiers. Since ECB did not offer any specific evidence regarding its statement that the Swiss and the British bank notes were produced using the claimed method, such statement is being rejected as challenged with good reasons. In addition, ECB did not state that the invention has been available to the public in another way. Therefore, we do not need to go into more detail in this respect.

#### GB 011

- 4.53. Relating to the invoking of anticipation by GB 011, the following is considered. In short, GB 011 shows the use of applying a series of patterns in an image with different angles and line spacing (*shower of shot approach*) to fight forgery using halftone screening reproduction. Depending on the grid distance of the grid to be used, one or more patterns would cause moiré in the event of reproduction. Therefore, this pertains to the use of traditional screen traps.
- 4.54. The obvious difference with EP 750 is that GB 011 does not concern the production of a secured document in relationship to the scanning mechanism of a scanning type copier in order to avoid in this manner that the document is reproduced reliably on said device. In this respect, ECB recognised that on the priority date of GB 011, i.e. on 6 July 1965, no scanning type copiers were available, so that therein no link can be made with this type of copiers, or with their scanning pitch distance. For this reason only, sub-characteristics C and D are not disclosed in GB 011, in the absence of any relationship with the scanning pitch distance and the grid pattern of a scanning type copier based thereon. GB 011 does also not disclose the step of applying a *superimposed grid* (sub-characteristic F). When applying the theory of GB 011 to use screen traps, in the event of reproduction this would lead to discernible moiré, so that in the end sub-characteristic G ("*not discernible by the naked eye*") is not disclosed in GB 011. Therefore, the document is not detrimental as to novelty for EP 750.

c. Lack of inventive step (Art. 75, first paragraph, sub a of the Netherlands Patent Act of 1995 in conjunction with Article 56 of the European Patent Convention)

#### GB 011

- 4.55. As already explained above, there is an essential difference between the invention in accordance with the patent and the theory as stated in GB 011. GB 011 fights reproduction using *halftone screening*, whereby it is not known in advance which grid distance the forger will use, so that the use of different screen traps with different angles and line spacing in the design stage must cause at least part of the angles and line spacing used to match the selected grid and create moiré as a result (*shower of shot approach*). On the other hand, the invention according to the patent intends to make scanning using

the next generation scanning type copiers as hard as possible. With this new reproduction method, there is no uncertainty regarding the grid screen to be used as the scan grid of scanning type copiers is a known fact for the patent. This includes the advantage of designer freedom as in EP 750 use is made of already existing images over which a *superimposed grid* is placed which is *minutely different* from the one of the scanning mechanism in the scanning type copier to produce a first generation copy where moiré is not discernible. No moiré will be created until further reproduction of the first generation copy. This separate step is not disclosed in GB 011. In addition, according to the patent, there is also the characteristic that such existing image is not visibly changed under the method, with all the resulting advantages. GB 011 therefore does not include a technical pointer which would directly lead the average expert to the invention.

- 4.56. In this respect, ECB further argued that the expert, based on his expertise on the priority date of the technique used in scanning type copiers, would simply read the term *screening* as *scanning* in GB 011, however this approach cannot be followed. Firstly, we repeat that the average expert did not have a thorough knowledge of scanning type copiers on the priority date. We hereby refer to the considerations of the pertinent legal grounds 4.24-4.26. Secondly, it is incorrect to state that *scanning* would occur according to the same principles as *screening*. As indicated above, with *halftone screening* it is for example not known which grid distance and orientation will be used by the forger, which does not happen in the scanning process. The approach is totally different. The idea that moiré could also be created by using scanning type copiers, by determining the scanning pitch distance and the width of the scanning lines of the copying devices, and by placing a *superimposed grid* over the original document in order to produce a secured first generation copy, does not obviously result from GB 011 in combination with the *common general knowledge* of the average expert on the priority date.

*Kurowski (DE 3602563 C1)*

- 4.57. *Kurowski* pertains in reality to an improved version of the theory as already described in GB 011. The differences between this document and the invention in accordance with the patent are identical to the ones between GB 011 and the patent. *Kurowski* also does not include any indication for the expert to arrive at the invention in accordance with the patent.

*Stupp*

- 4.58. *Stupp*'s article describes the creation of moiré in the reproduction technique and offers solutions to avoid it. Therefore, this document does not include any indication for the expert to arrive at the invention in accordance with the patent. To the contrary, it leads the expert away from it.

*US 4,582,346*

- 4.59. The US patent describes a new technique (copier directional slur) to secure documents. In any case, it is not related to the creation of moiré and therefore is not detrimental as to inventive step of the invention.

Steinbach and Wong

- 4.60. The article authored by *Steinbach and Wong* describes the analysis of moiré as observed in scanned halftone images and focuses on its prevention. It does not contain any indication for the average expert to arrive at the invention as laid down in EP 750.

Combinations

- 4.61. The combination of one or more of the above documents also does not negatively affect the level of inventiveness of EP 750.

Subclaims

- 4.62. In conclusion, ECB also stated that Claim 2 is null and void for lack of inventive step, and that Claims 3 and 4 are null and void because of non-enablement, at least – as first stated by ECB in its plea – added subject matter. These statements are rejected. Claim 2 is dependent on the inventive claim, so that the inventive step is a given fact. With respect to the objections against Claims 3 and 4, the relevant arguments developed in light of DSS's defence have been insufficiently substantiated, so that said objections are rejected.

Conclusion

- 4.63. The conclusion is that EP 750 is valid so that its nullification claimed by ECB must be dismissed.

Costs of the proceedings

- 4.64. ECB, as the party against whom judgment is given, will be ordered to pay the costs of the proceedings. Since the matter has been brought before the Court before the implementation date of the Enforcement Directive (Directive 2004/48/EC), the costs of the proceedings will be established in accordance with the liquidation rate. The costs for DSS are estimated at:
- |                       |   |                                                 |
|-----------------------|---|-------------------------------------------------|
| - Court registry fee: | € | 248.00                                          |
| - Attorney fees:      | € | <u>1,808.00</u> (4.0 points x rate of € 452.00) |
| Total                 | € | 2,056.00                                        |

- 4.65. Since, neither during the plea nor otherwise implicitly or explicitly, DSS applied for the judgment to be declared provisionally enforceable regarding any order for payment of the costs of the proceedings in its favour, this order to pay the costs cannot be declared provisionally enforceable ex officio.

**5. The Decision**

The Court

- 5.1. hereby rejects the claims,
- 5.2. orders ECB to pay the costs of the proceedings, as of today estimated at € 2,056.00 for DSS.

269923 / HA ZA 06-2495  
12 March 2008

This judgment was passed by *mr.* Chr.A.J.F.M. Hensen, *mr.* E.F. Brinkman and *mr.* J.Th. van Walderveen and was pronounced in open court on 12 March 2008.

vW