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**D E C I S I O N**  
**of 8 May 2002**

**Case Number:** T 0011/00 - 3.5.1

**Application Number:** 89302540.3

**Publication Number:** 0340898

**IPC:** G06K 19/08

**Language of the proceedings:** EN

**Title of invention:**  
Security coding

**Patentee:**  
Avecia Limited

**Opponent:**  
De La Rue Holographics Ltd.  
GIESECKE & DEVRIENT GmbH

**Headword:**  
Security coding/AVECIA

**Relevant legal provisions:**  
EPC Art. 56

**Keyword:**  
"Inventive step (no)"

**Decisions cited:**  
-

**Catchword:**  
-



Case Number: T 0011/00 - 3.5.1

**D E C I S I O N**  
**of the Technical Board of Appeal 3.5.1**  
**of 8 May 2002**

**Party as of right:** De La Rue Holographics Ltd  
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**Appellant:** GIESECKE & DEVRIENT GmbH  
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**Representative:** Klunker . Schmitt-Nilson . Hirsch  
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**Respondent:** Avecia Limited  
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Blackley, Manchester M9 8ZS (GB)

**Representative:** Giles, David Eric  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 8 November 1999  
rejecting the opposition filed against European  
patent No. 0 340 898 pursuant to Article 102(2)  
EPC.

**Composition of the Board:**

**Chairman:** S. V. Steinbrener

**Members:** R. S. Wibergh

S. C. Perryman

## Summary of Facts and Submissions

- I. This is an appeal against the decision of the Opposition Division to reject the two oppositions against European Patent No. 0 340898.
- II. Claims 1 and 6 of the patent as granted read as follows:
- "1. A method of security coding an article which comprises applying to the article a first identification mark comprising at least one colourless or weakly coloured material having a significant absorption in the near infra-red region of the electromagnetic spectrum from 700 nm to 1500 nm and overprinting the first identification mark with a second identification mark comprising a colorant which does not have a significant absorption in the near infra-red region of the electromagnetic spectrum from 700 nm to 1500 nm".
- "6. An article carrying a first identification mark comprising at least one colourless or weakly coloured material having a significant absorption in the near infra-red region of the electromagnetic spectrum from 700 nm to 1500 nm overprinted with a second identification mark comprising a colorant which does not have a significant absorption in the near infra-red region of the electromagnetic spectrum from 700 nm to 1500 nm".
- III. The appellant (opponent 02) opposed the patent on the grounds that the invention did not involve an inventive step and that the patent extended beyond the content of the application as filed (Article 100(a),(c) EPC).

Opponent 01 invoked the grounds that the invention was not new and did not involve an inventive step and that the patent did not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 100(a),(b) EPC).

Among the documents cited by the opponents were:

D2: US-A-4 627 819 and

D4: FR-A-1 510 531.

IV. According to the Opposition Division, the grounds for opposition did not prejudice the maintenance of the patent unamended. The oppositions were therefore rejected.

V. Opponent 02 lodged an appeal against this decision. In the statement setting out the grounds of appeal it was argued in particular that the invention was obvious having regard to D2 and the common knowledge of the skilled person as reflected for example by D4.

The respondent proprietor disagreed with the appellant's arguments and maintained that the inventors of D2 did not seek to employ colourless or weakly coloured infra-red absorptive material but instead went to great lengths to disguise carbon black based systems.

VI. In a communication pursuant to Article 11(2) of the Rules of Procedure of the Boards of Appeal, the Board expressed doubts about the presence of an inventive step.

- VII. Oral proceedings before the Board were held on 8 May 2002. In accordance with its previous announcement, opponent 01 was not represented at the hearing.
- VIII. The appellant requested that the decision under appeal be set aside and that the patent be revoked.
- IX. The respondent requested that the appeal be dismissed and the patent be maintained as granted.
- X. Opponent 01 has made no submissions at the appeal stage.
- XI. At the end of the oral proceedings the Chairman announced the Board's decision.

## **Reasons for the Decision**

- 1. *The prior art*
  - 1.1 D2 is regarded as the closest prior art document. It describes (see Figure 1) a toy comprising a substrate on which illustrations of various animals and a pathway are provided. Children playing with the toy first listen to sounds of a certain animal and then have to indicate the pathway leading to the appropriate illustration. The children can themselves check their choice by using an infra-red (IR) scanner which detects IR absorbent particles of carbon black present in the pathway to the correct picture. These particles are printed as screens of ink dots. Other pathways contain no carbon black particles but include instead IR transparent, simulated black ink dots (consisting eg

a mixture of cyan, magenta and yellow, which add up to black). All pathways are then overprinted with IR transparent inks so that the correct and incorrect paths are indistinguishable.

It is mentioned that the carbon black screens "can be of minimal intensity, and themselves not readily discernible by the human eye" (columns 4, l. 9-11). Nevertheless, children would be able to detect the presence of carbon black dots even under a layer of IR transparent ink (since the colours are duller), and for this reason a corresponding screen of simulated black ink dots are provided where carbon black is not present (columns 4, l. 25 to 48). A similar toy without the simulated black layer is mentioned in the paragraph "The prior disclosure" in columns 1 and 2.

The teaching of D2 is not limited to toys: "/T/he invention finds equal applicability in other applications in the provision of 'invisible' bar codes... /S/uch an application finds particular utility in coding legitimately printed material, in order that it may be readily distinguished from counterfeits of that printed material" (column 5, l. 10 to 15 and 29 to 35). Figure 3 of D2 shows a bar code printed according to the same principles. The bars are made up of carbon black and the spaces of simulated black ink, and the entire code is overprinted with IR transparent inks.

## 2. *Novelty*

There is agreement among the parties that the invention according to claims 1 and 6 is new and distinguished from the prior art known from D2 in that the IR

absorber is a "colourless or weakly coloured" material. Carbon black, the only IR absorber mentioned in D2, is strongly coloured, ie strongly absorbing in the visible part of the spectrum (see eg columns 2, l. 38 to 43 of the patent-in-suit).

3. *Inventive step*

3.1 According to the appellant, the technical problem can be seen in overcoming the drawback that an IR mark comprising carbon black remains (slightly) visible even if a minimum amount of carbon black is used and the overprinting contains saturated colours. This problem is known from D2, where it is further stated that "minimization of visual detection of the infrared absorptive ink is accomplished by printing the infrared absorptive ink in the form of a screen of *minute dots in a density only barely sufficient to produce the required detectable drop in reflectance* infrared. The screen of infrared absorptive ink dots is then overlaid by screens of up to *maximum density* of infrared transparent inks of selected hue and color, including infrared transparent black ink simulating carbon black ink" (column 1, l. 57 to 65, referring to a "prior disclosure"; italics by the Board). The solution suggested in D2 (see eg the "Summary of the invention" in col. 2) consists in darkening the areas not containing carbon black using a "simulated" black ink having no IR absorption. The appellant regards the invention as an obvious alternative to the described solution. The obviousness would follow from the facts that it was clear from D2 that carbon black was unsuitable because of its strong visibility and that the skilled person was aware that IR absorbers were known which were more or less invisible. Cf. D4, p. 5,



where it is stated that most IR absorbers are uncoloured or transparent ("la plupart des absorbeurs d'infrarouge sont incolores ou transparents").

3.2 The Board agrees with this view. D2 makes it perfectly clear that even small amounts of carbon black tend to render an IR mark visible to acute observers. It was therefore obvious to replace carbon black by a colourless or weakly coloured IR absorber, the availability of which at the date of priority has not been contested.

3.3 The respondent has argued that D2 refers *only* to carbon black and that if it had been obvious to substitute a weakly coloured IR absorber for the carbon black, this would no doubt have been mentioned in D2.

The Board remains unconvinced by this argument. Even if the absorption characteristics of carbon black are certainly unsuitable in the context of D2, this colorant may have other advantages which still made it an overall first choice. As the appellant has pointed out, carbon black is inexpensive and used extensively in the printing industry. It is therefore probable that the authors of D2 never seriously considered replacing the carbon black. D2 in fact mentions that carbon black is used "as a matter of convenience" (column 1, l. 52). But this is purely a commercial constraint. It does not follow from it that the idea to select another IR absorber was not obvious from a technical point of view, but rather that such a choice may have been impractical under routine conditions.

3.4 The respondent has furthermore argued that the skilled person had more obvious alternatives at hand, such as

increasing the thickness of the ink layers printed on top of the IR mark or choosing hues which better conceal the carbon black. The Board agrees that these measures were no doubt available to the skilled person. Indeed, it appears from D2 that similar ideas have already been tested (cf. column 1, l. 62: "screens of up to *maximum density* of infrared transparent inks..."; italics by the Board). But the argument suffers from the weakness that the obviousness of further alternatives does not necessarily render the solution according to the invention non-obvious. Only if it can be shown that another solution has been universally accepted so as to create a prejudice against other possibilities can it be convincingly argued that it requires inventive skill to pick a different path. This is however clearly not the case here.

Moreover, such obvious alternatives may not be viable if pale or bright colours of the overprinted area are desired for specific design reasons (see D2, columns 2, l. 13 to 18 in this context).

- 3.5 In the decision under appeal it is suggested that even if a skilled person had thought of replacing the carbon black with another IR absorber he would learn from D4 that there exist colourless inks. A colourless mark would not need to be overprinted and therefore the skilled person would not have arrived at the subject matter of claim 1, which requires overprinting of the IR mark.

Claim 1, however, is not limited to uncoloured inks but includes "weakly coloured" material - ie visible material, albeit barely so. Such marks would indeed need to be concealed. In fact, also the description of

the patent-in-suit gives no reason for hiding (truly) colourless marks. Cf. the patent application as filed, column 1, l. 24 onwards: "If the i-r mark is printed with an ink containing only colourless ingredients, e.g. a colourless i-r absorber and a colourless binder, it will be invisible to the eye... *If the i-r absorber is weakly coloured*, i.e. it has a slight absorption in the visible region of the spectrum, the i-r mark may be, and preferably is, disguised..." (italics by the Board). There is no need to investigate whether the skilled person would have overprinted an uncoloured mark if the patent-in-suit does not disclose that there is an advantage in doing so.

- 3.6 It follows that the method of claim 1 does not involve an inventive step. Independent claim 6 is not allowable for the same reasons.

## Order

### **For these reasons it is decided that:**

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:

M. Kiehl

S. Steinbrener