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Datasheet for the decision of 5 October 2021

Case Number: T 1038/18 - 3.4.02

Application Number: 11705996.4

Publication Number: 2542420

IPC: G02B3/00, G07D7/00, G07D7/20, B42D15/00

Language of the proceedings: EN

Title of invention:
MOIRE MAGNIFICATION DEVICE

Patent Proprietor:
De La Rue International Limited

Opponent:
Giesecke+Devrient Currency Technology GmbH

Relevant legal provisions:
EPC Art. 54(1), 54(2), 54(3), 56, 83, 87(1), 113(1)
EPC R. 103(1)(a), 111(2)
RPBA Art. 12(4)
RPBA 2020 Art. 13(1), 13(2)

Keyword:

Novelty (main and first to third auxiliary requests: yes)
Admission of amendment to appellant's case after notification of the summons (yes)
Addition to appellant's case in reply to respondent's reply to the grounds of appeal - Amendment to appellant's case within the meaning of Article 13(2) RPBA 2020 (no)
Entitlement to priority (no)
Inventive step (main, first and second auxiliary requests: no; third auxiliary request: yes)
New ground for opposition: no patent proprietor's consent
Sufficiency of disclosure (yes)
Substantial procedural violation and reimbursement of the appeal fee (no)

Decisions cited:

G 0010/91, T 0919/17

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Case Number: T 1038/18 - 3.4.02

D E C I S I O N
of Technical Board of Appeal 3.4.02
of 5 October 2021

Appellant: (Opponent)	Giesecke+Devrient Currency Technology GmbH Prinzregentenstraße 159 81677 München (DE)
Representative:	Zeuner Summerer Stütz Patent- und Rechtsanwälte Partnerschaft Nußbaumstraße 8 80336 München (DE)
Respondent: (Patent Proprietor)	De La Rue International Limited De La Rue House Jays Close Viables Basingstoke RG22 4BS (GB)
Representative:	Gill Jennings & Every LLP The Broadgate Tower 20 Primrose Street London EC2A 2ES (GB)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 22 February 2018 rejecting the opposition filed against European patent No. 2542420 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	R. Bekkering
Members:	F. J. Narganes-Quijano
	G. Decker

Summary of Facts and Submissions

I. The appellant (opponent) lodged an appeal against the decision of the opposition division rejecting the opposition filed against the European patent No. 2542420.

The opposition filed by the appellant against the patent as a whole was based on the grounds for opposition of insufficiency of disclosure (Article 100(b) EPC) and lack of novelty and of inventive step (Article 100(a), together with Articles 52(1), 54 and 56 EPC).

II. During the appeal proceedings the parties referred, among other documents, to the following documents already considered during the first-instance proceedings:

D1: WO 2006/125224 A2
D2: WO 2006/087138 A1
D3: WO 2010/057832 A1
D12: "Informationsverarbeitung - Offsetdruck-technik", H. Teschner; Fachschriften-Verlag (DE), 10th edition, 1997; 2 bibliographic pages, and pages 12/10, 12/11, and 12/14 to 12/16.

In the decision under appeal the opposition division held *inter alia* that

- the requirements of sufficiency of disclosure were met by the patent as granted (Article 100(b) EPC), and

- the subject-matter of the claims as granted was new over the documents considered by the opponent, and in particular over each of documents D1, D2 and D3, and involved an inventive step, in particular over documents D1 and D2 (Article 100(a) EPC).

III. In a communication accompanying the summons to oral proceedings the board presented a preliminary assessment of the case.

IV. In reply to the summons to oral proceedings the respondent (patent proprietor) submitted with the letter dated 19 August 2021 claims according to a main request and auxiliary requests 1 to 5, together with a version of the description for each of auxiliary requests 2 to 5, and in particular with pages 1 to 22 of the description according to auxiliary request 3.

V. Oral proceedings before the board were held on 5 October 2021.

The appellant requested that the decision under appeal be set aside and that the patent be revoked. It further requested the reimbursement of the appeal fee in view of an alleged substantial procedural violation.

The respondent requested that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of the claims and the description according to the main request or auxiliary requests 1 to 5, all requests filed with the letter dated 19 August 2021.

At the end of the oral proceedings the Chairman announced the decision of the board.

VI. Claim 1 of the main request reads as follows:

"A moiré magnification device comprising a transparent substrate carrying:

i) a regular array of micro-focusing elements on a first surface, the focusing elements defining a focal plane;

ii) a corresponding array of microimage element unit cells located in a plane substantially coincident with the focal plane of the focusing elements, each unit cell comprising at least two microimage components;

wherein the pitches of the micro-focusing elements and the array of microimage element unit cells and their relative locations are such that the array of micro-focusing elements cooperates with the array of microimage element unit cells to generate magnified versions of the microimage components due to the moiré effect characterised in that

first microimage components of the unit cells have a colour density different to the colour density of the other, second microimage components,

and wherein a further coloured layer is provided on or extending over the array of microimage element unit cells such that when the device is viewed, at least the second microimage components appear in a colour dependent at least partly on the further coloured layer and which is different from the colour of the first microimage components."

Claim 1 of auxiliary request 1 is identical to claim 1 of the main request.

Claim 1 of auxiliary request 2 differs from claim 1 of the main request in that the penultimate paragraph of the claim reading "first microimage components of the

unit cells have a colour [...] second microimage components," further reads as follows:

"and wherein the second microimage components are formed as a screened pattern,".

Claim 1 of auxiliary request 3 differs from claim 1 of the main request in that the penultimate paragraph of the claim reading "first microimage components of the unit cells have a colour [...] second microimage components," further reads as follows:

"wherein the first microimage components are formed by an opaque colour and the second microimage components are formed as a screened pattern,".

The claims of auxiliary request 3 also include claims 13 and 17 respectively directed to a security device constituted by, and an article provided with, the device defined in claim 1, and dependent claims 2 to 12 and 14 to 16 referring back to claims 1 and 13, respectively.

Reasons for the Decision

1. The appeal is admissible.

2. *Main request and auxiliary requests 1 to 3*

The claims of the main request and auxiliary requests 1 to 3 were submitted by the respondent after notification of the summons to the oral proceedings before the board. The corresponding claims are

identical to the respective claims of auxiliary requests 1 to 4 filed in reply to the statement of grounds of appeal and also identical to the respective claims of the first to fourth auxiliary requests submitted during the first instance proceedings. Therefore, the respondent only amended their case on appeal in that the previous main request was withdrawn and the remaining requests renumbered. This amendment had no effect on the substantive issues addressed by the parties during the appeal proceedings in respect of the present requests. In these circumstances the board is of the opinion that the present main request and auxiliary requests 1 to 3 are to be taken into account in the proceedings (Articles 13(1) and 13(2) RPBA 2020, together with Article 12(4) RPBA 2007, which is applicable in the present case according to Article 25(2) RPBA 2020).

3. *Main request*

3.1 Novelty over the embodiment of Fig. 16a to 16c of document D1

3.1.1 The appellant disputed the opposition division's finding that the subject-matter of claim 1 of the main request was new over the documents on file, and in particular over the device disclosed in document D1 by reference to Fig. 16a to 16c. In particular, the appellant submitted that the embodiments disclosed in document D1 with reference to Fig. 1a and 1b together with a respective one of the icon variants represented in Fig. 16a to 16c would anticipate the subject-matter of claim 1.

3.1.2 The board first notes that it was undisputed by the parties that document D1 discloses by reference to

Fig. 1a and 1b a Moiré magnification device of the claimed type, i.e. a device comprising an array of micro-focusing elements and an array of microimage element unit cells located in the focal plane of the focusing elements and comprising a microimage (any of the icons disclosed by reference to Fig. 16a to 16c) in each unit cell. The two mentioned arrays are configured and arranged so as to generate magnified versions of the microimages due to the Moiré effect. The device comprises, in addition, a sealing layer (layer 6 in Fig. 1a, and layer 321 in Fig. 16a, 16b and 16c) extending over the array of microimage element unit cells (page 32, lines 14 to 19, and page 59, lines 19 to 21).

In its decision the opposition division expressed the view that the device of claim 1 differed from the mentioned device of document D1 in that first and second microimage components of the unit cells had different colour densities, and in that the second microimage components appeared in a colour different from the colour of the first microimage components.

The appellant contested the opposition division's view in this respect and submitted that the two mentioned distinguishing features were also disclosed in document D1.

3.1.3 On the one hand, the board agrees with the appellant's argument that each of the different icons 313, 315 and 317 respectively disclosed in document D1 with reference to Fig. 16a to 16c comprises different components having a different colour density and that therefore, contrary to the opposition division's view, each of the microimages in each of the unit cells of the device of document D1 includes a first and a second

microimage component having different colour densities as claimed. In particular, the peripheral annular section and the central section of the icon fill 323 of icon element 313 have different thicknesses, the material of icon layer 311 is transparent (page 59, lines 15 to 17), the material of the optical separator 309 is implicitly at least partially transparent, and the material of the dyed or pigmented icon element fill 323 is not opaque, but partially transparent because otherwise only the surface section of the icon fill 323 would contribute to the colour properties and the icon element fill would then not exhibit the dependence of characteristics such as the optical density and the tonal distribution on the thickness disclosed in the document (see for instance page 59, line 21 to page 60, line 4, and page 60, lines 10 to 15). As a consequence, the colour density of the peripheral annular section and the central section of icon 313 depend - as submitted by the appellant - on the respective thickness and are therefore different from each other (see, for instance, document D12, page 12/16, left column, figure and the corresponding disclosure, and page 12/10, section 12.3). Therefore, icon 313 comprises different sections or components not only having a different brightness as explicitly disclosed in document D1 (page 61, first paragraph), but also having a different colour density. It is also noted that granted claim 1 does not exclude that the microimage components of each unit cell are adjacent to each other or abut one another (see dependent claims 2 and 3 of the main request; see also Fig. 10A and 10B and paragraph [0072] of the patent specification).

3.1.4 On the other hand, the disclosure of document D1 relating to the use of "a sealing layer 321 that can be transparent, tinted, colored, dyed, or pigmented, or

opaque" (page 59, lines 19 to 21; see also page 32, lines 14 to 19) does - contrary to the appellant's submissions - not allow the conclusion that, as a result of the presence of the mentioned sealing layer, one of the components of the icon (for instance, the peripheral annular section of the icon referred to above) would necessarily appear in a colour dependent on the layer and different from the colour of the other one of the components as required by claim 1. In particular, the claimed effect would require the selection of a colour (i.e. a hue) for the coloured sealing layer involving one of the variants "[...], tinted, colored, dyed, or pigmented, ..." disclosed in document D1 different from the colour of the dyed or pigmented fill material 323 of the icon, and there is no direct and unambiguous disclosure in document D1 of this selection - let alone that the sealing layer would inherently have the effect that at least one of the sections of the icon mentioned above would appear in a colour dependent on the sealing layer and that the different sections of the icon mentioned above would then appear in different colours as required by the claimed invention.

The appellant disputed these considerations previously expressed by the board in the communication annexed to the summons. The appellant submitted, in particular, that these considerations were based on the term "colour" used in claim 1 being exclusively identified with hue, but that the term "colour" did not only include hue, but also brightness and saturation.

The board, however, does not find persuasive the appellant's arguments in this respect. The term "colour" is commonly used in the different technical fields involving the use of colour as either synonymous

with hue, or as referring to hue, brightness and saturation. However, the skilled person in the technical field under consideration would understand the term "colour" used in claim 1 as exclusively referring to hue because only under this understanding of the term "colour" would the claimed coloured layer be "such that [...] the second microimage components appear in a colour [...] different from the colour of the first microimage components" as a consequence of the combination of the colour of the layer with the different colour densities of the microimage components as claimed, while an interpretation of the term "colour" as meaning hue, brightness and saturation would render superfluous and therefore technically meaningless the claimed condition because according to the claimed subject-matter the first and the second microimage components already have a different colour density and therefore a different saturation and consequently a different colour - understood as hue, brightness and saturation -, independently of the presence of the coloured layer. In addition, the interpretation of the term "colour" as specifically referring to hue is, as submitted by the respondent, supported by the explanation of the technical mechanism underlying the claimed invention in paragraph [0067] of the description of the patent specification in which reference is specifically made to hue and only to hue. The further appellant's submissions that, on the contrary, paragraphs [0068] and [0070] of the patent specification would support an interpretation of the term "colour" as encompassing hue, brightness and saturation are not found convincing by the board because paragraph [0068] refers to the colour of the background contrasting "both in hue and brightness" relative to the colour of the unit cells in the specific context of ensuring good contrast, and not in

the context of the claimed observable difference in colour between the first and the second microimage components; and the reference in paragraph [0070] to "two different colours, hues or brightness's" is at least ambiguous under both an understanding of the term "colour" as referring only to hue as also under an understanding of the term as referring to hue, brightness and saturation.

The appellant also submitted that document D1 was directed to the generation of images with a high contrast and that, therefore, the skilled person would understand in this context that in the disclosure of document D1 the colour of the sealing layer should implicitly be different than the colour of the icons because otherwise the icons would not generate visual images with high contrast. The board, however, cannot follow these arguments because, as submitted by the respondent, the sealing layer is only disclosed as such, i.e. as a sealing layer, and, in addition, document D1 is silent as to any specific optical effect provided by the sealing layer from which a technical relationship between the colour of the sealing layer and the colour of the icons could be derived. In addition, the appellant's arguments pertain by their very nature to considerations of obviousness and cannot support the appellant's contention that the mentioned claimed feature would be directly and unambiguously derivable from the disclosure of document D1.

3.1.5 In view of all these considerations, the board concludes that the device defined in claim 1 is new over the device disclosed in document D1 by reference to Fig. 16a to 16c only in that the coloured layer has a colour (hue) such that the second microimage components of the microimages appear in a colour

dependent on the coloured layer and different from the colour of the first microimage components - or, in technically equivalent terms, that the colour of the coloured layer is different from the colour of the microimage components. Therefore, the subject-matter of claim 1 of the main request is new over the embodiment disclosed in document D1 by reference to Fig. 16a to 16c (Articles 52(1) and 54(1) EPC).

3.2 Inventive step over the embodiment of Fig. 16a to 16c of document D1 as the closest state of the art

3.2.1 Amendment to the appellant's case after notification of the summons - Article 13(2) RPBA 2020

In the statement of grounds of appeal the appellant, in addition to raising an objection of lack of novelty of the device of claim 1 over document D1 and submitting arguments in support of the objection, also raised an objection of lack of inventive step of the mentioned device over document D1, without however submitting arguments in support of this objection. Subsequently, with a letter filed after notification of the summons to oral proceedings before the board, the appellant submitted substantive arguments in support of their view that the subject-matter of claim 1 did not involve an inventive step over document D1. These arguments constitute an amendment to the appellant's case in appeal within the meaning of Article 13(2) RPBA 2020.

The respondent objected that the appellant's arguments of lack of inventive step over document D1 were not, but could precautionarily have been, submitted with the statement of grounds of appeal, that the arguments were submitted at a late stage of the appeal proceedings, and that for these reasons these arguments of lack of

inventive step should not be admitted into the proceedings.

The appellant submitted that the issue of inventive step over document D1 as closest state of the art was already addressed during the first-instance proceedings and in particular by the opposition division in the decision under appeal, that the objection was already raised in the statement of grounds of appeal, and that with the statement of grounds of appeal the appellant submitted arguments in support of their view that the features of claim 1 identified by the opposition division's as being new over document D1 were disclosed in document D1. In these circumstances - as already stated in the statement of grounds of appeal - there was, according to the established case law ("Case Law of the Boards of Appeal", EPO, 9th edition (2019), section IV.C.3.4.2), no need to present at that time arguments relating to inventive step. Furthermore, the preliminary assessment of novelty presented by the board deviated substantially from that of the opposition division so that it was justified to react to the preliminary opinion of the board by submitting substantive arguments of lack of inventive step.

The board notes that in the communication annexed to the summons to the oral proceedings the board expressed the preliminary opinion that, contrary to the opposition division's view (see point 3.1.2 above, second paragraph), document D1 disclosed first and second microimage components having different colour densities and that, also contrary to the opposition division's view, document D1 did not disclose a coloured layer as claimed, and in particular a layer such that the second microimage components "appear in a colour dependent [...] on the [...] coloured

layer" (see point 3.1.5 above). Therefore, the board's preliminary opinion substantially deviated from the opposition division's assessment of novelty. In particular, the preliminary opinion was, on the one hand, favourable to the appellant's submissions as regards the claimed feature relating to the microimage components having different colour densities but, on the other hand, the appellant was confronted with the board's preliminary opinion that the different colour of the claimed layer would constitute, contrary to the opposition division's view, a distinguishing feature of the claimed device over document D1 and that this feature would constitute the sole distinguishing feature of the claimed device.

In the board's view these considerations justified, in the circumstances submitted by the appellant and mentioned above, that the appellant, in reply to the preliminary opinion expressed by the board, submitted for the first time during the appeal proceedings arguments of lack of inventive step over document D1 in respect of a claimed feature that did not correspond to the features identified by the opposition division as new, but was subsequently identified in the board's preliminary opinion as the sole distinguishing feature over document D1. Consequently, the mentioned considerations constitute in the board's view cogent reasons justifying exceptional circumstances under which the board, in the exercise of its discretion under Article 13(2) RPBA 2020, considered appropriate to admit the appellant's arguments of lack of inventive step over document D1 into the proceedings.

3.2.2 The respondent submitted that the objective problem solved by the claimed device was not to be formulated along the lines formulated by the opposition division

in its decision, and in particular not in terms of improving the visual contrast or the perceived difference in colour between the microimage components and possibly also with the background, but rather in the terms already mentioned in the patent specification, i.e. in terms of providing two colour microimage arrays in mutual registration. This problem was solved by the claimed provision of two component arrays in the same colour but with different colour densities such that the arrays would be perceived by the observer with different colours due to the presence of the claimed coloured layer (paragraphs [0008] and [0010] of the patent specification).

The board, however, cannot follow the respondent's submissions in this respect because the claimed microimage components are constituted in document D1 by sections of a same icon formed of a predetermined material and therefore, as submitted by the appellant, the sections of the icons do not present the problems of possible manufacturing mis-registrations between microimage components mentioned by the respondent. Therefore, the objective problem formulated by the respondent does not qualify as the objective problem solved by the claimed subject-matter over document D1 as closest state of the art.

Document D1 is primarily directed to the generation of images with a high visual contrast and more specifically, as submitted by the appellant, with tonal or grayscale optical effects (page 60, second paragraph, to page 61, first paragraph). In this technical context, in the board's opinion the objective problem solved by the distinguishing feature identified in point 3.1.5 above resides, as also submitted by the

appellant, in the generation of images having a high visual contrast.

3.2.3 In the board's view, the skilled person confronted with the objective problem formulated above in the context of the disclosure of document D1 relating to the device of Fig. 1a and 1b together with the icons shown in Fig. 16(a), 16(b) or 16(c) specifically designed to create tonal or grayscale optical effects (page 60, second paragraph, to page 61, first paragraph) would generally consider for the colour of the sealing layer any possible colour, with the exception of the specific colour of the material of the icons. Otherwise, the sealing layer having the same colour as the icon material would, as submitted by the appellant, considerably reduce the contrast of the icons, and in particular the contrast between the sections or components of the icons and also the contrast of the icons with respect to the coloured background of the layer. In addition, the provision of the sealing layer with a colour different from the colour of the icon material would result in the microimage components of the microimages appearing in a colour dependent on the colour of the layer and different from each other as a consequence of the different colour density of the microimage components. Therefore, the skilled person would arrive in an obvious way at the claimed subject-matter.

The respondent submitted that the layer under consideration was disclosed in document D1 only as optional and only as a sealing layer.

However, the sealing layer is disclosed as a component of the device of Fig. 16a, 16b and 16c (see sealing layer 321 in the mentioned figures, together with

page 59, lines 20 to 22) and, in addition, as submitted by the appellant, the person skilled in the technical field under consideration would be aware that the layer is arranged with respect to the remaining components of the device (Fig. 16a, 16b, and 16c) in such a way that, in addition to fulfilling a sealing function, would also have an optical or visual background effect on the images generated by the device.

3.2.4 Having regard to the above, the board concludes that the subject-matter of claim 1 of the main request does not involve an inventive step over document D1 as closest state of the art (Article 56 EPC) and that, therefore, the main request is not allowable.

4. *Auxiliary request 1*

The subject-matter of claim 1 of auxiliary request 1 is identical to the subject-matter of claim 1 of the main request. Therefore, the subject-matter of claim 1 of auxiliary request 1 does not involve an inventive step for the same reasons given in point 3 above in respect of claim 1 of the main request (Article 56 EPC) and, consequently, auxiliary request 1 is not allowable.

5. *Auxiliary request 2*

5.1 Novelty

Claim 1 of auxiliary request 2 differs from claim 1 of the main request in that the claim further requires that the second microimage components are formed as a screened pattern. It was undisputed that this feature was new over document D1. Therefore, the device of claim 1 of auxiliary request 2 is new over the device of document D1 in the distinguishing feature already

identified in point 3.1.5 above, and in that the second microimage components are formed as a screened pattern (Articles 52(1) and 54(1) EPC).

5.2 Addition to the appellant's case in appeal in reply to the respondent's reply to the statement of grounds of appeal - Consideration of Article 13(1) RPBA 2020

5.2.1 With the letter dated 1 March 2019 filed in reply to the respondent's reply to the statement of grounds of appeal the appellant submitted for the first time during the proceedings that the priority of the patent was not validly claimed in respect of the claimed invention, that consequently document D3 (publication date of 27 May 2010) considered during the first-instance proceedings as constituting state of the art within the meaning of Article 54(3) EPC constituted state of the art within the meaning of Article 54(2) EPC in respect of the patent in suit (filing date of 1 March 2011), and that the subject-matter of claim 1 of auxiliary request 2 did not involve an inventive step over document D1 as closest state of the art in combination with document D3.

The respondent objected that the appellant's submissions relating to the validity of the priority and the combination of documents D1 and D3 were submitted too late and could already have been submitted with the statement of grounds of appeal, especially in view of the fact that the claims of auxiliary request 2 corresponded to the claims of the third auxiliary request submitted during the first-instance proceedings. In addition, in the statement of grounds of appeal the appellant already referred to their first-instance submissions relating, among other issues, to the issue of novelty over document D3 under

Articles 52(1) and 54(3) EPC and to the patentability of the dependent claims, and all these submissions were silent as to the validity of the priority and the new attack of inventive step. Therefore, the new appellant's submissions constituted a significant deviation from the case previously presented by the appellant and should not be admitted into the proceedings.

5.2.2 The board notes, however, that document D3 was considered by the appellant during the first-instance proceedings in support of the ground for opposition of lack of novelty raised in respect of the patent as granted and that, as far as this ground for opposition is concerned, it was irrelevant at that time whether document D3 constituted state of the art within the meaning of Article 54(3) EPC or within the meaning of Article 54(2) EPC. In addition, in the present case the opposition was rejected by the opposition division, and the appellant was only required in the statement of grounds of appeal to substantiate why they considered non-convincing the reasons given by the opposition division in respect of the patent as granted. Consequently, there was no need at that time to consider whether the priority was validly claimed, i.e. whether document D3 constituted state of the art within the meaning of Article 54(2) EPC. The question of the validity of the priority and of the status of document D3 as state of the art became only pertinent when subsequently the respondent, in reply to the statement of grounds of appeal, filed auxiliary requests, and in particular the amended claims of the then auxiliary request 3 and now auxiliary request 2. Therefore, there was no need for the appellant to submit the issues under consideration already with the statement of grounds of appeal, and the submission of the mentioned

issues in reply to the respondent's reply to the statement of grounds of appeal are, in the board's view, justified in the circumstances of the case.

It is also noted that the claims of auxiliary request 2 correspond to the claims of the third auxiliary request submitted during the first-instance proceedings, and that the appellant could precautionarily have filed submissions in respect of the mentioned claims with the statement of grounds of appeal. However, contrary to the respondent's view, there was no need for the appellant to have followed such an approach. In particular, as submitted by the appellant by reference to decision T 919/17 (point 1 of the reasons), it cannot be expected from the appellant in the circumstances noted above to speculate at that point in time which lines of defence the respondent would adopt, let alone to anticipate that the respondent, in reply to the appeal, would re-submit in appeal the same claims of auxiliary requests previously submitted during the first-instance proceedings. Analogous considerations apply to the respondent's submissions relating to the dependent claims and the facts that claim 1 of the present auxiliary request 2 results from the combination of claim 1 as granted with the feature of dependent claim 2 as granted and the appellant already objected in the opposition notice (section VII) and in the statement of grounds of appeal (point VIII. 2) to the patentability of the features of the dependent claims. The fact that the appellant already submitted arguments in support of the mentioned objection in respect of dependent claims does, in the board's view, not imply that the appellant's case was then to be seen as complete as regards the features of the dependent claims or that the appellant's case was

then subsequently necessarily confined to these submissions.

5.2.3 It follows from the above considerations that the submissions relating to the issue of the validity of the claimed priority and to the issue of inventive step in view of the combination of document D1 with document D3 were filed by the appellant in reply to the respondent's reply to the statement of grounds of appeal in the exercise of their right to be heard and to submit comments in respect of the amended claims submitted with the mentioned respondent's reply to the statement of grounds of appeal. In these circumstances, the board considers that the mentioned submissions, although constituting an addition to the appellant's case in appeal, do not constitute an amendment of their appeal case within the meaning of Article 13(1) RPBA 2020, i.e. an amendment that may be admitted only at the discretion of the board, because the submissions are, in the mentioned circumstances, part of the appellant's case in appeal and are to be taken into account in the proceedings - i.e. without a consideration of the mentioned submissions being subordinated to a discretionary decision of the board.

5.3 Priority issues - Article 87(1) EPC

As regards the question of the validity of the claimed priority, the board notes that, as submitted by the appellant, while claim 1 only requires that the colour of the coloured layer is such that one of the microimage components appears in a colour dependent on the layer and different from the colour of the other microimage components, the priority document only discloses a coloured layer specifically having a "complimentary [*sic*] colour" in relation to the colour

of the microimages (page 17, lines 3 to 6). In addition, the skilled person would understand the expression "complimentary colour" in the technical context of the document as referring to the concept of complementary colours conventionally used in colour theory. Therefore, the subject-matter of claim 1 constitutes a generalisation of the disclosure of the priority document and, as a consequence, the claimed invention is not the "same invention" as the invention disclosed in the priority document within the meaning of Article 87(1) EPC.

The respondent disputed that the skilled person would interpret the expression "complimentary colour" as referring to the concept of complementary colours, and submitted that the skilled person would read the mentioned expression as only referring to a different colour, and not as limiting the colour to a specific colour.

The board, however, is not persuaded by these arguments because the skilled person would not interpret the term "complimentary" in the passage on page 17, lines 3 to 6, of the priority document as being devoid of any technical meaning, but in the specific technical context of the corresponding disclosure on page 16, line 29, to page 17, line 11, as referring to complementary colours, especially as the sentence on page 17, lines 6 to 11, refers to an example involving the use of the colour "blue" for the images and the colour "yellow" for the coloured layer, and these two colours constitute a typical example of what is known in the technical field as two complementary colours.

The respondent also referred to the general statements on page 17, lines 20 to 24, of the priority document as a basis for the use of generally different colours for the microimages and the coloured layer.

However, this passage refers to the "two image icons appearing in two different colours, hues or brightness's", i.e. to the perceived colour of the images generated by the device, and not to the colours of the microimages and of the coloured layer generating the mentioned images, and the mentioned passage does not necessarily imply that the colours of the microimages and the coloured layer are generally different or not necessarily complementary to each other.

The board concludes that the priority is not validly claimed and that, consequently, document D3 constitutes state of the art within the meaning of Article 54(2) EPC in respect of the claimed invention.

5.4 Inventive step

5.4.1 The distinguishing feature mentioned in point 3.1.5 above and relating to the coloured layer is obvious in the technical context of document D1 for the reasons already given in points 3.2.2 to 3.2.4 above.

As regards the additional distinguishing feature according to which "the second microimage components are formed as a screened pattern", the appellant submitted that this feature was obvious in view of the disclosure of document D3. In particular, the objective technical problem solved by the mentioned additional feature over document D1 as closest state of the art was to increase the counterfeit protection of the

device, and document D3 disclosed the incorporation into a Moiré magnification device having first microimage components (structures 87 in Fig. 7) of additional microimage components (components constituted by point areas "T" in Fig. 7) formed as a screened pattern (page 10, lines 21 to 24) in order to increase the counterfeit protection of the device (page 1, lines 7 to 12).

The respondent contested the appellant's formulation of the technical problem and submitted that the objective problem solved by the device defined in claim 1 resided in increasing the manufacture efficiency of the device comprising two components with a different colour and that, in view of the characteristics of the microimage components of Fig. 16 of document D1, the skilled person had no motivation to consider modifying the relief structure of the microimage components.

5.4.2 The board notes that claim 1 requires that the second microimage components are formed as a screened pattern, but leaves open how the first microimage components are formed, and in this context the board does not see in what respect the mentioned distinguishing feature of claim 1 over document D1 may increase the manufacture efficiency of the device of document D1 comprising the first and second microimage components having different colour densities.

In addition, the Moiré magnification device of Fig. 1a and 1b of document D1 incorporating one of the relief icons of Fig. 16 each comprising components having different colour densities is disclosed in the document as a security device (see title) and, in this technical context, the presence of microimage components formed as a screened pattern would improve the security

characteristics of the security device and in particular, as submitted by the appellant, the counterfeit protection of the security device.

In view of these considerations, the board concurs with the appellant that the claimed device solves the objective technical problem of improving the counterfeit protection of the security device of document D1.

5.4.3 As submitted by the appellant, document D3 is directed to a security device operating as a Moiré magnification device (page 1, lines 7 to 12, together with the paragraph bridging pages 3 and 4) and having improved counterfeit protection characteristics (page 2, lines 24 and 25). In particular, document D3 discloses by reference to Fig. 7 (page 12, second paragraph) the modification of a Moiré magnification device comprising an array of microimage components (array 86 of full data bearer structures 87) by the incorporation into the device of an array of image areas (areas 82) each composed of image data bearer structure points (points 83), these image areas being perceived by an observer by visual integration when the device is vibrated or tilted (page 12, lines 19 to 21; see also Fig. 5A to 5C, together with page 9, line 1, to page 10, line 14). In addition, document D3 discloses that the image areas composed of points may be stamped, but also printed or lithographically formed (page 10, lines 21 to 24).

Therefore, document D3 discloses the incorporation of additional microimage components formed as a screened pattern of points in the microimage array of a Moiré magnification device in order to improve the counterfeit protection characteristics of the device. The skilled person would therefore consider the

application of the teaching of document D3 to the Moiré magnification device of document D1 having one of the icons of Fig. 16 as first microimage components in order to solve the objective problem. This approach would result in the device comprising first microimage components constituted by one of the mentioned icons and second microimage components constituted by the mentioned image areas formed as a screened pattern, the first and second microimage components having different colour densities and, as a consequence of the coloured layer mentioned in point 5.1 above, appearing in a different colour. It is noted in this respect that the image areas generated by the screened pattern of points would be perceived by the observer upon vibration or tilting of the device and therefore by visual integration of the points of the screened pattern with the background, and therefore with the colour of the underlying coloured layer (Fig. 5C of document D3, together with the corresponding description).

The respondent argued that the skilled person would not consider the incorporation of the teaching of document D3 into the device of document D1 because the documents were based on different arrangements and different optical effects.

However, the board is not persuaded by this argument because document D3 explicitly teaches that the mentioned image areas of points can be combined with "ordinary Moiré images" (page 12, line 13), and the mere fact that the Moiré device of document D1 is based on first microimage components constituted by icons having a relief structure (Fig. 16 of document D1) would not dissuade the skilled person from considering the application of the teaching of document D3 to document D1.

The respondent also objected that the claimed microimage components were identified during the proceedings with sections of the icons of Fig. 16 of document D1, but also with the icons themselves.

The board notes in this respect, however, that claim 1 only requires the presence of a first and a second microimage component in each of the microimage element unit cells, and that claim 1 can be construed as encompassing first and second microimage components constituted by different microimage elements separated from each other, but also as encompassing first and second components constituted by different sections of a same microimage element (see dependent claims 2 and 3).

5.4.4 Having regard to the considerations above, the board concludes that the subject-matter of claim 1 of auxiliary request 2 does not involve an inventive step in view of documents D1 and D3 (Article 56 EPC) and that, therefore, auxiliary request 2 is not allowable.

6. *Auxiliary request 3*

6.1 Amendments

6.1.1 Claim 1 of auxiliary request 3 results from the combination of claim 1 as granted together with the features of dependent claims 4 and 5 as granted, after omission of a feature specified in dependent claim 4 as granted as constituting a preferred feature. Claims 2, 3 and 5 to 17 of auxiliary request 3 correspond to dependent claims 2, 3, 6 to 12 and 14 to 19 as granted, respectively, and dependent claim 4 defines the feature

specified in dependent claim 4 as granted as being a preferred feature.

The amendments to the description of the patent specification according to auxiliary request 3 relate to the adaption of its content to the invention as defined in the claims of auxiliary request 3 (Rule 42(1)(c) EPC).

The board is therefore satisfied that these amendments do not go beyond the content of the application as filed (Article 123(2) EPC) and that they comply with Article 123(3) EPC.

6.1.2 The appellant submitted during the appeal proceedings that the subject-matter of claim 1 of auxiliary request 3 resulted in an unallowable generalisation of the content of the application as filed (Article 123(2) EPC).

The respondent submitted that the appellant's objection under Article 123(2) EPC amounted to the introduction of the ground for opposition under Article 100(c) EPC and that they did not give their consent to the introduction of this ground for opposition.

The board notes that the opposition was only based on the grounds for opposition under Articles 100(a) and 100(b) EPC (*cf.* point I above, second paragraph), that claim 1 only results from the combination of claims as granted (see point 6.1.1 above, first paragraph), and that therefore - as submitted by the respondent - the appellant's objection under Article 123(2) EPC amounts to an objection under Article 100(c) EPC in respect of the corresponding claims as granted and therefore to the introduction of a ground for opposition neither

invoked by the appellant in the notice of opposition, nor introduced by the opposition division during the first-instance proceedings. In these circumstances, and in view of the fact that the respondent did not consent to the introduction of the ground for opposition under Article 100(c) EPC, the mentioned objection cannot be considered by the board (see G 10/91 (OJ EPO 1993, 420), point 3 of the Opinion).

6.2 Article 83 EPC

6.2.1 With the notice of opposition the appellant raised objections under Article 100(b) EPC in respect of dependent claims 8 and 13 as granted and the appellant maintained these objections in respect of the corresponding dependent claims of the requests considered during the appeal proceedings.

6.2.2 The features of dependent claim 13 as granted have been omitted in the claims of present auxiliary request 3 (see point 6.1.1 above, first paragraph), and the corresponding objections no longer apply.

6.2.3 As regards the features of dependent claim 8 as granted and now dependent claim 7 of auxiliary request 3, the appellant essentially submitted that according to the claim the first and second microimage components defined corresponding arrays with a different pitch each of which was also different from the pitch of the array of micro-focusing elements, and that these features were in contradiction with the features of claim 1 requiring that the first and second microimage components were encompassed by element unit cells, and that the pitches and the relative locations of the array of element unit cells and the array of micro-focusing elements were such that they generated

magnified images by the Moiré effect. According to the appellant this contradiction resulted in an arrangement that could not be implemented by the skilled person.

The opposition division held in its decision that the requirement of Article 83 EPC was met because, first, the requirements were met by the corresponding independent claim 1 and a dependent claim only represented additional non-essential details of the invention and, second, any potential contradiction with claim 1 would represent a clarity issue, which was not a ground for opposition.

The board, however, cannot follow the opposition division's arguments because the requirement of sufficiency of disclosure under Articles 100(b) and 83 EPC is not confined to the invention defined in independent claims and - as submitted by the appellant - it also concerns the invention defined in dependent claims referring back to them. In addition, the mere fact that the appellant's objection under Article 100(b) or 83 EPC is based on a possible contradiction and that a contradiction may give rise to an objection of lack of clarity under Article 84 EPC which does not constitute a ground for opposition does - contrary to the opposition division's view - *per se* not justify omitting consideration of the mentioned objection under Articles 100(b) or 83 EPC.

As regards the arguments submitted by the appellant in support of the objection of lack of sufficiency, the board notes that the fact that the two arrays of first and second microimage components have a different pitch as required by dependent claim 7 would imply, for arrays having a relatively big number of unit cells in relation to the difference in pitch, that the two

components of the pairs of microimage components within the unit cells defined in claim 1 would at a certain point spatially dissociate from each other outside the respective unit cell. However, claim 1 requires that each of the microimage element unit cells comprise a respective one of the mentioned pairs of microimage components. Therefore, the skilled person would understand upon a technical reading of dependent claim 8 together with claim 1 that the relationship between the number of pairs of microimage components - or of microimage element unit cells - present in the device and the value of the difference in pitch between the two mentioned arrays of microimage components is such that the mentioned dissociation would not occur, i.e. that the arrangement of the microimage components in pairs defining the claimed microimage element unit cells would be maintained. Therefore, only a strict literal reading of claims 1 and 7 of auxiliary request 3 without taking into account the limitations imposed by the technical features of the claimed subject-matter would lead to the contradiction alleged by the appellant.

In addition, the issue of sufficiency of disclosure of the invention defined in dependent claim 7 of auxiliary request 3 is to be assessed on the basis of the whole content of the patent specification, and therefore also on the basis of the description. The disclosure of the description relating to Fig. 11 (see paragraph [0073]) explains that "if the dimensions of the array were extended" there would be de-synchronisation between the two arrays. Therefore, the skilled person would avoid extending the size of the array - i.e. incorporating an excessively big number of pairs of microimages - to an extent leading to the dissociation or de-synchronisation mentioned above or, alternatively,

they would consider introducing the "image break 260" disclosed in paragraph [0073] with reference to Fig. 11, two last sentences, by resetting the phasing of two microimage arrays - and therefore forming a device as claimed comprising not one, but two adjacent structures as claimed -, thus avoiding the dissociation mentioned above and therefore also the contradiction alleged by the appellant.

It is finally noted that neither claim 1 nor dependent claim 7 of auxiliary request 3 require that the two microimage components of each of the cells of the array of microimage element unit cells are identically disposed within the respective cell.

For these reasons, the board is of the opinion that the invention defined in dependent claim 7 of auxiliary request 3 referring back to claim 1 is sufficiently disclosed within the meaning of Article 83 EPC.

6.3 Novelty

Claim 1 of auxiliary request 3 differs from claim 1 of the main request in that the claim further requires that the first and second microimage components are formed by an opaque colour and as a screened pattern, respectively. As already mentioned in point 5.1 above in respect of auxiliary request 2, the feature according to which the second microimage components are formed as a screened pattern is new over the disclosure of document D1. In addition, contrary to the view expressed by the appellant, there is no disclosure in document D1 that any of the icons of Fig. 16 of document D1, or any of the sections of the icons, would have a thickness such that its colour could be qualified as an opaque colour as claimed; in

particular, the different sections of the icons of Fig. 16a to 16c of document D1 have different colour densities due to the different thickness of the sections and the sections are semi-transparent and/or semi-opaque (see point 3.1.3 above), and document D1 refers to some of these sections as being "dark" (page 61, first paragraph), but none of them is necessarily opaque as claimed.

Therefore, the claimed device is new over the device disclosed in document D1 in that the first and second microimage components are respectively formed by an opaque colour and as a screened pattern, and in the distinguishing feature already identified in point 3.1.5 above (Articles 52(1) and 54(1) EPC).

6.4 Inventive step

6.4.1 The distinguishing feature mentioned in point 3.1.5 above and relating to the coloured layer is obvious in the technical context of document D1 for the reasons already given in points 3.2.2 to 3.2.4 above, and the distinguishing feature according to which the second microimage components are formed as a screened pattern does not involve an inventive step as concluded in point 5.4 above.

As regards the distinguishing feature relating to the first microimage components being formed by an opaque layer, the respondent submitted that this feature, together with the mentioned feature relating to the second microimage components being formed as a screened pattern, had the effect that the coloured layer would have an effect on the observable colour of the magnified version of the second microimage components formed as a screened pattern, but not on that of the

magnified version of the first microimage components formed by an opaque colour (paragraph [0067] of the patent specification). Therefore, the claimed device solved the problem of providing a more efficient way of generating microimage components of different colours with the device of document D1.

The board concurs with the respondent's submissions that, while an opaque colour would not be affected by the underlying coloured layer of document D1, the colour of a screened pattern would be affected by the coloured layer, and that therefore the objective technical problem solved by the claimed device is to be formulated as submitted by the respondent.

6.4.2 The icons of Fig. 16a to 16c of document D1 have been designed with a relief structure so that the different thickness, and therefore the different optical density, of the sections of the icons create tonal or grayscale visual effects (page 60, second paragraph, to page 61, first paragraph). In this technical context, the board is of the opinion that, as submitted by the respondent, the skilled person confronted with the problem of providing a more efficient way of generating microimage components of different colours would not consider the provision of predetermined icons or predetermined sections of the icons of D1 with an opaque colour. In addition, there is no suggestion in the documents considered in the proceedings that would prompt the skilled person to consider microimage components formed by an opaque colour together with microimage components formed as a screened pattern as claimed.

The appellant submitted that the icons disclosed in Fig. 16 of document D1 were, depending on the thickness, more or less transparent and more or less

opaque, and that the skilled person would consider selecting predetermined sections of the icons as being completely transparent or completely opaque, in particular for the purpose of increasing the contrast between the sections.

However, the board is not persuaded by this argument because document D1 is directed to spatially modulating the thickness of the icons for the purpose of creating, as already noted above, tonal or grayscale visual effects, and there is no suggestion in the document towards increasing the thickness of an icon or of a section thereof to the extent of rendering it opaque as claimed.

6.4.3 For these reasons, the board is of the opinion that the subject-matter of claim 1 of auxiliary request 3 involves an inventive step over the embodiment disclosed in document D1 by reference to Fig. 16a to 16c as closest state of the art (Article 56 EPC).

Claim 13 is directed to a security device according to claim 1, claim 17 is directed to an article provided with the device of claim 1, and dependent claims 2 to 12 and 14 to 16 refer back to claims 1 and 13, respectively. Therefore, the same conclusion reached above in respect of the subject-matter of claim 1 also applies to these claims.

6.4.4 During the oral proceedings the appellant stated that they had no further objections of lack of inventive step in respect of the claims of auxiliary request 3, and the board has no reason to question inventive step of the subject-matter of the claims over the remaining embodiments disclosed in document D1 and the remaining documents considered during the proceedings.

6.5 In view of the above considerations, the board concludes that the patent as amended according to auxiliary request 3 meets the requirements of the EPC within the meaning of Article 101(3)(a) EPC and that, therefore, the patent is to be maintained as amended according to auxiliary request 3.

7. *Alleged substantial procedural violation - Request for reimbursement of the appeal fee*

7.1 The appellant submitted that the decision under appeal was tainted by a substantial procedural violation of the provisions of Article 113(1) and Rule 111(2) EPC, and the respondent contested this view. In addition, the appellant requested the reimbursement of the appeal fee in view of the mentioned procedural violation, but asked the board not to consider the remittal of the case to the opposition division.

7.2 The appellant essentially submitted that the reasons given by the opposition division in its decision in respect of the issue of novelty of claim 1 as granted were confined to the embodiment of Fig. 1a of document D1, and that the reasons were silent as to the corresponding arguments submitted by the appellant in respect of the embodiments of Fig. 16a to 16c, 37(b) and 37(c), 38c and 40 of document D1, and in respect of the embodiment of Fig. 23 of document D2. In addition, the decision was also silent as to the reference made by the appellant during the first-instance proceedings to document D12. According to the appellant all these omissions constituted an infringement of the right to be heard set out in Article 113(1) EPC and a breach of Rule 111(2) EPC.

7.3 The board notes, however, the following:

In section "4. Novelty" of the reasons of the decision the opposition division identified the features of claim 1 as granted that, in their opinion, were new over the device disclosed in document D1 by reference to Fig. 1a, and over the device disclosed in document D2 by reference to Fig. 18a. The objections of lack of novelty raised by the appellant during the first-instance proceedings over the devices disclosed in document D1 by reference to Fig. 16a to 16c, Fig. 37(b) and 37(c), Fig. 38(c), and Fig. 40, and over the device disclosed in document D2 by reference to Fig. 23, were - as submitted by the appellant - not dealt with by the opposition division in the mentioned section "4. Novelty" of the reasons of the decision. However, in the assessment of inventive step (decision under appeal, reasons, point 5) the opposition division held in respect of the feature of claim 1 as granted relating to the first and the second microimage components having different colour densities that neither "D1, Figs. 16-a-f, as well as Fig. 37 etc." (reasons for the decision, point 5.5) nor "D2 [...] Fig. 23 and associated text [...]" (reasons for the decision, point 5.6) disclosed the mentioned claimed feature, and gave the corresponding reasons in support of their view (reasons for the decision, points 5.5 and 5.6). Therefore, although point 4 of the reasons of the decision relating to the assessment of the ground for opposition of lack of novelty is deficient - and in particular incomplete - in that the mentioned arguments of the appellant were not considered and not dealt with in detail, the arguments were at least implicitly considered by the opposition division in the decision under appeal and, in addition, - irrespective of whether or not the reasons given by

the opposition division in points 5.5 and 5.6 of the reasons of the decision are persuasive - the decision as a whole contains sufficient reasons as to why the opposition division considered that the mentioned arguments of lack of novelty were not convincing.

As regards the appellant's submission that the decision was silent as to document D12 and the corresponding arguments submitted by the appellant during the first-instance proceedings, the board notes that the decision focuses on the main, crucial arguments submitted by the appellant during the first-instance proceedings, and that the appellant's submissions contained no substantiation as to why the omission in the decision of any explicit reference to document D12 and to the corresponding arguments of the appellant would have constituted a procedural violation. It is also noted in this respect that the arguments given by the opposition division in points 5.5 and 5.6 of the reasons of the decision were based on an interpretation of the claimed invention (see point 5.6: "same colour density between separate microimage components" [*emphasis added by the board*]) that rendered superfluous a consideration of the arguments submitted by the appellant in respect of document D12 because these arguments related to different sections of a continuous microimage element constituting the claimed microimage components.

In view of these considerations, the board concludes that the appellant's submissions do not support their view that the decision under appeal was tainted by a substantial procedural violation of the procedural requirements enshrined in Article 113(1) and Rule 111(2) EPC.

7.4 In these circumstances, the board cannot identify a substantial procedural violation in the first-instance proceedings that would justify the reimbursement of the appeal fee under Rule 103(1) (a) EPC - and also no special reason that would have justified considering a remittal of the case under Article 11 RPBA 2020. For these reasons, the appellant's request for a reimbursement of the appeal fee is refused.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the opposition division with the order to maintain the patent as amended in the following version:

- Claims: No. 1 to 17 according to auxiliary request 3 filed with the letter dated 19 August 2021.
- Description: Pages 1 to 22 according to auxiliary request 3 filed with the letter dated 19 August 2021.
- Figures: Sheets 16 to 33 of the patent specification.

The Registrar: The Chairman:

H. Jenney R. Bekkering

Decision electronically authenticated