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**Datasheet for the decision
of 23 October 2025**

Case Number: T 1304/23 - 3.2.05

Application Number: 14795088.5

Publication Number: 2994318

IPC: B42D25/30, B42D25/328,
G07D7/12, G02B5/18

Language of the proceedings: EN

Title of invention:

Nanostructure array diffractive optics for motion and animation display

Patent Proprietor:

Authentix, Inc.

Opponent:

Leonhard Kurz Stiftung & Co. KG

Relevant legal provisions:

EPC Art. 54, 100(a), 123(2)
RPBA 2020 Art. 12(4), 12(6), 13(2)

Keyword:

Grounds for opposition - lack of novelty (yes)

Novelty - auxiliary request (no)

Amendments - allowable (no) - added subject-matter (yes)

Late-filed request - admitted in opposition proceedings (no) -
circumstances of appeal case justify admittance (no) - no
longer maintained in first-instance proceedings (yes) -
admitted (no)

Amendment after notification of Art. 15(1) RPBA communication
- exceptional circumstances (no) - admitted (no)



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Case Number: T 1304/23 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 23 October 2025

Appellant: Authentix, Inc.
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 3 May 2023
revoking European patent No. 2994318 pursuant to
Article 101(2) EPC and Article 101(3) (b) EPC.**

Composition of the Board:

Chairman P. Lanz
Members: M. Holz
M. Blasi

Summary of Facts and Submissions

- I. The patent proprietor (appellant) filed an appeal against the opposition division's decision revoking European patent No. 2 994 318 (the patent).

With its statement of grounds of appeal, the appellant filed the claims as granted, sets of claims of auxiliary requests 1 to 9 and the following documents.

D12: "interleave" entry, Merriam Webster's online dictionary

D13: "interleave" entry, Cambridge Online Dictionary

According to the appellant, the sets of claims of auxiliary requests 1 to 9 filed with the statement of grounds of appeal are identical to those of auxiliary requests 1 to 9 considered in the decision under appeal. In the statement of grounds of appeal, oral proceedings were requested as an auxiliary measure.

The opponent (respondent) filed a reply to the statement of grounds of appeal.

- II. The parties were summoned to oral proceedings before the board, as requested. The oral proceedings were scheduled for 17 September 2025.

In a communication under Article 15(1) RPBA issued on 17 February 2025, the board provided, inter alia, its preliminary opinion that:

- the subject-matter of claim 1 as granted was not new in view of document D1, meaning that the ground for opposition under Article 100(a) EPC in conjunction with Article 54(1) EPC prejudiced the maintenance of the patent as granted
- auxiliary requests 2, 4, 5, 6, 7 and 8 did not meet the requirements of Article 123(2) EPC
- the subject-matter of claim 1 of auxiliary request 9 was not new in view of document D1

The board also set out that:

- it did not intend to admit auxiliary requests 1 and 3 in the appeal proceedings
- it was to be expected that the appeal was to be dismissed
- Article 13(2) RPBA could be relevant for any amendment to a party's appeal case made after notification of the communication under Article 15(1) RPBA

III. By letter dated 16 April 2025, the appellant Nanotech Security Corp. informed the EPO that the patent had been assigned to Authentix, Inc. and, as requested, the transfer was subsequently recorded in the European Patent Register.

By a different letter dated 16 April 2025, the appellant filed further substantive submissions and sets of claims of auxiliary requests 10 to 21.

IV. By letter dated 4 September 2025, the appellant stated that it did not intend to attend the oral proceedings scheduled for 17 September 2025 and that it wished to rely on the written submissions made.

The respondent filed further substantive submissions by letter dated 8 September 2025.

The oral proceedings scheduled for 17 September 2025 were cancelled.

V. The following documents submitted during the opposition proceedings are cited in this decision.

D1: JP 2012-159589 A

D1a: English translation of document D1

VI. Requests

The appellant requests that the decision under appeal be set aside and that:

- the opposition be rejected, i.e. the patent be maintained as granted (main request) or, in the alternative
- the case be remitted to the opposition division for further prosecution for consideration of any remaining grounds for opposition or, further alternatively
- the patent be maintained as amended on the basis of one of the sets of claims of auxiliary requests 1 to 9, all filed with the statement of grounds of appeal, or auxiliary requests 10 to 21, all filed by letter dated 16 April 2025

The appellant also requests that auxiliary request 3 be admitted in the appeal proceedings.

The respondent requests that:

- the appeal be dismissed
- auxiliary requests 1, 3 to 8 and 10 to 21 not be admitted in the appeal proceedings
- oral proceedings be scheduled

VII. Claim versions

Claim 1 of the patent as granted reads as follows (the feature numbering used by the board is the same as used in the Reasons of the decision under appeal and is included in square brackets).

"[A] An optical display device [B] comprising a substrate having a surface, [C1] a first frame of an animated image [C2] comprising a first optical sub-wavelength nanostructure array formed on or in the surface of said substrate, [D1] and a second frame of an animated image [D2] comprising a second optical sub-wavelength nanostructure array formed on or in the surface of said substrate;
[E1] wherein said second nanostructure array is rotated relative to said first nanostructure array by a first relative angle of rotation; characterised in that [E2] said first and second nanostructure arrays each comprise a plurality of nanostructures and said nanostructures comprise one or more of nanoholes, nanocolumns formed on or in said surface of said substrate."

Claim 1 of auxiliary request 1 reads as follows.

"[A] An optical display device [B] comprising a substrate having a surface, [C1] a first frame of an animated image [C2'] comprising a first plurality of optical sub-wavelength nanostructure arrays formed on or in the surface of said substrate, [D1] and a second frame of an animated image [D2'] comprising a second plurality of optical sub-wavelength nanostructure arrays formed on or in the surface of said substrate; [E1'] wherein said second plurality of nanostructure arrays are rotated relative to said first plurality of

nanostructure arrays by a first relative angle of rotation;

characterised in that

[C2.1] the first plurality of optical sub-wavelength nanostructure arrays are arranged in subgroups to define a first plurality of pixels of the first frame, wherein the periodicity and size of the nanostructure arrays in each pixel of the first plurality of pixels is selected to define a particular colour or brightness;

[D2.1] the second plurality of optical sub-wavelength nanostructure arrays are arranged in subgroups to define a second plurality of pixels of the second frame, wherein the periodicity and size of the nanostructure arrays in each pixel of the second plurality of pixels are selected to define a particular colour or brightness;

[E2'] said first and second plurality of nanostructure arrays each comprise a plurality of nanostructures and said nanostructures comprise one or more of nanoholes and nano-columns formed on or in said surface of said substrate."

Claim 1 of auxiliary request 2 differs from claim 1 of auxiliary request 1 in that features C2.1, D2.1 and E2' are replaced by the following features C2.1', D2.1' and E2''.

"[C2.1'] the first plurality of optical sub-wavelength nanostructure arrays are arranged in subgroups to define a first plurality of pixels of the first frame, wherein the periodicity and size in each pixel of the first plurality of pixels is selected to define a particular colour or brightness;

[D2.1'] the second plurality of optical sub-wavelength nanostructure arrays are arranged in subgroups to

define a second plurality of pixels of the second frame, wherein the periodicity and size in each pixel of the second plurality of pixels is selected to define a particular colour or brightness;
[E2''] said first and second plurality of nanostructure arrays each comprise a plurality of nanostructures and said nanostructures comprise one or more of nanoholes, nano-columns formed on or in said surface of said substrate."

Claim 1 of auxiliary request 3 differs from claim 1 of auxiliary request 2 in that features C2.1', D2.1' and E2'' are replaced by the following features C2.1'', D2.1'' and E2'''.

"[C2.1''] the first plurality of optical sub-wavelength nanostructure arrays have different periodicities and nanostructure sizes to provide different colours and are arranged in subgroups to define a first plurality of pixels of the first frame, wherein the periodicity and nanostructure size of the nanostructure arrays in each pixel of the first plurality of pixels is selected to define a particular colour or brightness;
[D2.1''] the second plurality of optical sub-wavelength nanostructure arrays have different periodicities and nanostructure sizes to provide different colours and are arranged in subgroups to define a second plurality of pixels of the second frame, wherein the periodicity and nanostructure size of the nanostructure arrays in each pixel of the second plurality of pixels is selected to define a particular colour or brightness;
[E2'''] said first and second plurality of nanostructure arrays each comprise a plurality of nanostructures and said nanostructures comprise nanoholes formed on or in said surface of said substrate."

Claim 1 of auxiliary request 4 differs from claim 1 of auxiliary request 3 in that features C2.1'', D2.1'' and E2'' are replaced by the following features C2.1''', D2.1''' and E2''''.

"[C2.1'''] the first plurality of optical sub-wavelength nanostructure arrays are arranged in subgroups to define a first plurality of pixels of the first frame, wherein the periodicity of the nanostructure arrays in each pixel of the first plurality of pixels is selected to define a particular colour;

[D2.1'''] the second plurality of optical sub-wavelength nanostructure arrays are arranged in subgroups to define a second plurality of pixels of the second frame, wherein the periodicity of the nanostructure arrays in each pixel of the second plurality of pixels is selected to define a particular colour;

[E2'''''] said first and second plurality of nanostructure arrays each comprise a plurality of nanostructures and said nanostructures comprise one or more of nanoholes and nano-columns formed on or in said surface of said substrate."

Claim 1 of auxiliary request 5 differs from claim 1 of auxiliary request 4 in that features C2.1''' and D2.1''' are replaced by the following features C2.1'''' and D2.1''''.

"[C2.1'''''] the first plurality of optical sub-wavelength nanostructure arrays are arranged in subgroups to define a first plurality of pixels of the first frame, each pixel being less than a micron in size, and wherein the periodicity and size of the

nanostructure arrays in each pixel of the first plurality of pixels is selected to define a particular colour or brightness;
[D2.1'''] the second plurality of optical sub-wavelength nanostructure arrays are arranged in subgroups to define a second plurality of pixels of the second frame, each pixel being less than an micron in size, and wherein the periodicity and size of the nanostructure arrays in each pixel of the second plurality of pixels are selected to define a particular colour or brightness;"

Claim 1 of auxiliary request 6 differs from claim 1 of auxiliary request 4 in that feature E2'''' is replaced by feature E2'''.

Claim 1 of auxiliary request 7 differs from claim 1 of auxiliary request 6 in that features C2.1'''' and D2.1'''' are replaced by the following features C2.1''''' and D2.1'''''.

"[C2.1'''''] the first plurality of optical sub-wavelength nanostructure arrays are arranged in subgroups to define a first plurality of pixels of the first frame, wherein the periodicity of the nanostructure arrays in each pixel of the first plurality of pixels is selected to define a particular colour or brightness;
[D2.1'''''] the second plurality of optical sub-wavelength nanostructure arrays are arranged in subgroups to define a second plurality of pixels of the second frame, wherein the periodicity of the nanostructure arrays in each pixel of the second plurality of pixels is selected to define a particular colour or brightness;"

Claim 1 of auxiliary request 8 differs from claim 1 of auxiliary request 7 in that features C2.1'''' and D2.1'''' are replaced by features C2.1'''' and D2.1''''.

Claim 1 of auxiliary request 9 differs from claim 1 as granted in that feature F is added at the end of the claim.

"[F] and wherein said first and second frames of said animated image are interleaved with each other on said substrate."

Claim 1 of each of auxiliary requests 10 to 21 is directed to an optical display device.

VIII. The parties submitted the following.

(a) Main request - patent as granted

(i) Appellant

The subject-matter of claim 1 of the patent as granted was new in view of document D1. This document did not disclose features C1 and D1. Figure 9 of document D1 did not disclose an animated image because there was no perceived motion between the "A" and the area around the "A" shown in the figure. Interleaved frames necessitated an overlap of the image features in each frame, such that an image of each frame overlapped with an image of each other frame and thus appeared in substantially the same place on the optical display device substrate. The correct interpretation of "animated image" had to involve a relationship between the frames of the image such that some kind of motion of the image was perceived. Moreover, there was no

reason for the skilled person to believe that the moving line referred to in document D1 in relation to Figure 1 was a moving image of a line. Instead, the moving line was merely a moving ray of light.

Figure 1 and page 2, lines 23 to 28, of the application as filed, on which the patent was granted (see WO 2014/179891 A1) (see also paragraph [0006] of the patent), included defining language relevant for understanding the claimed concepts. The skilled person would have understood terms consistently in the claims and the prior art. The expression "animated image" would have been understood as involving the appearance or illusion of motion using multiple frames of a similar or related image shown in different positions. In contrast, document D1 merely disclosed a colour change of a static image and not an animated motion.

(ii) Respondent

The subject-matter of claim 1 of the patent as granted was not new in view of document D1. The patent did not provide a definition of the expression "animated image". The skilled person would have understood an animated image to be an image that changed its image information when tilted or rotated. For example, when viewed from different directions, two different images were shown. This interpretation was consistent with the embodiments of the patent. Features C1 and D1 were disclosed, for example, in Figures 1 and 9 of document D1.

(b) Auxiliary request 1

The respondent submitted that auxiliary request 1 had been withdrawn in the opposition proceedings. It should therefore not be admitted in the appeal proceedings.

(c) Auxiliary request 2

(i) Appellant

The set of claims of auxiliary request 2 met the requirements of Article 123(2) EPC. Page 7, lines 14 to 18, and claim 4 of the application as filed provided support for features C2.1' and D2.1'. Moreover, both nanohole arrays and nano-column arrays were disclosed for all embodiments disclosed in the application as filed. Nanostructures were not limited to nanoholes, as apparent from claims 4, 7 and 15; page 4, lines 1 to 6; page 6, lines 1 to 14; and page 11, lines 9 to 24, of the application as filed and claims 4, 13 and 14 of the patent as granted. The skilled person would have understood that each embodiment related to nanostructures generally, with examples discussing nanoholes in a non-limiting manner. Page 7, lines 7 to 18, and page 9, lines 1 to 15, of the application as filed discussed the use of nanostructure arrays and pixels broadly, before going on to give examples of nanohole embodiments. Such examples were not limiting.

(ii) Respondent

Auxiliary request 2 did not meet the requirements of Article 123(2) EPC for the reasons set out in the Reasons of the decision under appeal.

(d) Auxiliary request 3

(i) Appellant

Auxiliary request 3 should be admitted in the appeal proceedings. The amendments made in claim 1 of auxiliary request 3 were clearly allowable and satisfied Article 84 EPC and Article 123(2) EPC as well as all other relevant requirements of the EPC. The skilled person would have directly and unambiguously recognised from the disclosure of the patent as a whole that the "nanostructure size" was the size of the structure itself (i.e. the size of the nanoholes or nano-columns). This would be understood at least from page 7, line 8, and page 10, line 9, of the application as filed on which the patent was granted.

(ii) Respondent

Auxiliary request 3 should not be admitted in the appeal proceedings. The opposition division's use of its discretion when deciding to not admit auxiliary request 3 in the opposition proceedings was not objectionable.

(e) Auxiliary requests 4 to 8

(i) Appellant

As the sets of claims of auxiliary requests 6, 7 and 8 were explicitly limited to nanoholes, they met the requirements of Article 123(2) EPC.

(ii) Respondent

Auxiliary requests 4 to 8 should not be admitted in the appeal proceedings. These requests did not meet the requirements of Article 123(2) EPC for the reasons set out in the Reasons of the decision under appeal.

(f) Auxiliary request 9

(i) Appellant

The subject-matter of claim 1 of auxiliary request 9 was new in view of document D1. The document did not disclose feature F. The skilled person would have understood from the patent that the frame was the image itself to be displayed in that frame (see paragraph [0006] of the patent, "multiple frames of a similar or related image"). Interleaved frames required an overlap of the images depicted in each frame, where parts of one image were arranged between parts of another image (see Figure 1 and paragraph [0018] of the patent and documents D12 and D13). The definition of "interleaved frames" could be derived from Figure 1 of the patent and the description since this was the only embodiment described in the patent that showed interleaved frames. In document D1, the image of the letter A and the negative image A could not overlap since one image was everywhere on the display while the other image was not and both images were spatially separated from each other.

(ii) Respondent

The subject-matter of claim 1 of auxiliary request 9 was not new in view of document D1 for the reasons set out in the Reasons of the decision under appeal.

Moreover, the expression "interleaved frames" did not require an overlap of the images shown in each frame. This requirement followed neither from the claim nor from the description or the figures of the patent. The term "image" was consistently used in the patent for an animated image. However, even if the appellant's interpretation was accepted, Figure 9 of document D1 disclosed an overlap of two images. The image of the letter A (i.e. the lighter areas in Figure 9 indicating relief structure DS1) overlapped the image of the negative letter A (i.e. the darker areas in Figure 9 indicating relief structure DS2).

(g) Auxiliary requests 10 to 21

(i) Appellant

The following exceptional circumstances within the meaning of Article 13(2) RPBA justified the admittance of auxiliary requests 10 to 21 in the appeal proceedings.

- 1) The clarifying nature of the amendments, based on issues central to the decision of the opposition division, which could substantively resolve the issue of claim scope. Auxiliary requests 13 to 17 directly addressed concerns raised by the opposition division and the preliminary view expressed in the board's communication under Article 15(1) RPBA. The same concerns regarding the term "overlaid" expressed in the board's communication had been raised by the opposition division.
- 2) Unusual circumstances regarding the transfer of the patent from the previous patent proprietor to the new one. The transfer of the patent took some time. Attorneys who had not previously been involved in the appeal case needed to consider the case. A further

complication arose from the bankruptcy of the previous appellant's parent company. These circumstances did not enable the new patent proprietor to previously comment or submit auxiliary requests. The letter dated 16 April 2025 was the new patent proprietor's first opportunity to address the concerns of the opposition division and the objections of the opponent.

- 3) The importance of the technology in protecting monetary supply that was so critical to economic stability.

(ii) Respondent

Auxiliary requests 10 to 21 should not be admitted in the appeal proceedings. Admittance of these auxiliary requests would have required the presence of exceptional circumstances. Under established case law, a change of representative was not in itself considered an exceptional circumstance justifying the admission of a request in appeal proceedings (see decisions T 1080/15 and T 615/17). In accordance with decision T 1170/12, a transfer of rights or a change of representative did not justify a late amendment or a departure from previously claimed subject-matter. The new patent proprietor took over the patent in the state it was in at the time of the transfer of rights. The EPO and the public must be able to rely on the decisions taken by a party. The reasons put forward by the appellant would thus not even have justified the filing of these requests with the appeal and therefore could not be considered exceptional circumstances. The extent to which the appellant's opinion had changed, possibly also due to a change of representative or ownership, was within the party's sphere of control and did not constitute exceptional circumstances that justified the filing of further requests at this late

stage of the proceedings. The new auxiliary requests could have been submitted by the appellant in the opposition proceedings. The preliminary opinion of the board provided in the communication under Article 15(1) RPBA did not include any aspects, such as a change of opinion on the decision of the opposition division, which could justify exceptional circumstances. Considerations on the status of the proceedings and procedural economy also spoke against the admission of these auxiliary requests.

Reasons for the Decision

1. Decision in the written proceedings

This decision is issued in written proceedings without oral proceedings pursuant to Article 12(8) RPBA, while preserving the procedural rights of the parties to the proceedings under Articles 113 and 116 EPC.

The principle of the right to be heard under Article 113(1) EPC is observed as this provision only offers the opportunity to be heard. In accordance with Article 15(3) RPBA, the board is not obliged to delay any step in the proceedings, including its decision, by reason only of the absence at the oral proceedings of a party duly summoned that may then be treated as relying only on its written case.

The appellant requested oral proceedings in accordance with Article 116(1) EPC. The statement in its letter dated 4 September 2025 meant that the appellant would not attend the scheduled oral proceedings. While the request for oral proceedings was not explicitly withdrawn, the board considers that the request for oral proceedings became moot by the appellant's

subsequent announcement not to appear at oral proceedings.

The board grants the respondent's main request that the appeal be dismissed. In its submissions in writing, the respondent requested oral proceedings under all circumstances. However, the board considers that Article 116(1) EPC does not require holding oral proceedings in a situation such as the present one, where the party requesting them is granted its main request.

In the communication under Article 15(1) RPBA issued on 17 February 2025, the board, inter alia, set out that it was to be expected that the appeal was to be dismissed and explicitly referred to Article 13(2) RPBA for any amendment to a party's appeal case made after notification of the communication. In a letter dated 16 April 2025, the appellant filed further substantive submissions and sets of claims of auxiliary requests 10 to 21.

The appeal is ready for decision on the basis of the decision under appeal and the written submissions of the parties, with due regard for their rights under Articles 113 and 116 EPC (Article 15(3) RPBA), meaning that the date originally set for oral proceedings was cancelled. The reasons for the decision set out below are based on the board's preliminary assessment as set out in the communication pursuant to Article 15(1) RPBA, also taking into account the appellant's arguments submitted with its letter dated 16 April 2025 and the respondent's submissions filed by letter dated 8 September 2025.

2. Main request - patent as granted

In the decision under appeal, the opposition division concluded that the subject-matter of claim 1 as granted was not new in view of document D1 (see English translation D1a) (see point 3.2.2 of the Reasons of the decision under appeal).

The appellant contests this view and submits that document D1 did not disclose features C1 and D1. In its view, Figure 9 of document D1 did not disclose an animated image because there was no perceived motion between the "A" and the area around the "A" shown in the figure. Interleaved frames necessitated an overlap of the image features in each frame, such that an image of each frame overlapped with an image of each other frame and thus appeared in substantially the same place on the optical display device substrate. The correct interpretation of the expression "animated image" had to involve a relationship between the frames of the image such that some kind of motion of the image was perceived. Moreover, there was no reason for the skilled person to believe that the moving line referred to in document D1 in relation to Figure 1 was a moving image of a line. Instead, the moving line was merely a moving ray of light.

In the decision under appeal, the opposition division considered that claim 1 as granted was not new in view of the embodiment shown in Figure 1 of document D1 (see point 3.2.2 of the Reasons of the decision under appeal). Whether there is a perceived motion between the "A" and the area around the "A" shown in the Figure 9 of document D1 is therefore not pertinent. However, the opposition division referred to Figure 9

of document D1 with respect to claim 1 of auxiliary request 9.

Moreover, in point 3.2.1 of the Reasons, the opposition division set out in detail why it considered that the expression "animated image" could be interpreted as a flip/tilt image. The appellant's submissions in the statement of grounds of appeal do not address this reasoning or demonstrate that the opposition division's view was incorrect.

In the letter dated 16 April 2025, the appellant referred to Figure 1 and page 2, lines 23 to 28, of the application as filed, on which the patent was granted (see also paragraph [0006] of the patent). According to the appellant, the cited passage included defining language that was relevant for understanding the claimed concepts. The skilled person would have understood terms consistently in the claims and the prior art. The expression "animated image" would have been understood as involving "the appearance or illusion of motion using multiple frames of a similar or related image shown in different positions".

In the following, it is presumed that the content of the published international application (WO 2014/179891 A1) is identical to the content of the application as filed on which the patent was granted. The cited passage of the patent reads as follows.

"According to another aspect of the art, motion and animation optical displays are known which provide the appearance or illusion of motion using multiple frames of a similar or related image shown in different positions, and exposing one frame at a time to a viewer."

As correctly set out by the opposition division, the passage thus addresses what is allegedly known from the prior art. The skilled person would have understood the passage as describing that motion, and animation optical devices of the described type are known from the prior art. However, the skilled person would not have derived any definition of the expression "animated image" from the passage - neither a definition that applies to the cited prior art nor a definition to be used in the patent.

Notwithstanding the fact that the opposition division referred to the embodiment of Figure 1 of document D1 with respect to claim 1 of the patent as granted, the appellant has not convincingly demonstrated that the expression "animated image" would have been understood by the skilled person as requiring a perceived motion that goes beyond the optical effect of tilting/flipping disclosed, for example, in the context of the letter A and its surroundings shown in Figure 9 of document D1. Therefore, the appellant's submissions in the letter dated 16 April 2025 that document D1 merely disclosed a colour change of a static image and not an animated motion are not convincing.

The skilled person's interpretation of the expression "interleaved frames" is not pertinent to claim 1 of the patent as granted. This expression is not used in the claim. Moreover, even if the skilled person consulted the description of the patent, the provision of interleaved image frames is only exemplary (see paragraphs [0018]). Claim 1 of the patent as granted is not restricted to interleaved frames. Even assuming that claim 1 of the patent as granted covered embodiments in which interleaved frames were provided,

this in itself does not exclude that the animated image is provided as a flip/tilt image, as set out in the decision under appeal.

Moreover, the opposition division explained in detail why it considered that the moving bright line disclosed in document D1 could be considered to form an animated image as in claim 1 as granted (see points 3.2.1 and 3.2.2 of the Reasons of the decision under appeal). The appellant has not addressed the opposition division's reasoning in the statement of grounds of appeal or provided any arguments why the skilled person would have understood the light line (see Figure 1 and paragraph [0086] of document D1a) to be just a ray of light. There is thus no reason to deviate from the opposition division's conclusions.

The subject-matter of claim 1 of the patent as granted is therefore not new in view of document D1. Thus, the ground for opposition under Article 100(a) EPC in conjunction with Article 54 EPC prejudices the maintenance of the patent as granted.

3. Request for remittal

The appellant requests that the case be remitted to the opposition division for further prosecution for consideration of any remaining grounds for opposition. However, since the ground for opposition under Article 100(a) EPC in conjunction with Article 54 EPC considered by the opposition division prejudices the maintenance of the patent as granted, consideration of further grounds for opposition is neither necessary nor appropriate.

4. Auxiliary request 1

The set of claims of auxiliary request 1 in the appeal proceedings is identical to the one of auxiliary request 1 referred to in the decision under appeal (see point 4 of the Reasons of the decision under appeal). The auxiliary request was first submitted as auxiliary request 2 with the letter dated 27 October 2020. According to point 4.2 of the Reasons of the decision under appeal, the appellant filed an amended auxiliary request 2 during oral proceedings before the opposition division and confirmed that the amended auxiliary request 2 should replace then auxiliary request 2, i.e. current auxiliary request 1 (see also the second and third paragraphs on page 3 of the minutes of the oral proceedings before the opposition division).

The respondent submitted that auxiliary request 1 had thus been withdrawn in the opposition proceedings and should therefore not be admitted in the appeal proceedings. The appellant has not submitted any observations in this regard.

The submission of current auxiliary request 1 is an amendment within the meaning of Article 12(4) RPBA and thus may be admitted only at the discretion of the board. In accordance with Article 12(6), second sentence, RPBA, the board does not admit requests which were no longer maintained in the proceedings leading to the decision under appeal, unless the circumstances of the appeal case justify their admittance.

It is uncontested that the appellant withdrew auxiliary request 2 filed with its letter dated 27 October 2020 (referenced as auxiliary request 1 in the minutes of the oral proceedings before the opposition division and

in the Reasons of the decision under appeal) at the oral proceedings before the opposition division. The appellant has not set out any circumstances of the appeal case that justified the admittance of auxiliary request 1 in the appeal proceedings. Nor are any such circumstances apparent to the board. Exercising its discretion under Article 12(4) and Article 12(6), second sentence, RPBA, the board therefore decided to not admit auxiliary request 1 in the appeal proceedings.

5. Auxiliary request 2

In point 5.2 of the Reasons of the decision under appeal, the opposition division concluded that auxiliary request 2 did not meet the requirements of Article 123(2) EPC. One of the issues hinged on the definition of a first and second plurality of optical sub-wavelength nanostructure arrays in features C2.1' and D2.1'. Page 7, lines 14 to 18, of the application as filed on which the patent was granted only referred to nanohole arrays being configured and treated as pixels. Claim 4 of the application as filed was directed to nanostructures arranged in periodic lattices and therefore concerned an embodiment different from the one addressed in claim 1 of auxiliary request 2.

The appellant disagrees and submits that page 7, lines 14 to 18, and claim 4 of the application as filed provided support for features C2.1' and D2.1'. Moreover, both nanohole and nano-column arrays were disclosed for all embodiments disclosed in the application as filed.

However, page 7, lines 14 to 18, of the application as filed refers to an embodiment in which nanohole arrays of each frame are arranged in subgroups or areas to define sub-images or pixels of an image, and the periodicity and size of the nanostructure arrays in each sub-image or pixel is selected to define a particular colour or brightness. This holds true irrespective of whether the application as filed discloses other embodiments in which arrays of nanostructures other than nanoholes (for example, nanocolumns) are provided. None of the cited passages unambiguously and directly discloses that other nanostructure arrays could be provided instead of nanohole arrays where the nanostructure arrays are arranged in the same way as the nanohole arrays disclosed on page 7, lines 14 to 18, of the application as filed with respect to nanohole arrays. Claim 1 of auxiliary request 2 thus presents new technical information that is not unambiguously and directly derivable from the application as filed on which the patent was granted.

The appellant has not explained why the opposition division's conclusion on claim 4 of the application as filed as a possible basis was incorrect. Nor is this self-explanatory. Claim 4 of the application as filed does not disclose that a first and a second plurality of optical sub-wavelength nanostructure arrays are arranged in subgroups to define a first or second plurality of pixels of the first or second frame, where the periodicity and size in each pixel of the first or second plurality of pixels is selected to define a particular colour or brightness. In contrast, claim 4 of the application as filed discloses that each of the first and second nanostructure arrays comprises a plurality of nanostructures arranged in a periodic

lattice. However, this is not the same as first and second nanostructure arrays being arranged in subgroups to define a first or second plurality of pixels, where there is a periodicity in each pixel, as required by claim 1 of auxiliary request 2.

In the letter dated 16 April 2025, the appellant also submitted that nanostructures were not limited to nanoholes and referred to claims 4, 7 and 15; page 4, lines 1 to 6; page 6, lines 1 to 14; and page 11, lines 9 to 24, of the application as filed and claims 4, 13 and 14 of the patent as granted. The skilled person would have understood that each embodiment related to nanostructures generally, with examples discussing nanoholes in a non-limiting manner.

This view is not convincing. The embodiment on page 7, lines 14 to 18, of the application as filed refers to an embodiment with nanohole arrays. Although the application as filed additionally discloses other embodiments involving other nanostructures, this does not imply that the skilled person would have disregarded the details of the cited embodiment and instead unambiguously and directly derived that the embodiment involved nanostructures other than nanoholes. Nor do the other passages cited by the appellant disclose features C2.1' and D2.1'.

The appellant also submitted that page 7, lines 7 to 18, and page 9, lines 1 to 15, of the application as filed discussed the use of nanostructure arrays and pixels broadly, before going on to give examples of particular nanohole embodiments. Such examples were not limiting.

The appellant's assessment that the subject-matter disclosed in the application as filed is not limited to the embodiment is correct. However, this does not alter the view that the arrangement defined in features C2.1' and D2.1' is only disclosed in the embodiment on page 7, lines 14 to 18, of the application as filed with respect to nanohole arrays. Nor is this view altered by the appellant's reference to page 7, lines 7 to 18, and page 9, lines 1 to 15, of the application as filed. The cited passages do not unambiguously and directly disclose that nanostructure arrays other than nanohole arrays are arranged as disclosed on page 7, lines 14 to 18, of the application as filed.

Auxiliary request 2 thus does not meet the requirements of Article 123(2) EPC.

6. Auxiliary request 3

The set of claims of auxiliary request 3 is identical to the one of auxiliary request 3 underlying the decision under appeal which had been filed as auxiliary request 2B during the oral proceedings before the opposition division at 13:22 hrs (see point 6 of the Reasons of the decision under appeal). The opposition division was of the opinion that this auxiliary request had been filed late and therefore decided to consider the admittance of auxiliary request 3 based on its prima facie allowability. The opposition division concluded that the limitation regarding nanostructure size was not disclosed in combination with features C2.1' and D2.1' in the passage of the application as filed cited by the appellant (i.e. page 7, lines 10 to 18). The amendments made to claim 1 of auxiliary request 3 did not appear clearly allowable, meaning that auxiliary request 3 was not

allowable on a prima facie basis. The opposition division therefore decided to not admit auxiliary request 3.

The appellant requests that current auxiliary request 3 be admitted in the appeal proceedings. The amendments made to claim 1 of auxiliary request 3 were clearly allowable and satisfied Article 84 EPC and Article 123(2) EPC as well as all other relevant requirements of the EPC. The skilled person would have directly and unambiguously recognised from the disclosure of the patent as a whole that the nanostructure size was the size of the structure itself (i.e. the size of the nanoholes or nano-columns). This would have been understood from page 7, line 8, and page 10, line 9, of the application as filed.

Auxiliary request 3 was not decided on the merits in the decision under appeal. Further pursuing auxiliary request 3 on appeal is therefore an amendment within the meaning of Article 12(4) RPBA, and the board has discretion over whether to admit this auxiliary request. In accordance with Article 12(6), first sentence, RPBA, the board does not admit requests which were not admitted in the proceedings leading to the decision under appeal unless the decision not to admit them suffered from an error in the use of discretion or unless the circumstances of the appeal case justify their admittance.

The appellant's submissions in the statement of grounds of appeal do not imply that the opposition division's decision not to admit auxiliary request 3 suffered from an error in the use of discretion. The opposition division applied the criteria of prima facie relevance and clear allowability. It is uncontested that the

opposition division thus applied the correct criteria. Moreover, the opposition division considered the passages of the application as filed cited by the appellant (see point 6.1 of the Reasons of the decision under appeal) and considered that page 7, line 8, and page 10, line 9, of the application as filed related to a different embodiment from the passage of the description (i.e. page 7, lines 10 to 18) forming support for features C2.1' and D2.1'. The opposition division thus concluded that the limitation on "nanostructure size" was not disclosed in combination with features C2.1' and D2.1'. The mere fact that the appellant takes a different view on this does not imply an error in the use of discretion by the opposition division. Nor are any circumstances of the appeal case apparent that justify the admittance of auxiliary request 3.

Exercising its discretion under Article 12(4) and Article 12 (6), first sentence, RPBA, the board thus decided to not admit auxiliary request 3 in the appeal proceedings.

7. Auxiliary requests 4 to 8

7.1 Admittance

The respondent requests that auxiliary requests 4 to 8 not be admitted in the appeal proceedings.

However, the respondent has not provided any reasons why auxiliary requests 4 to 8 should not be admitted in the appeal proceedings. These auxiliary requests are considered on their merits in points 7 and 8 of the Reasons of the decision under appeal and hence form part of the appeal proceedings (Article 12(2) RPBA).

7.2 Objection under Article 123(2) EPC

7.2.1 Auxiliary requests 4 and 5

In point 7 of the Reasons of the decision under appeal, the opposition division concluded that auxiliary requests 4 and 5 did not meet the requirements of Article 123(2) EPC for the same reasons stated for auxiliary request 2.

Features C2.1''' and D2.1''' and features C2.1'''' and D2.1'''' are not disclosed in the application as filed for the same reasons set out above for features C2.1' and D2.1'.

Auxiliary requests 4 and 5 therefore do not meet the requirements of Article 123(2) EPC.

7.2.2 Auxiliary requests 6, 7 and 8

In point 8 of the Reasons of the decision under appeal, the opposition division concluded that auxiliary requests 6, 7 and 8 did not meet the requirements of Article 123(2) EPC for the same reasons stated for auxiliary request 2.

Features C2.1''' and D2.1''', features C2.1'''' and D2.1'''', and features C2.1''''' and D2.1''''' are not disclosed in the application as filed for the same reasons set out above for features C2.1' and D2.1'.

In the letter dated 16 April 2025, the appellant submitted that auxiliary requests 6, 7 and 8 were explicitly limited to nanoholes.

However, the features of claim 1 of these auxiliary requests cited above refer to nanostructure arrays and not to nanohole arrays. Hence, the same considerations set out above for auxiliary request 2 apply. This view is not altered by the definition in the claims that the nanostructures comprise nanoholes. For example, the claims leave open whether the nanoholes among the nanostructures form nanohole arrays of each frame being arranged in subgroups or areas to define sub-images or pixels of an image. The limitation in the claims thus does not overcome the above concerns under Article 123(2) EPC.

Auxiliary requests 6, 7 and 8 therefore do not meet the requirements of Article 123(2) EPC.

8. Auxiliary request 9

In point 9.2.1 of the Reasons of the decision under appeal, the opposition division concluded that the subject-matter of claim 1 of auxiliary request 9 was not new in view of the embodiment shown in Figure 9 of document D1.

The appellant contests this view and submitted that document D1 did not disclose feature F. The skilled person would have understood from the patent that the frame was the image itself to be displayed in that frame, referring to paragraph [0006] of the patent ("multiple frames of a similar or related image").

However, as correctly set out by the respondent, the term "image" is consistently used in the patent for an animated image. This corresponds to the definition in features C1 and D1 of a first and second frame of an animated image, the use of the expression "image

frames" in paragraphs [0018] and [0024], and the depictions in Figures 1 and 3 of the patent. Moreover, even if the appellant's view were accepted that the frame was the image itself to be displayed in that frame, the appellant's submissions would not be convincing for the following reasons.

The appellant submitted that interleaved frames required an overlap of the images depicted in each frame, where parts of one image were arranged between parts of another image, referring to Figure 1 and paragraph [0018] of the patent and documents D12 and D13. The appellant is of the opinion that the definition of interleaved frames could be derived from Figure 1 of the patent and the description since this was the only embodiment described in the patent that showed interleaved frames.

Even assuming that Figure 1 was the only embodiment disclosed in the patent using interleaved frames, it could not be unambiguously and directly derived that this embodiment provided a definition of this expression. Figure 1 and paragraph [0018] of the patent relate to an embodiment using interleaved frames. However, it cannot be ruled out in claim 1 of auxiliary request 9 that feature F may be implemented differently from the depiction of an embodiment in Figure 1 of the patent. The appellant has not convincingly demonstrated that claim 1 of auxiliary request 9 was limited to the embodiment shown in Figure 1 of the patent. Moreover, paragraph [0018] of the patent not only describes the image frames shown in Figure 1 as being interleaved but "overlaid and interleaved with each other" (see column 5, lines 20 and 21). Figure 1 of the patent thus shows an embodiment involving interleaved frames. The statement in paragraph [0024] of the patent that the

animation frames in Figure 3 are adjacent to each other and not overlaid or interleaved does not imply that the arrangement shown in Figure 1 of the patent was the only arrangement possible for interleaved frames either. Even consulting the description and figures of the patent, the skilled person would not have derived a definition of the expression "interleaved frames" from Figure 1 and the description. Nor is there any reason to assume that the skilled person would have read limiting features disclosed only in the exemplary embodiment of Figure 1 into claim 1 of auxiliary request 9.

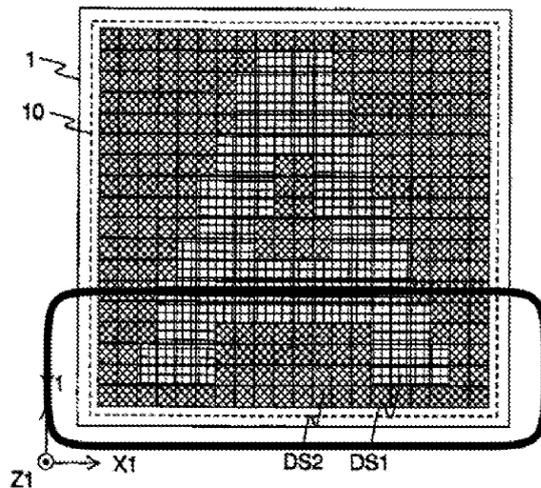
Regarding the keyword "interleaved; interleaving", document D12 states: "to arrange in or as if in alternate layers". Regarding "interleave", document D13 states: "to put layers or flat pieces of something between layers or flat pieces of something else" and "to combine different things so that parts of one thing are put between parts of another thing".

The appellant has not explained why these documents supported its view that interleaved frames required an overlap of the images depicted in each frame. Nor is this self-explanatory. The appellant has not set out what elements of the claimed invention would be the "layers" or "flat pieces" used in the definitions of documents D12 and D13. Nor is it apparent from the appellant's submissions why the opposition division's view that the term "interleaved" should be interpreted as meaning that parts of the first frame are arranged between parts of the second frame of the animated image did not meet the definitions in documents D12 and D13.

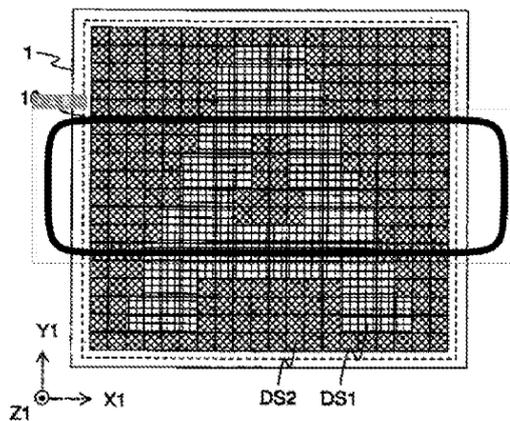
Additionally, the relief structures DS1 and DS2 shown in Figure 9 of document D1 at least meet the second

definition stated in document D13 for the reasons set out on pages 22 and 23 of the Reasons of the decision under appeal for the two annotated versions of Figure 9 of document D1 cited by the opposition division and included below.

【 9 】



【 9 】



Lastly, even if the appellant's view that interleaved frames require an overlap of the images shown in each frame (a view that is not shared by the board for the above reasons), Figure 9 of document D1 discloses an overlap of the images in each frame. As also set out by

the respondent, the image of the letter A (i.e. the lighter areas in Figure 9 indicating relief structure DS1) overlap the image of the negative letter A (i.e. the darker areas in Figure 9 indicating the relief structure DS2). For example, it is unambiguously and directly derivable from the depiction in Figure 9 that the central area of the negative letter A (i.e. an area of relief structure DS2) is surrounded by areas of the letter A, i.e. relief structure DS1. The letter A and the negative letter A appear in substantially the same place.

The appellant submitted that the image of the letter A and the negative image A could not overlap since one image was everywhere on the display while the other image was not and both images were spatially separated from each other.

However, as set out above, the expression "interleaved frames" does not require an overlap of the frames. Nor does feature F require the elements of the frames to be at exactly the same position. Such an interpretation would not be consistent with the embodiment of Figure 1 of the patent either, where the lines belonging to different frames are not at exactly the same position but adjacent to each other. In Figure 1 of the patent, the different frames are overlaid in that the different depictions of the running person appear in overlaying areas. This also holds true for the image of the letter A and the image of the negative letter A in Figure 9 of document D1.

Document D1 thus discloses feature F. The subject-matter of claim 1 of auxiliary request 9 is therefore not new in view of this document (Article 54 EPC).

9. Auxiliary requests 10 to 21

The appellant filed the sets of claims of auxiliary requests 10 to 21 first with the letter dated 16 April 2025, i.e. after notification of the communication under Article 15(1) RPBA. It requests that the board admit these auxiliary requests and consider them on their merits. The respondent requests that these auxiliary requests not be admitted in the appeal proceedings.

It is uncontested that auxiliary requests 10 to 21 were filed late and that the board has discretion to admit them. As set out in the communication under Article 15(1) RPBA, in accordance with Article 13(2) RPBA, any amendment to a party's appeal case made after notification of a communication under Article 15(1) RPBA is, in principle, not taken into account unless there are exceptional circumstances justified with cogent reasons by the party concerned.

According to the appellant, the following aspects give rise to exceptional circumstances within the meaning of Article 13(2) RPBA that justify the admittance of auxiliary requests 10 to 21 in the appeal proceedings.

- 1) The clarifying nature of the amendments, based on issues central to the decision of the opposition division, which could substantively resolve the issue of claim scope.
- 2) Unusual circumstances regarding the transfer of the patent from the previous patent proprietor to the new one. These circumstances did not enable the new patent proprietor to previously comment or submit auxiliary requests.

- 3) The importance of such technology in protecting monetary supply that was so critical to economic stability.

The aspects submitted by the appellant are not considered to be exceptional circumstances within the meaning of Article 13(2) RPBA for the following reasons.

The appellant's view that the auxiliary requests address issues central to the decision of the opposition division and could substantively resolve the issue of claim scope (item 1 above) do not amount to exceptional circumstances. The issues considered by the opposition division in the decision under appeal could and should have been addressed at an earlier stage, as also submitted by the respondent. Even assuming that the decision under appeal included new aspects (which has neither been submitted nor demonstrated by the appellant), these aspects could and should have been addressed in the statement of grounds of appeal. Nor has the appellant convincingly demonstrated that the reply to the statement of grounds of appeal or the board's communication under Article 15(1) RPBA contained any new aspects, let alone that auxiliary requests 10 to 21 were a direct response to such new aspects. Instead, for example, on page 13, fifth paragraph, of the letter dated 16 April 2025, the appellant submitted that the same concerns regarding the term "overlaid" expressed in the board's communication had been raised by the opposition division. On page 14, third paragraph, of the letter, the appellant referred to the board's preliminary opinion expressed in point 7.1 of the communication under Article 15(1) RPBA that auxiliary request 2 did not meet the requirements of Article 123(2) EPC.

However, in the cited passage, the board merely addresses point 5.2 of the Reasons of the decision under appeal and explains why the appellant's submissions in the statement of grounds of appeal do not appear to support the conclusion that the opposition division's conclusion was incorrect, without raising any new aspects. On page 16 of the letter dated 16 April 2025, the appellant considers that auxiliary requests 10 to 19 address issues "that were central to the decision of the Opposition Division".

In the statement of grounds of appeal, the previous appellant addressed the issues raised in the decision under appeal and maintained the main request and auxiliary requests 1 to 9 filed in the opposition proceedings. While it was not the current appellant that filed the statement of grounds of appeal (see item 2), the transfer of the patent does not allow the new patent proprietor to restart the appeal proceedings from the beginning. Instead, the new patent proprietor takes the place of the previous patent proprietor, as also submitted by the respondent. The mere fact that a transfer of the patent took "some time" and that attorneys who had not previously been involved in the appeal case needed time to consider the case is nothing uncommon and seems to be a direct consequence of the previous appellant's and the current appellant's decision to transfer the patent. The appellant has not filed any evidence for the asserted bankruptcy of the previous appellant's parent company. Nor has it explained why this complicated the transfer of the patent from the previous to the current patent proprietor to such a degree that auxiliary requests 10 to 21 could not have been filed earlier. Moreover, this does not overcome the issue that the aspects could and

should have been addressed at an earlier stage of the appeal proceedings.

The fact that the appellant considers the technical field of the patent to be important (see item 3) is not exceptional either. The appellant has not convincingly demonstrated that the non-admittance of auxiliary requests 10 to 21 would put the economic stability of any state or monetary system at risk. The question of whether the latter could be considered exceptional circumstances may therefore be left unanswered.

Exercising its discretion under Article 13(2) RPBA, the board therefore decided that auxiliary requests 10 to 21 were not to be taken into account.

10. Conclusions

In summary:

- the ground for opposition under Article 100(a) EPC in conjunction with Article 54(1) EPC prejudices the maintenance of the patent as granted
- auxiliary requests 2 and 4 to 8 do not meet the requirements of Article 123(2) EPC
- the subject-matter of claim 1 of auxiliary request 9 is not new in view of document D1
- the board decided to not admit auxiliary requests 1 and 3 and to not take into account auxiliary requests 10 to 21

The appeal therefore has to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



N. Schneider

P. Lanz

Decision electronically authenticated