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**Datasheet for the decision  
of 31 August 2022**

**Case Number:** T 1968/18 - 3.2.05

**Application Number:** 10737375.5

**Publication Number:** 2445722

**IPC:** B41J11/00, B41M7/00, B41M5/00

**Language of the proceedings:** EN

**Title of invention:**  
Printing method

**Patent Proprietor:**  
Sericol Limited

**Opponent:**  
Durst Phototechnik AG

**Relevant legal provisions:**  
EPC Art. 54(1), 56, 111(1), 123(2)  
EPC R. 103(1)(a)  
RPBA Art. 12(4)  
RPBA 2020 Art. 11, 13(2)

**Keyword:**

Admittance of documents D18, D18a and D3b (yes)

Allowability of the amendments (yes)

Novelty (yes)

Inventive step (yes)

Admittance of the amended description (yes)

Remittal to the opposition division (yes)

Reimbursement of appeal fee (no)

**Decisions cited:**

J 0007/82, J 0014/19, T 0977/94, T 1808/06, T 1332/12,

T 1646/12, T 0713/14, T 1294/16, T 0545/18, T 0661/18,

T 1024/18, T 1598/18, T 1989/18, T 0121/20



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Case Number: T 1968/18 - 3.2.05

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.05**  
**of 31 August 2022**

**Appellant I:**  
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**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
28 May 2018 concerning maintenance of the  
European Patent No. 2445722 in amended form.**

**Composition of the Board:**

**Chairman** T. Vermeulen  
**Members:** O. Randl  
T. Karamanli

## Summary of Facts and Submissions

- I. Both the patent proprietor (appellant I) and the opponent (appellant II) filed appeals against the decision of the opposition division on the amended form in which European patent No. 2 445 722 ("the patent") could be maintained.

The opposition division was of the opinion that the amendments made to the subject-matter of claim 1 of the main request and auxiliary requests 1 to 7 did not comply with the requirements of Article 123(2) EPC, but that auxiliary request 8 complied with the requirements of the EPC.

- II. Among the documents cited in the decision under appeal, the following were relevant to the appeal proceedings:

D1: US 2006/0192829 A1  
D2: US 3,943,046  
D3: JP 2006-142612 A  
D3a: Machine translation of document D3  
D5: EP 2 053 104 A1  
D6: WO 2006/128840 A1  
D7: WO 2007/045580 A1  
D8: EP 1 958 778 A2  
D9: US 2008/0174648 A1  
D12: US 2005/0099478 A1  
D13: US 2006/0066703 A1.

Together with its statement of grounds of appeal, appellant II filed document WO 2006/090541 A1 and a machine translation, referring to these documents as documents D15 and D15a. As the opposition division had already used the label D15 for another document

(US 2005/0007768 A1), document WO 2006/090541 A1 and its translation will be referred to as documents D18 and D18a.

With its response to the board's communication pursuant to Article 15(1) RPBA 2020, filed by letter dated 24 August 2022, appellant I filed a new translation of document D3 prepared by a human translator. This document is referred to as document D3b.

- III. The summons to oral proceedings was issued on 15 July 2021. The board's communication pursuant to Article 15(1) RPBA 2020 was issued that.
- IV. The oral proceedings before the board took place on 31 August 2022 in the form of a videoconference, as requested by both parties. At the oral proceedings, appellant I filed amended description pages 3, 5 and 6.
- V. Appellant I (patent proprietor) requested that the decision under appeal be set aside and that the patent be maintained as amended on the basis of the claims of the main request filed by letter dated 12 December 2019 or on the basis of the claims of one of auxiliary requests 1 to 15 filed by letter dated 12 December 2019.
- VI. Appellant II (opponent) requested that the decision under appeal be set aside and that the patent be revoked.
- VII. Claim 1 of the main request reads (feature references in square brackets were added by the board):

"A method comprising:

[1] applying a UV curable ink to a substrate;

[2] partially curing the ink by exposing the ink to UV radiation from an LED source; and  
[3] exposing the partially cured ink to UV radiation from a flash lamp,  
wherein [4] the ink cures by radical polymerisation."

VIII. The parties' submissions with respect to the issues relevant to the decision may be summarised as follows:

**(a) Admittance of documents D18 (and its translation D18a) and D3b**

(i) Appellant II (opponent)

Document D18 was submitted in response to the opposition division's definition of the objective technical problem (point 5.3.2 of the decision under appeal).

The opposition division did not base its reasoning on the allegedly solved objective technical problem of creating an improved printing process. The reasoning was based on the much more specific problem of ensuring an image with good adhesion to the substrate, good surface curing and low power consumption without having to resort to a nitrogen environment (see also page 9 of the decision under appeal). A general improvement in the printing process may consist in any improvement, such as an increase in the printing speed, lower ink consumption, etc. Document D18 is *prima facie* highly relevant, as it discloses in paragraph [0044] that when a flash lamp is used oxygen inhibition can be reduced by increasing the illumination intensity.

(Appellant II did not object to the admission of document D3b, which is a more readable translation of document D3 than the machine translation D3a.)

(ii) Appellant I (patent proprietor)

Document D3b is a new translation of document D3 into English prepared by a human translator. It is intended to replace the machine translation on file. This new translation does not provide any new information, but is easier to read. It is believed that these are exceptional circumstances/cogent reasons within the meaning of Article 13(2) RPBA. Therefore this document should be admitted.

Document D18, its translation D18a and the objection of lack of inventive step based on a combination of documents D1 and D18 should not be admitted into the appeal proceedings. Documents D18, D18a and the objection based thereon are late filed since they could have been submitted in the first-instance proceedings. Moreover, document D18 is not prima facie relevant and document D18a is a poor-quality machine translation of document D18.

**(b) Main request: compliance with Article 123(2) EPC**

(i) Appellant I (patent proprietor)

Claim 1 has been limited to an ink that cures by radical polymerisation. The basis for this amendment can be found on page 8, line 29 of the application as filed. The opposition division took the view that the added feature was unduly isolated from its original context because it was not specified that the ink "comprises a monomer or oligomer that is polymerizable by radical addition polymerisation, or a mixture thereof". However, radical polymerisation and radical addition polymerisation are synonymous. Radical

polymerisation is a method of polymerisation by which a polymer is formed by the successive addition of free-radical building blocks. There is no radical polymerisation other than addition polymerisation. Therefore an ink which cures by radical polymerisation inherently contains a monomer or oligomer that is polymerisable by radical addition polymerisation. It is not correct that chain polymerisation was incorrectly equated to addition polymerisation. Radical polymerisation reactions must be addition reactions because they occur via removal of an electron from a pi bond. This leaves behind a sigma bond: hence no covalent bonds are broken and no molecules can be evolved. It is telling that appellant II was unable to provide an example of a radical polymerisation reaction that is not an addition polymerisation reaction. The requirements of Article 123(2) EPC are met. There is indeed no change of scope between claim 1 of the main request and claim 1 of the request that the opposition division found allowable. However, there is a benefit to a patent proprietor in not making unnecessary amendments to its patent.

(ii) Appellant II (opponent)

During the opposition proceedings, claim 1 was amended by adding feature 4, allegedly based on page 8, line 29 of the original application. However, it can be seen from page 8, lines 30 and 31 that the added feature only applies in connection with the further limitation that the ink contains monomers or oligomers or mixtures thereof which are polymerisable by radical chain polymerisation. Since amended claim 1 does not contain this further limitation, originally-undisclosed embodiments are now also included, for example those in which a "controlled free radical polymerisation (CFRP)" or a "living free radical polymerisation (LFRP)" etc.



is used instead of a "radical addition polymerisation". The argument that any radical polymerisation is an addition polymerisation is incorrect. It is not possible to equate the terms chain polymerisation and addition polymerisation. Chain(-growth) polymerisation occurs via an active chain end. There are radical, cationic, anionic and coordinative chain polymerisation reactions. Step-growth polymerisation takes place via polycondensation or polyaddition. The expression "radical polymerisation" leaves it open as to whether chain-growth or step-growth (i.e. addition) polymerisation is meant. Thus claim 1 has no basis in the original disclosure. The amendment constitutes an unallowable intermediate generalisation in violation of Article 123(2) EPC. If radical polymerisation and radical addition polymerisation were synonyms, it would be difficult to understand why appellant I had filed an appeal, because claim 1 of the main request and claim 1 of the request which the opposition division found allowable differ precisely in this respect.

**(c) Main request: novelty over document D1**

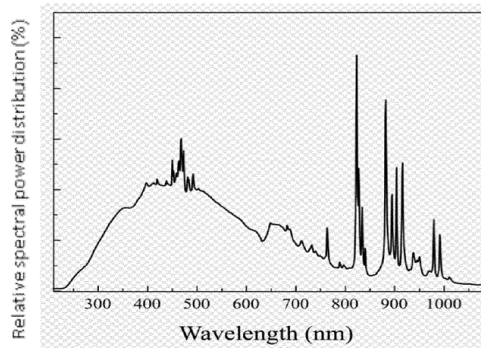
(i) Appellant II (opponent)

**Feature 2** is disclosed in document D1 because the ink is partially cured by exposing it to UV radiation from an LED source (see paragraphs [0003], [0005], [0010] and [0058]). **Feature 3** requires only that the ink that was partially cured by the LED be exposed to UV radiation generated by a flash lamp. The printhead shown in Figs. 9A and 9B comprises two rows of LEDs, which can also be pulsed (paragraph [0059]). LEDs can be used as flash lamps, in particular in the field of photography. Photoinitiation of UV curable inks occurs in a spectral range around 365 nm (D1, paragraph

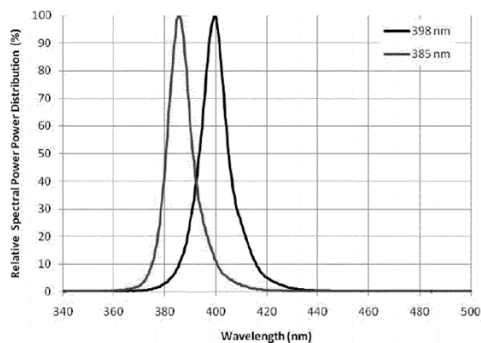
[0058]; paragraph [0012] of the patent). The technical effect of a flash lamp consists in that high intensity can be achieved in a short time (see paragraph [0024] of the patent). It must be assumed that only a very small part of the spectrum of the flash lamp is actually used (document D1, paragraph [0058]). In some embodiments of the patent, the UV spectrum used for curing corresponds to that of the LEDs (paragraphs [0012] and [0020] of the patent). Krypton and xenon flash lamps are mentioned only as examples (see paragraph [0018] of the patent). Only the use of very specific inks requires the broad spectral distribution of a xenon flash lamp (paragraph [0062] of the patent). The patent does not make a principled distinction between LEDs and flash lamps in general, but rather a distinction between continuously-operated light sources and pulsed light sources, as does document D1 (see paragraph [0066]). A pulsed LED also constitutes a flash lamp in the light of the disclosure of the patent. Document D1 further discloses that areas printed with UV curable ink are exposed to the light of the LEDs several times (paragraphs [0054] and [0055]). Due to the reciprocating movement of the printhead along rail 16 in Fig. 1, the overlap regions 56 are illuminated by both LEDs 100-1 and 100-2 (Fig. 8A) or LEDs 102-1 and 102-2 (Fig. 9A). The pulsed LEDs of document D1 qualify both as LED light sources and as flash lamps. Illumination with the first row of LEDs (e.g. LEDs 102-1) partially hardens the ink in a printed area. This area is also exposed to the light generated by LEDs 102-2 with a time delay due to the movement of the head. Consequently, feature 3 is disclosed. **Feature 4** is disclosed because paragraph [0048] discloses curing by radical polymerisation.

(ii) Appellant I (patent proprietor)

Document D1 fails to disclose features 2 and 3. It discloses first setting and subsequently curing the ink, see paragraph [0006]. Paragraphs [0058] to [0061] constitute the main disclosure relating to LEDs. There is no disclosure of exposing the ink that has been set by the LEDs to flash lamps to fully cure the ink. Flash lamps are mentioned in paragraphs [0063] and [0066], but they are used for setting the ink. Document D1 favours using the same sources for both setting and curing, see Figures 14 and 18. The nature of the LED light sources used in the embodiment of Fig. 9 is not specified, see paragraph [0058]. Even a pulsed LED source is distinct from a flash lamp and vice versa. Photography is a distinct technical field. LEDs emit UV radiation over a narrow range of wavelengths (for example a 15 nm bandwidth), see paragraph [0020] of the patent. Flash lamps emit high intensity UV radiation over a much wider bandwidth ranging from UV to IR, and hence have a much wider bandwidth output. An LED that is turned on and off rapidly does not constitute a flash lamp within the meaning of the art, as it would still have a very narrow bandwidth. A typical xenon arc flash lamp has the following output profile:



This is in marked contrast to the output profiles of UV LEDs such as the following:



A flash lamp and an LED being distinct UV sources, the subject-matter of claim 1 is new over document D1.

**(d) Main request: novelty over document D3**

(i) Appellant II (opponent)

**Feature 2** is disclosed in paragraphs [0047] and [0098] of document D3. According to embodiment 3 (Fig. 5), a UV light source (LED) as described in paragraph [0047] is used for pre-curing (see paragraph [0093]).

**Feature 3** is disclosed in paragraph [0099]. As also shown in Fig. 5, the UV ink is cured with the "LED" (12) and then with the "flash" (11) next to the print head (7). That the flash 11 of embodiment 3 is a UV light-emitting flash is immediately apparent from paragraph [0095]. This paragraph does not disclose that the partially cured ink is exposed to IR light from the flash lamp 11 and not to UV light: it explicitly mentions a UV flash lamp. Moreover, IR radiation is not mentioned, nor can it be inferred from Fig. 5 that the flash lamp 11 is intended to emit only in the IR range. Claim 1 does not require that the ink be cured by UV radiation from the flash lamp either, but only that it be exposed to such radiation, which in any case must

always be the case when the ink is exposed to the light produced by a xenon flash lamp. Document D3 also discloses **feature 4**. The ink cures by radical polymerisation (paragraph [0060]). From the disclosure of embodiment 3 of document D3 (paragraph [0095]), it is clear to the skilled person that the flash lamp is a UV flash lamp and the ink is consequently a UV curable ink. It further follows from paragraph [0062] of document D3 that cationic and radical polymerisable inks are used to implement the process. Thus embodiment 3 comprises two embodiments, one using radical polymerisable and the other cationic polymerisable inks. The subject-matter of claim 1 is not new over embodiment 1.

(ii) Appellant I (patent proprietor)

Document D3 relates to an inkjet printer, which includes a printhead. It discloses four embodiments, starting at paragraphs [0037], [0085], [0093] and [0103] respectively. Document D3 fails to disclose features 2 and 3. In accordance with the invention, the partially cured ink is exposed to UV radiation from a flash lamp. This lamp provides a short, sharp burst of unfocused high-energy UV radiation, but as it is not focused it has relatively low penetrating power into the ink film. In document D3, a cationic ink is used (see paragraph [0006]). This is apparent from the fact that surface cure is achieved when the ink is exposed to the UV light source (see paragraph [0017]). Once started, cationic polymerisation continues until all available reactive sites are consumed. As relatively few growing chains have to be initiated at the time of UV exposure, low-power short-wavelength LEDs may be used. Cationic cure is greatly assisted by heat (i.e. IR radiation). The cationic systems are not affected by

oxygen inhibition at the surface, but the rate of cure of the whole ink film is retarded by atmospheric moisture. Consequently, surface cure only is achieved by the LED source. The film is then exposed to the flash lamp to achieve full cure as the heat from the lamp speeds up the process. This is in contrast to free-radical curing, where the ink needs to be continually exposed to UV radiation to repeatedly generate radicals, which are required until the cure is completed. The flash lamps used in document D3 generate predominantly IR radiation for heating the cationic curable inks. The fact that the flash lamp also emits UV radiation does not necessarily mean that a radical curable ink is used. Document D3 mentions radical polymerisable compounds (paragraphs [0060] and [0061]) in relation to embodiment 1. As cationic inks are employed for embodiment 3, only surface cure is achieved when exposing the cationic ink to an LED in paragraph [0017]. As features 2 and 3 are not disclosed, the subject-matter of claim 1 is new over document D3. It is not appropriate to combine separate embodiments when novelty is examined.

**(e) Main request: inventive step, starting from document D1**

(i) Appellant II (opponent)

Document D1 teaches that partial curing with UV light is followed by curing with UV light of higher intensity (see paragraph [0006]). It anticipates in general all the technical features that allegedly contribute to an improved appearance. Fig. 18 discloses an embodiment in which a first UV light source 2008 partially cures the ink and a second UV light source 2006 fully cures it (paragraph [0080]). The light sources 2006 and 2008

each comprise a lamp 1012 (Fig. 18) which, according to paragraphs [0075] and [0076], is a xenon flash lamp. The ink used is an ink according to feature 1. The subject-matter of claim 1 thus differs from the teaching of document D1 only in that an LED (rather than a xenon lamp) is used for pre-curing. Since all the resulting technical problems solved by the claimed method (see paragraphs [0006]-[0010], [0015] and [0018] of the patent) are already solved in document D1, the technical task is to find an alternative to the first xenon lamp 2006, 1012 shown in Fig. 18 used for pre-curing. Paragraphs [0059] and [0060] of document D1 suggest to the skilled person to use LEDs instead of other UV light sources for pre-curing. Thus it would have been obvious to the skilled person to use an LED to solve the objective technical problem and thus arrive at the subject-matter of claim 1. Document D1 also discloses another embodiment illustrated in Figures 19A and 19B, in which pre-curing of the ink is performed with the UV light sources 2506-1, 2506-2, 2506-3 and 2506-4 (paragraph [0082]). "Setting" in document D1 means partial curing (see paragraph [0005]). An additional light source 2510 emitting UV light of higher intensity is provided to fully cure the ink (paragraph [0082]). Paragraph [0059] of document D1 discloses that LEDs are used as UV light sources "to set the ink". The subject-matter of claim 1 thus differs from this embodiment only in that a flash lamp is used for further curing. Although the opposition division defined the objective technical problem as the provision of an improved printing process, its actual reasoning was based on the much more specific task of ensuring an image with (1) good adhesion to the substrate, (2) good surface curing and (3) low power consumption, (4) without having to resort to a nitrogen environment. Since (1) and (3) are already achieved in

document D1 through the use of an LED and pre-curing, the task remaining is to ensure good surface curing without using a nitrogen atmosphere. Document D18 teaches using a flash lamp to reduce oxygen inhibition when curing a UV curable ink (see paragraph [0044]). Thus the subject-matter of claim 1 would have been obvious to a person skilled in the art in view of the combination of documents D1 and D18. Claim 1 of the main request does not define what spectral intensity the flash lamp emits although this is essential. Consequently, the subject-matter of claim 1 in its generality does not solve the objective technical problem.

(ii) Appellant I (patent proprietor)

The distinguishing features 2 and 3 make it possible to control the print image, while providing good adhesion to the substrate, good surface cure, reliability and low power consumption, without recourse to a nitrogen environment (see paragraph [0018] of the patent). The objective technical problem solved is the provision of an improved method of printing. The claimed solution consists in the selection of specific UV radiation sources. There is no evidence to support the suggestion that an LED for pre-curing followed by a flash lamp for full curing would offer the same advantages. The skilled person would have had no motivation to implement features 2 and 3. There is no indication in document D1 that using such specific UV radiation sources in the specific method steps as claimed would provide such an improved method. Document D1 discusses both LEDs and flash lamps, and setting and curing, without making the claimed connection. Consequently, the subject-matter of claim 1 is inventive over document D1 taken alone. When combining documents D1 and D18, appellant II starts from an embodiment of document D1 in which the ink is



partially and fully cured by LED. There is no reason why the skilled person would have considered replacing the radiation source of one of the steps. Document D1 favours the use of the same source for both the pinning step and the curing step (see paragraphs [0059] and [0069] etc.). As document D18 is concerned with an inkjet recording apparatus adapted to reduce the heat emitted from the flash light source, the skilled person would not have combined it with document D1. Moreover, document D18 fails to disclose features 2 and 3. It does not discuss a two-step curing inkjet printing process or even mention LEDs. There is no reason why the skilled person would have replaced one of the LEDs with a flash lamp. Even assuming that paragraph [0044] of document D18a discloses that oxygen inhibition can be decreased with a flash lamp, this does not suggest that the latter should be used in place of an LED curing step in a two-step curing process and that this will achieve the advantages of the invention. Thus the subject-matter of claim 1 is inventive over document D1, even in the light of the teaching of document D18.

**(f) Main request: inventive step, starting from document D3**

(i) Appellant II (opponent)

Document D3, like the patent, refers to the coating of substrates with UV curable inks and subsequent pre-curing by means of UV LED (explicitly mentioned in paragraph [0047]) and curing by means of UV flash light. It also achieves the advantages disclosed in paragraph [0018] of the patent. The document is not limited to serial-type inkjet printers (see paragraph [0001] and claim 1). Consequently, document D3 is a promising starting point. Features 1 to 3 are directly

and unambiguously disclosed in embodiment 3 of document D3. The only difference lies in the use of a radical polymerisable ink (feature 4). However, the use of radical polymerisable ink does not have any specific technical effect. Since the problem stated in paragraph [0015] of the patent is already solved with the method known from document D3, and all the advantages mentioned in paragraph [0018] are obtained with this method and with the use of radical polymerisable inks, the objective technical problem is to find an alternative to using cationic inks. Paragraph [0062] of document D3 contains a direct reference to radical polymerisable inks, so the skilled person would have been led in an obvious way to use such inks. The disclosure relating to embodiment 3 of document D3 would not have led the skilled person away from using a radical polymerisable ink. The fact that the "surface of the ink ... is cured" (paragraph [0097] of document D3b) does not mean that a radical polymerisable ink cannot be used. As soon as such an ink is irradiated, cross-links are generated both on the surface and in the volume of the polymer, regardless of whether oxygen is present or not. The fact that the ink may still be tacky to some extent does not alter the fact that the curing has begun. "Curing" does not mean that the polymer is fully cured. That the curing is not yet completed can be seen from paragraphs [0098] and [0099]. In paragraph [0098] there is no distinction between the surface of the ink and its bulk volume. There is no reason why a radical polymerisable ink could not be used, in particular in the light of the disclosure of paragraph [0061]. Heating can also be useful with radical polymerisable inks. Although they are disclosed in the context of embodiment 1, the description of embodiment 3 explicitly refers to embodiment 1 in paragraph [0093]. Paragraph [0019] of

the patent only expresses conjectures, and concerns UV curable inks in general. When asked by the board whether the effect disclosed in paragraph [0100] could be obtained with any amount of curing, appellant II confirmed that this was the case and that the teaching of the paragraph would not have deterred the skilled person from using radical polymerising inks.

(ii) Appellant I (patent proprietor)

Document D3 is not a credible closest prior art. The combination of initial curing with a UV LED followed by a UV flash lamp within the context of a radical curable ink is not taught by document D3. Embodiment 3 of document D3 is not technically compatible with a radical curable ink when the initial curing step uses an LED. The skilled person would not have combined these features without hindsight. Radical reactions are inhibited by oxygen. In contrast, cationic curable inks are not sensitive to oxygen, but are sensitive to moisture. Document D3 discusses heating by means of a flash lamp to remove the water to minimise this effect (paragraphs [0007], [0008], [0011] and [0012]). It states that it is possible to reduce the illumination intensity (see paragraph [0021]), and recommends the use of LEDs as a UV source (paragraphs [0022] and [0023]). In embodiment 1, the ink and substrate are heated by the flash lamp, and then cured with the UV source (paragraphs [0074] to [0076]). The embodiment is directed to cationic curable inks, but hybrid and radical curable inks are contemplated "in this embodiment" (paragraphs [0061] to [0063]). In embodiment 3, the ink is initially cured with the UV source, and then heated with the flash lamp (paragraphs [0098] to [0101]). When the ink is subsequently heated, the surface does not become uneven and there is no

scattering of overheated ink. This makes sense for a cationic curable ink. If a radical curable ink were used, oxygen inhibition would lead to the surface being tacky. The surface would only be cured if a flash lamp were used, as this provides both the power and short-wavelength radiation necessary to overcome oxygen inhibition. Thus the skilled person reading document D3 would not have contemplated using the combination of an LED UV source and a radical curable ink with any expectation of achieving surface cure. The reference in embodiment 3 to embodiment 1 concerns the set-up of the apparatus rather than the ink. Moreover, it would make little sense to irradiate a radical-curing ink with light and only subsequently to apply a heat source, because the reaction would be over as soon as the light was removed. Heat could only have an effect for a radical curable ink if it were combined with the radiation. Furthermore, it is not clear why the skilled person should have chosen precisely the LED light source from among the alternatives mentioned in paragraph [0047], because the mercury lamps and the cold-cathode tube would all provide surface cure, unlike the LED. Surface curing of radical polymerising inks might be obtained to some extent with very unusual set-ups (such as those disclosed in paragraphs [0012] and [0014] of the patent), but the skilled person would not have chosen these paths because the intention of document D3 is directed at cationic curable inks and it concerns a serial-type inkjet recording device where the printhead scans across the image (see e.g. paragraph [0004]). It is not realistic to add cooling equipment to such a device. Thus the subject-matter of claim 1 is inventive over document D3, taken alone or in combination with other cited prior art.

**(g) Main request: inventive step, starting from document D2**

(i) Appellant II (opponent)

The subject-matter of claim 1 differs from document D2 only in that the coating, before being exposed to the radiation of a UV flash lamp, is partially cured with the UV radiation generated by an LED. According to paragraph [0011] of the patent, an LED has the advantage over a mercury lamp that the output power can be easily adjusted. Document D5 teaches using an LED lamp when curing a UV curing ink (paragraph [0058]). Document D6 also teaches using an LED as a UV light source (paragraph [0132]). Furthermore, document D9 discloses that the UV ink can be cured by means of two radiation sources (paragraph [0101]), and that it is advantageous to use a UV LED in addition to other light sources (paragraph [0104]). Therefore the skilled person would have been led by document D5, D6 and D9 to use a UV LED for partial curing.

(ii) Appellant I (patent proprietor)

Document D2 relates to polymerisation of oxygen-inhibited UV photo-polymerisable resin-forming material on a substrate, see col. 1, first paragraph. However, this document fails to mention the issues associated with mercury and/or LED UV light sources, and is primarily directed to paints, see col. 1, line 53. The current invention is inventive over document D2 for the reasons given in the discussion of document D1 as closest prior art. Document D2 fails to disclose features 2 and 3. LEDs are not mentioned at all. The arguments for inventive step of the present invention over document D1 apply *mutatis mutandis* to inventive

step over document D2 when taken alone, or in combination with any of the other prior-art documents. Starting from document D2, the skilled person would have had no motivation to turn to any of documents D5, D6, D9 or D12. Even if the skilled person had turned to any of these documents, none of them would have provided a pointer to using an LED UV source to partially cure the ink and exposing the partially cured ink to UV radiation from a flash lamp.

**(h) Main request: inventive step, starting from document D7**

(i) Appellant II (opponent)

The only difference between the subject-matter of claim 1 and the disclosure of document D7 is that document D7 does not explicitly disclose that the second light source to which the partially cured UV ink is exposed is a UV flash lamp. However, document D7 discloses that a UV flash lamp may be used as a UV light source for curing. The skilled person would therefore have considered using a UV flash lamp as a second light source. According to document D8, a UV ink (Fig. 6A, paragraph [0015]) is partially cured by means of a UV LED (paragraphs [0037] and [0072]) and irradiated with UV light from a second light source (claim 1). Document D8 teaches that the second light source should have a shorter wavelength than the first. According to the patent, the intensity of the light emitted by LEDs strongly decreases at wavelengths shorter than 450 nm (see paragraph [0012]). Furthermore, xenon flash lamps are said to emit in a spectral range that also includes such wavelengths (see paragraph [0062]). Thus the skilled person would have used as first light source the LED mentioned in

document D7 and as second light source the flash lamp also mentioned in D7. Moreover, document D13 teaches that it is advantageous to use an LED for the first step of partial curing (paragraph [0082]). Thus the skilled person is led to use an LED as the first light source. The skilled person would have used one of the other light sources mentioned in document D7, namely a flash lamp, as the second light source. Consequently, the subject-matter of claim 1 thus also results in an obvious way from a combination of documents D7 and D8 or D13.

(ii) Appellant I (patent proprietor)

The subject-matter of claim 1 is at least distinguished over document D7 for the same reasons as set out for document D1. Document D7 fails to disclose features 2 and 3. Paragraph [0144] merely refers to curing in general, not partial curing, and makes no reference to an LED. Paragraph [0149] lists various UV sources as a radiation source, but this paragraph refers to curing in general and not to partial curing. Further, these radiation sources include many types, including a mercury lamp, an LED and a flash light. Paragraph [0151] refers to consecutive or simultaneous curing with two light sources but fails to mention any specific sources for any step. Document D7 even discusses using an oxygen-depleted environment (see paragraph [0152]). However, overcoming the need for an oxygen-depleted environment is one of the advantages of the current invention. Therefore the arguments in favour of inventive step of the present invention over document D1 apply *mutatis mutandis* to inventive step over document D7, taken alone or in combination with any of the other prior-art documents.

**(i) Adaptation of the description**

(i) Appellant I (patent proprietor)

*During the initial discussion on the adaptation of the description, appellant I had argued as follows:*

The case should be remitted to the opposition division to adapt the description. In any case, the description does need to be amended to bring it into conformity with the claims. Appellant I would be willing to file an amended description during the oral proceedings to address appellant II's objections under Article 84 EPC which were first raised during the oral proceedings. The request to be allowed to file an amended description is implicit in the request that the patent be maintained as amended on the basis of the claims of the main request or one of the auxiliary requests. Adapting the description after one of several requests has been found allowable at the oral proceedings is standard practice before the EPO. Appellant II did not file its request that an amended description not be admitted prior to the oral proceedings either.

*Appellant I argued as follows in respect of amended description pages 3, 5 and 6 which it had subsequently filed at the oral proceedings:*

Only paragraphs [0017], [0036] and [0053] of the patent description were amended. The amendments to the claims of the main request are minor and do not leave any doubt as to where the description has to be amended. The passages concerned are necessarily the same as those amended before the opposition division. The differences with respect to the previous amendment of the description are almost trivial. The opponent has



not raised any equivalent objections during the oral proceedings before the opposition division or at any prior stage of the appeal proceedings.

(ii) Appellant II (opponent)

*During the initial discussion on the adaptation of the description, appellant II had argued as follows:*

Appellant I could and should have prepared an adapted description well before the oral proceedings before the board. The main request as it stands does not comply with Article 83 EPC, let alone Article 84 EPC. Adaptations of the description raise complex questions. It cannot be assumed that the matter could be easily decided on during the oral proceedings before the board. Moreover, it is debatable whether a remittal would not lead to a worsening of appellant II's position. As none of appellant I's requests comply with Article 84 EPC (there is no description corresponding to the main request), the patent has to be revoked.

*Appellant II argued as follows in respect of amended description pages 3, 5 and 6 which appellant I had subsequently filed at the oral proceedings:*

According to decision J 14/19, point 1.5 of the Reasons, an amendment of the description constitutes an amendment to the patent proprietor's appeal case within the meaning of Article 13 RPBA 2020. The fact that this decision is not binding on the board is irrelevant because the contrary assertion, i.e. that an adaptation of the description is not an amendment to the patent proprietor's appeal case, is untenable and would severely damage legal security. The words "in der Regel" used by the Legal Board of Appeal show that its asser-

tion is true in the absence of very specific circumstances. In application of Article 13(2) RPBA 2020, any amendment to a party's appeal case made after notification of the summons to oral proceedings is, in principle, not taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned. Thus under Article 13(2) RPBA 2020 the amended description cannot be admitted into the appeal proceedings if there are no exceptional circumstances. Exceptional circumstances only exist if they were unforeseeable. The invitation by the board to adapt the description cannot constitute exceptional circumstances within the meaning of Article 13(2) RPBA 2020 because this way of proceeding is very common and to be expected. It is the duty of a patent proprietor to submit an adapted description in advance and thus it is a failure of appellant I not to have submitted an adapted description beforehand. Furthermore, the description of the patent is very comprehensive. A thorough examination of the entire description would appear necessary in view of its complexity in order to ascertain that the patent complies with Article 84 EPC. The proposed changes appear fine in themselves, but there are other passages such as paragraphs [0033] or [0035] that still suggest that other inks may be used, and it might be necessary to amend the introduction to take account of the specific problems relating to the specific ink that is used, see paragraph [0013]. The matter is quite complex and appellant II finds itself unable to agree to the proposed amended description. The question arises of whether all the substances listed in claim 12 can be radically polymerised. Each of the huge number of substances disclosed has to be checked as to whether it is susceptible of radical polymerisation. This examination requires profound expertise. It has to be

taken into account that only paragraph [0036] concerns radical polymerisation. Appellant II cannot be expected to be able to ascertain that each of the embodiments of the patent corresponds to the claimed subject-matter. The description was not adapted to the claims of the main request during the proceedings before the opposition division. By adapting it during the oral proceedings before the board, appellant I has undoubtedly amended its appeal case. However, there are no exceptional circumstances contrary to the requirements of Article 13(2) RPBA 2020.

**(j) Remittal to the opposition division**

(i) Appellant I (patent proprietor)

Generally the boards prefer to remit the case when it is necessary to adapt the description. The case should be remitted for the sake of procedural economy.

(ii) Appellant II (opponent)

The request for remittal to the opposition division should not be granted. When asked whether the technical complexity of the examination of the description with regard to the requirements of Article 84 EPC did not speak for a remittal for adapting the description, appellant II reiterated its understanding that the amendment was in any case inadmissible at this stage of the proceedings. According to appellant II, the same holds true for the request for remittal to the opposition division, which also constitutes an amendment of appellant I's appeal case. Moreover, Article 13(2) RPBA 2020 provides that amendments made after notification of the summons cannot be admitted. Even a description filed after the remittal, i.e.

before the opposition division, would be inadmissible in application of Article 13(2) RPBA 2020. Contrary to the situation under RPBA 2007, the board has no discretion to admit amendments to the parties' appeal case at this stage of the proceedings, including the request to remit the case. The amendment of the RPBA by the lawmaker expresses this intention. As no exceptional circumstances were justified, remittal is not possible. This is all the more true since the request under consideration is the main request and not an auxiliary request of lower rank.

**(k) Procedural violation**

(i) Appellant II (opponent)

The decision under appeal infringes Rule 111(2) EPC because the opposition division did not comment on all the opponent's written submissions on the lack of inventive step in its interlocutory decision, as required by Article 113(1) EPC. However, no request is made with regard to this procedural violation.

**Reasons for the Decision**

1. Both appeals are admissible.
2. Admittance of documents D18, D18a and D3b
  - 2.1 With its statement of grounds of appeal, appellant II filed document D18 and its translation D18a and for the first time raised an objection of lack of inventive step based on a combination of documents D1 and D18.

The statement of grounds of appeal was filed before the date on which the revised version of the Rules of Procedure of the Boards of Appeal (RPBA 2020, OJ EPO 2019, A63) entered into force, i.e. 1 January 2020 (see Article 24(1) RPBA 2020). Thus, pursuant to Article 25(2) RPBA 2020, Article 12(4) to (6) RPBA 2020 does not apply. Instead, Article 12(4) of the Rules of Procedure of the Boards of Appeal in the version of 2007 (RPBA 2007 - see OJ EPO 2007, 536) continues to apply.

According to Article 12(4) RPBA 2007, everything presented by the parties under Article 12(1) RPBA 2007 has to be taken into account by the board if and to the extent it relates to the case under appeal and meets the requirements in Article 12(2) RPBA 2007. However, the board has the power to hold inadmissible facts, evidence or requests which could have been presented or were not admitted in the first-instance proceedings.

Applying these provisions to the case at hand, it has to be examined whether documents D18 to D18a could (and should) have been filed during the first-instance proceedings. The filing of document D18 and its translation was apparently a reaction to the opposition division's findings in point 5.3.2 of the Reasons for the decision under appeal, where a much more specific objective technical problem was formulated than before. In the board's view, the opponent could not therefore have been expected to file document D18 already in the first-instance proceedings. Therefore the board has no power under Article 12(4) RPBA 2007 not to admit document D18 and its translation D18a into the appeal proceedings, but must consider them, as the other requirements for doing so in this provision are met. The same applies to the objection of lack of inventive

step based on a combination of documents D1 and D18.

- 2.2 In the first-instance proceedings, appellant II had filed a copy of Japanese application D3 as evidence of prior art under Article 54(2) EPC and a machine translation of that document into English (D3a). In response to the communication under Article 15(1) RPBA 2020, appellant I filed document D3b, which is a new translation of document D3 into English prepared by a human translator.

The summons to oral proceedings was notified after the date on which the RPBA 2020 entered into force, i.e. 1 January 2020 (Article 24(1) RPBA 2020). Thus, in accordance with Article 25(1) and (3) RPBA 2020, Article 13(2) RPBA 2020 applies to the question of whether to admit document D3b, which was filed by appellant I after notification of the summons to oral proceedings and is therefore an amendment within the meaning of Article 13(2) RPBA 2020. Where an amendment is made to a party's appeal case at this advanced stage of the proceedings, Article 13(2) RPBA 2020 stipulates that it will, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned.

In appellant I's view, there were exceptional circumstances within the meaning of Article 13(2) RPBA 2020 because the human translation of document D3 into English (D3b) did not provide any new information, but was easier to read. Appellant II did not object to the admission of document D3b and agreed that human translation D3b was a more readable translation of document D3 than machine translation D3a.

The board concurs with the parties that document D3b is an improved translation of document D3. Thus this translation facilitates the discussion concerning document D3. The EPC also does not prevent a party from filing a more readable translation of a document filed as evidence, even if the evidence and/or translation was filed by the other party to the proceedings (see also decision T 1332/12, point 2.2 of the Reasons). Appellant II had no objection to the admission of document D3b and the board cannot see any valid reason not to admit it into the appeal proceedings. Having considered the exceptional circumstances in the case at hand, the board exercised its discretion under Article 13(2) RPBA 2020 and decided to admit document D3b into the appeal proceedings.

3. Main request: interpretation of the claims

3.1 Feature 3: "exposing the partially cured ink to UV radiation"

Feature 3 does not necessarily result in the ink being fully cured. This understanding is not the expression of a mind unwilling to understand. Claim 1 was deliberately worded in broad terms. Although the description repeatedly refers to "fully cured" ink, this language has not been used in feature 3. It is not permissible to regard the claims and the description as "communicating vessels" by reading into the claims restrictive features which are disclosed in the description but have not been incorporated into the claims (see e.g. decision T 1646/12, point 2.1 of the Reasons).

### 3.2 Feature 3: "flash lamp"

The invention of the patent consists in a method for curing ink by means of UV radiation generated by an LED source and a flash lamp. The ink is exposed to the UV radiation from the flash lamp after having been partially cured by exposure to UV radiation from the LED source (features 2 and 3). In paragraph [0024] of the description, the patent defines the expression "flash lamp" as follows:

*"Flash lamps emit pulses of high intensity UV radiation."*

Xenon and krypton flash lamps are mentioned as preferred embodiments. It is correct that, in principle, a flash lamp within the meaning of claim 1 would not necessarily have to have a broad spectrum, contrary to what the opposition division seems to have assumed (see point 4.2.2 of the Reasons for the decision under appeal). The wording of claim 1 itself suggests that the LED source of feature 2 has to be distinguished from the flash lamp of feature 3, and this is confirmed by the teaching of the patent. The combination of LEDs and flash lamps is said to overcome problems relating to drawbacks of LEDs, such as their relatively low UV output power (see paragraphs [0011] to [0014] of the patent).

### 3.3 Feature 4: "radical polymerisation"

In the oral proceedings before the board, appellant I unambiguously declared that the expressions "radical polymerisation" and "radical addition polymerisation" were synonyms. The present decision is based on this



understanding. The reasons why the board accepts this interpretation are given in point 4. below.

Incidentally, the fact that appellant I filed an appeal although claim 1 of the main request differs from claim 1 of auxiliary request 8 essentially in that ink is required to cure by radical polymerisation instead of radical addition polymerisation cannot be construed as an admission that the two terms are not synonymous. There are various reasons why a patent proprietor may wish to cancel an amendment it had to make before an opposition division to avoid revocation of the patent. One possible reason is that such an amendment might have consequences in subsequent infringement proceedings (e.g. the "file-wrapper estoppel").

4. Main request: unallowable intermediate generalisation

The opposition division found claim 1 of the main request not to comply with the requirements of Article 123(2) EPC because of added feature 4, according to which "the ink cures by radical polymerisation". This feature is based on page 8, lines 29 to 31 of the original application, which reads:

*"The ink of the present invention preferably cures by radical polymerisation and the ink comprises a monomer or oligomer that is polymerizable by radical addition polymerisation, or a mixture thereof." (Underlining by the board.)*

This sentence defines a preferential embodiment characterised by two seemingly distinct features, i.e. that the ink cures by radical polymerisation (feature 4) and that the ink comprises a monomer or oligomer

that is polymerizable by radical addition polymerisation, or a mixture thereof (feature 5).

In point 2.2.2.2 of the Reasons for the decision under appeal, the opposition division concluded that the amendment was unallowable because feature 4 had been isolated from its original context. As can be seen from point 3.1 of the Reasons, the opposition division found claim 1 of auxiliary request 8, which further contains feature 5 ("the ink comprises a monomer or oligomer that is polymerizable by radical addition polymerisation, or a mixture thereof"), to be allowable.

That an ink that can be cured by radical polymerisation must comprise a monomer or oligomer that is polymerisable by radical polymerisation is undisputed. Therefore the crucial question is whether or not the expressions "radical polymerisation" and "radical addition polymerisation" are synonymous. If they are, feature 5 does not alter the technical requirement of feature 4.

The board concludes that the two expressions are synonymous, for the following reasons:

Radical polymerisation is a method in which a polymer is formed by the successive addition of free-radical building blocks. A radical transforms a double bond of a monomer into two single bonds and thereby initiates a chain reaction. Thus radical polymerisation is a type of "chain-growth polymerisation". This has to be distinguished from "step-growth polymerisation", a process in which no initiation in the sense of radical polymerisation takes place. In chain-growth polymerisation, only a small portion of the molecules are actively involved in the polymerisation process, whereas in step-growth polymerisation all the molecules are

equally reactive and involved. Step-growth polymerisation may involve both addition reactions ("polyaddition") and condensation reactions ("polycondensation"), whereas chain-growth polymerisation necessarily involves addition reactions. Therefore it is justified to treat "radical polymerisation" and "radical addition polymerisation" as synonyms.

Appellant II's counter-arguments are found unpersuasive. The assertion that radical polymerisation encompasses both chain-growth and step-growth polymerisation is incorrect because step-growth polymerisation does not involve initiation in the sense of radical polymerisation. Moreover, when asked to provide an example of a radical polymerisation reaction that is not an addition polymerisation reaction, appellant II was unable to do so.

Thus claim 1 of the main request is found to comply with the requirements of Article 123(2) EPC.

5. Main request: novelty

5.1 Novelty over document D1

Document D1 discloses a printing system comprising a source which emits pulsed UV radiation to polymerise the printing fluid. The energy level of the radiation emitted by the source is adjustable by varying the pulse rate of the source (see claim 1). In point 4.2 of the Reasons for the decision under appeal, the opposition division found the subject-matter of claim 1 of auxiliary request 8 to be new over the disclosure of document D1 because the radiation sources for the partial curing step and for the second exposure step

were an LED source and a flash lamp, respectively. The board understands this to mean that the combination of features 2 and 3 of claim 1 was not held to be disclosed in document D1.

5.1.1 Feature 2

The use of LED sources for (at least partially) curing the ink is disclosed in document D1. Paragraph [0058] of document D1 dwells on the low efficiency of certain UV sources used for initiating the setting (i.e. partially curing), and then goes on to say:

*"... Thus in alternative embodiments, as illustrated in FIGS. 8A and 8B and FIGS. 9A and 9B, the carriage 18a and the carriage 18b are provided with light emitting diodes (LEDs) 100 which emit the UV radiation. These LEDs are tuned to emit at the wavelength of 365 nm over a very narrow bandwidth (FIG. 101B [sic])."*

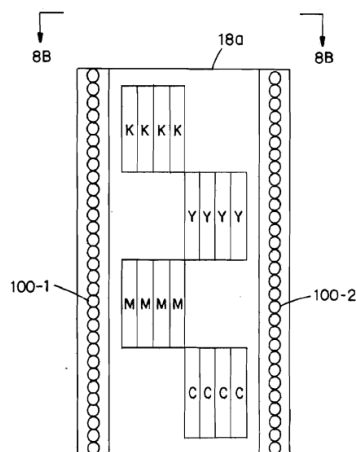


FIG. 8A

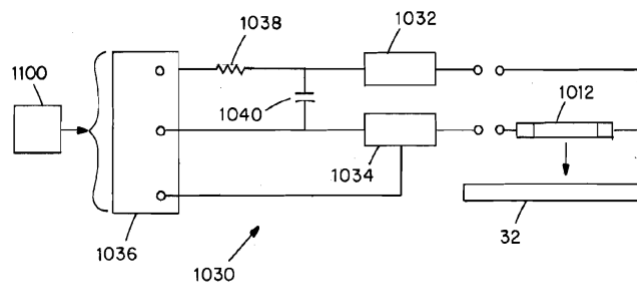
According to paragraph [0061], such a system can be combined with a "curing station" comprising a UV curing source that "emits a sufficient amount of energy to

fully cure the ink". The precise nature of this UV curing source is not disclosed.

5.1.2 Feature 3

Document D1 also mentions the use of flash lamps for setting the ink. Paragraph [0063] refers to the use of a "Xenon flash tube to serve as the UV radiation source for setting the fluid". Paragraph [0066] reads:

*"Although as mentioned earlier continuous UV radiation sources can be used to set the ink or fluid, since the carriage scans back and forth quite rapidly across the substrate, it is desirable in some situation to use a UV pulsed lamp, such as the Xenon flash lamp mentioned above, as the lamp 1012, which can be turned off and on at very high rates. In the illustrated embodiment, the Xenon flash lamp 1012 is connected to a pulse circuit 1030 shown in FIG. 15. ..."*



**FIG. 15**

Thus document D1 does not directly and unambiguously disclose a method in which the ink is exposed to UV radiation generated by a flash lamp after having been partially cured by means of a UV-emitting LED source.

Appellant II provided several counter-arguments:

- LEDs are used as flash lamps, in particular in the field of photography.
- Flash lamps do not have to have a broad spectrum.
- A pulsed LED can be considered to be a flash lamp within the meaning of claim 1.
- In document D1 areas printed with UV curable ink are exposed to the light of the LEDs several times (paragraphs [0054] and [0055]). Due to the reciprocating movement of the printhead along rail 16 in Fig. 1 ("rail system 16"), the overlap regions 56 are illuminated by both LEDs 100-1 and 100-2 in Fig. 8A, or LEDs 102-1 and 102-2 in Fig. 9A.
- As the LEDs known from document D1 are pulsed light sources, they qualify both as an LED light source and as a flash lamp.
- Illumination with the first row of LEDs, for example LEDs 102-1, thus partially hardens the ink in a printed area. This area is also exposed to the light generated by LEDs 102-2 with a time delay due to the movement of the head ("carriage 18").

These arguments did not lead the board to depart from the above conclusion, for the following reasons:

- The fact that in document D1 the ink is repeatedly exposed to LED-generated UV light is not crucial as long as the LED source is not a flash lamp.
- Flash lamps within the meaning of the patent emit pulses of high intensity UV radiation. This concept has to be distinguished from flash lamps in other fields of technology such as photography.
- Even if the patent does not explicitly require flash lamps to have a broad spectrum, this does not

mean that LEDs may constitute a flash lamp within the meaning of the patent.

- The mere fact that an LED can be operated in such a way that it is turned on and off in rapid sequence does not mean that it is a flash lamp.
- In the technical field under consideration, the term "flash lamp" is not just any light source capable of generating intense, short light pulses. To the skilled person in the field under consideration, the expression rather designates gas discharge lamps based on noble gases like xenon, krypton or argon. The preferred embodiments mentioned in paragraph [0024] of the patent confirm that this sort of lamp is meant.
- Document D1 itself distinguishes LED sources and flash lamps and repeatedly refers to xenon lamps.

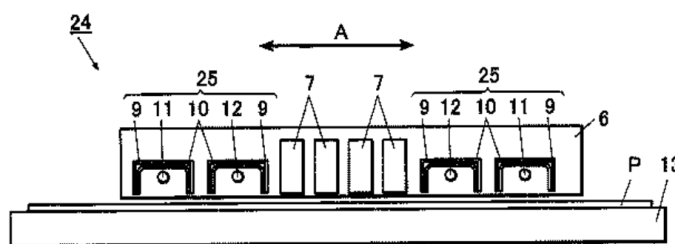
### 5.1.3 Conclusion in respect of document D1

The subject-matter of claim 1 is new over the disclosure of document D1.

### 5.2 Novelty over document D3

Document D3 discloses an inkjet recording device comprising a recording head 7, a UV light source 12 and a flash light source (フラッシュ光源) 11 for irradiating the ink so as to cure it. The document discloses several embodiments. The discussion concentrated on the example of Fig. 5, which belongs to embodiment 3 described in paragraphs [0093] to [0120].

【図5】



In point 4.3.2 of the Reasons for the decision under appeal, the opposition division concluded that document D3 did not disclose that the ink cures by radical polymerisation (feature 4) and that UV radiation from the flash lamp is used for the second exposure step (feature 3). Appellant I argued that feature 2 was not disclosed either.

#### 5.2.1 Feature 2

That the UV light source 12 can be an LED is disclosed in the context of embodiment 1 of document D3 (see paragraph [0047]). Paragraph [0094] arguably extends this teaching to embodiment 3. Paragraph [0098] discloses that the surface of the ink is quickly cured by the UV light irradiated from the UV light source 12 on the downstream side (in the travelling direction) of the carriage 6. It was argued that feature 2 was not disclosed because document D3 did not teach that the ink was partially cured. However, that the ink is not completely cured in this step follows from paragraph [0099], according to which the flash light source 11 is turned on subsequently so that the ink on the recording medium P is cured and fixed while being heated.



### 5.2.2 Feature 3

The opposition division concluded that feature 3 was not disclosed in document D3 because this document did not teach that the second exposure step involved UV radiation. Appellant II argued that it was immediately apparent from paragraph [0095] that the "flash" 11 of embodiment 3 was a UV light-emitting "flash". The board disagrees: this paragraph distinguishes the UV light source 12 from the flash light source 11, which rather suggests that the flash light source is not a UV light source. There is no explicit disclosure of a UV flash lamp in this paragraph. Document D3 explicitly refers to a xenon flash lamp in paragraph [0045]. As the spectrum of ordinary xenon flash lamps comprises UV light, it could be argued that their use would lead to the partially cured ink being exposed to UV radiation, as required by feature 3. However, this disclosure is only made in the context of embodiment 1.

### 5.2.3 Feature 4

The opposition division concluded that in embodiment 3 of document D3 the ink does not cure by radical polymerisation. The nature of the polymerisation process is discussed in the context of embodiment 1. Paragraph [0061] of document D3 mentions that UV curable inks are broadly classified into radically curable inks (ラジカル硬化性インク) containing radical polymerisable compounds and cationically curable inks (カチオン硬化性インク) containing cationic polymerisable compounds, and that both types of ink (and hybrid inks) can be used in embodiment 1. Paragraph [0062] adds that cationically curable inks are used in this embodiment "in particular" (特に; document D3b: "particularly") because of their superior functionality and

versatility. The board understands this to mean that cationically curable inks are preferred in the context of embodiment 1 but that, in principle, both types of ink could be used. The major difference between embodiments 1 and 3 is that the relative position of the flash light source 11 and the UV light source 12 is inverted. As explained in paragraph [0096], since the UV light source 12 of embodiment 3 is disposed closer to the recording head 7 than the flash light source 11 is, the UV light source 12 irradiates the ink ejected onto the recording medium P before the flash light 11 does. Therefore, as in embodiment 1, this configuration is particularly suitable for cationic polymerisation but does not exclude radical polymerisation.

#### 5.2.4 Conclusion in respect of document D3

The subject-matter of claim 1 is new over the disclosure of document D3.

#### 5.3 Conclusion in respect of novelty

The subject-matter of claim 1 is new over the allegedly novelty-destroying prior art.

### 6. Main request: inventive step

#### 6.1 Starting from document D1

##### 6.1.1 Differences

As mentioned under point 5.1, document D1 does not directly and unambiguously disclose a method in which the ink is exposed to UV radiation generated by a flash lamp after having been partially cured by means of a UV-emitting LED source.

### 6.1.2 Objective technical problem

The board is satisfied that a method in which the ink is exposed to UV radiation generated by a flash lamp after having been partially cured by means of a UV-emitting LED source solves the problem of obtaining control of the print image, while providing good adhesion to the substrate, good surface cure, reliability and low power consumption without recourse to a nitrogen environment, as explained in paragraph [0018] of the patent.

The board understands the opposition division's definition of the objective technical problem ("to provide an improved method of printing", see point 5.3.2 of the Reasons for the decision under appeal) as a short-cut for the above-mentioned problem.

Appellant II argued that the objective technical problem was to find an alternative to the first xenon lamp 2006 or 1012 shown in Fig. 18 of document D1 and used for pre-curing. However, this formulation is based on the assumption that the only distinguishing feature is that an LED is used for pre-curing, which the board cannot endorse.

Therefore the board adopts the opposition division's formulation of the objective technical problem.

### 6.1.3 Obviousness to the skilled person

The question to be answered by the board is whether the skilled person starting from an embodiment of document D1 and wishing to provide an improved method of printing would have been led to a method in which the

ink is exposed to UV radiation generated by a flash lamp after having been partially cured by means of a UV-emitting LED source.

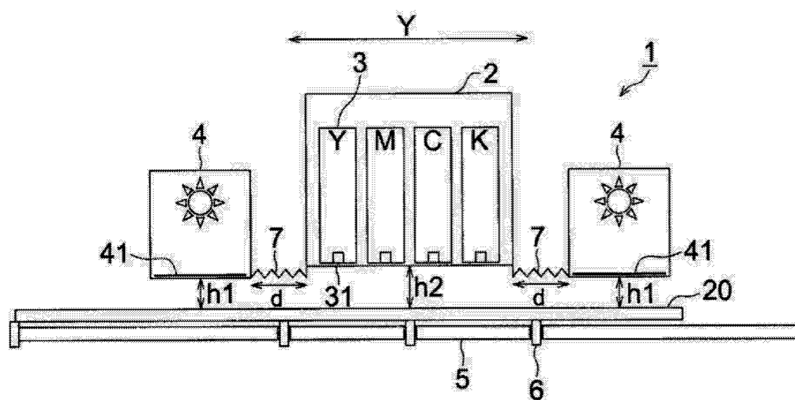
(a) Document D1 taken alone

It is not apparent to the board why document D1, taken alone, might have led the skilled person to the invention. As explained above (see point 5.1), document D1 considers both LEDs and flash lamps. However, a combination of both types of light source is not suggested. On the contrary, document D1 favours the use of the same UV light source for both the pre-curing setting step and the curing step (see the embodiments of Figs. 8, 9 and 18).

(b) Combination with document D18

Document D18 discloses an inkjet printer using UV curable ink. The device comprises flash light sources (フラッシュ光源) 4 installed on both sides of the head carriage 2 substantially in parallel with the recording medium P (see paragraph [0077]). The ink is ejected from the recording heads 3 and subsequently cured by means of the flash light.

[図2]



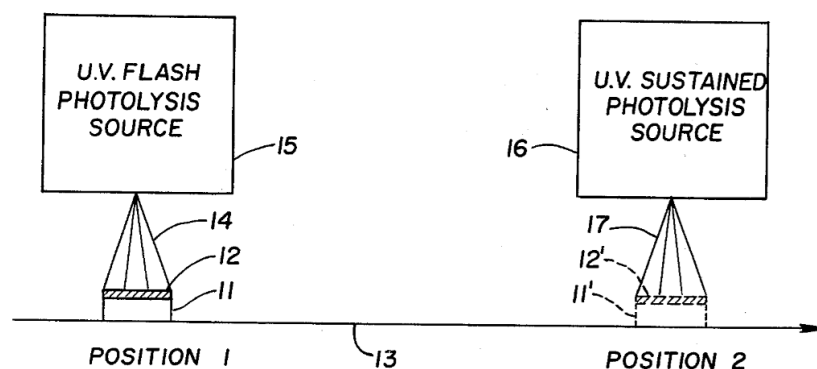
Document D18 specifically deals with the problem of image quality degradation caused when an image formed of a UV curable ink employing no aqueous solvent is cured (see abstract of machine translation D18a). The core of the solution proposed by document D18 consists in providing means for reducing the infrared part of the flash light emitted from the flash light source (see claim 1). Consequently, even if the skilled person had consulted document D18 in order to solve the objective technical problem, they would not have been led to the subject-matter of claim 1 in an obvious way.

6.1.4 Conclusion

Appellant II has failed to convince the board that the skilled person starting from document D1 would have been led to the subject-matter encompassed by claim 1 in an obvious manner.

6.2 Starting from document D2

Document D2 discloses a process and an apparatus for the polymerisation of oxygen-inhibited UV photopolymerisable resin-forming material (OPRM) such as a film or a deposit on a substrate (see abstract).



First, substrate 11 is coated on its top surface with a film of OPRM 12 in an air atmosphere. Although inks are mentioned twice (see col. 1, line 42 and col. 5, line 36), the document is mostly concerned with paint. A conventional flash light source 15 then irradiates the top surface of the film 12 with UV energy (depicted as rays 14). Thus a tack-free skin is formed on the top surface of film 12. Subsequently, the coated workpiece is positioned under a conventional sustained-photolysis light source 16 and exposed to sustained irradiation such that the remainder of the coating is completely polymerised throughout its thickness (see col. 4, lines 20 to 46). A specific example is disclosed in which the flash light source is a xenon flash lamp and the second light source is a pair of mercury vapour lamps (see col. 7, line 50 to col. 8, line 45).

In point 2.3.4 of its provisional opinion annexed to the summons to oral proceedings dated 5 July 2017, the opposition division expressed the opinion that document D2 was not a suitable starting point for examining inventive step:

*"D2 discloses a method of applying UV curable paint, wherein the first step involves a surface curing by flash lamp and the second step involves throughout curing by mercury vapor lamps. There is no suggestion of setting the paint first to the substrate surface (D2: col. 7, line 50 - col. 8, line 45)."*

The board notes that document D2 does not mention LED sources and that, contrary to the invention of the patent, the paint is first exposed to UV radiation from a flash lamp and then to UV radiation from a different source. Even if several flash lamps are operated in

sequence (as suggested in col. 4, lines 59 to 63), there is no qualitative difference between the UV light sources of the first and second step. Therefore document D2 is more remote from the invention than document D1. Consequently, the opposition division's decision not to further examine the inventive-step objection starting from document D2 was justified.

The board is therefore not convinced that the skilled person starting from document D2 would have been led to the subject-matter of claim 1 in an obvious manner.

### 6.3 Starting from document D3

In point 5.2 of the Reasons for the decision under appeal, the opposition division concluded that document D3 was not a suitable starting point for assessing inventive step for the following reasons:

- Document D3 is clearly directed to the use of inks curing by cationic polymerisation and the problems relating to these inks (see paragraphs [0021] and [0062]).
- According to document D3, the ink should include an IR absorber, because the flash lamp is used to heat up the ink by IR radiation (see paragraphs [0024] and [0025] and Fig. 5).
- The problems relating to the use of radical curing inks are not discussed in document D3 except that it is suggested to use cationically curing inks to avoid the problems with the inhibiting effect of oxygen (paragraph [0062]).

The board cannot endorse this reasoning. Document D3 is not exclusively directed to inks cured by cationic polymerisation. This feature appears for the first time

in claim 5 (out of seven claims). The references to IR radiation concern the specific embodiment of claim 7 and not the invention as a whole. Although the advantages of cationic polymerisation are highlighted, radical polymerisation is mentioned as an option in paragraph [0061]. Thus there is no good reason not to consider document D3 as a starting point for the examination of inventive step. In particular, embodiment 3 of document D3 constitutes a promising springboard for the examination of inventive step because the ink is irradiated first by a UV light source and then by a flash light source (see paragraph [0095]).

As has been explained in detail under point 5.2, the passages of document D3 concerning embodiment 3 do not directly and unambiguously disclose the use of a UV flash lamp (feature 3) and that the ink cures by radical polymerisation (feature 4). Feature 2 (use of an LED light source) is arguably suggested via a reference to embodiment 1 in paragraph [0094].

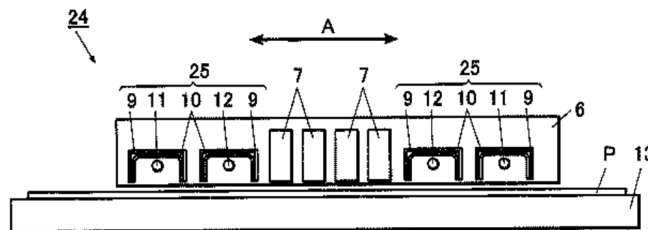
Document D3 mentions features 2, 3 and 4, albeit in different order, in the context of embodiment 1. The use of xenon flash lights and LEDs as UV light sources is disclosed in paragraphs [0045] and [0047], respectively; the possibility of using radical-curable inks is mentioned in paragraph [0048].

It was argued that all these choices were obvious to the skilled person wishing to implement embodiment 3. To verify this assertion, it is necessary to take a closer look at the teaching of document D3 with respect to embodiment 3, i.e. paragraphs [0093] to [0102] of document D3.



Paragraphs [0093] to [0095] disclose that the recording device according to embodiment 3, which is illustrated in Fig. 5, is configured similarly to the recording device of embodiment 1 (see Fig. 3), with the exception that the UV light source 12 is located closer to the recording head 7 than the flash light source 11 is.

【図5】



Paragraph [0096] explains the consequence of this particular arrangement, namely that the UV light source 12 irradiates the ink before the ink is irradiated by the flash light. Paragraph [0097] explains that the control unit is configured such that the ink is irradiated by the UV light source to the extent that the surface of the ink is cured. Paragraph [0098] essentially repeats this disclosure in other words, but adds that the curing is rapid. In paragraph [0099], the subsequent operation of the flash light source 11 is described. As a consequence of the flash irradiation, the ink "is cured and fixed, while being heated" (see document D3b). Paragraph [0100] reiterates that this irradiation follows the curing of the ink surface and explains that by proceeding in this way the entire ink is cured and an unevenness of the ink surface or scattering of ink to the surroundings due to overheating of the ink is avoided. Paragraph [0101] explains that by proceeding in accordance with embodiment 3 the ink can be reliably fixed to the recording medium "even in a high humidity

environment" (see document D3b). Paragraph [0102] mentions another advantage that is common to both embodiments 1 and 3.

The questions the board has to answer are whether the skilled person wishing to implement embodiment 3 would have considered using an LED as UV light source 12, whether it would have been obvious to expose the partially cured ink to UV radiation from a flash lamp, and whether it would have been obvious to the skilled person to consider the use of a radical-curable ink.

The use of a xenon flash light source "in this [i.e. the first] embodiment" is mentioned in paragraph [0045]. Despite the statement limiting this disclosure to the first embodiment, the board can accept that this would have been an incentive for the skilled person to consider this choice in the context of the third embodiment as well.

It is uncontested that LEDs are mentioned in the list of eight possible UV light sources of paragraph [0047], but no advantage is attributed to them. Therefore it is not apparent why the skilled person would have made this particular choice.

More importantly, the board notes that document D3 concentrates on cationic-curable inks (see paragraphs [0006] and [0007]) and the problems generated by the use of such inks, in particular by their sensitivity to humidity (see paragraphs [0007] and [0011]). It is correct that radical-curable inks are disclosed as well (see paragraphs [0059] and [0061]), but explicitly linked to embodiment 1 ("this embodiment", "the present embodiment", D3b, paragraphs [0059] and [0061]). This disclosure appears to have been made mainly for the

sake of completeness; the use of cationic-curable inks is clearly preferred in document D3 (see paragraph [0062]). This is also in line with the main objective of the invention set out in paragraph [0011]. Radical polymerisable inks are never mentioned in the context of embodiment 3. Moreover, the references to embodiment 1 in paragraphs [0093], [0094] and [0102] only concern the configuration of the inkjet recording device. Consequently, the board cannot discern any incentive in document D3 to use radical polymerisable ink in the context of embodiment 3. Furthermore, the reference to a "high humidity environment" in paragraph [0101] would have led the skilled person to believe that embodiment 3 concerned cationic-curable inks. Finally, paragraph [0100] would have led the skilled person to the same conclusion because the advantageous effect mentioned in this paragraph presupposes that the surface has been cured to a significant degree by the UV light source 12. If LEDs were chosen as UV light source, it would be difficult to obtain surface curing because of oxygen inhibition, as explained in paragraph [0019] of the patent. It is correct that this paragraph only expresses the drafter's belief as to how the phenomena observed are to be explained, but this hypothesis is reasonable, and appellant II, who challenged this view, has not been able to provide counter-examples.

In summary, the board cannot see why the skilled person would have chosen LEDs as UV light source rather than e.g. a mercury lamp or a cathode tube, but even if the skilled person had chosen LEDs it would not have been obvious to choose radical polymerisable inks because the disclosure of document D3 as a whole and the description of embodiment 3 in particular would have led to cationic polymerisable inks being chosen, and

because this choice would have been more promising if LEDs were used as the implementation of UV light source 12.

Appellant II's counter-arguments have not led the board to a different conclusion. The reasons are as follows:

- As already mentioned, the references to embodiment 1 in the description of embodiment 3 only concern the configuration of the inkjet recording device.
- It is not correct that there are no technical effects relating to the replacement of cationic polymerising ink by radical polymerising ink. For instance, the inhibition of curing is different: radical reactions are inhibited by oxygen, cationic reactions by moisture. Therefore the objective technical problem cannot be formulated as providing an alternative to cationic inks.
- It is correct that in paragraph [0098] of document D3 there is no distinction between the surface of the ink and its bulk volume. However, this paragraph must not be considered in isolation from its context. Paragraphs [0097], [0099] and [0100] make clear that the curing mentioned in paragraph [0098] is the curing of the surface of the ink.
- It is true that paragraph [0100] does not require the surface of the ink to be *completely* cured. However, the surface has to be cured to a significant extent because it is not credible that unevenness of the surface could be avoided in the event of the ink overheating if there were just a few cross-links established on the ink surface.
- The board agrees that heating could also be useful with radical polymerising inks, but the fact that heating is mentioned would not have constituted an

incentive for the skilled person to use radical polymerising ink.

- It is true that document D3 is not limited to serial-type inkjet printers, but embodiment 3 certainly is.

In view of the above, the board concludes that appellant II's objection is tainted by hindsight.

Consequently, it has not been credibly demonstrated that the subject-matter of claim 1 would have been obvious to the skilled person in view of the disclosure of document D3.

#### 6.4 Starting from document D7

Document D7 discloses a method for inkjet printing suitable for preparing ID documents secured against alteration (see paragraph [0001]). According to this method, a first layer of curable liquid is provided on a substrate and cured. Then a second layer of curable liquid containing an "abherent" agent (i.e. an agent inhibiting a material from adhering) is formed on the first layer and at least partially covered. At least one of the curable liquids is inkjet-printed (claim 1). According to paragraph [0149], any UV source can be employed for curing the curable liquids, including a UV LED and a flash light. Paragraph [0151] adds that two light sources of differing wavelength or illuminance can be used for curing the image.

In point 2.3.4 of its provisional opinion annexed to the summons to oral proceedings dated 5 July 2017, the opposition division expressed the opinion that document D7 was not a suitable starting point for the examination of inventive step:

*"D7 discloses an ink jet printing method using e.g. UV curable inks. There is no separate steps described [sic] for setting the ink and the final curing of the ink (D7: §§ 144, 149)."*

The board agrees with this assessment. Document D7 teaches that the curable liquids may be cured by means of any UV source, and cites, among other things, UV LED and flash light. Document D7 also suggests that several different light sources may be used, but the board is unable to see any disclosure of a method in which the ink is exposed to UV radiation generated by a flash lamp after having been partially cured by means of a UV-emitting LED source. Consequently, the subject-matter of claim 1 differs from the disclosure of document D7 by at least the same features as document D1. Therefore the opposition division's decision not to further examine the inventive-step objection starting from document D7 was justified.

The board is therefore not convinced that the skilled person starting from document D7 would have been led to the subject-matter of claim 1 in an obvious manner.

7. Adaptation of the description - admittance of amended description pages 3, 5 and 6

The amended pages 3, 5 and 6 of the description were filed by the patent proprietor to bring the description into conformity with the amended claims of its main request.

7.1 The amended description pages 3, 5 and 6 were filed during the oral proceedings before the board, i.e. well after the notification of the summons to oral

proceedings. Thus, in accordance with Article 25(1) and (3) RPBA 2020, Article 13(2) RPBA 2020 applies to the question of whether these amended description pages should be taken into account (see also point 2.2 above).

- 7.2 Appellant I argued that the fact that an amended description was filed only after the amended claims of the patent had been found allowable could hardly constitute an amendment to the patent proprietor's appeal case, since this was the expected course of action according to established EPO practice and was implicit in the request to maintain the patent as amended on the basis of amended claims.
- 7.3 In the board's opinion, this means that if this view is accepted, adapting the description is not an amendment within the meaning of Article 13(2) RPBA 2020, so the board has no discretion under this provision not to take an amended description into account.
- 7.4 Appellant II, in contrast, took the view that an amended description constituted an amendment to the patent proprietor's appeal case within the meaning of Article 13(2) RPBA 2020. It referred in this respect to decision J 14/19, point 1.5 of the Reasons, where the Legal Board of Appeal held that, as a rule ("in der Regel"), an amendment of the patent after the date referred to in Article 13(2) RPBA 2020 generally constituted an amendment to the patent proprietor's appeal case in the same way as an amendment to an objection on the part of the opponents.
- 7.5 The board notes that in decision J 14/19 the Legal Board explained that the point of reference for assessing whether a case had been amended within the

meaning of Article 13(1) or (2) RPBA 2020 was the statement of grounds of appeal or the reply (point 1.2 of the Reasons). It also found in point 1.4 of the Reasons that, in a systematic interpretation, the question of whether a submission resulted in an "amendment to a party's appeal case" within the meaning of Article 13 RPBA 2020 had to be answered using the list of possible components of an appeal case in Article 12(2) RPBA 2020. It further concluded that submissions not directed to requests, facts, objections, arguments or evidence relied on in the statement of grounds of appeal or in the reply amounted to an amendment to the appeal case.

- 7.6 If this systematic interpretation of the term "amendment" in Article 13(2) RPBA 2020 is applied to the case at hand, the filing of amended description pages 3, 5 and 6 of the patent results in an amendment to the patent proprietor's appeal case, even if they were filed so that the description is consistent with the amended claims of the main request which were considered allowable. Then it is at the board's discretion under Article 13(2) RPBA 2020 to admit the amended description pages into the appeal proceedings or not to take them into account.
- 7.7 In exercising this discretion, it matters whether there are exceptional circumstances, which have been justified with cogent reasons by the party concerned.
- 7.8 Appellant I argued in favour of the existence of exceptional circumstances that adapting the description after amended claims of one of several requests had been found allowable at the oral proceedings was standard practice before the EPO. Moreover, the amended description pages were filed in reaction to the



objections under Article 84 EPC raised by appellant II for the first time at the oral proceedings before the board and to the board's invitation to adapt the description.

Appellant II argued that exceptional circumstances only existed if they were unforeseeable. It submitted that the invitation by the board to adapt the description could not constitute exceptional circumstances within the meaning of Article 13(2) RPBA 2020 because this way of proceeding was very common and to be expected. Furthermore, the description of the patent was very comprehensive and a thorough examination of the entire description would appear necessary in view of its complexity in order to ascertain that the patent complies with Article 84 EPC.

- 7.9 The board does not consider that exceptional circumstances within the meaning of Article 13(2) RPBA 2020 are only new or unforeseen developments in the appeal proceedings themselves. The term "exceptional circumstances" can also be interpreted more broadly (see also e.g. decisions T 713/14, point 4 of the Reasons; T 1294/16, points 18.2 to 18.4 of the Reasons; T 545/18, point 2 of the Reasons; T 661/18, point 1 of the Reasons; and T 1598/18, point 25 of the Reasons).
- 7.10 It is established case law that if the claims of a patent as granted are amended, the description must be made consistent therewith (see e.g. decision T 977/94, point 6 of the Reasons and further decisions cited in Case Law of the Boards of Appeal of the European Patent Office, Tenth Edition, July 2022 ["Case Law"], II.A. 5.3). The board is aware of decision T 1989/18, in which it was held that the provisions of the EPC did not require the description to be adapted to the

claimed subject-matter (points 4 to 13 of the Reasons). However, this view was not followed in other, more recent, decisions (see e.g. decisions T 1024/18, point 3.1 of the Reasons, and T 121/20, point 10.2 of the Reasons), but adaptation of the description was still considered necessary in the event of inconsistency with the amended claims, in accordance with established case law. The board agrees with the latter.

- 7.11 In the case at hand, it is important to bear in mind that, as both parties have also submitted, it is established practice of the boards of appeal to deal with the question of adapting the description only after the board has concluded that the claims of the patent as amended are allowable. It is therefore quite common for the description of the patent as granted not to be adapted until the oral proceedings, even if a set of amended claims has already been filed prior to the oral proceedings.

Under Article 111(1), second sentence, EPC, the boards of appeal can then either decide on an adaptation of the description themselves or can remit the case to the department of first instance for the description to be adapted to the allowable amended claims. Remittal "with a description to be adapted" has become quite common practice of the boards of appeal (which is also implicitly acknowledged in the explanatory remarks on Article 11 RPBA 2020; see document CA/3/19, section VI, explanatory remarks on Article 11 RPBA 2020, second paragraph; see also Supplementary publication 1, OJ EPO 2022, Annex 2, explanatory remarks on Article 11 RPBA 2020).

Further, in accordance with common practice, a remittal

"with a description to be adapted" may be decided on even if the patent proprietor has not yet filed a description adapted to the allowable amended claims in the appeal proceedings, in some cases even regardless of whether the patent proprietor had attended the oral proceedings in the appeal proceedings (see Case Law, V.A.9.9).

7.12 Against this background, the board sees the exceptional circumstances within the meaning of Article 13(2) RPBA 2020 as already existing in that the amended description pages 3, 5 and 6 were filed in order to adapt the description to the claims of the main request, which were considered to be allowable. In addition, there was no specific reason for appellant I to adapt the description of the patent as maintained to the amended claims of its main request prior to the oral proceedings before the board, as neither appellant II nor the board had raised any objections to the description under Article 84 EPC prior to the oral proceedings.

7.13 In addition to the exceptional circumstances established above, the board also sees exceptional circumstances within the meaning of Article 13(2) RPBA 2020 in the fact that the board at the oral proceedings invited appellant I to file an amended description in reaction to appellant II's objection under Article 84 EPC raised for the first time during the oral proceedings and to its subsequent objection to the case being remitted to the department of first instance for adaptation of the description.

7.14 In view of the above, the board exercised its discretion under Article 13(2) RPBA 2020 and decided to admit the description pages 3, 5 and 6 filed by

appellant I during the oral proceedings before the board.

8. Remittal of the case to the opposition division only for adaptation of the description

Appellant I requested that the case be remitted to the opposition division for adaptation of the description. Appellant II was against remittal.

- 8.1 According to Article 111(1), second sentence, EPC, the board may either exercise any power within the competence of the department of first instance or remit the case to that department for further prosecution. A remittal to the department of first instance only for adaptation of the description is effectively a remittal for further prosecution within the meaning of Article 111(1), second sentence, EPC.

When exercising this discretion, the board takes account of the provisions of Article 11 RPBA 2020, which applies under Article 25(1) RPBA 2020 in the case at hand. Under Article 11 RPBA 2020, a case is not to be remitted to the department whose decision was appealed for further prosecution unless special reasons present themselves for doing so. Article 11 RPBA 2020 only applies to cases that are remitted "for further prosecution". In particular, it does not apply to cases that are remitted with an order by the board to grant a patent or to maintain a patent in amended form, be it with or without adaptation of the description (see document CA/3/19, section VI, explanatory remarks on Article 11 RPBA 2020, second paragraph; see also Supplementary publication 1, OJ EPO 2022, Annex 2, explanatory remarks on Article 11 RPBA 2020).

8.2 According to the established case law of the boards of appeal, in order to meet the requirement of Article 84 EPC that the claims be supported by the description, any disclosure in the description and/or drawings inconsistent with the amended subject-matter should normally be excised (see point 7.10 above and, for example, decisions T 977/94, point 6 of the Reasons, and T 1808/06, point 2 of the Reasons).

As argued convincingly by appellant II, examination of whether the description and/or drawings of the patent are consistent with the current amended claims of the main request, i.e. whether the requirement of Article 84 EPC is met, is not straightforward in the case at hand, even considering the amendments made on description pages 3, 5 and 6.

The adaptation of the description to the amended claims must be done carefully to avoid inconsistencies between the claims and the description and/or drawings which might render the claims unclear or unsupported. At the same time, care must be taken not to make more amendments to the description than necessary. Amendments to the granted patent directly affect the version in which the patent is to be maintained as amended, and therefore concern - as a rule - the core issue of the opposition or opposition appeal proceedings.

It follows that the adaptation of the description and/or drawings of the patent in suit requires due care and may require a considerable amount of time for evaluating and arguing by appellants I and II and the EPO. Appellant II must be given sufficient time to formulate any objections and appellant I must have

sufficient opportunity to respond to such objections.

8.3 In view of the above, the board considers it appropriate to remit the case to the department of first instance only for adaptation of the description in accordance with Article 111(1), second sentence, EPC.

9. Reimbursement of the appeal fee

Appellant II alleged that a substantial procedural violation had occurred in the first-instance proceedings, but did not make a request in relation to this alleged procedural violation.

According to Rule 103(1)(a) EPC, which entered into force on 1 April 2020 (see OJ EPO 2020, A5), the reimbursement of appeal fees has to be ordered in full where the board of appeal deems an appeal allowable if such reimbursement is equitable by reason of a substantial procedural violation. Even though reimbursement has not been requested (as is the case here), the board may examine this issue ex officio (see, for example, decision J 7/82, OJ EPO 1982, 391).

In the case at hand, the precondition for reimbursement of the appeal fee under Rule 103(1)(a) EPC is not met because appellant II's appeal is not allowable. It is therefore not necessary to examine whether reimbursement of the appeal fee to appellant II would be equitable by reason of a substantial procedural violation under Rule 103(1)(a) EPC.

In view of the above, reimbursement of the appeal fee under Rule 103(1)(a) EPC cannot be ordered.

## Order

### For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance with the order to maintain the patent with the following claims and a description to be adapted thereto:

Claims 1 to 12 of the main request filed by letter dated 12 December 2019.

The Registrar:

The Chairman:



T. Buschek

T. Vermeulen

Decision electronically authenticated