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Datasheet for the decision of 27 March 2019

Case Number: T 1680/15 - 3.2.04

Application Number: 10159222.8

Publication Number: 2238819

IPC: A01B79/00, A01B69/00

Language of the proceedings: EN

Title of invention:
Method for avoiding point rows for quadrilateral fields using autoguidance

Patent Proprietor:
CNH Industrial Italia S.p.A.

Opponents:
Amazonen-Werke
H. Dreyer GmbH & Co. KG
SBG Precision Farming B.V.
Lemken GmbH & Co. KG

Headword:

Relevant legal provisions:
EPC Art. 52(2)(c), 54(2), 54(3), 56, 113(1), 114(1), 114(2), 123(2)
RPBA Art. 12(4), 13(1), 13(3)

Keyword:
Patentable invention - (yes)
Amendments - allowable (yes)
Availability to the public
Right to be heard - violation (no)
Late submitted material
Novelty - (yes)
Inventive step - (yes)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

Boards of Appeal

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Case Number: T 1680/15 - 3.2.04

D E C I S I O N
of Technical Board of Appeal 3.2.04
of 27 March 2019

Appellant: (Opponent 1)	Amazonen-Werke H. Dreyer GmbH & Co. KG Am Amazonenwerk 9-13 49205 Hasbergen-Gaste (DE)
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Appellant: (Opponent 2)	SBG Precision Farming B.V. Hoornseweg 22 1775 RB Middenmeer (NL)
Appellant: (Opponent 3)	Lemken GmbH & Co. KG Weseler Strasse 5 46519 Alpen (DE)
Representative:	Schulte & Schulte Hauptstrasse 2 45219 Essen (DE)
Respondent: (Patent Proprietor)	CNH Industrial Italia S.p.A. Via Plava 80 10135 Torino (IT)
Representative:	CNH Industrial IP Department CNH Belgium NV Patent Department Leon Claeysstraat 3A 8210 Zedelgem (BE)

Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office posted on 26 June 2015 concerning maintenance of the European Patent No. 2238819 in amended form.**

Composition of the Board:

Chairman A. de Vries
Members: G. Martin Gonzalez
W. Van der Eijk

Summary of Facts and Submissions

I. The appellant-opponent I lodged an appeal, received on 5 August 2015, against the interlocutory decision of the Opposition Division of the European Patent Office posted on 26 June 2015 concerning maintenance of the European Patent No. 2238819 in amended form, and simultaneously paid the appeal fee. The statement setting out the grounds of appeal was received on 16 September 2015.

The appellant-opponents II and III each also lodged an appeal, both received on 25 August 2015, against the above interlocutory decision, and simultaneously paid the appeal fee. Their statements setting out the grounds of appeal were received on 5 November 2015.

II. Three oppositions were filed based on the ground of Article 100(a) EPC in conjunction with Articles 52(2)(c), 54 and 56 EPC for lack of technical character lack of novelty and lack of inventive step respectively.

The Opposition Division held that the patent as amended met the requirements of the Convention, having regard inter alia to the following evidence:

(D1) EP 2 236 020 A1
(D3) "Auf Knopfdruck schmaler oder breiter pflügen", Profi, Edition 4/90, published April 1990, pp. 50,51
(D5) US 6,236,924 B1
(D10) Manual "AutoFarm GPS AutoSteer Bedienungsanleitung - TN: 602-0023-05-C" (copyright 2008),(pp. 1-166)

(D10-photos) 13 photographs of an AutoFarm GPS AutoSteer system monitor.

III. The appellant-opponents filed the following further evidence and offers of evidence during the appeal proceedings:

(a) with the statement of grounds of 5 November 2015:

(D10-DVD) DVD with seven videos of an AutoFarm GPS AutoSteer system.

Offer to hear M. Hauke, M. van Bruggen und M. Doroshchak as witnesses in connection with the (D10-DVD).

Offer of an on site inspection of a working AutoFarm GPS AutoSteer system

(b) with letter of 9 July 2016:

(D10.1) Manual "AutoFarm GPS AutoSteer Bedienungsanleitung - PN: 602-0023-05-B" (copyright 2007),(pp. 1-125).

(D10.2) Affidavit of Daniel Wernsmann.

(c) with letter of 25 February 2019:

(D10.3) Interlocutory decision in opposition proceedings concerning the European Patent No. 2 236 020 (D1 above) of 2 October 2017.

(D10.4) Minutes of the oral proceedings on 27 June 2017 before the Opposition Division of D10.3.

(D10.5) Minutes of the taking of evidence by hearing the witness M. Bus on 27 June 2017 before the Opposition Division of D10.3.

(D10.6) Invoice of the company Compufarm Automatisiering to the firm M.P.J. Bus of 18 July 2018.

IV. The appellant-opponents I,II and III request that the decision under appeal be set aside and that European patent No. 2238819 be revoked in its entirety.

The respondent-proprietor requests that:
- the appeals be dismissed and the patent thus be maintained as upheld by the Opposition Division (main request)
- alternatively, that the decision under appeal be set aside and the patent be maintained in amended form with the claims as upheld by the Opposition Division and an amended description as filed during the oral proceedings held before the Board on 27 March 2019,
- or alternatively, according to one of auxiliary requests 1-2 filed with letter of 27 April 2015.

V. With summons dated 27 June 2018 the Board summoned the parties to oral proceedings. In preparation it issued a communication dated 21 December 2018setting out its provisional opinion on the relevant issues.

Oral proceedings were held on 27 March 2019.

VI. The independent claims according to the main request - as maintained by the Opposition Division - read as follows:

1. "A method for generating a swath pattern (60,70) to be driven by a work vehicle (10) over a quadrilateral shaped region (28) of a field bounded by a first end boundary (30), a second end boundary (32) opposite to

the first end boundary (30), a first side boundary (34) and a second side boundary (36) opposite to the first side boundary (34), the first and second side boundaries (34,36) extending divergently between the first and second end boundaries (30,32), characterized in that the method comprises the steps of:

- determining a number of swaths for the swath pattern (60,70) as a function of a lateral extent (48) of an implement (12) of the work vehicle (10), and at least one of a first lateral extent (50) of the first end boundary (30) and a second lateral extent (52) of the second end boundary (32);

- generating the swath pattern (60,70) including side by side individual swaths, each of the swaths having a centerline (62,68) extending between the first and second end boundaries (30,32) thereof, the centerlines (62,68) of the side by side ones of the swaths diverging from the first end boundary (30) towards the second end boundary (32) substantially uniformly across the region (28) from the first side boundary (34) to the second side boundary (36); and

- a control system (20) of the vehicle (10) guiding the vehicle (10) along a swath of the generated swath pattern (60.70)."

10. "A vehicle (10) for following a swath pattern (60,70) over a quadrilateral shaped region (28) of a field bounded by a first end boundary (30), a second end boundary (32) opposite to the first end boundary (30), a first side boundary (34) and a second side boundary (36) opposite to the first side boundary (34), the first and second side boundaries (34, 36) extending divergently between the first and second end boundaries

(30,32), said vehicle (10) being associated with an implement (12) having a lateral extent (48), and being provided with a control system (20) operable to guide said vehicle (10) along a swath of said swath pattern (60,70) and operable to determine the position of said vehicle (10) as said vehicle (10) moves along said swath, characterized in that said control system (20) further:

- determines a number of swaths for said swath pattern (60,70) as a function of said lateral extent (48) of said implement (12) and at least one of a first lateral extent (50) of said first end boundary (30) and a second lateral extent (52) of said second end boundary (32);

- determines a first swath width (64,74) as a function of said first lateral extent (50) and the number of swath lines;

- determines a second swath width (66,78) as a function of said second lateral extent (52) and the number of swath lines; and

- generates said swath pattern (60,70) dividing said region (28) into side by side adjacent swaths extending from said first side boundary (34) to said second side boundary (36), each of the ones of the swaths including centerlines (62,68) extending divergently between said first end boundary (30) and said second end boundary (32), the centerlines (62,68) of each ones of said adjacent swaths being spaced at the first swath width (64,74) adjacent to said first end boundary (30) and at said second swath width (66,78) adjacent to said second end boundary (32), such that the centerline of a first swath adjacent to said first side boundary (34) is

substantially parallel thereto and the centerline of a final swath adjacent to said second side boundary (36) is substantially parallel thereto."

VII. The appellant-opponents argued as follows:

The amendments to claim 1 according to the main request add subject-matter extending beyond the contents of the originally filed application. Claim 1 has no technical character and thus falls under the exclusion from patentability of Article 52(2)c) EPC. The Opposition Division should not have disregarded the D10-photos and witnesses offered at first instance by the appellant-opponents II/III, thus violating their right to be heard. Therefore hearing the witnesses, preferably after remittal to first instance, would be appropriate. All the evidence pertaining to the AutoFarm GPS AutoSteer system (D10.X evidence) submitted upon appeal is admissible as prima facie highly relevant. The subject-matter of claims 1 and 10 is not new over D1 (Article 54(3) EPC prior art) or D10.1. Also, having regard to D3, D5, D10.1 and common general knowledge, the subject-matter of claims 1 and 10 lacks an inventive step. The description is not properly adapted to the claims as maintained by the Opposition Division and leads to unclarity as to the actual scope of protection.

VIII. The respondent-proprietor argued as follows:

The claims according to the main request do not contain added subject-matter. Claim 1 of the main request has technical character and is thus not excluded from patentability. Both claims 1 and 10 are new over D1. The decision of the Opposition Division to disregard the D10-photos and the witnesses offer was correct. The

further evidence filed upon appeal connected with the AutoFarm GPS AutoSteer system: photos, videos, witness offers, offer for an on site inspection and evidence D10.3-D10.6 from the proceedings concerning the European Patent No. 2 236 020, is late filed and should not be admitted. The subject-matter of claims 1 and 10 of the main request is new over D1 and D10.1. It also involves an inventive step in the light of D3, D5, D10.1 and common general knowledge.

Reasons for the Decision

1. The appeals are admissible.

2. Background

The invention is concerned with a method for generating swath patterns for GPS based vehicle guidance systems especially adapted for a quadrilateral shaped field having opposite sides which diverge between opposite ends, see patent specification paragraph [0001]. Known methods of generating swath patterns for rectangular fields, when applied to this type of field, typically result in point rows, or shorter swaths, adjacent to the wider end of the field. Point rows cause difficult and time consuming additional turns and also tend to cause inefficient use of seeds, applied nutrients, chemicals and the like, see specification paragraphs [0006]-[0007]. Accordingly, the invention is aimed at an optimised use of vehicle, resources and operator time by avoiding point rows. To this aim, the method determines a number of swaths as a function of the lateral extent of the working implement and the extent of one of the boundary ends. The method further includes generating side by side swaths, each swath having a center line extending between end boundaries,

also forming a substantially uniformly diverging pattern of lines between the side boundaries, see paragraph [0012]. The so defined pattern determines a series of swaths that cover all cultivable portions of a field avoiding additional vehicle turns, shorter swaths or point rows, see paragraphs [0004]-[0007].

3. Amendments

Method claim 1 was amended during opposition proceedings to include the feature that a control system guides the vehicle along the calculated pattern. The decision held, reasons point 2, that the amendment is supported not only by the wording of original vehicle claim 10 but also by the original disclosure of the feature in the description, paragraph [0026] ([0027] of the patent specification) and in figure 2. Indeed, paragraph [0027] of the specification describes a control system 20 with an automatic guidance system 22 receiving instructions from the swath generating apparatus 24 that "actuates the vehicle steering (i.e. steered wheels)".

In this regard and contrary to the submissions of the appellant-opponent I, the Board is of the opinion that the skilled reader immediately understands that this feature of the original disclosure, in that it is described in relation to the vehicle including the guidance control system performing the various swath pattern determining steps (as expressed in claim 10), necessarily also applies as a matter of direct and unambiguous disclosure to the method comprising those steps as carried out by the control system. Thus it applies to the subject-matter of originally disclosed method claim 1, and not only to the vehicle. Indeed, there is no indication or suggestion in the original

disclosure of the detailed embodiments that the method of determining the swath pattern is ever to be carried out other than in conjunction with a control system for guiding the vehicle.

Neither is the Board able to identify an unallowable intermediate generalisation in the inclusion of the control system without continually calculating or determining the vehicle steering heading to guiding the vehicle. In the Board's understanding this is implicit in a guiding control system.

4. Technical character - main request

The appellant-opponents II/III object that claim 1 lacks technical character and thus falls under the exclusion from patentability of Article 52(2)c) EPC.

According to established case law, the use of technical means confers technical character to a method claim, see Case Law of the Boards of Appeal, 8th edition 2016 (CLBA), I.A.1.4.3 and I.D.9.1.1. In the present case, as noted by the Board in its preliminary opinion, upheld claim 1 calls for the use of a control system for guiding the vehicle, which is in its view undoubtedly a technical means. This is immediately clear to the skilled person from a technically and contextually meaningful reading of the claim terms using normal reading skills and with their mind willing to understand. Thus, it is clear from the formulation itself - "control system ... guiding the vehicle" - that the control system guides the vehicle, not a human operator. Nor is anything else suggested or hinted at in the patent specification, cf. the title and paragraphs [0002] to [0004], and the detailed embodiment, e.g figure 2, which focus on improvements

to automatic guidance control in order to enable precision guidance. Accordingly this feature confers technical character as required by Article 52 EPC to the claim. The inclusion of this final feature thus means that claim is not directed at a method for performing mental acts nor at a program for a computer *as such*, Articles 52(2)(c) and (3) EPC.

The Board thus concludes that the subject-matter of claim 1 of the main request is not excluded from patentability by Article 52(2)(c), (3) EPC.

5. Novelty - Article 54(3) EPC

Document D1 describes a route planning or navigation system to provide guidance to the driver when operating the vehicle, see paragraph [0021], which also calculates a uniform pattern as in the contested claims 1 and 10. The finding of the Opposition Division, see point 3.1 of the written decision, that the navigation system of D1 does not anticipate the claimed method feature of "a control system (20) of the vehicle guiding the vehicle (10) along a swath of the generated swath pattern (60, 70)" in the sense of the contested patent and the equivalent feature of the vehicle claim 10, was under dispute.

The boards have stated in several decisions that terms used in patent documents should be given their normal meaning in the relevant art, unless the description gives them a special meaning, see CLBA, II.A.6.3.3. In the present case, the Division held in this respect, and the Board agrees, that the usual or normal meaning of the term "control system", as is claimed, implies a device that itself performs the control action - i.e. manages or regulates the vehicle - thus excluding human

intervention. This is also supported by the patent specification, cf. paragraphs [0002], [0004] or [0027], where only such control systems according to the usual meaning of the term are described. Thus the Board considers systems providing guiding aid to a driver, as a route or navigation planner, as excluded from the scope of the claim.

In contrast, document D1 consistently describes the known system as a system for route planning ("Routenplanung"), cf. D1, title, paragraphs [0001], [0003], to be shown on a screen ("Anzeigeinstrument") to provide guidance to a driver, cf. paragraph [0021]. There is not a direct and unambiguous disclosure in D1 that the system can itself guide the vehicle along the calculated swath without human intervention. Although a route planner may also be combined with a vehicle control system, as put forward by the appellant-opponent I, such a combination is not derivable in a direct and unambiguous manner from the contents of D1.

The paragraphs of D1 cited by the appellant-opponents are also consistent with the general disclosure of that document of a route planner for manual driving of the vehicle (and not a control system) and can only confirm the findings of the Board and the Division. Paragraph [0016] describes that the driver may decide to follow an alternative route than the one suggested by the route planner, in view of e.g. an obstacle. Paragraph [0021] describes the system as a "Routenplanungssystem" for planning the working pattern, having a monitor or similar ("Anzeigeinstrument") to indicate the actual vehicle position and instructions in the form of a target direction and position needed for following the calculated pattern. Paragraphs [0033],[0034] describe that the route planner may consider an alternative

swath, followed by the driver instead of the indicated one - due to e.g. an unexpected contingency, as a new boundary input for further calculations. This is analogous to on board navigation systems in cars which provide navigation guidance to the driver who ultimately controls the car and who may or may not choose to follow the guidance given. Such a system is not normally termed a control system.

The Board thus confirms the finding of the Opposition Division that the subject-matter of claims 1 and 10 as maintained is not anticipated by D1.

6. Evidence related to the AutoFarm GPS AutoSteer system

This evidence raised issues of admissibility and of public availability as follows. Several pieces of evidence as well as offers to take evidence regarding the system AutoFarm GPS AutoSteer have been submitted by the appellant-opponents in first instance and subsequently at different stages of the appeal procedure. These notably include two different user manuals: D10 (first instance) and D10.1 (in appeal after having filed the statement of grounds) corresponding to different version numbers of the AutoSteer system thus representing two distinct instances of prior art. D10 and D10.1 bear no publication date but only copyright dates of 2008 and 2007 respectively. Supplementary evidence regarding inter alia public availability was filed after the nine months opposition period. Thus the evidence on file raised issues of admissibility and of public availability, which are addressed in the following two sections.

6.1 Admission of late filed evidence

In appeal the appellants submitted further evidence regarding public availability of D10, under dispute during the opposition and opposition-appeal proceedings. As it is filed after the nine month opposition period such evidence is late and thus subject to the Board's discretion under the RPBA, under the relevant provisions. In the following it shall consider each set in turn:

6.1.1 The **video D10-DVD**, **further offer of witnesses** and **the offer of an on site inspection** were submitted with the statement of grounds and are subject to the Board's discretion under Art 12(4) RPBA.

As observed by the Board in its communication in preparation for the oral proceedings i,though the video appears to shed light on the content of the user manual D10, as also would an on site inspection of the system of D10, neither video nor witnesses nor on site inspection are prima facie able to prove public availability of D10 before priority.

Moreover, as acknowledged at the oral proceedings the video D10-DVD was prepared at the instructions of appellant-opponents II/III in the summer of 2013 with the participation of a number of individuals offered as witnesses. Therefore this evidence including that of the named witnesses and of the possibility of an on site inspection was demonstrably already in possession of the appellant opponents II/III during the first instance proceedings, well before its conclusion at the oral proceedings before the Division held on 21 January 2015. Consequently this evidence could and should have been submitted already in first instance.

For the above reasons, and using its discretion under Art 12(4) RPBA the Board decided not to admit this evidence, offer of witnesses and offer of on site inspection into the proceedings.

6.1.2 **D10.1** and **D10.2** were submitted by appellant-opponent I in appeal with letter of 9 June 2016 after its statements of grounds. It is thus subject to the discretion afforded by Art 13(1) RPBA. This evidence relates to a user manual of an older version of the AutoFarm GPS AutoSteer system (D10.1), and is thus not suitable or able to prove public availability of a younger version manual (D10). However D10.1, in the light of D10.2, the affidavit on its download before priority, and on the balance of probabilities, does itself appear to have been made publicly available before priority. It's contents are similar to those of manual D10, see section 6.2.3 below. Finally, the Board notes that D10.1 and D10.2 were filed in direct reply to the respondents' contentions regarding absence of proof and the need for further evidence of public availability of the contents of the manual D10. In the light of the above and using its discretion under Art 13(1) RPBA the Board decided to admit D10.1 and D10.2 into the proceedings.

6.1.3 **D10.3 to D10.6** were filed by the appellant-opponents II/III with their letter of 19 February 2019, that is after the summons to oral proceedings and shortly before these were held. This evidence is thus subject to the Board's discretion under Art 13(3) RPBA.

(a) This evidence, in particular the **invoice D10.6** and **Mr. Bus' testimony D10.5**, was meant to finally complete the chain of proof concerning public availability of manual D10 and it contents in

relation to the video D10-DVD. The appellant-opponents II/III explained that this evidence originated from opposition proceedings in which they were opposing a similar patent of a different proprietor, but that they had not yet submitted it so as not to prejudice ongoing negotiations for a license agreement with the respondent proprietor in the present case.

(b) At the oral proceedings before the Board the appellant-opponents II/III acknowledged that this evidence had been in their possession well before a first attempt in September 2018 to initiate negotiations. Indeed as is evident from the decision in the similar case (submitted as D10.3) the appellant-opponents II/III submitted invoice D10.6 documenting the sale of the D10 device to Mr Bus, as well as an offer to hear inter alia Mr Bus as witness (which culminated in his hearing on 27 June 2017 in testimony D10.5) together with the very same video D10-DVD submitted in these proceedings, with their letter of 12 January 2016 in the other case (see facts and submissions 8.3 of decision D10.3, dated 2 October 2017). In that case manual D10 had already been submitted (as B3') with the notice of opposition, with an offer to hear Mr Bus on public availability and authenticity of the video D10-DVD. Mr Bus is not only one of the participants in the video, but it is the operation of the system sold to him which is shown therein and documented in invoice D10.6. The sale and evidence relating thereto (such as e.g. an offer to hear Mr Bus) is pivotal to the question of public availability of D10 and the system shown in the video D10-DVD.

(c) It is clear from the above that all evidence pertaining to manual D10 and video D10-DVD including the necessary evidence of the sale and correspondence of D10 and video, which was created at the request of the appellant-opponents II/III was within their realm of control. If it had not been procured at the time of the making of the video, i.e. in the summer of 2013 or soon after, it could certainly have been submitted as soon as it came into their possession, that is on 12 January 2016, that is more than three years ago, rather than little over a month before the oral proceedings before the board. This evidence – in particular video D10-DVD together with the invoice D10.6 augmented by Mr Bus' testimony D10.5 - would have significantly changed the framework of the appeal if admitted. The Board does not believe either the respondent proprietor or the board itself could be fairly or reasonably expected to deal with such a change at such short notice. For these reasons the Board decided not to admit this evidence into the proceedings, Art 13(3) RPBA.

6.1.4 As regards the contention that the Board should admit such evidence ex officio as prima facie highly relevant the board adds that the principle of ex officio examination set out in Art 114(2) applies much more restrictively in inter partes appeal proceedings than in first instance opposition proceedings. Vis-a-vis the opposition procedure, which is an adversarial administrative procedure, but where late filed facts and evidence may be admitted exceptionally if prima facie prejudicial, an inter partes appeal is a judicial procedure which is intended primarily to review the first instance decision, cf. G9/91, reasons 18. There, new facts are only very exceptionally admitted and the

discretion afforded under Art 114(1) to disregard late filed facts and arguments is given increasingly greater weight as the procedure progresses, cf. T1002/92, as is borne out by Articles 12(4), 13(1) and 13(3) RPBA. Indeed as indicated in Art 13(3) RPBA which is applicable in the present case, procedural economy is given the greatest weight.

6.2 Public availability

6.2.1 Public availability of the manual **D10** has been under dispute during the opposition and opposition-appeal proceedings.

The decision held, reasons point 3.2.1, that on the balance of probabilities manual **D10** which was copyrighted sometime in 2008 had been made available to the public before priority in April 2009. As argued by the respondent-proprietor, and the Board agrees, it is very common to draft a manual in one year, for a product that may be released somewhere during the next year. In the present case the copyright date and the priority date are very close, with a difference only slightly over three months. It is thus very well possible that the manual was not public yet on the priority date 8 April 2009. The Board is also not convinced by the argument of the Opposition Division that this would not apply to a manual for an upgraded version of an existing system, as is the case of D10, since many similar plausible reasons why an upgrade release could take place more than three months after the drafting of the manual also apply. Absent further submissions at the oral proceedings the Board concludes that on the balance of probabilities D10 cannot be proven to have been made public before the priority date of the present patent.

6.2.2 However, as indicated in its communication, the Board is of the opinion that the Division was right to disregard – though not to not admit - the **photos** and to also disregard hearing the **witnesses** M. Hauke, M. van Bruggen und M. Doroshchak as unable to prove public availability of D10. It sees herein no violation of the right to be heard, and accordingly no justification for a remittal to first instance on this ground, as suggested by the appellant-opponents II/III. Indeed, the probative value of this evidence and of that of the witness testimony offered appears to be limited. Unless the witnesses offered had themselves been involved in the redaction of manual D10 it is highly unlikely that their testimony could have proved that the screenshots in these photos are of the very same system that is the subject of the manual. This is all the more so as the version numbers on the photos do not correspond with that of the manual. At best these photos could have been presented as evidence of a different instance of prior use; in that case there should have been an indication (with corroborating evidence) of the circumstances - when, what and how - surrounding such alleged prior use, see Case Law of the Boards of Appeal, 8th edition 2016 (CLBA), IV.D.2.2.9. Such an indication was not provided in opposition at any stage, so that the Opposition Division would have been justified in disregarding the content of the photos as prior art (rather than not admitting them).

6.2.3 Turning to **manual D10.1** copyrighted in 2007 and considering **affidavit** (eidestättliche Erklärung) **D10.2,** stating that this document had been downloaded from the internet before priority, the Board finds it sufficiently proven (on the basis of probabilities) that manual D10.1 was made publicly available before

priority. This has not been contested by the parties. D10.1 thus forms part of the prior art.

7. Novelty - Article 54(2) EPC

The appellant-opponents II/III have raised lack of novelty over D10.1. They merely referred during the oral proceedings before the Board to their written submissions, which though based on D10, would also be relevant for the contents of D10.1.

As noted in the communication with regard to D10, D10.1 does not directly and unambiguously disclose the claimed feature of determining a swath pattern based upon the lateral extent of the implement for the "Fächer" or "fan" diverging pattern option, as the Opposition Division found, see section 3.2.3 of the decision. Indeed, handbook D10.1 appears to describe inputting the implement width during the general set up of the guiding system, see e.g. page 65 of D10.1. However, there does not appear to be a direct and unambiguous disclosure in D10.1 that this data is also used for the determination of the pattern if the fan or "Fächer" pattern with diverging lines is selected, or e.g. for parallel lines patterns. Similarly, it is unclear how in "Schritt" 6 of table 6-1 on page 25, when the "Fächer" option is selected, the swathe pattern is determined, whether it is by user input rather than automatically by the system, taking into account the working implement width, or what the exact features of the resultant swath pattern are. Absent any further submissions from the appellant-opponents the Board sees no reason to change its point of view. It thus holds the claimed subject-matter to be novel over D10.1.

8. Inventive step

8.1 Consideration of non-technical features

According to Boards of Appeal case law, when assessing inventive step of a mixed-type invention, all those features which contribute to the technical character of the invention are taken into account. In the context of inventive step assessment, these features also include those which in isolation may be non-technical, but in the context of the invention contribute to producing a technical effect serving a technical purpose, see CLBA I.D.9.1.2. In the present case, in the Board's understanding, all the features of claim 1, including the mathematical features for generating the pattern, contribute to the effect of achieving an optimized pattern for optimized use of vehicle and operator time, see specification paragraph [0008]. Optimized vehicle use is a technical purpose to which the generation of the optimized pattern clearly contributes, so that the Board concludes that these features contribute to produce a technical effect serving a technical purpose. They are therefore in the opinion of the Board not to be ignored in the inventive step assessment, as also concluded by the Opposition division, see section 4.1 of the decision.

The appellant-opponents further contended that the calculated pattern of several swaths is devoid of technical effect because the contested claims only require the vehicle to be guided along one single swath of the pattern "...along a swath of the generated pattern(60,70)". The Board remarks that the skilled person when reading the claim with the aim of making technical sense will rule out this interpretation that the system calculates a pattern of several swaths to

then only guide the vehicle along one of them. They will rather read the claim as a whole in the light of the description and figures and understand that the vehicle is to be guided along all calculated swaths of the pattern, the pattern thus having technical significance in the context of the claim.

8.2 Document D5 is considered as a suitable starting point by all parties. Indeed, document D5 describes an automatic control system, see column 1, lines 5-10, that can determine a pattern of parallel rows extending uniformly across a field region between opposite ends and opposite side boundaries, see figure 3d-3e, also as a function of the width of the working implement, see claim 33, for automatically guiding the machine, see column 1, lines 40-47. A field 300 may also have opposite side boundaries extending divergently with respect to each other, see figures 3a-3f.

The subject-matter of the contested claims 1 and 10 differs from document D5 in that the calculated pattern is a pattern of substantially uniformly diverging lines extending from the first side boundary to the second side boundary. Such a pattern avoids shorter or point rows extending between one end and one (inclined or diverging) side boundary, in fields having opposite diverging lines. Point rows may cause difficult and time consuming additional turns as well as inefficient use of seeds, applied nutrients, chemicals and the like, see specification paragraphs [0006]-[0007]. Accordingly, the associated technical problem may be formulated as the determination of an alternative pattern that allows an optimised use of vehicle, resources and operator time in fields having diverging side boundaries.

8.3 The appellant-opponent I argues that the claimed solution to this problem would be obvious in the light of common general knowledge, D3 or D10.1.

8.3.1 Document D5 suggests in column 5, lines 60-62 that "it is to be understood that adjacent, non-parallel paths may also be determined..." without any further teaching or indication as to any particular pattern of non-parallel lines. In the Board's view, as also held by the Opposition Division in point 4.2 of the reasons, it is not apparent how this suggestion would straightforwardly lead the skilled person in an obvious manner and drawing only on their common general knowledge to arrive at a divergent swaths pattern as claimed. Indeed, non-parallel is not the same as uniformly diverging, it could be at sharp angles or follow irregular shaped paths. It is also not specified in D5 whether the non-parallel lines extend from one side boundary to the other or apply only to part of the region, and if so how it would be applied. It can thus not be reasonably said, in the Board's view, that the skilled person reads in that citation of D5 a specific suggestion for a pattern of uniformly diverging swaths that covers the field region from side boundary to side boundary.

8.3.2 Document D3 addresses the issue of field regions with diverging side boundaries, see page 50, third from last paragraph. D3 teaches in this respect to use implements with variable width to solve the problem, in particular by adapting the width of the implement during each pass ("bei jeder Fahrt") so that no area is left untreated. D3 thus teaches adapting swaths width of an existing pattern, where necessary. It does not therefore suggest the determination of a new pattern. In the Board's understanding, the skilled person may consequently,

when applying the teachings of D3, locally modify individual boundary swath widths to adapt them to the corresponding field boundary. There is no suggestion prompting the skilled person to modify, as a matter of obviousness, the overall pattern, let alone to modify it into a pattern of substantially uniformly diverging swaths extending across a quadrilateral field region, as in the contested claims. This conclusion also holds, irrespective of whether continuous variation of the implement width along an individual swath automatically generates a swath centerline diverging from the contiguous swath centerline, as argued by the appellant-opponent I.

8.3.3 D10.1 teaches the use of patterns of diverging lines to cover working fields, see "Fächer" (fan) option at "Schritt 6" of table 6-1 on page 25. The "Fächer" or fan option is one of other several pattern possibilities offered to the user for working fields, namely circular, rectangular, parallel patterns, curved paths and AB-paths. However there is no information in D10.1 how or to what end the user is to use the different options, how the end user may adapt the different patterns to individual field boundaries, nor does the document provide further information how, if he were to choose the "Fächer" option, a pattern is then generated or its particular features. Nor does the document mention point or shorter rows, associated disadvantages or that they should be avoided. Therefore, in the Board's view, the skilled person, when confronted with the task of determining an alternative pattern for quadrilateral fields having diverging side boundaries, does not receive from D10.1 any particular, clear, specific teaching on how to deal with such fields, much less that this should involve generating a diverging pattern as claimed.

8.4 As none of the attacks against inventive step is successful, the Board can but confirm the conclusions of the Opposition Division, see written decision point 4, that the subject-matter of claims 1 and 10 according to the main request (maintained version) involves an inventive step.

9. Adaptation of the description

Paragraphs [0025] and [0027] of the description as maintained by the Opposition Division describe embodiments that no longer fall within the scope of the amended claims, thereby rendering the claims unclear, Art 84 EPC. In particular, figure 6 (cited in paragraph [0025]) only shows part of the claimed invention and paragraph [0027] describes the claimed control system required by the independent claims as an optional feature. The relevant passages have been adapted accordingly.

10. Conclusion

Having confirmed the decision's findings regarding the claims and having established that the description is now in conformity with the claims as upheld, the Board concludes that the patent as amended meets the requirements of the EPC. It can therefore maintain the patent as amended in accordance with Art 101(3)(a) EPC.

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 European patent No. 2238819 in amended form on the basis of the following documents:**

Claims:

Claims 1-13 as filed on 27 April 2015 and as upheld in the decision under appeal

Description:

Paragraphs 1-11, 13-22, 31-37 as in the patent specification

Paragraph 12 as filed on 2 June 2015 during oral proceedings before the opposition division

Paragraphs 23-30 as filed on 27 March 2019 during oral proceedings before the Board

Drawings:

Figures 1-6 as in the patent specification.

The Registrar: The Chairman:

G. Magouliotis A. de Vries

Decision electronically authenticated