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Datasheet for the decision of 12 October 2020

Case Number: T 0492/18 - 3.2.04

Application Number: 12156864.6

Publication Number: 2631467

IPC: F03D1/06

Language of the proceedings: EN

Title of invention:
Arrangement to reduce noise originated by a wind turbine blade

Patent Proprietor:
Siemens Gamesa Renewable Energy A/S

Opponent:
ENERCON GmbH

Headword:

Relevant legal provisions:
EPC Art. 54, 56, 123(2)
RPBA Art. 12(4)

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It can be changed at any time and without notic

Keyword:
Novelty - (yes)
Inventive step - (yes)
Amendments - allowable (yes)
Late-filed evidence - admitted (no)
Participation in oral proceedings by way of private video connection (no)

Decisions cited:

Catchword:
See reasons 2

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Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 0492/18 - 3.2.04

D E C I S I O N
of Technical Board of Appeal 3.2.04
of 12 October 2020

Appellant: (Opponent)	ENERCON GmbH Dreekamp 5 26605 Aurich (DE)
Representative:	Eisenführ Speiser Patentanwälte Rechtsanwälte PartGmbB Postfach 10 60 78 28060 Bremen (DE)
Respondent: (Patent Proprietor)	Siemens Gamesa Renewable Energy A/S Borupvej 16 7330 Brande (DK)
Representative:	Aspacher, Karl-Georg Siemens Gamesa Renewable Energy GmbH & Co. KG Otto-Hahn-Ring 6 81739 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 7 December 2017 rejecting the opposition filed against European patent No. 2631467 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	A. de Vries
Members:	S. Oechsner de Coninck
	T. Bokor

Summary of Facts and Submissions

I. The appellant (opponent) lodged an appeal, received on 19 February 2018 against the decision of the Opposition Division dated 7 December 2017 rejecting the opposition filed against European patent No. 2631467, and paid the appeal fee the same day. The statement setting out the grounds of appeal was filed on 17 April 2018.

II. Opposition was filed against the patent as a whole and based on Article 100(a) together with 52(1), 54(3) and 56 EPC, Article 100(b) together with 83 EPC as well as Article 100(c) together with 123(2) EPC. The Opposition Division held that the grounds for opposition mentioned in Articles 100 (a),(b) and (c) EPC did not prejudice the maintenance of the patent as granted having regard to the following documents in particular:

E1: US2012/0027590 A1
E2: US2011/0142637 A1
E5: DE 27 42 645 A

The following document was additionally cited in the grounds of appeal:
E9: US 2011/0293420 A1

III. With letter dated 9 September 2020 the appellant requested the holding of the oral proceedings by way of a video conference, or in case this were not allowed, the participation in the oral proceedings of a member of the opponent's patent department by video connection. The respondent stated by letter dated 25 September 2020 that it did not consent to the holding of the oral proceedings by a video conference, and the Registrar of the Board informed the appellant by a

communication dated 28 September 2020 that the request for the video conference was refused, given the disagreement of the respondent and given that travel within Germany was still possible.

IV. Oral proceedings were held on 12 October 2020.

V. The appellant requests that the decision under appeal be set aside, and that the European patent No. 2 631 467 be revoked.
They further request participation at the oral proceedings of a member of the opponent's patent department by means of the video messaging tool "Skype", at least periodically, where the video connection would be provided through the computer of the professional representative being present in the oral proceedings.

VI. The respondent requests that the appeal be dismissed, i.e. that the opposition be rejected (main request) or alternatively that the decision under appeal be set aside and the patent be maintained in an amended form on the basis of the auxiliary requests 1 to 3 filed with the response to the grounds of appeal dated 16 August 2018.

VII. The independent claim 1 according to the main request (patent as granted) reads as follows:

"Arrangement to reduce noise, which is originated by a wind turbine blade (11),
- wherein the wind turbine blade (11) comprises a first panel (21A) and a second panel (21B),
- wherein the first panel (21A) and the second panel (21B) are arranged on the trailing edge (TE1) of the wind turbine blade,

- wherein the first panel (21A) is adjacent to the second panel (21B)
- wherein the first panel (21A) comprises a first transition zone (TZ1) and wherein the second panel (21B) comprises a second transition zone (TZ2), characterised in that
- the first transition zone (TZ1) and the second transition zone (TZ2) comprise a lip (LIP) each, and - wherein the lips (LIP) overlap;
- thus, a gap between the first panel (21A) and the second panel (21B) is narrowed such that origination of whistle tones by the gap is reduced or even avoided."

VIII. The appellant argued as follows:
- E9 is prima facie relevant and should be admitted into the proceedings.
- E9 discloses an overlap between two panels in its embodiment according to Figures 9 and 10, that anticipates the lips of claim 1. E1 and E2 are also novelty destroying for the arrangement of claim 1.
- Starting from E2 or the prior art cited in the patent, the skilled person is taught by E5 or E9 that noise generated by a clearance between two panels may be reduced by an overlap between two neighbouring edges.
- In claim 1 as granted, the replacement of "at the trailing edge" by "on the trailing edge" and the deletion of first and second transition zone being engaged introduce subject-matter not disclosed in the application as filed.

IX. The respondent argues as follows:
- E9 should not be admitted as too late and not prima facie relevant. E9 does not disclose lips in the sense of claim 1 and thus does not anticipate the subject-

matter of granted claim 1. E1 and E2 fail to disclose overlapping lips as claimed.
- Starting from E2 or the prior art cited in the patent, neither E5 or E9 suggests a solution to the problem of whistle tones nor do they suggest to adapt overlapping lips as recited in claim 1.
- The application as originally filed provides support for the amendments objected to.

Reasons for the Decision

1. The appeal is admissible.

2. Attendance of an accompanying person by means of video connection

2.1 In their letter of 9 September 2020 (point III above) the appellant gave no further details how the video connection is to be established. At the oral proceedings they clarified that the video connection would be provided through the computer of the professional representative using the video messaging tool "Skype".

2.2 In an announcement concerning oral proceedings before the Boards of Appeal titled "Reassessment of the measures adopted due to the coronavirus (COVID-19) pandemic", published on the website of the Boards of Appeal on 29 July 2020, the the Boards of Appeal informed the public of the possibility of conducting oral proceedings before the Board using videoconferencing technology (hereafter VICO), but which would require agreement from all parties. In this case the respondent did not agree and the oral proceedings took place in person.

2.3 The possibility of holding oral proceedings by VICO is predicated on the Boards' ability to offer the necessary technical facilities. In the opinion of the Board, these technical facilities must be under the continued control and supervision of the Board. To the extent it is technically feasible, the Board must be in the position to control who is participating in the oral proceedings, and to establish that all participants can be seen and heard properly by all persons attending, while also ensuring that it is clear to all who is attending the oral proceedings. These conditions are seen as necessary for the oral proceedings held by VICO to be perceived as equivalent to usual oral proceedings held at the premises of the office with the parties being physically present.

2.4 Additionally, at the time of deciding, the technical facilities of the Boards of Appeal are primarily geared towards all parties participating remotely. Facilities for holding oral proceedings in mixed format, with members of a party attending at the office's premises and other members attending remotely, were not available to the Board for the present oral proceedings. For these reasons, the Board was not able to accede to the appellant's request.

3. Background & claim interpretation

3.1 The patent is concerned with an arrangement to reduce aerodynamic noise, which originates in serrated panels attached to the trailing edge of a wind turbine blade to improve its aerodynamics (paragraph 001 and 002). As stated in paragraph 013 a gap between such panels generates a whistle tone as aerodynamic noise. This is emitted by the airflow at the junction between adjacent panels.

The whistle tone reduction as proposed in claim 1 is obtained by a first transition zone of the first panel and a second transition zone of the second panel each comprising a lip in an overlapping relationship. According to the claim the overlapping lips narrow the gap between the first panel and the second panel in such a way that whistle tones by the gap is reduced.

3.2 The skilled person strives to give the claim terms their usual meaning. Thus, the term "lip" will be understood as an "edge or rim, esp. one that projects" (OED). Edge or rim further implies that the dimensions of the lip will be smaller than the relevant ones of the panel from which it projects. "Overlap" will be read in its usual sense of "to lie or be situated so as to extend over part of (a thing); to overlie (something) partially" (OED). Therefore, the skilled person understands the claim wording as requiring each panel to have, in an area called a transition zone, a distinct projecting edge or rim and both edges or rims to in some way partially overlie or extend over each other.

This reading is indeed consistent with and supported by the description and drawings: see figure 2 depicting the lips projecting from adjacent areas of each panel, the transition zones TZ1 and TZ2, towards and past each other so that they overlie each other when viewing the blade from above or below (figure 3). In paragraph 0025 the lips are described to be preferably engaged in form-fitted manner.

3.3 Consequently, and contrary to the appellant's opinion the lips defined in the transition zone of each panel do indeed imply the provision of an identifiable edge or rim-like structure provided in the transition zones

of each panel to overlie each other. This goes well beyond any overlap (i.e. any overlap of whatever form) or a mere functional requirement of narrowing a gap between panels.

3.4 The skilled person will likewise draw on their normal understanding of the term "panel" as a "a flat usually rectangular piece of construction material (such as plywood or precast masonry) made to form part of a surface" (OED) in this context as a similar thin structural element.

4. Admission of document E9

4.1 E9 was filed together with the appellant's statement of the grounds of appeal and is therefore late filed. According to Article 12(4) RPBA 2007, which under Article 25(2) RPBA 2020 now in force, still applies in this case, the Board has the discretionary power to hold inadmissible facts, evidence or requests which could have been presented or were not admitted in the first-instance proceedings. According to established jurisprudence, an important criterion to be taken into account is whether a late-filed document is *prima facie* highly relevant in the sense that it can reasonably be expected to change the eventual result and is thus highly likely to prejudice the maintenance of the European patent (Case Law of the Boards of Appeal, 9th edition, 2019, V.A.4.13.2).

4.2 E9, in particular figures 3, 9 and 10 and relevant passages, discloses features that at first sight appear to show an overlapping engagement between two adjacent panels very similar to that defined in claim 1 of the contested patent. E9, see abstract, concerns aerodynamic devices that modify the aerodynamic surface

of a wind turbine blade in the area of the trailing edge. These are generally in the form of flaps 102 that in figure 3 are divided into sections 303 that can be identified as panels, and which are separated by interstices 304. In the embodiment of figures 9 and 10, see also paragraph 041, adjacent projections overlap.

4.3 Hence in view of its *prima facie* relevance the Board decided to exercise is discretionary power under Article 12(4) RPBA 2007 to admit E9 into the proceedings.

5. Main request - Novelty

5.1 Novelty with respect to E9

5.1.1 Interpreting claim 1 as indicated above in section 3 the Board finds that E9 fails to disclose *both* adjacent sections 303 having a lip. The nature of the overlap mentioned in paragraph 041 can be derived from the figures 9 and 10 and is in the form of a sort of tongue and groove type arrangement. In the view from the trailing edge shown in figure 10, the tongue on one section and say the lower portion of the groove of the other section might then on first sight be interpreted as lips, in which case this embodiment would destroy novelty.

5.1.2 However, on closer scrutiny it becomes clear that because the sections 303 are wedge shaped and taper toward their trailing edge, either the tongue or the lower part of the groove (or both) do not form a lip, i.e. a rim or edge, as required by the claim.

That the sections 303 are wedge shaped is evident from figure 4, for that embodiment. This also applies to the

embodiment of figures 9 and 10, as can be inferred from the figures themselves. Though the description (see passages 0027 and 0041) is rather short on detail regarding this embodiment, figure 10 is understood to provide a sectional view along the line X-X shown in figure 9. In the left half of figure 10 the line runs in front of the outer edge of the sections and thus the view is towards the trailing edge, showing the outermost tapered edge of the sections. The right side of the figure however gives a view of a more inward lying cross-section. There the height of at least the tongue like part is much larger than on the left of the figure at the trailing edge. From this inward increase of height the Board infers that here also the sections are wedge shaped; therefore height will be even thicker in the area close to the wind turbine blade.

The tongue like part on one section is wedge shaped as is likely also the groove in the neighbouring segment with which it mates. The wedge shape is moreover shown in figure 10 to have a large aspect ratio and is sufficiently pronounced for the skilled person not to reasonably consider either part of the tongue and groove like configuration to be a lip in the sense of a projecting edge or rib on a side of a panel. The appellant´s argument that figure 10 exaggerates the relative dimensions, and that in an actual blade tapering would be minimal fails to convince. The various cross sections shown in E9 (figure 2) or other prior art, in combination with the dimensions of the sections given paragraph 0035 of E9 lead the Board to conclude that the maximum section height will be in the order of 20% or more of section (chordwise) width, and that therefore the wedge shape will be substantial.

5.1.3 The Board is also unconvinced by the appellant's further argument that claim 1 leaves open the possibility to provide more than a single lip on each segment.
In each interstice 304 depicted in figures 9 and 10, the left hand segment 303 has the wedge shaped tongue provided on its side. It would be artificial and thus not make technical sense for the skilled person to consider the upper half of the tongue to form one lip and the lower side to a form a second lip. Therefore at least one of the segments 303 is not provided with a lateral lip in its transition zone in the sense of claim 1.

5.2 Novelty with respect to E1 or E2

5.2.1 E1 discloses a rotor blade for a wind turbine having a noise reducer 110 adjacent the trailing edge (paragraph 025, last sentence). Figures 6 and 7 show first and second noise reduction features 142, 144 of lozenge-like shape and having different aspect ratios (paragraph 037). The appellant infers an overlap in the sense of claim 1 from the dotted lines on either side of the third upper feature 142 in figure 6, with adjacent elements 144 representing panels that have lips by virtue of their overlap.
In the Board's view the large aspect ratio of these features 142, 144 cannot qualify them as panels according to claim 1, nor is it able to identify the overlapping parts of the elements as lips in the proper sense of that term, see above.

5.2.2 E2 discloses a noise reducer 110 mounted on the trailing edge of a wind turbine blade and divided into sections 150 (paragraph 036; figure 4). For proper assembly of these sections mating male 152 and female

154 keys (of any suitable shape: paragraph 0038) are provided on adjacent sections 150. For proper assembly of the noise reducer sections 150, the male and female keys 152, 154 of adjacent noise reducer sections 150 must match and are thus used to provide a tight mechanical fit of adjacent sections. If the sections 150 may be identified as panels (because planar and thin structural elements), their tight male-female engagement is not considered to correspond to overlapping lips as required by claim 1.

5.3 As none of E1, E2 or E9 discloses all the features defined in claim 1 of the opposed patent, the Board thus confirms the Opposition Division's positive assessment on novelty of the main request.

6. Inventive step

6.1 Inventive step has been challenged starting from either E2 or the prior art identified in figures 4, 6 and 7 of the patent itself as equivalent possible starting points. As explained in relation to novelty above, E2 discloses noise reducers 110 made of several sections 150 similar to the ones shown in figure 4 of the patent and which may be identified as panels in the sense of claim 1 that are mounted on the trailing edge.

6.2 The subject-matter of claim 1 differs from both E2 or the prior art of figure 4 of the patent by the lips between two adjacent panels that overlap, allowing the gap between both panels to be narrowed such that origination of whistle tones by the gap is reduced.

6.3 The associated objective technical problem can therefore be formulated as how to further improve noise reduction generated by wind turbine blades.

6.4 E9 has been proposed as teaching the solution to reduce the gap by overlapping lips provided on either side of its panels. As already concluded in relation to novelty E9 does not offer the solution of lips provided in a transition zone of each segment 303, but rather a tongue and groove configuration. Consequently straightforward combination of E2 or the figure 4 prior art with E9 would not result in the claimed subject-matter.

6.5 The Board is also unconvinced that the skilled person in applying E9's teaching would then as a matter of course modify or adapt that teaching to realize overlapping lips.

Paragraph 031 of E9 indicates that for hinged devices the combination of longitudinal bending and flap movement can open up clearances and cause noise in the context of a wind turbine blade. However, this problem is related to clearances resulting from the dynamic behaviour of the blade, in particular between the hinged flap and blade body. By contrast, the chord-wise cuts between the segments 303 are explained in paragraph 033 to present minimum interference to the flow direction and minimise drag and noise. Since that passage of E9 does not associate the interstices 304 between two segments with noise emission but rather the contrary, the skilled person cannot derive any incentive from E9 to further reduce noise in a transition zone between two segments or panels. This applies irrespective of the ways of filling the gap disclosed in E9, be it with an elastic film 700 of figures 7 or 8 or using an overlap according to figures 9 and 10. Therefore the skilled person would not draw

on any of these embodiments absent any benefit related to noise emission.

6.6 E5 has also been proposed as hinting at the claimed solution. E5 generally teaches in claims 1 and 2 to improve flow behaviour at an airflow separation edge ("Abreißkante") by mobile extensions ("bewegliche Verlängerung") that are imbricated with each other ("schuppenartig an- und aufeinander gelegt"). Apart from this general information how mobile extensions can cooperate, E5 provides no detail how to realize such an overlap or that this involves the provision of a projecting lip.

Furthermore, the teaching of E5 is concerned with problems related to the suboptimal shapes of trailing edges of objects in the automobile or aeronautical industry that cause fluid energy losses due to turbulence or bad trailing flow. Contrary to the appellant's opinion, these aerodynamic considerations of E5 fail to address noise reduction problems, much less associate the imbrication of such mobile extensions with noise reduction. In the Board's view the skilled person would not therefore draw on this document, and in particular the feature of imbrication, to further reduce noise.

6.7 Hence, neither E9 nor E5 address the problem of noise between panels, nor do they offer or reasonably suggest the claimed solution. Thus, the application of these teachings to the wind turbine blade of E2 or to the prior art panels described in figures 4, 6 and 7 of the patent will not as a matter of obviousness lead to the subject-matter of claim 1.

6.8 The further combinations of E2 with any of E3 or E6 mentioned on page 12, item 3.4 of the appellant's grounds have not been substantiated with argument. Absent any substantiation, the Board therefore does not need to consider them, Article 12(4) RPBA 2007 with Article 25(2) RPBA 2020 .

6.9 The Board thus confirms the Opposition Division's positive assessment of inventive step.

7. Added subject-matter

7.1 During examination in claim 1 the definition of the location of the panels has been amended by replacing the expression "*at* the trailing edge" to "*on* the trailing edge". Furthermore, the broad definition in claim 1 as filed of the arrangement on the trailing edge of the first transition zone and on that of the second transition zone that are "engaged" with each other, is replaced by the more specific feature that ".. the first transition zone and the second transition zone comprise a lip each, and wherein the lips overlap..."

7.2 Concerning the first amendment, the Board is unable to see any difference in meaning between the two formulations. The description as filed in paragraph 0038 uses the expression "at and along the trailing edge" for describing the arrangement of the panels. In figures 1 and 3 the panels extend over the trailing edge TE1 represented as a dotted line in figure 3 and can thus be said to be located *on* the trailing edge. Hence, no new information arises from replacing "at" by "on" the trailing edge.

7.3 The Board is likewise unconvinced that specifying the type of engagement as lips that overlap would add subject-matter. Paragraphs 0022, 0023, 0046 of the published application clearly state that the engagement is preferably by way of overlapping lips and that these lips reduce or even close the gap in a way to hinder or avoid wind slipping therethrough. It is also immediately clear to the skilled reader from these passages read in context that the reduction of whistle tone is the result purely of such an overlap reducing or closing the gap between two adjacent panels. Therefore this amendment also does not add subject-matter.

7.4 Thus the Board also confirms the decision's finding that none of these amendments extends the subject-matter beyond the content of the application as filed.

8. Sufficiency

In chapter 2 on pages 6 to 7 of the grounds of appeal reference is made to the lack of clear and complete disclosure, without any substantiating argument. In accordance with Article 12(4) RPBA 2007 in combination with Article 25(2) RPBA 2020, the Board need not consider this ground.

9. In the light of the above confirmation of the decision's conclusion in relation to added subject-matter, sufficiency, novelty and inventive step, and the Board confirms the Opposition Division's decision to reject the opposition under Article 101(2) EPC.

Order

For these reasons it is decided that:

The appeal is dismissed

The Registrar: The Chairman:

G. Magouliotis A. de Vries

Decision electronically authenticated