

Internal distribution code:

- (A) [-] Publication in OJ
- (B) [-] To Chairmen and Members
- (C) [-] To Chairmen
- (D) [X] No distribution

**Datasheet for the decision
of 12 August 2020**

Case Number: T 1503/16 - 3.5.02

Application Number: 07722543.1

Publication Number: 1996815

IPC: H02J3/28, F03D7/02, F03D1/06,
H02J3/38

Language of the proceedings: EN

Title of invention:
Wind turbine with a protection system for an electric generator
and use thereof

Patent Proprietor:
Vestas Wind Systems A/S

Opponents:
Siemens Aktiengesellschaft
VEM Sachsenwerk GmbH

Relevant legal provisions:
EPC Art. 56
RPBA Art. 12(4)

Keyword:
Inventive step - main request (yes)
Reply to the appeal sufficiently substantiated (no)



Beschwerdekammern
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 1503/16 - 3.5.02

D E C I S I O N
of Technical Board of Appeal 3.5.02
of 12 August 2020

Appellant: Vestas Wind Systems A/S
(Patent Proprietor) Hedeager 42
8200 Aarhus N (DK)

Representative: Plougmann Vingtoft a/s
Strandvejen 70
2900 Hellerup (DK)

Respondent: VEM Sachsenwerk GmbH
(Opponent 2) Pirnaer Landstraße 176
01257 Dresden (DE)

Representative: Drechsler, Gottfried
Ilberg & Weissfloh
Patentanwälte
Prellerstrasse 26
01309 Dresden (DE)

Respondent: Siemens Aktiengesellschaft
(Opponent 1) Werner-von-Siemens-Straße 1
80333 München (DE)

Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
22 April 2016 concerning maintenance of the
European Patent No. 1996815 in amended form.**

Composition of the Board:

Chairman R. Lord
Members: C.D. Vassoille
 W. Ungler

Summary of Facts and Submissions

- I. The patent proprietor and the opponent 02 filed appeals against the interlocutory decision of the opposition division concerning maintenance of the European patent no. 1 996 815 in amended form.
- II. The following documents are relevant for the present decision:
- E1: EP 1 280 249 A1
- E12: T. Herrmann et al.: "Wellenspannungen und Lagerströme bei Drehstrommaschinen in Verbindung mit Umrichterbetrieb"; Wind Kraft Journal, Ausgabe 6/2000.
- III. In the decision under appeal the opposition division came to the conclusion that the subject-matter of claim 1 of the main request did not involve an inventive step in view of a combination of documents E12 and E1. The first auxiliary request filed during the oral proceedings before the opposition division was considered to fulfil the requirements of the Convention.
- IV. The parties were summoned to oral proceedings. In a communication under Article 15(1) RPBA 2020 annexed to the summons, the board set out their preliminary observations on the appeal, concluding *inter alia* that the subject-matter of claim 1 of the patent proprietor's main request, filed with the statement setting out the grounds of appeal on 2 September 2016 and corresponding to the main request filed on 8 September 2014 underlying the decision under appeal, seemed to involved an inventive step in view of a combination of documents E12 and E1. It was further

pointed out that the mere reference of opponent 01 to submissions made in the first instance proceedings was provisionally considered not to represent a sufficiently substantiated reply to the proprietor's appeal and, furthermore, that the opponent 02's appeal seemed to not fulfil the requirements of Article 108 and Rule 99(2) EPC.

- V. The patent proprietor requested in writing that the decision under appeal be set aside and that the patent be maintained in amended form according to the main request submitted with the statement setting out the grounds of appeal and corresponding to the main request filed on 8 September 2014 underlying the decision under appeal. In the alternative, if the main request could not be granted, the proprietor requested that the patent be maintained in amended form according to one of the first to sixth auxiliary requests, each of these requests filed with the statement setting out the grounds of appeal, wherein the first auxiliary request corresponds to the first auxiliary request underlying the decision under appeal considered by the opposition division to fulfil the requirements of the EPC.
- VI. In response to the patent proprietor's statement setting out the grounds of appeal, the opponent 01 with letter of 19 December 2016 did not file any requests but made reference to the arguments presented in the first instance proceedings in the statement of grounds for opposition of 22 January 2014 and during the oral proceedings before the opposition division. Oral proceedings were not requested. With letter of 17 July 2020, opponent 01 announced that they would not attend the oral proceedings.

- VII. The opponent 02 did not reply to the patent proprietor's appeal. With letter of 24 July 2020 the opponent 02 withdrew their appeal.
- VIII. Given that the opponent 01 did not request oral proceedings and that the opponent 02 has withdrawn their appeal, and further considering the board's provisional opinion on the case, which was in favour of the patent proprietor, the oral proceedings appointed in the present case could be cancelled and the decision issued in writing.
- IX. Claim 1 of the main request has the following wording:
- "Wind turbine (1) supplying electric power to a utility grid comprising
at least one electric generator (9),
at least one frequency converter (10) connected to said electric generator (9) and utility grid (13), and
at least one protection system for the electric generator (9) comprising
at least one current path (27) from the non drive end (29) of the generator shaft (8) to a ground potential (22), and
at least one alternating current path (20), only directing alternating currents, from the drive end (30) of the generator shaft (8) to the ground potential (22)."

Claims 2 to 14 are dependent on claim 1.

Claim 15 defines the use of a protection system, for an electric generator of a wind turbine, in a wind turbine as a filter for electric noise, wherein the protection system comprises similar features to those defined in claim 1.

X. The arguments of the patent proprietor as far as they are relevant for the present decision are as follows:

If the skilled person were to implement the teaching of E1 in a wind turbine according to E12 to solve the technical problem related to shaft voltages, the resulting technical solution would be an RC-circuit comprising an overvoltage protection circuit (reference 31) at the drive end (DE) of a generator shaft in a wind turbine.

Document E1 did not disclose "an alternating current path, only directing alternating currents, from the drive end of the generator shaft to the ground potential", since the ohmic "R" component of the RC-circuit conducted direct currents to ground, contrary to the explicit wording of claim 1.

In order to arrive at the claimed invention, the skilled person would have to further modify the RC-circuit by removing the resistor in order to arrive at the invention defined in claim 1 of the main request, which would not have been obvious to the skilled person.

Reasons for the Decision

1. The appeal is admissible.
2. *Failure of the opponents to validly submit arguments to be taken into account*
 - 2.1 *Insufficiently substantiated reply of the opponent 01*
 - 2.1.1 In the letter of 19 December 2016, the opponent 01 in response to the patent proprietor's appeal, substantially only referred to the statement setting out the grounds for opposition of 22 January 2014 and to the oral proceedings before the opposition division which took place on 3 February 2016. The letter did not include any explicit request.
 - 2.1.2 According to Article 12(2) RPBA 2007, the statement setting out the grounds of appeal and the reply shall contain a party's complete appeal case and shall set out clearly and concisely the reasons why it is requested that the decision under appeal be reversed, amended or upheld.
 - 2.1.3 It is established case law of the Boards of Appeal that a mere reference to a party's earlier submissions without actually discussing the reasons given in the decision under appeal is not sufficient to substantiate a ground of appeal (see the Case Law of the Boards of Appeal, 9th edition 2019, V.A.2.6.4).

The same principles apply correspondingly to a situation where a respondent in the reply to an appeal neither explicitly deals with the reasons for the decision under appeal nor with the appellant's grounds of appeal. The opponent 01's mere reference to earlier

submissions therefore do not constitute a sufficiently substantiated reply to the patent proprietor's appeal and consequently is not taken into account for the present decision under Article 12(4) RPBA 2007 in connection with Article 12(2) RPBA 2007 (reference is made to the transitional provision of Article 25(2) RPBA 2020).

2.2 *Absence of arguments of opponent 02*

2.2.1 The opponent 02 did not file a reply to the patent proprietor's statement setting out the grounds of appeal. It is particularly noted that no arguments with respect to the patent proprietor's main request and the corresponding findings of the opposition division in the decision under appeal were submitted by the opponent 02 in the entire appeal procedure.

Notwithstanding the fact that opponent 02 has withdrawn their appeal, the board further observes that the statement setting out the grounds of appeal does not contain any specific reference to the main request of the patent proprietor which would have to be taken into account for the present decision.

2.3 The board summarises that opponent 01 did not provide a sufficiently substantiated reply to the patent proprietor's statement setting out the grounds of appeal and that further the opponent 02 did not file any observations on the patent proprietor's main request throughout the appeal proceedings.

2.4 It is further noted that in the absence of any objections from the opponents 01 and 02 regarding the opposition division's conclusions under points 11 to 14 of the reasons for the decision under appeal with respect to sufficiency of disclosure (Article 83 EPC),

novelty (Article 54 EPC) and inventive step (Article 56 EPC) with regard to a combination of documents E12 and E6 (EP 0 271 678 A1), the board has no reason to depart from the conclusions drawn by the opposition division with respect to these grounds.

2.4.1 The present decision is therefore issued, in the absence of any further objections from either opponent in their status as parties as of right (Article 107 EPC), solely on the question of inventive step of the subject-matter of claims 1 and 15 with regard to a combination of documents E12 and E1, which the opposition division in the decision under appeal found to render the subject-matter of claim 1 of the main request obvious (see point 15 of the reasons for the decision under appeal).

3. *Main request - inventive step (Article 56 EPC)*

3.1 The subject-matter of claim 1 of the main request involves an inventive step in view of a combination of documents E12 and E1.

3.2 It was not in dispute that document E12 represents the closest prior art and discloses a wind turbine supplying electric power to a utility grid comprising at least one generator and at least one frequency converter connected to said electric generator and utility grid (see E12, in particular figure 4).

3.3 It was further undisputed that the subject-matter of claim 1 differs from E12 in a protection system as defined in claim 1 as follows:

- at least one current path from the non drive end of the generator shaft to a ground potential, and

- at least one alternating current path, only directing alternating currents, from the drive end of the generator shaft to the ground potential.

- 3.4 The patent proprietor considered the objective technical problem to be that of how to protect the wind turbine bearings and to avoid circulating currents from a drive end bearing to a non-drive end bearing of the generator, and the board does not see any reason to depart from this formulation of the objective technical problem.
- 3.5 The patent proprietor has submitted that the person skilled in the art would not seek solutions to the objective technical problem in the field of turbine generators as disclosed in E1. The question whether the person skilled in the art would have taken document E1 into account when searching for solutions to the objective technical problem or not, can however remain unanswered, since even if account were taken of E1, the subject-matter of claim 1 involves an inventive step.
- 3.6 Document E1 provides an overvoltage protective device for shafts in generators, wherein an RC bridge included in a protection circuit (see reference number 20 in figure 1) is provided at the drive end (DE) with a particular overvoltage protection circuit (reference number 31) having the function of deliberately short-circuiting the RC bridge in the event of an overvoltage situation (see in particular E1 in paragraph [0020]).
- 3.7 The opposition division explicitly admitted in the decision under appeal that the protection circuit (20) at the drive end of the generator shaft of E1 was generally designed to also conduct direct currents to

ground but that notwithstanding this fact the central path from reference number 21 to reference number 22 in figure 1 constituted an alternating current path as defined in claim 1 as follows:

"at least one alternating current path (20), only directing alternating currents, from the drive end (30) of the generator shaft (8) to the ground potential (22)"

3.8 The board does not agree with this finding of the opposition division in the decision under appeal (see point 15.4.3 of the reasons for the decision under appeal). The person skilled in the art in view of the patent under appeal as a whole and the technical effect to be achieved, would not infer from the above-mentioned feature that the protection system as defined in claim 1 allows for the provision of a direct current (conducting) path at the drive end of the generator shaft in addition to the alternating current path only directing alternating currents.

To the contrary, as has been argued by the patent proprietor, the person skilled in the art in view of the expression "only" and the desired technical effect of preventing direct currents from circulating in the generator shaft, would understand that the distinguishing feature forms part of a protection system where only alternating currents and no direct currents are grounded at the drive end.

By directing only alternating currents from the drive end of the generator shaft to the ground potential, the direct current components of potential circulating currents are blocked as explained in paragraph [0012] of the patent under appeal. As was further convincingly

argued by the patent proprietor, the current paths in both ends protect the bearings against sparks, which are a result of high dv/dt signals applied to the generator windings combined with various parasitic capacitances in the different generator components.

- 3.9 The board consequently considers the opposition division's finding in the decision under appeal that the element 20 of E1 (see figure 1) comprises a protection system as defined in claim 1 and the corresponding conclusion that the subject-matter of claim 1 did not involve an inventive step, not to be correct.

Rather, the skilled person who had taken account of E1 when starting from E12 and confronted with the objective technical problem would not have arrived at the subject-matter of claim 1. As has been submitted by the patent proprietor, combining of documents E12 and E1 in view of the technical problem would have resulted in a solution comprising an RC bridge in combination with an overvoltage protection circuit, which would thus have required further modifications in order to arrive at the claimed invention. These necessary modifications are not suggested anywhere in the available prior art.

- 3.10 The board has therefore come to the conclusion that the subject-matter of claim 1 of the main request is not rendered obvious by a combination of documents E12 and E1 and consequently involves an inventive step in the sense of Article 56 EPC. This also applies to the independent claim 15, which comprises features corresponding to those of claim 1.

4. *Final remarks*

Since the subject-matter of claims 1 and 15 of the main request involves an inventive step in the sense of Article 56 EPC and since neither the opponent 01 nor the opponent 02 has validly raised any further objections with respect to the main request, the board had to accede to the patent proprietor's main request.

Order

For these reasons it is decided that:

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

Claims:

No. 1 to 15 according to the main request filed with the statement setting out the grounds of appeal on 2 September 2016.

The Registrar:

The Chairman:



A. Vottner

R. Lord

Decision electronically authenticated