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Datasheet for the decision of 21 September 2022

Case Number: T 0003/20 - 3.2.04

Application Number: 06818138.7

Publication Number: 1957791

IPC: F03D80/30

Language of the proceedings: EN

Title of invention:
LIGHTNING PROTECTION SYSTEM FOR A WIND TURBINE BLADE

Patent Proprietor:
LM Wind Power A/S

Opponent:
Vestas Wind Systems A/S

Headword:

Relevant legal provisions:
EPC Art. 56, 111(1)
RPBA 2020 Art. 11, 12(3), 12(5)

Keyword:
Inventive step - main request (no)
Remittal - special reasons for remittal - (no)
Reply to statement of grounds of appeal - party's complete appeal case
Discretion not to admit submission - requirements of Art. 12(3) RPBA 2020 met (no)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

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Case Number: T 0003/20 - 3.2.04

D E C I S I O N
of Technical Board of Appeal 3.2.04
of 21 September 2022

Appellant: (Opponent)	Vestas Wind Systems A/S Hedeager 42 8200 Aarhus N (DK)
Representative:	Inspicos P/S Agern Allé 24 2970 Hørsholm (DK)
Respondent: (Patent Proprietor)	LM Wind Power A/S Jupitervej 6 6000 Kolding (DK)
Representative:	COPA Copenhagen Patents Rosenørns Allé 1, 2nd floor 1970 Frederiksberg C (DK)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 4 November 2019 rejecting the opposition filed against European patent No. 1957791 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	A. de Vries
Members:	S. Oechsner de Coninck
	C. Heath

Summary of Facts and Submissions

I. The appellant (opponent) lodged an appeal against the decision of the Opposition Division of the European Patent Office posted on 4 November 2019 rejecting the opposition filed against European patent No. 1957791 pursuant to Article 101(2) EPC.

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. The Opposition Division held that the grounds for opposition mentioned in Articles 100 (a) and (b) EPC did not prejudice the maintenance of the patent as granted having regard to the following documents in particular:

D5: S. F. Madsen, L. B. Hansen et al.: "Breakdown tests of Glass Fibre Reinforced Polymers (GFRP) as part of Improved Lightning Protection of Wind Turbine Blades", Conference Record of the 2004 IEEE International.

III. Oral proceedings were held on 21 September 2022 by means of videoconference.

IV. The appellant-opponent requests that the decision be set aside and the patent be revoked, alternatively, that auxiliary requests 1 - 4 not be admitted.

V. The proprietor-respondent requests dismissal of the appeal, alternatively remittal of the case to the first instance, further alternatively the maintenance of the patent on the basis of one of the auxiliary requests 1 to 4 first filed in opposition and re-filed on 22 May 2020 with the respondent's reply to the appeal.

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

"A wind turbine blade with a lightning protection system (1, 101, 201), wherein the blade (1, 101, 201) is a shell body made of a composite material and comprises a root area and a tip end, and wherein the lightning protection system comprises:
- at least one lightning receptor (3, 103, 203) arranged freely accessible in or on the shell unit surface at or in the immediate vicinity of the tip of the blade (1, 101, 201), and
- a lightning conductor (2, 102, 202) made of electrically conductive material extending within the shell body along substantially the entire longitudinal direction of the blade (1, 101, 201), and wherein
- the lightning receptor (3, 103, 203) and the lightning conductor (2, 102, 202) are electrically connected by means of a connection area,
characterized in that
the lightning conductor (2, 102, 202) in its entire longitudinal direction as well as the connection area between the lightning conductor (2, 102, 202) and the lightning receptor (3, 103, 203) is electrically insulated in order to prevent the built-up of streamers and/or leaders."

VII. The appellant argues as follows:
- Starting from D5 the skilled person would obviously have provided the insulation on the whole conductor system including any connection area to the receptor.
- Remittal is not necessary as the broad interpretation of the connection area is not a new argument.
- Non admission of the auxiliary requests 1 to 4 is requested because any substantiation in relation to these should have been submitted earlier.

VIII. The respondent argues as follows:
- Starting from D5 the skilled person does not recognise any connection and would not be prompted to provide an insulation in the absence of particular teaching.
- Remittal is requested because the auxiliary requests 1 to 4 have not been discussed before the first instance.
- The auxiliary requests 1 to 4 should be admitted as they overcome the broad interpretation of the connection area.

Reasons for the Decision

1. The appeal is admissible.

2. Main request - inventive step

2.1 D5, see title, is an article pertaining to conference proceedings relating to breakdown tests of glass fibre reinforced polymers (GFRP) as part of improved lightning protection of wind turbine blades. Figure 1 on page 484 schematically represents a wind turbine blade equipped with lightning attachment points as receptors and a down conductor inside the blade depicted with dotted lines. To be able to operate as lightning protection, it is implicit that the receptors and down conductor should be electrically connected, and thus that an interface between these two components of the lightning protection should be provided in a region corresponding to what can be generally termed a connection area according to the last feature of the preamble of claim 1.

In the chapter "Suggestions for Manufacturing Improvements" starting on page 490, the second full

paragraph in left hand column of page 491 indicates the possibility of encapsulating the down conductor system to avoid discharges inside the blade. This system at least incorporates the down conductor depicted in figure 1 of page 484 as main component.

2.2 As correctly stated by the respondent, D5 does not disclose of which different items or components the down conductor system is made, and lacks any detail of the precise arrangement, especially as to its interface with the receptors or whether the interface might also be "encapsulated". Thus the subject-matter of claim 1 differs from the disclosure of D5 by feature 1.7 requiring a connection area between the receptor and lightning conductor to be electrically insulated in order to prevent the build-up of streamers and/or leaders.

2.3 This measure allows the lightning conductor to be electrically connected up to the receptor (e.g paragraphs 006 and 024 of the patent), and the objective technical problem may be formulated as how to further improve or enhance the prevention of flashover in that region.

2.4 The skilled person, who is tasked with the problem of finding improvements in the field of lightning protection, is a an engineer involved in the design and development of wind turbines and wind turbine blades with expertise in the field of electrical installations for wind turbines and possessing knowledge of lightning protection.

2.5 Contrary to the respondent's view, the Board does not consider the teaching relating to the down conductor system that needs to be encapsulated according to the

disclosure of on page 491 of D5 to be limited to the down conductor itself. Rather, the explicit mention of a *system* for the down conductor suggests that it is composed of several component parts, and thus suggests to the skilled person more complex arrangements than are composed of only a conductor extending from the tip to the root. Therefore, the Board considers that the skilled person seeking to realize encapsulation of a lightning conductor system in order to avoid further discharge would, as a matter of obviousness, also consider encapsulating its other component parts. These would include in the Board's view also at least part of the interface that necessarily connects the inner conductor and outer receptor.

2.6 Furthermore, bearing in mind the aim of avoiding discharges inside a blade by encapsulation of the down conductor system, the skilled person, based on their understanding of electrical discharge, will as a matter or course consider all possible sources of discharges. These sources include all the electrically conductive components that a down conductor system of the type depicted in figure 1 of 484 might incorporate, and that are located inside the blade outer composite shell. In doing so, the skilled person would obviously find it desirable to obtain the best possible protection, namely by maximising the extension of the electrical insulation, if possible right up to the blade surface.

2.7 These general technical considerations as to what should be insulated for safe operation under stormy conditions are independent from any specific configuration of the connection between the receptor and down conductor. The Board concurs with the appellant that claim 1 under review is itself not limited to any specific interface between the receptor

and down conductor. But even so, the knowledge of the particular configuration of the connection between the down conductor and the receptor is neither a prerequisite nor a bar for the skilled person to contemplate a more effective protection by encapsulation against discharges inside a wind turbine blade. Whatever the configuration might be, the skilled person will be able to design the extension of the encapsulation, for example using conventional soft and flexible polymers such as known high density polyethylene mentioned in the patent, as a matter of normal workshop practice. Using such routine skills and prompted by the teaching of D5, the skilled person will therefore also encapsulate the connection area where the down conductor system connects to the receptor, however that connection area might be configured.

2.8 Furthermore, the fact that the main focus of D5 is the interaction between discharges and the glass fibre blade material GFRP (see title and abstract), that it considers arrangements with multiple receptors, not all at the tip, or suggests a variety of other measures cannot detract from the fact that it also unequivocally teaches to improve insulation of the down conductor system. In any case, the broadly worded claim 1 does not exclude GFRP blades or multiple receptors. Similarly, because the claim is also not limited to any particular configuration or location of the receptors, any unclaimed features thereof - such as the anchoring block at the tip end - can have no weight in the assessment of inventive step.

2.9 For the above reasons, and contrary to the opposition division's positive conclusion, the Board finds that the subject-matter of claim 1 of the main request does

not involve an inventive step over D5 and the skilled person's common knowledge, and therefore does not fulfill the requirements Article 52(1) and 56 EPC.

3. No special reason for remittal

3.1 At the oral proceedings, the respondent argued that as the auxiliary requests 1-4 had not been discussed before the first instance and to safeguard the right to a two instance consideration, the case should be remitted. The more so since the Board surprisingly interpreted the claims in the broadest possible sense.

3.2 The Board observes, firstly, that it is established jurisprudence that there is no absolute right to a two instance consideration, see CLBA, 10th edition, 2022, V.A.9.2.1. The decision to remit is thus at the discretion of the Board which it exercises depending on the circumstances of the case.

Moreover, the question of inventive step starting from D5 had been presented both in the impugned decision (point 5.2) and in the present appeal proceedings, see the Board's communication, section 6.1. That claim 1 could be broadly construed in respect of the connection area had also been previously addressed, see item 4.1.7 of the impugned decision, or chapter 4 of the appellant's grounds. The respondent could thus be expected, and indeed had ample opportunity, to formulate and defend fallback positions that could be discussed within the same legal and factual framework. The Board thus fails to recognise any new and/or unexpected development of the case that might constitute a special reason for remittal in the sense of Article 11 RPBA.

Finally, if the Board were to remit now it would have to do so by the same logic if for every subsequent appeal by the opponent against maintenance in amended form it then found against the version upheld. Remittal would then become the rule rather than the exception, contrary to Art 11 RPBA 2020.

3.3 The Board thus decided to exercise its discretion under Article 111(1) EPC together with Article 11 RPBA 2020 not to remit the case.

4. Non-admission of auxiliary requests 1 - 4.

4.1 Auxiliary requests 1-4, though already filed in the preceding opposition procedure, were not dealt with in the decision under appeal and thus constitute amendments to the respondent proprietor's appeal case, Art 12(3) and (5) RPBA 2020. Under Art 12(3) RPBA 2020, the reply shall contain the party's complete appeal case, setting out clearly and concisely the reasons why the decision should be amended.

4.2 Section H of the respondent's reply of 22 May 2020 explains the basis for the amendments in the application as filed, but for each auxiliary request merely states that the added feature is not disclosed or suggested in any of cited the prior art and that *therefore* it is novel and inventive. Such a concise statement does not address any of the grounds raised against claim 1 of the main request, in particular inventive step in respect of any of the documents referred to, and is thus insufficient to provide reasons why the amendments overcome the objections raised (Art 12(4) RPBA 2020). It is indeed nothing more than an unsubstantiated allegation.

4.3 Nor can the Board infer from the arguments in the respondent's reply of 22 May 2020, top of page 12,relating to D5 in relation to claim 1 of the main request why the amendments of the auxiliary requests address the objections raised. Those arguments are concerned only with the features of claim 1 of the main request.

The Board concludes from the above that the auxiliary requests were not fully substantiated and thus no complete case was made when they were filed with the respondent's reply to the appellant's statement of grounds, contrary to Art 12(3) RPBA 2020.

4.4 Only at a much later stage of the appeal proceedings, namely with its reply of 21 July 2022 to the Board's communication raising the issue of admission, did the respondent provide a full substantiation of the auxiliary requests in respect of inventive step. Following established jurisprudence, see CLBA, 10th edition, 2022, V.A.4.2.2.i) the requests are deemed filed only on the date they are substantiated. As that date is after the summons and the Board's communication, Art 13(2) RPBA then applies. That article stipulates that amendments shall not be taken into account unless there are exceptional circumstances justified with cogent reasons. Exceptional circumstances are not apparent to the Board in the present case. As stated above, the critical issues for inventive step were already present in the decision (though decided differently) and in the statement of grounds, and can therefore not be considered an (objectively) surprising development in the appeal proceedings.

4.5 For these reasons, the Board decided to use its discretion under Article 13(2) RPBA 2020 not to admit the auxiliary requests 1 to 4.

5. As no allowable request remains, the Board must revoke the patent pursuant to Article 101(2) and (3)(b) EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

G. Magouliotis A. de Vries

Decision electronically authenticated