

**Internal distribution code:**

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

**Datasheet for the decision  
of 6 June 2019**

**Case Number:** T 1337/16 - 3.4.02

**Application Number:** 01991579.2

**Publication Number:** 1350116

**IPC:** G01N37/00, G01N33/00, G01N21/27

**Language of the proceedings:** EN

**Title of invention:**  
METHOD OF COMPENSATING FOR DRIFT IN GAS SENSING EQUIPMENT

**Applicant:**  
Amphenol Thermometrics, Inc.

**Headword:**

**Relevant legal provisions:**  
EPC 1973 Art. 113(1), 84  
RPBA Art. 12(4)

**Keyword:**  
Substantial procedural violation - violation of the right to  
be heard (no) - reimbursement of appeal fee (no)  
Late-filed request - admitted (yes)  
Claims - clarity after amendment (no)

**Decisions cited:**

T 0462/06

**Catchword:**



**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 1337/16 - 3.4.02

**D E C I S I O N**  
**of Technical Board of Appeal 3.4.02**  
**of 6 June 2019**

**Appellant:** Amphenol Thermometrics, Inc.  
(Applicant) 967 Windfall Road  
Saint Mary's PA 15857-3397 (US)

**Representative:** Herzog, Fiesser & Partner Patentanwälte PartG  
mbH  
Immermannstraße 40  
40210 Düsseldorf (DE)

**Decision under appeal:** **Decision of the Examining Division of the  
European Patent Office posted on 18 January 2016  
refusing European patent application No.  
01991579.2 pursuant to Article 97(2) EPC.**

**Composition of the Board:**

**Chairman** R. Bekkering  
**Members:** H. von Gronau  
B. Müller

## **Summary of Facts and Submissions**

- I. The appeal of the applicant is directed against the decision of the examining division to refuse European patent application No. 01991579.2. The examining division refused the application on the ground that claim 1 according to the main request did not fulfill the clarity requirements of Article 84 EPC. The claims 1-10 of an auxiliary request filed during the oral proceedings before the examining division were not admitted by the examining division exercising its discretion under Rule 137(3) EPC, because claim 1 of the auxiliary request did not overcome the clarity objections raised with respect to claim 1 of the main request.
- II. In the statement setting out the grounds of appeal the appellant (applicant) requested that the decision refusing the application due to lack of clarity be set aside, that the claims - either in the form of the main request submitted with the grounds of appeal or one of auxiliary requests 1 - 3 submitted with the grounds of appeal - be regarded as fulfilling the requirements of Article 84 EPC and be remitted to the examining division for further examination and prosecution, that the appeal fee be reimbursed due to substantial procedural violations made by the examining division, and that, as a precaution, oral proceedings in accordance with Article 116 EPC be held.
- III. In a communication under Article 15(1) of the Rules of Procedure of the Boards of Appeal annexed to summons to oral proceedings the board expressed its provisional opinion that it was unable to discern a violation of

the appellant's right to be heard under Article 113(1) EPC and that it therefore did not intend to order reimbursement of the appeal fee according to Rule 103(1)(a) EPC, that the board was minded not to hold inadmissible under Article 12(4) RPBA, and therefore to take into account, the amended claims of the requests filed with the statement setting out the grounds of appeal, but that it had clarity objections with respect to claim 1 of the main request and auxiliary requests 1 to 3.

IV. With a letter dated 8 March 2019 the appellant informed the board that the appellant as well as their representative would not attend the oral proceedings scheduled to be held on 6 June 2019. The appellant did not make any submissions in substance in reply to the communication of the board.

V. Oral proceedings took place on 6 June 2019 in the absence of the duly summoned appellant or their representative. At the end of the oral proceedings the chairman of the board announced the decision.

VI. Claim 1 according to the main request as filed with the grounds of appeal reads as follows:

"A method of compensating for drift of a gas sensor (10), the method comprising:

(a) providing a gas sensor (10) that measures the concentration of a gas component in an environment over a system cycle, said system cycle being a predetermined period of time depending on the particular periodic nature of the process and environment that is being monitored;

(b) providing (32) a processor (18) with gas concentration data relating to a first cycle;

- (c) identifying (34) a quiescent period that is a subset of the first cycle, wherein a quiescent period is a period of time within a cycle where the measured concentration corresponds to a predetermined concentration or concentration range over a duration that is equal to or greater than a minimum duration;
- (d) determining (36) a first component concentration, said first component concentration corresponding to an averaged component concentration value during the quiescent period;
- (e) adding (36) the first component concentration to an initial concentration data set;
- (f) providing (38) the processor with gas concentration data for one or more additional time periods, said additional time periods being or including additional quiescent periods corresponding to additional cycles;
- (g) identifying (40) the additional quiescent period within each of the additional time periods and determining (42) an additional component concentration corresponding to each of the identified additional quiescent periods;
- (h) adding (42) the additional component concentration(s) to the initial concentration data set of step (e);
- (i) validating the data set of step (h), (44, 48, 50, 52) via the processor, by applying an algorithm that establishes and applies bounds or a range, such that the data falling within the bounds or range form valid concentrations in a valid concentration set suitable for use in subsequent computations and the data falling outside of the bounds or range not being used for further calculations;
- (j) providing (54) the processor with a preset background value, in particular a preset background value stored in the memory as a reference;

(k) calculating (56), by the processor, an estimated background value, said estimated background value corresponding to the valid concentrations in the valid concentration set, in particular to an average of some or all of the valid concentrations; and  
(l) calculating (58), by the processor, a correction value, said correction value being based on a function of the preset background value and the estimated background value; and  
wherein the method comprises the additional step (60) of detecting, by the processor, a measured component concentration and adjusting the measured component concentration by applying the correction value to yield an adjusted component concentration."

Claim 1 of the auxiliary request 1 differs from claim 1 of the main request in that the expression "a gas component" in step (a) and the expressions "component" in steps (d), (e), (g), (h) and in the last paragraph are replaced by the expression "CO<sub>2</sub>".

Claim 1 according to the auxiliary request 2 as filed with the grounds of appeal reads as follows:

"A method of compensating for drift of a gas sensor (10), the method comprising:  
(a) providing a gas sensor (10) that measures the concentration of a gas component in an environment during a time period and outputs (32) gas concentration data to a processor (18);  
(b) identifying (34) a quiescent period that is a subset of the time period;  
(c) determining (36) a first component concentration corresponding to an average component concentration during the quiescent period;

- (d) adding (36) the first component concentration to an initial data set;
- (e) obtaining (38) additional gas concentration data for additional time periods from the gas sensor;
- (f) identifying (40) an additional quiescent period within each of the additional time periods;
- (g) adding (42) an additional component concentration corresponding to each of the additional quiescent periods to the data set of step (d);
- (h) applying (44, 48, 50, 52) an algorithm to the data set of step (g) to establish a range of average data points that excludes data falling outside of the range and includes data falling within the range, to form a valid data set;
- (i) providing (54) the processor with a preset background concentration;
- (j) calculating (56), by the processor, an estimated background concentration, said estimated background concentration corresponding to the concentrations in the valid data set; and
- (k) calculating (58), by the processor, a correction value based on a function of the preset background concentration and the estimated background concentration."

Claim 1 of the auxiliary request 3 differs from claim 1 of auxiliary request 2 in that the expression "a gas component" in step (a) and the expressions "component" in steps (c), (d) and (g) are replaced by the expression "CO<sub>2</sub>".



## **Reasons for the Decision**

### 1. Absence of a party at oral proceedings

As announced in its response to the summons of the Board dated 8 March 2019, the appellant did not attend the oral proceedings and was not represented, either. In accordance with Rule 115(2) EPC and Article 15(3) RPBA, the oral proceedings were held without the appellant. By its decision not to attend the oral proceedings, the appellant has chosen not to make any further submissions during such proceedings. In the present case, the duly summoned appellant has to be treated as relying only on its written case as filed with its grounds of appeal.

### 2. Substantial procedural violation

2.1 In the grounds of appeal the appellant submitted that there had not been enough time for it to provide a proper reply to the lack-of-clarity objection under Article 84 EPC communicated to it by telephone and an informal email for the oral proceedings taking place two days later. This was against Rule 116(1) EPC requiring the European Patent Office, when issuing the summons, to draw attention to the points which in its opinion needed to be discussed for the purpose of the decision. The failure of the examining division to provide, in the summons, an indication that lack of clarity under Article 84 EPC had to be discussed was a breach of the appellant's right under Article 113(1) EPC. The failure to communicate the clarity objections together with the summons to oral proceedings was a violation of a procedural nature. Accordingly, a substantial procedural violation had been committed by the examining division, and the appeal fee had to be

reimbursed (cf. point I of the grounds of appeal dated 12 May 2016).

- 2.2 The board is of the opinion that in the present case the examining division did not commit a substantial procedural violation. In this respect, the board refers to the decision in case T 462/06 that the appellant has cited. The appellant submitted that the situation of the present case differed from T 462/06. The board disagrees at least insofar as it considers that the conclusions of law drawn under point 4.2.3 of that decision apply, in principle, to the case at hand as well. They read as follows:

The Board also observes that, although it is in general the purpose of oral proceedings to settle as far as possible all outstanding issues relevant to a decision, the Examining Division is not required to render an immediate decision at the end of these oral proceedings. The Appellant could have asked for an interruption or an adjournment of the oral proceedings in order to be able to carefully consider the Examining Division's arguments, which were apparently crucial to the decision, if he had felt that he was not in a position to adequately address these points and needed time for further reflection. According to the minutes the Appellant did not request such an interruption or adjournment, and it was never alleged and there is no indication whatsoever that the Examining Division refused to hear the Appellant on these points.

In its communication annexed to the summons to oral proceedings, the board stated that it was true that the clarity objections with respect to claim 1 then on file were raised only shortly before the oral proceedings. However, in its grounds of appeal the appellant did not put forward that it had objected to the way the examining division proceeded as to the clarity objections, in particular that it had requested more time for preparing a thorough response thereto, e.g. by adjourning or interrupting the oral proceedings. The

minutes of the oral proceedings were equally silent on any such request. Neither before nor during the oral proceedings the appellant voiced the need for more time to deal with the clarity objections. The appellant did not object to these statement made in the annex. As a consequence, the board is unable to discern a violation of the appellant's right to be heard under Article 113(1) EPC.

2.3 Therefore, the appellant's request for reimbursement of the appeal fee according to Rule 103(1)(a) EPC must be refused, independent of whether or not the appeal is deemed to be allowable.

3. Admission of requests filed with the statement setting out the grounds of appeal (Article 12(4) RPBA)

The clarity objections referred to in point 2.1 above were raised in the examination proceedings just two days before the oral proceedings on 7 and 8 December 2015 (cf. minutes of telephone conversations sent on 7 January 2016). During the oral proceedings amended claims were not admitted into the proceedings, because they were considered as late filed and because prima facie claim 1 did not meet the clarity requirement of Article 84 EPC. The board is therefore of the opinion that due to the clarity objections raised at short notice in the examination proceedings it was not easy for the applicant to file, during the first-instance oral proceedings, a thorough response. As a consequence, the board does not hold inadmissible under Article 12(4) RPBA, and therefore takes into account, the amended claims of the requests filed with the statement setting out the grounds of appeal.

4. Main request - claim 1 - clarity (Article 84 EPC 1973)

4.1 The appellant explained in detail how it dealt with the clarity objections raised by the examining division (cf. grounds of appeal, section III, point B).

4.2 However, the terminology of claim 1 is not consistent. The claim comprises the expressions "gas concentration", "concentration of gas", "component concentration" and "concentration", but it is not clear whether these expressions have different meanings and how they are related to each other. The same applies to the expressions "system cycle", "first cycle", "cycle" and "time period", and to the expressions "concentration", "concentration data", "data set", "concentration data set" and "concentration set".

Feature (c) defines the quiescent period of the first cycle, but this feature generally refers to "a cycle".

Feature (h) comprises the "(s)" in brackets but it is not clear whether this is a reference sign or whether it is intended as an alternative wording.

4.3 Furthermore, in feature (c), the claim defines that "a quiescent period is a period of time within a cycle where the measured concentration corresponds to a predetermined concentration or concentration range" over a certain duration, but the claim does not specify how this concentration or concentration range is defined. Furthermore, it would appear to be essential that the concentration or concentration range corresponds to a cyclically recurring ground level concentration, which is however not defined in claim 1.

It is, furthermore, not clear how the quiescent period

can be defined by comparing the measured concentrations with a predetermined concentration that is not adapted according to the drift. It appears that the concentration or concentration range needs to be selected with respect to the preset background value and the possible drift of the gas sensor. This is however not defined in claim 1.

Moreover, the claim does not define how the "additional quiescent period" within each of the additional cycles in feature (g) are identified.

In addition, it is not clear how the bounds or the range in the validating step (i) are determined and how they are related to the concentration range defined in step (c).

Accordingly, claim 1 is not clear and, therefore, does not meet the requirements of Article 84 EPC 1973.

5. Auxiliary request 1 - claim 1 - clarity (Article 84 EPC 1973)

Claim 1 is not clear for the same reasons as given for claim 1 of the main request. The expressions "gas component" and "component" have been replaced by the expression "CO<sub>2</sub>", but the objections concerning lack of clarity still apply.

6. Auxiliary request 2 - claim 1 - clarity (Article 84 EPC 1973)

Similar to claim 1 of the main request claim 1 of auxiliary request 2 comprises the expressions "gas concentration", "concentration of gas", "component concentration" and "concentration", but it is not

clear whether these expressions have a different meaning and how they are related to each other.

Furthermore, claim 1 comprises the step of identifying a quiescent period, but it does not define how it is identified either. Additionally, the clarity issues raised under point 3.3 above are not solved by the definitions in claim 1 of auxiliary request 2.

7. Auxiliary request 3 - claim 1 - clarity (Article 84 EPC 1973)

Claim 1 is not clear for the same reasons as given for claim 1 of auxiliary request 2. The expressions "gas component" and "component" have been replaced by the expression "CO<sub>2</sub>", but the objections with respect to lack of clarity still apply.

8. For the above reasons the board comes to the conclusion that claim 1 of all requests on file does not meet the clarity requirements of Article 84 EPC 1973.

**Order**

**For these reasons it is decided that:**

1. The appeal is dismissed.
2. The request for reimbursement of the appeal fee is refused.

The Registrar:

The Chairman:



M. Kiehl

R. Bekkering

Decision electronically authenticated