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**Datasheet for the decision  
of 29 January 2016**

**Case Number:** T 1515/11 - 3.4.03

**Application Number:** 04778639.7

**Publication Number:** 1652221

**IPC:** H01L21/302, H01L21/461,  
B23K26/03, B23K26/08,  
B23K26/40, H01L21/56

**Language of the proceedings:** EN

**Title of invention:**  
FAILURE ANALYSIS METHODS AND SYSTEMS

**Applicant:**  
Control Laser Corporation

**Headword:**

**Relevant legal provisions:**  
EPC 1973 Art. 56, 84  
EPC Art. 123(2)

**Keyword:**  
Amendments - added subject-matter (yes)

**Decisions cited:**  
T 0066/85, T 0663/10

**Catchword:**



**Beschwerdekammern  
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Case Number: T 1515/11 - 3.4.03

**D E C I S I O N  
of Technical Board of Appeal 3.4.03  
of 29 January 2016**

**Appellant:** Control Laser Corporation  
(Applicant) 2419 Lake Orange Drive  
Orlando, FL 32837 (US)

**Representative:** Thompson, Andrew John  
Withers & Rogers LLP  
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**Decision under appeal:** Decision of the Examining Division of the  
European Patent Office posted on 8 February 2011  
refusing European patent application No.  
04778639.7 pursuant to Article 97(2) EPC.

**Composition of the Board:**

**Chairman** G. Eliasson  
**Members:** S. Ward  
T. Bokor

## **Summary of Facts and Submissions**

- I. The appeal is against the decision of the Examining Division refusing European patent application No. 04 778 639 for failing to meet the requirements of the EPC for the reasons given in the communications dated 10 November 2008, 4 September 2009 and 16 July 2010.

In the first two communications mentioned above, objections had been raised that the application did not meet the requirements of Article 123(2) EPC, and that the claimed subject-matter did not define all of the features essential for solving the problem (Article 84 EPC) and did not involve an inventive step within the meaning of Article 56 EPC.

In the third communication mentioned above, which was based on the same claims as those forming the basis of the present appeal, the requirements of Article 123(2) EPC were considered to be met, but the objections of "lack of essential features" and "lack of inventive step" were maintained.

- II. In the statement of grounds of appeal, the appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of claims 1-12 filed with the letter dated 1 March 2010.
- III. The present European application was filed as international application PCT/US2004/023232, which was published as WO 2005/010945 A2 (hereinafter "the application as filed").

Claim 1 of the application as filed was the sole independent claim, and reads as follows:

*A method for exposing a structure encapsulated with a material, comprising:  
generating a laser beam;  
directing the laser beam onto a structure encapsulated with a material; and  
ablating the material with the laser beam without damaging the structure.*

IV. Claim 1 of the present request reads as follows:

*A method for exposing a structure encapsulated with a material, comprising:  
generating a laser beam (107);  
directing the laser beam onto the structure encapsulated with the material;  
providing at least one mirror (151,152) actuated by a high-speed galvanometer motor (161,162) to accomplish the directing step; and  
ablating the material with the laser beam so as to expose at least a portion of the structure wherein said structure is stationary while said laser beam is moved over a selected portion of a surface of said structure in a selected pattern.*

The current set of claims also comprises independent claim 10 directed to an apparatus, and dependent claims 2-9, 11 and 12.

V. In a communication under Article 15(1) RPBA sent to the appellant with the summons to oral proceedings, the Board indicated its preliminary opinion, which included the provisional finding that claim 1 did not meet the requirements of Article 123(2) EPC, since *inter alia*

there was no basis for the omission of the feature "without damaging the structure" which appeared in claim 1 of the application as filed.

VI. The appellant filed a letter of response dated 18 January 2016 stating only the following:

*"This concerns Oral Proceedings that are set for tomorrow (19 January 2016). Neither I nor the applicant will be attending. However, we would like an appealable decision, so I request that Oral Proceedings goes ahead in our absence."*

VII. The Board cancelled the oral proceedings.

VIII. The omission of the feature "without damaging the structure" was not commented on in the statement of grounds of appeal, nor was any substantive response made to the provisional finding of the Board that this omission did not meet the requirements of Article 123(2) EPC.

In introducing this amendment in the procedure before the department of first instance, the appellant (then the applicant) argued as follows:

*"Claim 1 has been further amended by deletion of the phrase "without damaging the structure" previously recited at the end of this claim. It is submitted that this is not an essential feature of the invention and that deletion of this phrase does not constitute added subject-matter." (Letter dated 7 July 2008.)*

The appellant's arguments in the statement of grounds of appeal, insofar as they are relevant to the present decision, may be summarised as follows:

*"the technical problem which the current invention seeks to solve is to minimise the damage caused to a structure while ablating material encapsulating the structure with the laser to expose the structure for later analysis and to do so whilst the structure remains stationary."*

The solution of the above problem proposed in the claims of the present application was novel and inventive over the cited prior art.

## **Reasons for the Decision**

1. The appeal is admissible.
2. *Article 123(2) EPC*
  - 2.1 Claim 1 on which the present decision is based and claim 1 as originally filed are both directed to a "method for exposing a structure encapsulated with a material". The final feature of claim 1 as originally filed defined the following method step: "and ablating the material with the laser beam without damaging the structure." In present claim 1, the feature "without damaging the structure" has been omitted. It is therefore to be decided whether this amendment meets the requirements of Article 123(2) EPC.
  - 2.2 It is established case law of the boards of appeal that a feature may not be deleted from an independent claim if it has been consistently presented as an essential

feature of the invention, since this would add subject-matter (see Case Law of the Boards of Appeal of the European Patent Office, 7th edition 2013, II.E.1.7.2).

2.3 In the procedure before the department of first instance (see point VIII, above) the appellant (then the applicant) argued that the deletion of the phrase "without damaging the structure" did not constitute added subject-matter, since this was "not an essential feature of the invention". In the absence of any submissions on this matter in appeal, the Board can only presume that this continues to represent the appellant's position.

2.4 The Board accepts that in some cases there may be room for debate whether the application presents a feature as being essential to the invention, that is to say, indispensable for the proposed solution to the problem described in the application, or as being optional, in the sense of being required only in certain preferred embodiments.

However, there are also cases where, on purely formal grounds, the essentiality of a feature cannot be doubted. One such is where the applicant chooses to include in an independent claim as filed a feature explicitly mentioning the problem, and affirming that the claimed subject-matter represents a solution to the problem.

In particular, where a claim to a method includes a feature explicitly defining that the method is carried out in a manner which solves the problem, to argue that this feature is not essential would be tantamount to arguing that in order to solve the problem, it is not

essential to carry out the method in a way which solves the problem.

- 2.5 In the present application, the problem solved by the claimed invention is explained as follows: An integrated circuit (IC) can fail for a large variety of reasons, and determining the cause of failure can provide valuable information for preventing future failures and improving IC manufacturing processes.

In many cases, a visual inspection and/or physical access to interior of the IC is needed to isolate problems, which means removing the molding compound that surrounds the IC. However, conventional methods can lead to further damage, making determination of the true cause of failure impossible, and rendering power-up of the exposed IC impossible, thus precluding an analysis of the IC in an operational state.

- 2.6 The aim of the invention is thus defined as follows (page 2, lines 16-18):

- *"A method and system is therefore needed that can remove the mold compound of an IC to provide both physical and visual access to the delicate interior structure of the IC without damaging said interior structure."*

Hence, according to the application as filed, the problem which is solved by the invention is to remove the mold compound from an IC without damaging the the IC, or, to use the more general terminology of claim 1, to remove encapsulation material from a structure without damaging the structure.



2.7 The final feature of claim 1 as filed ("without damaging the structure") defines explicitly that the ablation is carried out in such a way that the problem of avoiding damage to the underlying structure is solved.

The argument of the appellant-applicant that this feature is not essential amounts to the self-contradictory assertion that in order to solve the problem set out in the description it is not essential to carry out the invention in a manner which would solve this problem.

2.8 The question whether, in view of other requirements of the EPC (e.g. Article 84 EPC 1973), it was actually necessary to include the feature "without damaging the structure" in claim 1 as filed, or whether the original claimed subject-matter could have been formulated differently, is irrelevant to the present issue. The fact is that the appellant-applicant chose to include this feature in the sole independent claim of the application as filed, and in view of the requirements of Article 123(2) EPC, it could only be deleted subsequently under the conditions set out under point 2.2, above. In the present case, these conditions are not met.

2.9 The Board is aware that the question of deletion of a technical feature from a claim has sometimes been dealt with using approaches other than those in which the chief consideration is whether the feature is presented as essential in the application. However, in the opinion of the Board, such approaches are essentially equivalent to that presented above and would - at least in the present case - result in an identical outcome.

2.10 For example, in T 66/85 the Board judged that if a technical feature is deleted from a claim "the broadening of the claim does not contravene Article 123 (2) EPC as long as there is a basis for a claim lacking this feature in the application originally filed" (T 66/85, Headnote, point I).

In the present case deletion of "without damaging the structure" means that the claim is broadened to include methods in which the ablation is carried out in a manner which results in damage to the underlying structure. Not only is there no basis for such embodiments, but it is clear from the application that avoiding such damage is the very purpose of the invention (see point 2.4, above).

2.11 The Board therefore judges that claim 1 does not meet the requirements of Article 123(2) EPC. Consequently it is not necessary for the Board to decide the other issues provisionally raised in the communication under Article 15(1) RPBA.

### 3. *Formal issues*

3.1 In the letter dated 18 January 2016 the appellant wrote: "we would like an appealable decision, so I request that Oral Proceedings goes ahead in our absence." (see point VI, above).

Taken at face value, this statement appears to comprise three formally separate requests for (1) a decision, (2) which is appealable, and (3) which is taken at or after oral proceedings at which the party will not be represented.

3.2 The first request is complied with by the issuing of the present decision.

The second request cannot be complied with, as the boards of appeal represent the second and final instance under the EPC, and their decisions, although open to the limited review procedure pursuant to Article 112a EPC, are not open to further appeal.

Concerning the third request, there is no obligation on a board to hold oral proceedings in the absence of the party, irrespective of whether the appellant explicitly maintains its request for oral proceedings (T 663/10, Reasons, point 1.3). The Board therefore used its discretion to cancel the scheduled oral proceedings and to continue the case in writing.

**Order**

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

The appeal is dismissed.

The Registrar:

The Chairman:



S. Sánchez Chiquero

G. Eliasson

Decision electronically authenticated