

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SMA SOLAR TECHNOLOGY AMERICA, LLC,
Petitioner,
v.

TIGO ENERGY, INC.,
Patent Owner.

Patent 10,333,405
Filing Date: May 2, 2018
Issue Date: June 25, 2019
Title: SYSTEMS AND METHODS FOR ENHANCED EFFICIENCY
AUXILLARY POWER SUPPLY MODULE

Inter Partes Review No.: IPR2023-01133

**PETITIONER'S REQUEST FOR REHEARING
UNDER 37 C.F.R. § 42.71**

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I. INTRODUCTION AND SUMMARY OF THE ISSUES

SMA Solar Technology AG (Petitioner) requests rehearing of the Institution Decision (Paper 10) in which the PTAB declined to institute an *Inter Partes* Review (“IPR”) of U.S. Patent 10,333,405 (the ’405 patent).

Petitioner filed a petition for *Inter Partes* Review on claims 1-13 of the ’405 patent on June 27, 2023. Paper 1. Tigo Energy, Inc. (“Patent Owner”) filed a patent owner preliminary response (“POPR”) on October 20, 2023. Paper 7. In the POPR the Patent Owner asserted that institution of an IPR on the ’405 patent was improper because Mieth allegedly failed to anticipate each claim element of the independent claims 1 and 7. Paper 7, pp. 1, 7, 11. More particularly, Patent Owner asserted that Mieth failed to expressly or inherently disclose a micro-controller as recited in the claims. *Id.*

The PTAB Panel (“Panel”) issued a Written Decision Declining Institution on January 12, 2024, wherein the Panel adopted the arguments of the Patent Owner that the Mieth reference disclosing a “load” failed to expressly or inherently disclose a “micro-controller,” and thus Petitioner had not met the standard set forth in 35 U.S.C. § 314(a) that the petition shows a reasonable likelihood that the petitioner would prevail with respect to at least one of the claims challenged in the petition. Paper 10, p. 2.

In parallel with the IPR proceeding, the parties are involved in a patent infringement proceeding in the District Court in Delaware. *Tigo Energy Inc. v. SMA Solar Technology America LLC*, 22-915-VAC (D. Del.). As stated in the Markman Opinion that issued in that case (and is of record, Ex. 1016), the Court acknowledged the Patent Owner’s arguments during claim construction of the term “load,” stating:

Tigo argues that “load” is a generic term used in the art to describe something that consumes electric power. Ex. 1016, p. 26 (citing Joint Construction Br.).

The District Court further stated:

the Court adopts the parties agreed-upon definition of load, which is something that consumes electric power. Ex. 1016, p. 28.¹

The position on whether a micro-processor is a “load” taken by the Patent Owner in the POPR is in direct opposition to their position of the term “load” taken throughout the claim construction process in the District Court proceeding. Patent Owner failed to bring the fact that they were proffering a contradictory position to

¹ The Court acknowledged Patent Owner’s proffered definition for the term “load” in the parties’ Joint Construction Brief filed in August 2023 that resulted in Mieth’s load 20 reading on the claimed micro-controller prior to Patent Owner’s filing of their POPR, wherein the POPR effectively argued a contrary position that the term load did not read on a micro-controller. In addition, Patent Owner’s counsel reiterated that same earlier claim construction for load contrary to the POPR immediately after filing the POPR in the oral Markman hearing. Markman Hearing Tr., 96;16-19 (Oct. 31, 2023).

the attention of the Panel in their POPR. A first portion of this Request for Rehearing will show that the failure to notify the Panel of the contradictory position directly affected the Panel's ability to properly evaluate whether the "load" in the Mieth prior art reads on the claimed "micro-controller."

A second portion of this Request for Rehearing will show that Petitioner did, in fact, show in its petition that the teaching of a "load" in Mieth was an express disclosure of the recited "micro-controller," as the micro-controller is operating merely as a load in the claims and thus is a load.

A third, last portion of this Request for Rehearing reviews the law of anticipation and shows that in the Institution Decision either the law was misapplied or, in the alternative, key case law was overlooked in view of the Markman Opinion (Ex. 1016) that directly impacts the analysis at issue.

II. STANDARD OF REVIEW

A party may file a request for rehearing without prior Board authorization, which is reviewed for an abuse of discretion. 37 C.F.R. § 42.71(c)-(d). Failure to consider contradictory material evidence associated with a parallel litigation proceeding in the IPR constitutes an abuse of discretion. *Ultratech, Inc. v. CaptionCall LLC*, 872 F.3d 1267 (Fed. Cir. 2017). Failure to consider evidence and/or arguments submitted in a petition may constitute an abuse of discretion.

Illumina Inc. v. The Trustees of Columbia Univ. in the City of New York, IPR2013-00011, Paper 44 at 2 (May 10, 2013)(holding that an incorporated by reference publication containing material evidence being overlooked in the petition warranted reversal in an institution decision). Lastly, a decision based on “an erroneous interpretation of the law” is an abuse of discretion. *Star Fruits S.N.C. v. United States*, 393 F.3d 1277, 1281 (Fed. Cir. 2005).

III. ARGUMENT

A. The PTAB Panel failed to consider the newly submitted Markman Opinion evidence (Ex. 1016) that contains a Patent Owner admission that impacts the decision whether Mieth discloses a micro-controller, and such admission, that contravenes a position taken by the Patent Owner in this present proceeding, was not brought to the attention of the PTAB.

The issue raised by the Patent Owner Preliminary Response (“POPR”) was whether Mieth’s disclosure of a load 20 reads on the claim limitation “micro-controller.” On p. 26 of the Markman Opinion (Exhibit 1016) construing the claims of the ’405 patent (which was overlooked in the Institution Decision), the District Court states, “Tigo argues that ‘load’ is a generic term used in the art to describe *something that consumes electric power.*” (Emphasis Added). Ex. 1016, p. 26. Petitioner acknowledges that the claim term at issue in the Markman Opinion was not the term “micro-controller” (rather, the term was “switchable load”), however, the Patent Owner took a claim construction position in the Markman proceeding regarding the term “load” that had a direct bearing on the one

claim element they attacked in their POPR. Further, in doing so, Patent Owner took a contrary position in the POPR on the meaning of the term “micro-controller” to not be a “load” and failed to inform the PTAB Panel of such contrary position. More particularly, the Patent Owner argued in the Markman proceeding that a “load” was something that consumes electric power (which the claimed micro-controller does in the claims at issue when receiving the second output), while arguing to the PTAB in the present proceeding that the micro-controller is distinguishable from the load 20 expressly disclosed in Mieth. ***A micro-controller as arranged in claims 1 and 7 to be powered by the second output consumes electric power, and thus by Patent Owner’s own admission a micro-controller constitutes a load under their proffered claim construction of the term “load”.***

Failing to notify this Panel of the contrary position taken on this key claim term touches on each party’s duty of candor under 37 C.F.R. § 42.11 before the PTAB. *Facebook, Inc. v. Sound View Innovations, LLC*, IPR2017-00998, Paper 13 (PTAB Sep. 5, 2017)(holding that while it is not improper for a party to take inconsistent claim construction positions in district court and PTAB proceedings, the party who does so is obligated to inform the Board of its prior arguments). While such failure to notify may have been inadvertent, petitioner contends that providing this PTAB Panel knowledge of this contrary position regarding what is the meaning of a “load” according to the Markman Opinion (Ex. 1016), and that such definition

encompasses the micro-controller claim element would have been noteworthy to this Panel in determining whether Mieth is anticipatory.

The Panel should have had the opportunity to consider the issue in light of this undisclosed information. Thus, rehearing is requested as maintaining a decision not to institute an IPR proceeding under such circumstances constitutes an abuse of discretion.

B. The PTAB failed to consider Petitioner's reliance on Ex. 1014 in support for its assertion that the load 20 disclosed in Mieth reads on the micro-controller recited in the claims of the '405 patent.

In declining institution, the Panel stated:

Under the applicable standard for anticipation, neither Petitioner nor its declarant provides any analysis that would show that one skilled in the art would have reasonably understood or inferred from Mieth that load 20 is a micro-controller. *Eli Lilly & Co. v. L.A. Biomedical Research Inst.*, 849 F.3d 1073, 1074–75 (Fed. Cir. 2017). Paper 10, p. 11.

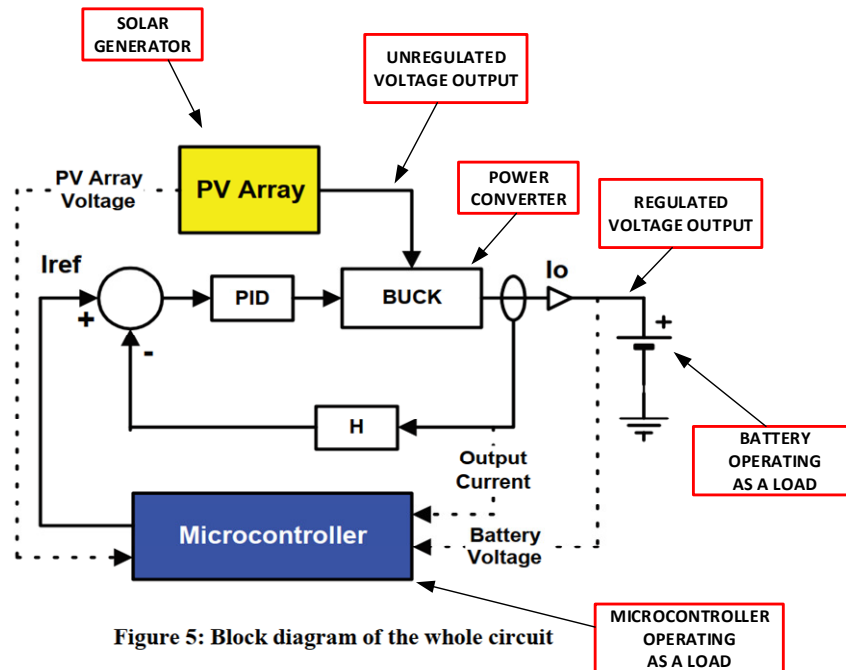
Petitioner disagrees. The petition unambiguously asserts that the load 20 of Mieth (Ex. 1002) reads on a micro-controller, stating:

Mieth discloses a circuit and method that supplies power *to an electrical load such as a micro-controller 20* from a solar generator 1. Paper 1, p. 12:12-13. (Emphasis added).

The power supply apparatus 19 of Mieth is a DC-DC voltage converter or a charging converter and outputs a voltage and current to power a load 20, as shown in Fig.1(annotated-1B). Ex.1007, ¶ 98. A PHOSITA

understands that the load 20 is a generic term, and can be or include a micro-controller. Ex.1007, ¶ 98; **Ex.1014, 1180, Fig. 5**. Paper 1, p. 22: 9 - p. 23: 1. (Emphasis added).

The petition expressly asserts that a micro-controller as arranged in the claims (e.g., elements [1B] and [7G]) is a load on p. 12 thereof, and thus the disclosure of the load 20 in Mieth anticipates the claim element. Such assertion that Mieth's load 20 expressly discloses the micro-controller claim element is not conclusory, but instead cites to the expert report and an exhibit of record. Paper 1, pp. 22-23. More particularly, the expert report opines that a PHOSITA understands that the term load reads on a micro-controller. Ex. 1007, ¶ 98. In addition, both the petition and the expert report cite to Ex. 1014, Fig. 5, to buttress the assertion the micro-controller as arranged in the claims operates as a load, and thus the load 20 of Mieth reads on the claimed micro-controller. Fig. 5 of Ex. 1014 is provided in annotated form below for the Panel's easy reference.



Ex. 1014

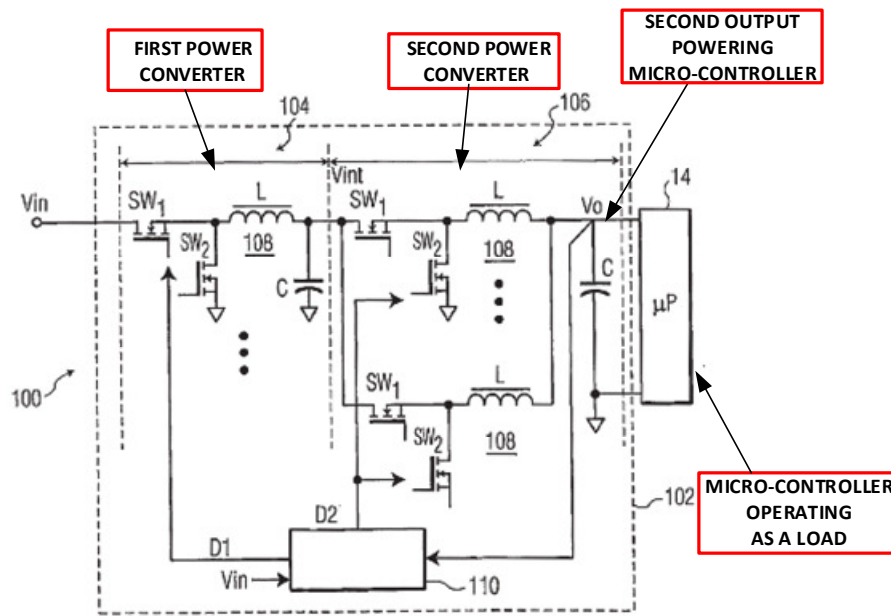
Fig. 5 of Ex. 1014 shows a photovoltaic (PV) array that operates as a power source. The PV array outputs a DC current with an unregulated voltage to a buck converter (e.g., a power converter) that down-converts the unregulated PV array voltage to a regulated voltage that is output to a battery and a microcontroller that each consume electrical power from the buck converter and thus each operate as a load (see the output of the buck converter that charges the battery and is fed as an output to the microcontroller to power the microcontroller (dotted line)).

Therefore Ex. 1014 clearly supports petitioner’s contention that “load” is a generic term, *and that various forms of circuitry that consume electrical power operate as a load, including, in this example, a battery and a microcontroller.* As a microcontroller is a species of the generic term load and is operating as a load in

the claims (i.e., being powered by the second output in claims 1 and 7), Ex. 1014 shows that a PHOSITA knows that the load 20 of Mieth includes the micro-controller claim element at issue (as the micro-controller as claimed operates as a load) and thus reads on the recited claim element.

Ex. 1012 of record also shows a micro-controller consuming electrical power and therefore operating as a load. Fig. 2 of Ex. 1012 provided below shows a cascaded power converter architecture, wherein a first power converter 104 drives a second power converter 106 having a second output (V_o) that powers a microprocessor 14, which is synonymous with a micro-controller. Operation of the circuit is provided in paragraph [0018] of the Exhibit, where it states:

The two-stage cascaded buck power delivery system 100 operates to provide an output voltage V_o at the output of the second buck stage 106 in response to an input voltage V_{in} applied to the input of the first buck stage 104.... The input voltage V_{in} is typically a pre-regulated bus voltage of 12 V+/-15% or a battery voltage of 6-24 V, ***and the output voltage V_o is the processor voltage of 0.x-1.x V.*** (Emphasis added).



Ex. 1012

The microprocessor 14 receives the second output (V_o) and consumes electrical power provided by the second output of the second power converter 106 *and thus operates as a load* in the same manner as the micro-controller of claims 1 and 7 at issue.

Lastly, the '405 patent (Ex. 1001) itself clearly indicates that the micro-controller claim element is a load. For example, the '405 patent states:

Circuit (400) therefore can be used to address the false start problem that occurs when the solar panel is able to provide enough output voltage when it is not connected to the output, but not enough to sustain even a small current provided by the buck converter (402) to its load, such as a control logic, a control circuit, a micro-controller, etc. (Ex. 1001, 8:28-34)(Emphasis added).

Typically, the load of resistor P1 (405) should exceed the load of buck converter (402) (buck converter's load being the MCU which is not shown).... (Ex. 1001, 8:55-58)(Emphasis added).

The '405 patent admits that its micro-controller (i.e., the MCU, see Ex. 1001, 8:36-37) is a load. Thus, a PHOSITA would readily understand that the load 20 of Mieth reads on the claimed micro-controller.

In summary, the petition expressly states that the load 20 of Mieth reads on a micro-controller, and both the petition and the expert report cite to Fig. 5 of Ex. 1014 in support for the contention that the claimed micro-controller as arranged in the claims operates as a load and thus is a load, making Mieth anticipatory. Ex. 1012 provides further evidence that a PHOSITA understands that the micro-controller of claims 1 and 7 operates merely as a load, and thus is a load. *Lastly, the '405 patent itself expressly states that its micro-controller is a load. Ex. 1001.* The Institution Decision failed to take this material evidence of record into account. Accordingly, the decision to deny institution was based on an incomplete consideration of all facts presented within the petition and should be reversed.

C. The law on anticipation supports Petitioner's contention that Mieth's load 20 reads on a micro-controller and thus the cited prior art anticipates the claims listed in Ground A of the petition.

As stated in the Institution Decision, the dispositive question on anticipation is whether one skilled in the art would have *reasonably understood or inferred*

from a prior art reference that every claim element is disclosed in that reference. Paper 10, p. 6 (citing *Eli Lilly*, 849 F.3d at 1074–1075 (emphasis added)). Further, a prior art reference may anticipate a claim without using the same language as the claim. *Adasa Inc. v. Avery Dennison Corp.*, 55 F.4th 900, 910 (Fed. Cir. 2022)(holding that while elements must be arranged in the same way as the claim, the reference need not disclose the element in the very same terms used by the patent). Lastly, whether a generic prior art disclosure anticipates everything within the genus depends on the factual aspects of the specific disclosure and the particular products at issue. *Sanofi-Synthelabo v. Apotex, Inc.*, 550 F.3d 1075, 1083 (Fed. Cir. 2008). In the present instance, the Institution Decision erred in holding that Mieth fails to anticipate the micro-controller claim element. As will be addressed in greater detail below, the arrangement of the micro-controller in the claims dictates that the claim element is operating merely as a load, and thus is a load. Therefore, the disclosure of the generic term “load” in the Mieth reference anticipates the species term “micro-controller” in the recited claims.

As highlighted earlier in Section A, the District Court adopted Patent Owner’s construction of the term “load” as *something that consumes electrical power*. Ex. 1016, p. 26. The micro-controller of claims 1 and 7 is connected to receive, and is selectively powered by, a second output of a second stage power converter (e.g., elements [1B], [1F], [1G], [1H], and [7G]). Paper 1, Claims

Appendix. Further, *the patent owner admits in the '405 patent disclosure that the micro-controller claim element is a load.* Ex. 1001, 8:28-34, 55-58 (stating, “buck converter’s load being the MCU.”). Furthermore, neither the claims nor the description of the '405 patent provide any differentiating configuration or implementation of the micro-controller that is different from a load. In addition, there is no disclosed interaction between the micro-controller and the other claim elements. Therefore because the micro-controller and load are operatively equivalent in the context of the claim language as defined by the '405 patent claims and description (Ex. 1001, 8:28-34), the micro-controller is synonymous with a load. *Adasa Inc. v. Avery Dennison Corp.*, 55 F.4th at 910. Thus, the claimed micro-controller consumes electrical power, *and is a load according to the language of the claims and the Patent Owner’s own admissions.* The load 20 of Mieth therefore reads on the claimed micro-controller.

Alternatively, or in addition, as the term “load” has been held by the Court to be a generic term for various circuit elements that consume electrical power, *the genus disclosure of Mieth anticipates the species recitation of micro-controller in the claims under the prevailing Federal Circuit case law.* More particularly, as the claim construction of the meaning of the term “load” has been defined as something that consumes electrical power, a PHOSITA can readily envisage which circuit elements fall within the genus (i.e., those that functionally operate as a load

in that they consume electrical power) and thus constitute anticipated species of the genus. *Sanofi-Synthelabo v. Apotex, Inc.*, 550 F.3d at 1083; *Eli Lilly & Co. v. Zenith Goldline Pharm., Inc.*, 471 F.3d 1369, 1376 (Fed. Cir. 2006)(holding that the issue of anticipation turns on ***whether the genus was of such a defined and limited class that one of ordinary skill in the art could “at once envisage” each member of the genus***)(Emphasis added). The disclosure of a load and the recitation of the micro-controller at issue satisfies this criteria, and thus the recited claim element is anticipated by Mieth.

For example, claim elements [1B], [1F], [1G] and [1H] in combination show the micro-controller operating as a load. Paper 1, Claims Appendix. Element [1B] recites the micro-controller, while element [1G] sets conditions under which a control circuit blocks the second stage power converter from powering the micro-controller using the second output. Element [1H] states that after the time period of [1G] a second state of not consuming the first output occurs and the second stage power converter converts [1F] the first output to the second output to power the micro-cointroller. Likewise, in claim 7, element [7G] states “powering the micro-controller using the second output from the second stage power converter.” ***In both instances, the claim language dictates that the micro-controller consumes electrical power and thus is a load.*** Thus, the load 20 of Mieth reads on the micro-controller of the claims, as a PHOSITA can readily envisage what circuit

elements such as the micro-controller of the claims fall within the genus as they operate as a load (i.e., those that consume electrical power) and thus constitute anticipated species of the genus.

For the reasons set forth above, *one skilled in the art would have reasonably understood or inferred from Mieth that every claim element is disclosed in that reference.* Maintaining the decision to not institute an IPR under such circumstances constitutes an abuse of discretion.

IV. CONCLUSION

For at least the reasons set forth above, an abuse of discretion has been shown, and a reasonable likelihood has been shown that the Petitioner would prevail on at least one claim. The PTAB Panel should grant SMA Solar Technology's request for rehearing, institute the IPR, and find claims 1–13 of the '405 patent invalid over the instituted grounds.

Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that the above-captioned **PETITIONER’S REQUEST FOR REHEARING UNDER 37 C.F.R. § 42.71** was served electronically in their entirety on February 7, 2024, upon the following parties by email:

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