

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HAMAMATSU CORPORATION
Petitioner,

v.

SIONYX, LLC
Patent Owner.

Case IPR2016-01910
Patent 8,680,591 B2

Before GEORGIANNA W. BRADEN, MATTHEW R. CLEMENTS, and
MONICA S. ULLAGADDI, *Administrative Patent Judges*.

ULLAGADDI, *Administrative Patent Judge*.

DECISION
Denying-in-part and Granting-in-part
Patent Owner's Request for Rehearing
37 C.F.R. § 42.71

I. INTRODUCTION

A. Background

Hamamatsu Corporation (“Petitioner”) filed a Petition (Paper 2, “Pet.”) for *inter partes* review of claims 1–26 (the “challenged claims”) of U.S. Patent No. 8,680,591 B2 (Ex. 1001, “the ’591 patent”). SiOnyx, LLC (“Patent Owner”) timely filed a Preliminary Response (Paper 21, “Prelim. Resp.”). We instituted review of claims 1, 2, 4–18, 21, and 23–26, but not as to claims 3, 19, 20, and 22. Paper 22 (“Institution Decision” or “Inst. Dec.”). Relevant to the analysis below, we instituted review of claims 1, 4, 5, 7–9, 13, 24, and 25 of the ’591 patent under 35 U.S.C. § 102 as anticipated by Nakashiba. Inst. Dec. 42.

Patent Owner filed a request for rehearing (Paper 24, “Reh’g Req.”) of our Institution Decision. Patent Owner requests that we reconsider our decision to institute *inter partes* review with respect to claims 1, 4, 5, 7–9, 13, 24, and 25 of the ’591 patent as anticipated by Nakashiba (Ex. 1003). For the reasons set forth below, the request is granted-in-part with respect to claims 9, 24, and 25 and denied-in-part with respect to claims 1, 4, 5, 7, 8, and 13.

II. STANDARD OF REVIEW

Under 37 C.F.R. § 42.71(c), “[w]hen rehearing a decision on petition, a panel will review the decision for an abuse of discretion.” An abuse of discretion occurs when a “decision was based on an erroneous conclusion of law or clearly erroneous factual findings, or . . . a clear error of judgment.” *PPG Indus., Inc. v. Celanese Polymer Specialties Co.*, 840 F.2d 1565, 1567 (Fed. Cir. 1988) (citations omitted). The burdens and requirements of a request for rehearing are stated in 37 C.F.R. § 42.71(d):

(d) *Rehearing*. . . . The burden of showing a decision should be modified lies with the party challenging the decision. The request must specifically identify all matters the party believes the Board misapprehended or overlooked, and the place where each matter was previously addressed in a motion, an opposition, or a reply.

III. ANALYSIS

A. Whether We Improperly Construed the “Positioned to Interact with Electromagnetic Radiation” Limitation

In its Preliminary Response, Patent Owner argued that the “positioned to interact with electromagnetic radiation” limitation should be construed as “located to provide enhanced response to and/or filtering of electromagnetic radiation.” Prelim. Resp. 11–12. In our Institution Decision, we construed “positioned to interact with electromagnetic radiation,” as recited in claims 1 and 23, and “formed in a position to interact with electromagnetic radiation,” as recited in claim 13 (the “position” limitations), as “any positioning of the textured region in which the textured region can interact, in any way, with electromagnetic radiation.” Inst. Dec. 9. We determined that the ’591 patent describes “ways of ‘interact[ing]’ other than ‘provid[ing]’ an enhanced response to and/or filtering,” contrary to Patent Owner’s argument. *Id.* at 8. Specifically, we noted the ’591 patent discloses that “the textured region can function to *diffuse* electromagnetic radiation, to *redirect* electromagnetic radiation, and to *absorb* electromagnetic radiation, thus increasing the quantum efficiency of the device.” *Id.* (citing Ex. 1001, 10:27–30).

In its Rehearing Request, Patent Owner contends “the requirement that the textured region ‘enhance’ or ‘filter’ is not limited to the function of the textured region in a particular embodiment” because “it is the purpose that the specification ascribes to the ‘textured region’ for achieving the object of the invention and

therefore, should be considered as a definition of that term.” Reh’g. Req. 6. Patent Owner argues “*all* embodiments presented in the specification of the ’591 Patent teach that the ‘textured region’ can ‘provide an enhanced response to and/or filtering of electromagnetic radiation.’” *Id.* at 8. Patent Owner further contends that “[i]ncreasing quantum efficiency is an ‘enhanced response,’ consistent with Patent Owner’s proposed construction.” *Id.* at 7–8. More particularly, Patent Owner argues that diffusing, redirecting, and absorbing electromagnetic radiation, as described in the ’591 patent, increases quantum efficiency, and that increasing quantum efficiency is equivalent to an enhanced response. *Id.*; see Ex. 1001, 10:27–30.

The relevant inquiry is not whether the Specification has support for an “enhanced response,” but whether the Specification supports construing the claim term “interact with” to mean an “enhanced response and/or filtering.” Even assuming, without deciding, for the purposes of this decision, that diffusing, redirecting, and absorbing electromagnetic radiation results in an increased quantum efficiency that could be considered to provide an enhanced response to electromagnetic radiation, Patent Owner fails to demonstrate persuasively that one of ordinary skill in the art would understand from the description in the ’591 patent Specification that the claim term “interacting with” is defined as “providing an enhanced response and/or filtering.” Furthermore, we are unable to discern a portion of the Specification of the ’591 patent that discloses such an equivalency.

Not only does the ’591 patent not define “interact with,” the Abstract of the ’591 patent discloses that “[i]n one aspect, the textured region is operable *to facilitate generation of an electrical signal* from the detection of infrared electromagnetic radiation” and “[i]n *another* aspect, interacting with electromagnetic radiation further includes *increasing the semiconductor substrate’s effective absorption wavelength* as

compared to a semiconductor substrate lacking a textured region.” Ex. 1001, Abstract (emphasis added). This passage suggests that, at least in one aspect, “interact[ing] with” electromagnetic radiation includes merely generating electrons from photons, which is not an “enhanced response” and/or “filtering,” as required by Patent Owner’s proffered claim construction.

*B. Whether We Erred in Determining Petitioner
has Shown a Reasonable Likelihood of Prevailing on
the Ground that Nakashiba Anticipates Claims 9, 24, and 25*

In our Institution Decision, we construed “formed by a process selected from the group consisting of lasing, chemical etching, and combinations thereof” recited in claim 9, “formed by lasing” recited in claim 24, and “formed by lasing with short duration laser pulses,” recited in claim 25 as product-by-process claims that recite limitations that are not entitled to patentable weight. Inst. Dec. 11–12. In its Rehearing Request, Patent Owner contends that our “determination impermissibly shifts the burden to Patent Owner to show that mechanical polishing does not result in structurally or functionally the same type of surface as laser processing or chemical etching.” Reh’g. Req. 3, 11–15.

We have reviewed the record and our Institution Decision in light of Patent Owner’s Rehearing Request and modify our determinations as follows. In its Petition, Petitioner argued that claims 9, 24, and 25 are product-by-process claims and further argued, with respect to anticipation by Nakashiba, that:

Nakashiba does not disclose that the roughened surface S1 is formed by either lasing (in particular using short duration laser pulses) or chemical etching, as recited in claims 9, 24, and 25 of the ‘591 Patent. However, these are product-by-process limitations, and as explained above, the validity of a product-by-process claim focuses “on the product and not on the process of making it,” such that the claim “can be anticipated by a prior art product that does not adhere to the claim’s process limitation.” *Amgen*, 580 F.3d at 1369-70. *Moreover, there is no*

evidence of record that either the lasing or the chemical etching procedures produce a structure different than the roughened surface taught by Nakashiba. Since Nakashiba anticipates the entire structure recited in claim 1, claims 9, 24, and 25 are also anticipated.

Pet. 20–21 (emphasis added); *see id.* at 8–9.

Upon review of the record, we determine Petitioner did not support its position with sufficient evidence that demonstrates that the processes recited in claims 9, 24, and 25 do not impart structural and functional differences to the product. Moreover, Petitioner does not point to citations in the '591 patent, testimonial evidence, or any other record evidence to support its position that the structure or functionality of the textured region resulting from the chemical etching or lasing processes recited in claims 9, 24, and 25 would be the same as the structure or functionality of a roughened surface produced by a mechanical polishing process as disclosed in Nakashiba. Rather, Petitioner provides only conclusory statements regarding its position.

Given that Petitioner has not demonstrated sufficiently that the limitations recited in claims 9, 24, and 25 are not entitled to patentable weight, and in light of Petitioner's concession that "Nakashiba does not disclose that the roughened surface S1 is formed by either lasing (in particular using short duration laser pulses) or chemical etching, as recited in claims 9, 24, and 25 of the '591 Patent," we determine Petitioner has not met its burden of demonstrating a reasonable likelihood of prevailing with respect to showing that claims 9, 24, and 25 are anticipated under 35 U.S.C. § 102 by Nakashiba.

C. Whether Nakashiba Anticipates Claims 1, 4, 5, 7, 8, and 13

Based on our construction of the position limitations, we maintain our determination that Petitioner has met its burden of demonstrating a reasonable likelihood of prevailing with respect to its challenge that Nakashiba anticipates

each of claims 1, 4, 5, 7, 8, and 13. Even Patent Owner’s construction does not require that the claimed “textured region” actually provide enhanced response to and/or filtering of electromagnetic radiation, merely that it be *located to provide* such response. Similarly, we noted in our Institution Decision that “[t]he claims, however, do not require that the textured region have any ‘effect’ on the electromagnetic radiation,” rather “[t]hey require only that the textured region be ‘positioned to interact’ (claims 1 and 23) or ‘formed in a position to interact’ (claim 13) with electromagnetic radiation.” Inst. Dec. 19. Moreover, we determined that “[b]ecause Nakashiba discloses that light L1 passes through contact surface S1 (which Petitioner alleges discloses the recited ‘textured region’), Petitioner has shown sufficiently that surface S1 is ‘positioned to interact with’ electromagnetic radiation in the form of light L1.” *Id.* For these reasons, we decline to modify our determination with respect to claims 1, 4, 5, 7, 8, and 13.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Patent Owner’s request for rehearing is *denied-in-part* as to claims 1, 4, 5, 7, 8, and 13;

FURTHER ORDERED that Patent Owner’s request for rehearing is *granted-in-part* as to claims 9, 24, and 25;

FURTHER ORDERED that the Decision on Institution (Paper 22) is modified to include the analysis set forth in Section III.B herein and to deny institution of claims 9, 24, and 25 of the ’591 for anticipation under 35 U.S.C. § 102 by Nakashiba; and

FURTHER ORDERED that an inter partes review shall continue as to the remaining grounds on which the Board instituted trial, namely,

Claims 1, 4, 5, 7, 8, and 13 of the '591 patent under 35 U.S.C. § 102 as anticipated by Nakashiba;

Claims 1, 2, 4, 5, 7–11, 13–18, 21, and 23–26 of the '591 patent under 35 U.S.C. § 103 as unpatentable as obvious over Mabuchi and Mazur;

Claim 6 of the '591 patent under 35 U.S.C. § 103 as unpatentable as obvious over Mabuchi, Mazur, and Uematsu; and

Claim 12 of the '591 patent under 35 U.S.C. § 103 as unpatentable as obvious over Mabuchi, Mazur, and Furukawa.

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