

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CARTESSA AESTHETICS, LLC and
AESTHETICS BIOMEDICAL, INC.,
Petitioner,

v.

SERENDIA, LLC,
Patent Owner.

IPR2022-00593
Patent 10,058,379 B2

Before CARL M. DEFRANCO, MICHAEL L. WOODS, and SCOTT
RAEVSKY, *Administrative Patent Judges*.

Opinion for the Board filed by *Administrative Patent Judge* RAEVSKY.

Opinion Concurring filed by *Administrative Patent Judge* DEFRANCO.

RAEVSKY, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Cartessa Aesthetics, LLC and Aesthetics Biomedical, Inc. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–18 of U.S. Patent No. 10,058,379 B2 (Ex. 1001, “the ’379 patent”). Serendia, LLC (“Patent Owner”) filed a Preliminary Response (Paper 7, “Prelim. Resp.”).

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless it is determined that there is a reasonable likelihood that the petitioner would prevail with respect to at least one of the claims challenged in the petition. Upon consideration of the evidence and arguments in the Petition (including its supporting testimonial evidence) as well as the evidence and arguments in the Preliminary Response, for the reasons below, we determine that the Petition fails to show a reasonable likelihood that Petitioner would prevail with respect to any of the challenged claims. We thus deny institution of *inter partes* review.

II. BACKGROUND

A. Related Matters

The parties identify the following related district court litigation: *SynKloud Techs., LLC v. Aesthetics Biomedical, Inc.*, 2:22-cv-00015 (D. Ariz., January 4, 2022); *SynKloud Techs., LLC v. Cartessa Aesthetics, LLC*, 2:21-cv-04423 (E.D.N.Y., August 6, 2021); *SynKloud Techs., LLC v. Sung Hwan E&B Co., Ltd.*, 6:21-cv-00811 (W.D. Tex., August 6, 2021). Pet. 2; Paper 6, 2. Petitioner has also filed another petition requesting *inter partes* review of related U.S. Patent No. 9,480,836 B2 (“the ’836 patent”), IPR2022-00594.

B. The '379 patent

The '379 patent describes a method and apparatus for skin treatment using electrical energy, primarily with an aesthetic purpose. Ex. 1001, code (57), 2:39–41. The method and apparatus provide electrical stimulation directly to a body region including the dermis via needles. *Id.* at 2:39–41. This method aims to revitalize and regenerate the body region including collagen by wounding the dermis. *Id.* at 2:41–43. In an embodiment, the temperature is raised about the tip of each needle, not between needles. *Id.* at 3:32–33. In an embodiment, higher temperatures may be concentrated in dermis, not epidermis. *Id.* at 3:39–40.

Figure 5 depicts a treatment architecture embodiment using non-insulated needles:

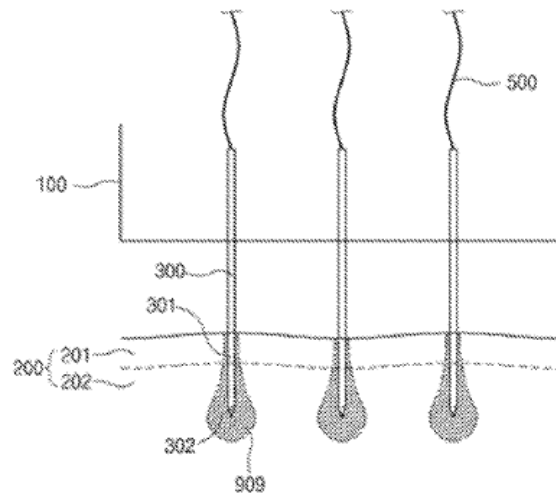


FIGURE 5

Id. at 4:41–43. In Figure 5, device tip 100 with needles 300 is depicted, with needles 300 inserted into skin 200, which includes epidermis 201 and dermis 202. *Id.* at 5:6–8, 33–34. A user input device (not shown) may enable a user to set several parameters that control energy field 909 generated about

needles 300, including voltage, current, and frequency applied to needles 300, the on and off time of the radiofrequency (RF) signal during the cycles, and the deployed depth of the needles. *Id.* at 5:36–41. In the embodiment shown, the heated area around needle end tips 302 may be oval or tear shaped. *Id.* at 3:27–29. In an embodiment, heat may not be concentrated between needles 300, but rather, the heated area may be around each needle 300. *Id.* at 3:29–31.

Figure 7 depicts another treatment architecture embodiment:

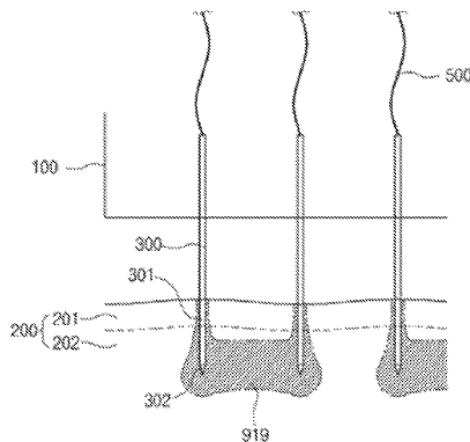


FIGURE 7

Id. at 4:47–48. In Figure 7, area 919 is shown, which represents the area where the temperature is raised using non-insulated needles 300. *Id.* at 5:19–20. In this embodiment, the energy fields are expanded and connected in dermis 202, but not in epidermis 201. *Id.* at 5:67–6:2.

C. Challenged Claims

Claim 1 is illustrative of challenged claims 1–18:

1. A mammalian body treatment apparatus, comprising:
 - a plurality of electrodes, the electrodes being bipolar and configured to be insertable into a body segment to be treated; and
 - a radio frequency (RF) generation module, the RF generation module electrically coupled to the plurality of electrodes and

configured to provide an RF signal with oscillating current to the plurality of electrodes to apply energy to body segments around each electrode rather than to body segments between the electrodes.

Ex. 1001, 10:49–58.

D. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability (Pet. 4), supported by the declaration of Dr. Robert E. Grove (Ex. 1003):¹

Claim(s) Challenged	35 U.S.C. § ²	Reference(s)/Basis
1–18	103(a)	Mehta, ³ Mulholland, ⁴
1–18	103(a)	INTRAcel Video, ⁵ Mulholland

III. ANALYSIS

A. Principles of Law

Petitioner bears the burden to demonstrate unpatentability. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). At this preliminary stage, we determine whether the information presented in the Petition shows a reasonable likelihood that Petitioner would prevail in establishing that at least one of the challenged claims would have

¹ Patent Owner has not submitted declaration testimony.

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 285–88 (2011), revised 35 U.S.C. §§ 102, 103 effective March 16, 2013. The ’379 patent claims priority to an application filed on June 14, 2012. Ex. 1001, code (63). Petitioner applies the pre-AIA version of § 103. Pet. 6. Patent Owner does not dispute that the pre-AIA version of § 103 applies. We consequently also apply the pre-AIA version of § 103.

³ US 2010/0204695 A1, published Aug. 12, 2010 (Ex. 1005).

⁴ US 2010/0023003 A1, published Jan. 28, 2010 (Ex. 1016).

⁵ “Intracel – Fractional RF technology” video (Ex. 1006).

been obvious over the proposed combinations of prior art. *See* 35 U.S.C. § 314(a).

A claim is unpatentable as obvious if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (quoting 35 U.S.C. § 103(a)). We resolve the question of obviousness based on underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the prior art and the claims; (3) the level of skill in the art; and (4) when in evidence, objective indicia of nonobviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

We apply these principles to the Petition’s challenges.

B. Level of Ordinary Skill in the Art

We review the grounds of unpatentability in view of the understanding of a person of ordinary skill in the art at the time of the invention. *Graham*, 383 U.S. at 13, 17. Petitioner asserts that

[a] person of ordinary skill in the art (“POSA” [or “POSITA”]) as of June 14, 2011, would typically have (1) 7-10 years of experience with developing and/or using treatment systems for delivery of electromagnetic radiation energy to skin or other tissues, and (2) a related graduate engineering degree or M.D. . . . The POSA may have worked as part of a multidisciplinary team and drawn upon not only his own skills, but also taken advantage of certain specialized skills of others on the team when solving a technical problem.

Pet. 31 (citing Ex. 1003 ¶ 27).

Patent Owner does not dispute Petitioner’s proposed level of skill in the art at this stage. In this case, the precise definition of the level of skill in

the art is not critical, as we determine that even under Petitioner’s proposed definition, Petitioner has not met its institution burden.

C. Claim Construction

In *inter partes* review, we construe claims using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. 37 C.F.R. § 42.100(b) (2021). Claim terms are generally given their ordinary and customary meaning as would be understood by one with ordinary skill in the art in the context of the specification, the prosecution history, other claims, and even extrinsic evidence including expert and inventor testimony, dictionaries, and learned treatises, although extrinsic evidence is less significant than the intrinsic record. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–17 (Fed. Cir. 2005) (en banc).

Petitioner proposes a construction for “apply energy to body segments around each electrode rather than to body segments between the electrodes.” Pet. 22. Petitioner and Patent Owner disagree on the interpretation of this limitation (*compare id.* at 22–31, *with* Prelim. Resp. 5–14), so we find it necessary to construe this limitation.

1. “*apply energy to body segments around each electrode rather than to body segments between the electrodes*”

a. Petitioner’s Proposed Construction and Arguments

Petitioner asserts that the plain and ordinary meaning of this phrase, as understood by a POSITA, is “concentrate energy in a first area of the body

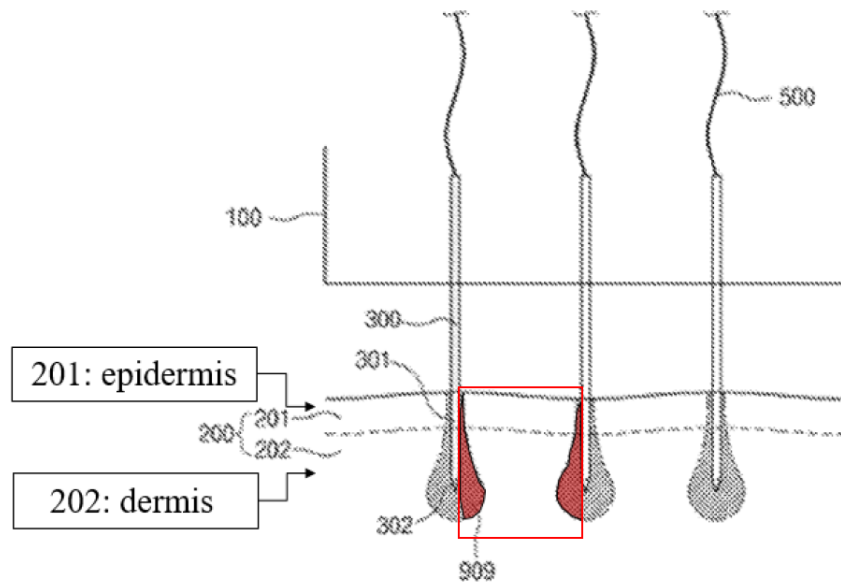
around each electrode, while minimally affecting a second area of the body between adjacent electrodes.” Pet. 22 (citing Ex. 1003 ¶ 47).

Referencing the Specification, Petitioner cites the following passage:

In the present invention the temperature may be raised and the ***heat may be concentrated*** at an area in dermis ***by the needle(s)*** to cause coagulation. The heat generated by the present invention may ***minimally affect the adjacent epidermis area*** In an embodiment ***heat may not be concentrated between needles***. In an embodiment, the heated area may be around each needle.

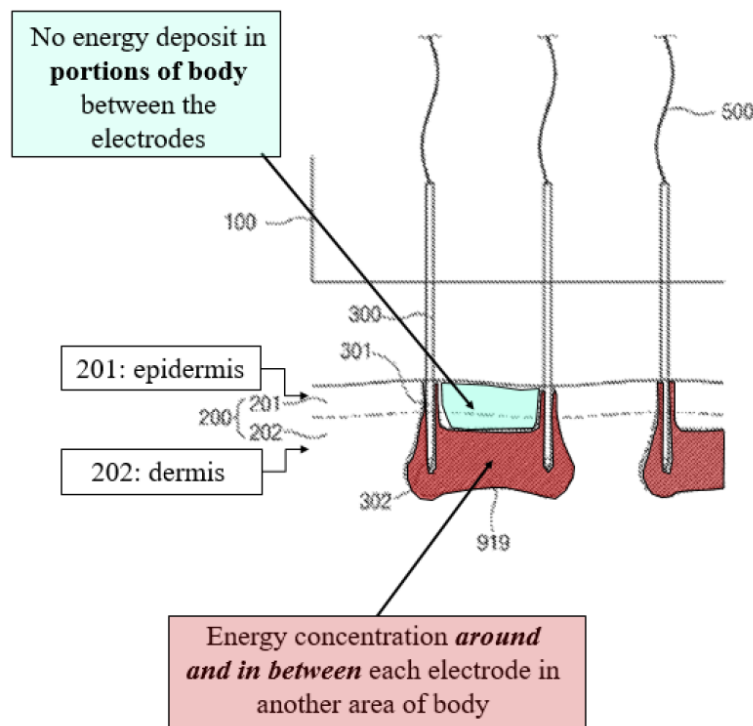
Id. at 22–23 (citing Ex. 1001, 3:23–31). Petitioner asserts that “FIGs. 5, 7, 8, and 9B of the ’379 patent illustrate the concept that is captured by” the limitation at issue. *Id.* at 24. Each of these figures, Petitioner argues, “show that the temperature (and therefore energy) is raised at the various body segments between the needles, including both the dermis and the epidermis.” *Id.* (citing Ex. 1003 ¶ 51). According to Petitioner, “[i]t is simply a matter of the degree to which the energy and heating is concentrated between the needles in the dermis layer and the epidermis layer.” *Id.*

To illustrate this concept, Petitioner reproduces the following annotated version of Figure 5:



Id. at 25. This figure, Petitioner contends, shows that “the heated area around the needle end tips may be oval or tear shaped.” *Id.* at 24 (citing Ex. 1001, 3:27–29). As shown by Petitioner’s red shading, according to Petitioner, “the area between the needles in both the dermis and the epidermis is subject to energy deposit.” *Id.* (citing Ex. 1001, 4:12–15).

Petitioner then reproduces an annotated version of Figure 7, shown below:



Id. at 26. Petitioner contends that Figure 7 depicts another embodiment where “the energy fields (generating heated areas in dermis) may be ***expanded and connected in dermis*** [in between a pair of needles as shown by red shading], but not in epidermis [green shading].” *Id.* at 25 (citing Ex. 1001, 5:67–6:2). Accordingly, Petitioner contends that its proposed construction “captures all the disclosed embodiments (i.e., FIGs. 5, 7, 8, 9B).” *Id.* at 28.

Petitioner also draws our attention to a portion of the prosecution history of the parent ’836 patent, which Petitioner contends has a similar claim term: “cause coagulation around each electrode rather than coagulating between the electrodes.” *Id.* (citing Ex. 1022, 10:50–55). Petitioner reproduces the following prosecution argument, in which Petitioner asserts that Patent Owner explained what is meant by applying energy *around* electrodes rather than *between* electrodes:

In Applicants' claimed apparatus and methods, conduction may begin initially between bipolar electrodes as electrons are released from one electrode to the tissue around the electrode and then travel to the other electrode. ***Concentration of the electron current may be highest in the area immediately surrounding each electrode causing areas around each electrode to be heated more.*** Electrons have more space to travel through in the path between the electrodes, becoming less dense (spaced apart from one another)[.] Accordingly, ***the path between the electrodes may heat slower than the areas immediately surrounding the electrodes.***

Id. at 29 (quoting Ex. 1023, 380). Petitioner interprets this passage to mean that the disputed phrase does not mean there is “an absence of energy in body segments between the electrodes.” *Id.* (citing Ex. 1003 ¶ 58); *see also id.* at 29–30 (discussing how areas around positive and negative points have higher current but how areas between the points nevertheless still have current that “may heat slower than the areas immediately surrounding the electrodes”) (citing Ex. 1003 ¶ 59, Ex. 1021, 673, Ex. 1023, 380).

b. Patent Owner's Proposed Construction and Arguments

Patent Owner, on the other hand, submits that “Petitioner[] introduce[s] additional caveats that are not specifically claimed,” in particular, by advocating that the limitation “is satisfied even where an area of the body between adjacent electrodes *is* substantially affected.” Prelim. Resp. 6 (citing Pet. 47 (referring to Petitioner's reliance on Mehta Fig. 13A, even though that illustration shows “zones of thermal coagulation” between each pair of electrodes)). Patent Owner asserts that Petitioner's construction “is inconsistent with the ordinary understanding of the claim language, i.e., a construction that captures the intentional application of energy to body segments between electrodes.” *Id.* at 7.

Patent Owner further asserts that Petitioner incorrectly assumes that the claims “capture all the disclosed embodiments (i.e., FIGs. 5, 7, 8, and 9B).” *Id.* at 6 (quoting Pet. 28). Contrary to Petitioner’s assertion, Patent Owner contends that each of these figures discloses different embodiments. *Id.* at 7. According to Patent Owner, Petitioner should have focused on Figures 2, 5, and 9B, “each of which illustrate embodiments that apply energy to body segments around each electrode rather than to body segments between electrodes.” *Id.* at 8. Patent Owner asserts that the ’379 patent “specifically contrasts an energy field that does not connect or intersect between electrodes, such as in FIG. 2, with the energy fields shown in FIGS. 7 and 8,” where “the energy fields . . . may be expanded and connected in dermis.” *Id.* at 9–10 (citing Ex. 1001, 6:67–7:2).

Finally, Patent Owner argues that nowhere in the prosecution history argument produced by Petitioner is any statement that the overlapping energy embodiments such as in FIGS. 7 and 8 were intended to be covered by the claims at issue. *Id.* at 13. And Patent Owner contends that Petitioner’s expert testimony cannot contradict the clear intrinsic evidence. *Id.* at 14.

c. Analysis

We agree with Patent Owner that Petitioner’s proposed construction is contrary to the plain and ordinary meaning of the claim language and impermissibly attempts to read structure from irrelevant embodiments described in the ’379 patent. *See* Prelim. Resp. 5–7; *see also id.* at 12–13 (explaining that the embodiments of Figures 7 and 8 are different from the embodiment shown in Figure 5, and it is the embodiment shown in Figure 5 that provides subject matter support for the claimed limitation).

The claims recite, “apply energy to body segments around each electrode *rather than* to body segments between the electrodes.” Ex. 1001, 10:56–58 (independent claim 1, emphasis added); *see also id.* at 11:22–25 (independent claim 10). The plain and ordinary meaning of this limitation, as indicated by the phrase “rather than,” precludes applying energy to body segments that extend continuously from one electrode to another electrode. This construction is consistent with the Specification, for example, Figure 5, a copy of which we reproduce below:

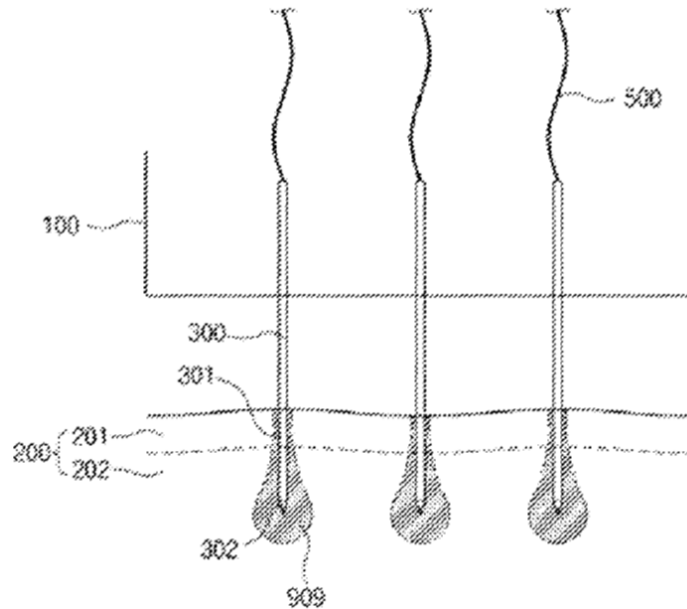


FIGURE 5

As shown in Figure 5 of the '379 patent, energy field 909 occurs around each individual needle 301, without extending from needle-to-needle. *See supra* § II.B (summarizing Figure 5). The Specification describes certain embodiments in which “the temperature is raised about the tip of each needle, *not between needles.*” Ex. 1001, 3:32–33 (emphasis added). We understand that by raising the temperature “about the tip of each needle,”

while not raising temperature “between needles,” the application of energy would only occur “around each electrode rather than . . . between the electrodes,” as recited in the claims. *Id.*

Petitioner proposes that the claim limitation may be satisfied with application of energy that extends between the electrodes, despite the express claim language that precludes application of energy extending continuously from one electrode to another electrode. *See* Pet. 26–27, 47–48 (depicting energy application in red extending continuously between electrodes). It is not clear what, exactly, it means to “minimally affect[] a second area . . . between adjacent electrodes,” as Petitioner proposes (Pet. 22), but if this results in continuous energy application extending from one electrode to another electrode, as Petitioner’s annotated figures illustrate (*see* Pet. 26–27, 47–48), such a construction conflicts with the plain and ordinary meaning of the claims. *Phillips*, 415 F.3d at 1312–17.

Furthermore, even if the Specification describes that “[t]he heat generated by the present invention may minimally affect the adjacent epidermis area” (Ex. 1001, 3:26–28), as Petitioner points out (Pet. 22–23), we disagree with Petitioner’s position that the “area . . . between adjacent electrodes” may nonetheless be “minimally affected” in the claims. Petitioner’s proposed construction presumes that some energy application may occur between the needles if only “minimal.” *See* Pet. 22–23; *see also id.* at 26–27, 47–48 (depicting coagulation (in red) extending continuously between electrodes). Although we read claims in view of the specification, we do not read limitations from these embodiments into the claims. *See Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014) (The Federal Circuit explaining that “[w]hile we read claims in view

of the specification, of which they are a part, we do not read limitations from the embodiments in the specification into the claims.”).

Moreover, Petitioner relies on embodiments of the ’379 patent (specifically, Figures 7 and 8) that are different from the embodiment that provides support for the claim limitation, namely, Figure 5. *See* Prelim. Resp. 12–13 (pointing out the same). As shown in Figure 5 of the ’379 patent (*see supra* § II.B), energy application does not extend continuously between electrodes. The Specification explains that in an embodiment, the electrodes are separated sufficiently to avoid connecting the energy fields between each needle, whereas in *another* embodiment such connection is permissible:

In an embodiment needles 301 (FIG. 2) may not be located close proximity because if the distance between electrodes or needles is too close, the energy field and the heated area generated by the applied energy field about each needle may be connected or intersect. *In another embodiment* the energy fields (generating heated areas in dermis) may be expanded and connected in dermis, but not in epidermis as shown in FIGS. 7 and 8.

Ex. 1001, 5:62–6:2.

We also find Petitioner’s reliance on the prosecution history of the parent ’836 patent inapposite because Petitioner quotes it selectively. We reproduce a portion of Petitioner’s quotation from the prosecution arguments below, including the sentence that immediately follows those arguments:

Concentration of the electron current may be highest in the area immediately surrounding each electrode causing areas around each electrode to be heated more. Electrons have more space to travel through in the path between the electrodes, becoming less dense (spaced apart from one another)[.] Accordingly, the path between the electrodes may heat slower than the areas immediately surrounding the electrodes. Then the current will

alternate, and the process start over again, *preventing or limiting the heating between electrodes*.

Ex. 1023, 380 (emphasis added); *see* Pet. 29. Petitioner omitted the last sentence of the above quotation, which clarifies that heating between electrodes may be prevented. *See* Pet. 29. This omitted sentence undercuts Petitioner’s interpretation that “‘apply[ing] energy to body segments around each electrode rather than to body segments between the electrodes’ is not an absence of energy in body segments between the electrodes.” *See id.* (citing Ex. 1003 ¶ 58).

Accordingly, we construe “apply energy to body segments around each electrode rather than to body segments between the electrodes” to mean that energy application occurs around each electrode without such energy application fully extending from one electrode to another electrode. In other words, the energy application must be configured such that energy application between electrodes does not extend continuously between the electrodes.

2. *Remaining Terms*

Based on our review of the preliminary record, we determine that no further terms require construction at this stage. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms that are in controversy, and only to the extent necessary to resolve the controversy.”) (internal quotation omitted).

D. Asserted Obviousness over Mehta and Mulholland (Ground 1)

Petitioner contends that claims 1–18 would have been obvious over Mehta and Mulholland. Pet. 31–66. For the reasons that follow, Petitioner has not established a reasonable likelihood of prevailing on this ground.

1. Overview of Mehta

Mehta describes “a system and method for percutaneous energy delivery in an effective[] manner using one or more probes.” Ex. 1005, code (57). We reproduce Figure 2A of Mehta, below:

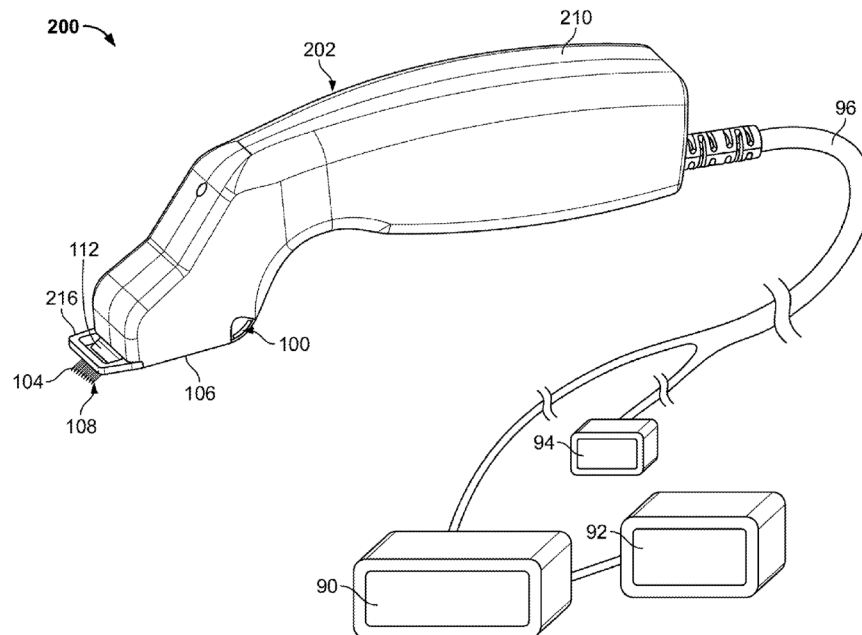


FIG. 2A

Figure 2A “shows a sample variation of a system according to the principles of the invention having probes configured to provide percutaneous energy delivery.” *Id.* ¶ 41. Specifically, Figure 2A depicts treatment system 200 including treatment unit 202 having device body 210. *Id.* ¶ 87. Probes 104 are arranged in array 108 and coupled to body 210 via removable cartridge 100. *Id.* Mehta discloses that

The term probes 104 (for purposes of this disclosure) is intended to include any electrode, energy transfer element (e.g., thermal, electrical, electromagnetic, microwave, mechanical, ultrasound, light, radiation, monopolar RF, bipolar RF, chemical, radioactive, etc.), or source of therapeutic treatment. For sake of convenience, the term probe shall be used to refer to any electrode, energy transfer element or source of therapeutic treatment unless specifically noted otherwise.

Id. Mehta further discloses that “the length of the probes 104 is generally selected so that the energy delivery occurs in the dermis layer of the skin 10 while the spacing of probes 104 may be selected to minimize delivery of energy between adjacent pairs of probes or to minimize energy to certain areas of tissue.” *Id.* ¶ 91.

2. *Overview of Mulholland*

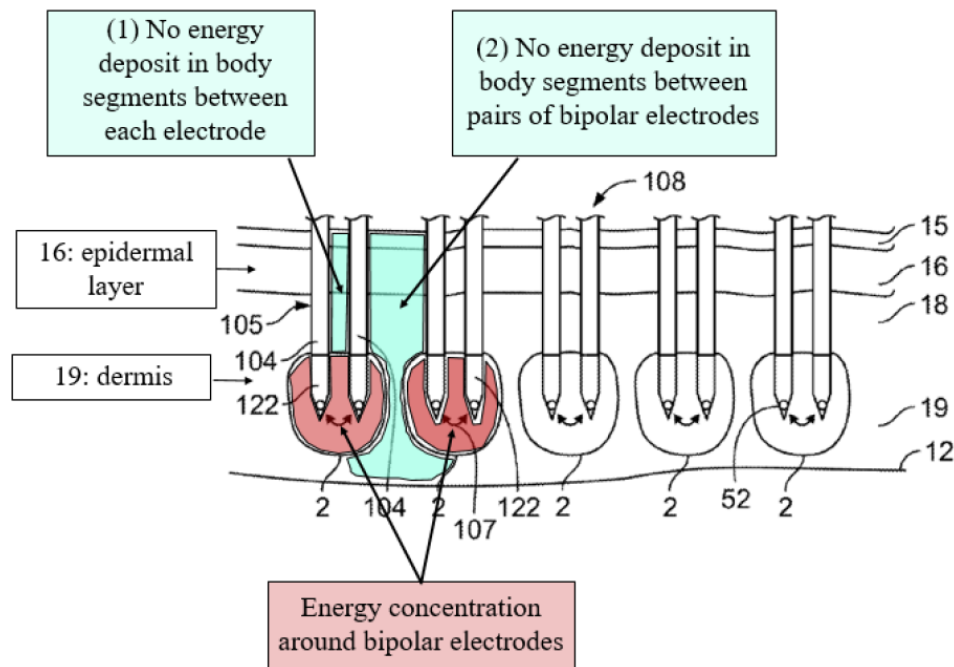
Mulholland describes a needle-based device and related procedure for inducing mechanical trauma to an area of the skin to be treated. Ex. 1016, code (57). The device may use “AC out of the wall power source” and an “RF feature . . . to heat the needle.” *Id.* ¶ 32.

3. *Independent Claims 1 and 10*

- a. *“apply energy to body segments around each electrode rather than to body segments between the electrodes”*

We need only address the recitation, “apply energy to body segments around each electrode rather than to body segments between the electrodes,” because it is dispositive of this ground. Because this recitation is identical in independent claims 1 and 10, we address both claims together.

Petitioner contends that Mehta discloses the limitation, providing annotated versions of Mehta’s Figures 13A and 13B. *See* Pet. 47, 49. We reproduce a copy of Petitioner’s annotated version of Mehta’s Figure 13A below:



Id. at 47. Figure 13A shows an example of a series of discrete focal lesions created in a reticular dermis. Ex. 1005 ¶ 71. Petitioner annotates Figure 13A to illustrate: (1) where “No energy deposit in body segments between each electrode” (shown in green); where (2) “No energy deposit in body segments between pairs of bipolar electrodes” (also shown in green); and (3) where “Energy concentration around bipolar electrodes,” (shown in red). Pet. 47.

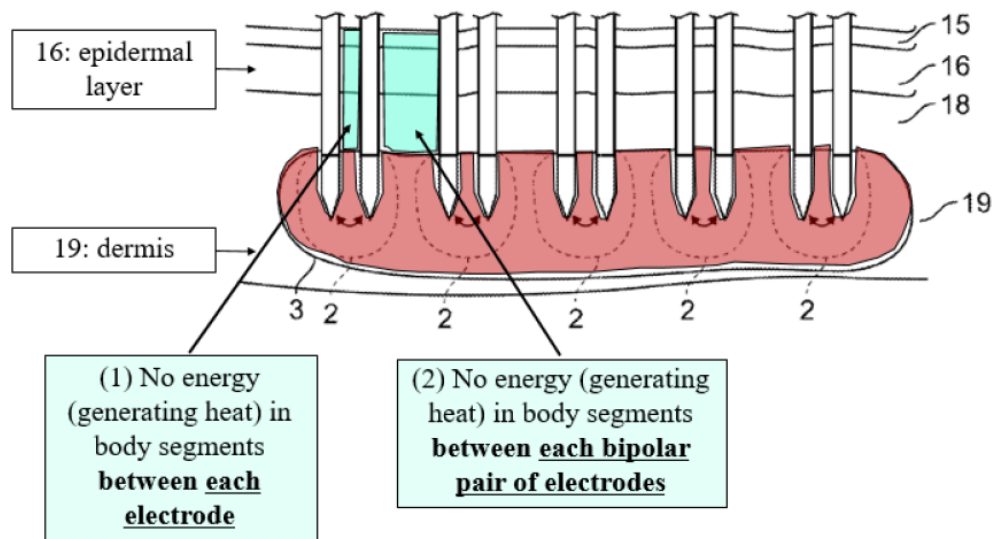
Petitioner submits that Figure 13A of Mehta, above, discloses the “apply energy” limitation as follows:

Therefore, as shown above, Mehta applies energy around each electrode (105) to certain areas of the body segment (2) shown in red. . . . In Mehta, the energy concentration is limited to only portions of the dermis (19) without impacting the epidermis layer (16). . . . And while applying energy to portions of body segments around the electrodes, Mehta also *omits* applying *any* energy to portions of the body segments, as shown in green, between each electrode. . . . Such areas include both the dermis and epidermis between each electrode *and* between each pair[]

of electrodes. Therefore, Mehta meets the claimed limitation
....

Id. at 47–48 (citing Ex. 1003 ¶ 126).

Petitioner further submits an annotated versions of Mehta’s Figure 13B to illustrate how Mehta discloses the “apply energy” limitation. *See id.* at 49. We reproduce Petitioner’s annotated version of Mehta’s Figure 13B below:



Id. Mehta’s Figure 13B “shows the discrete focal lesions increasing in a width of the rectangular dermis layer without damaging adjacent tissue.” Ex. 1005 ¶ 72. Petitioner annotates Figure 13B to illustrate: (1) “No energy (generating heat) in body segments **between each electrode**” (shown in green); and (2) “No energy (generating heat) in body segments **between each bipolar pair of electrodes**” (also shown in green). Pet. 49 (emphasis omitted).

Petitioner further submits annotated versions of Figures 7 and 8 of the ’379 patent to illustrate how Mehta’s electrodes are similar to the electrodes described in the ’379 patent. *See id.* at 48, 50. Figure 7 is reproduced

above, and Figure 8 is similar. *See supra* § II.B; Ex. 1001, Fig. 8. Based on the similarities between Figures 7 and 8 of the '379 patent and Figures 13A and 13B of Mehta, Petitioner submits that “Mehta’s FIGs. 13A and 13B correspond directly to the '379 patents’ FIGs. 7 and 8 . . . [a]nd both FIGs. 7 and 8, according to the '379 patent, are within the claimed scope.” Pet. 50 (citing Ex. 1001, 3:16–17, 7:1–14; Ex. 1003 ¶ 129).

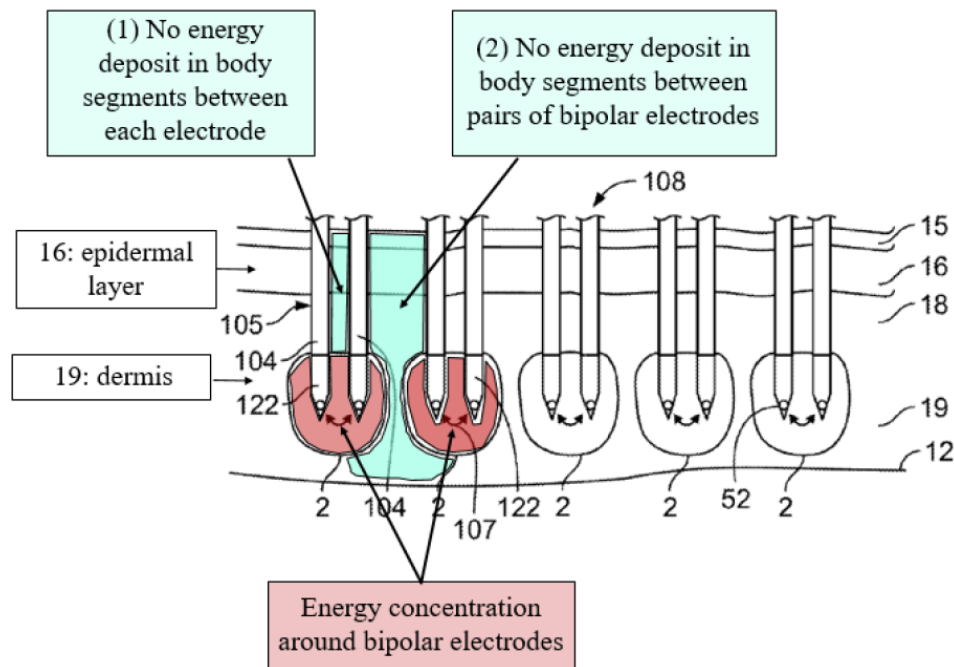
Patent Owner argues that Mehta does not disclose “apply[ing] energy to body segments around each electrode *rather than to body segments between the electrodes*.” Prelim. Resp. 16–21 (emphasis added). Patent Owner contends that the proper construction of this phrase “does not include directed application of energy to and focused heating of body segments between the electrodes such that the heated areas connect or intersect.” *Id.* at 17. Patent Owner further asserts that in Petitioner’s own annotated version of Mehta’s Figure 13A, “Petitioner[] concede[s] that there is energy concentration around the bipolar electrodes, including *between those electrode pairs*, that results in fractional lesions 2 between each electrode-pair.” *Id.* at 18. Referencing Mehta’s Figure 13A, as annotated by Petitioner, Patent Owner submits that the “red zone clearly [indicates] the body segments between electrode pairs, as shown above, and is plainly distinct from the claim language at issue.” *Id.* Patent Owner further contends that “Mehta’s focused and intentional direction of energy to body segments between adjacent electrodes does not teach the claimed feature of applying energy ‘to body segments around each electrode *rather than to body segments between the electrodes*.’” *Id.* at 18.

Turning to our analysis, we agree with Patent Owner that Petitioner’s own annotated Figures (that is, Mehta’s Figures 13A and 13B) depict energy

application that extends continuously between electrodes. As explained above, we construe “apply energy to body segments around each electrode rather than to body segments between the electrodes” to mean that energy application occurs around each electrode without such energy application fully extending from one electrode to another electrode. In other words, the energy application must be configured such that energy application between electrodes does not extend continuously between the electrodes.

Instead, Mehta discloses, and Figures 13A and 13B depict, fractional lesions 2 that *extend continuously between pairs of electrode probes 105*. See Mehta ¶ 241 (referencing Figure 13A); *see also id.* ¶ 242 (referencing Figure 13B). Mehta discloses that Figures 13A and 13B “show[] an example illustration of an array of probes 108 comprising five electrode pairs 105 inserted into a reticular dermis layer 19 to create a series of discrete fractional lesions 2 leaving tissue in the adjacent epidermal layer 16 and subcutaneous layer 12 undamaged.” *Id.* ¶ 241; *see also id.* ¶ 242. Mehta explains that “[t]his is accomplished by passing current 107 between adjacent electrodes 104 of opposite polarity in the electrode pair.” *Id.* ¶ 241.

We refer again to Petitioner’s annotated copy of Mehta Figure 13A, below:



As we noted above, Mehta’s Figure 13A above depicts energy application by five bipolar electrodes. Pet. 47; Ex. 1005 ¶¶ 173, 243. Petitioner’s annotation (1) asserts that no energy is deposited in body segments between each electrode, and depicts a green highlighted section between the first pair of bipolar electrodes. Pet. 47. This annotation is unpersuasive because below it in red, energy concentration is shown between that electrode pair. Consequently, energy is applied to body segments between those electrodes, so it is not the case that energy is applied around each of those electrodes “rather than”—i.e., instead of—“body segments between the electrodes.”

With annotation (2) in Figure 13A, Petitioner asserts that no energy is deposited between pairs of bipolar electrodes. *See id.* (“Mehta also *omits* applying *any* energy to portions of the body segments, as shown in green, between each electrode . . . [t]herefore, Mehta meets the claimed limitation”). But Petitioner does not assert that adjacent electrodes from separate bipolar pairs are themselves bipolar, and we can find no teaching in

Mehta that this is the case. *See, e.g.*, Ex. 1005 ¶¶ 87 (generically describing “bipolar RF”), 173 (generically describing “5 bi-polar pairs”), 236 (generically referring to a “bipolar RF electrode device . . . configured with 5 pairs of 30 gauge electrodes”). As both claims 1 and 10 require “the electrodes being bipolar” and “apply[ing] energy . . . around each electrode rather than to body segments between *the* electrodes,” Petitioner does not persuasively show a reasonable likelihood that the area between Mehta’s separate pairs of bipolar electrodes discloses the claim limitations.

Petitioner’s application of Mehta’s Figure 13B has similar defects, if not greater, as the area of energy application extends continuously around all 5 pairs of electrodes. *See* Pet. 49; Ex. 1005 ¶ 253 (describing Figure 13B’s “joined fractional lesions”). Finally, as for Petitioner’s attempt to analogize Figures 7 and 8 of the ’379 patent with Figures 13A and 13B of Mehta (*see* Pet. 34–35), we again disagree. As we explained above, subject matter support for claims 1 and 10 relies on the embodiment of Figure 5 of the ’379 patent, not Figures 7 and 8. *See supra* § III.C (Claim Construction).

Because Mehta discloses and depicts fractional lesions (that is, coagulation) extending from one electrode to another electrode in a bipolar pair—or continuously between the electrodes—Petitioner has not shown a reasonable likelihood that Mehta discloses or suggests a “apply energy to body segments around each electrode rather than to body segments between the electrodes.” As we agree with Patent Owner’s above argument, we need not address Patent Owner’s remaining arguments for this ground.

b. Summary as to Claims 1 and 10

Based on the preliminary record before us, we find that Petitioner has not shown a reasonable likelihood that the combination of Mehta and Mulholland would have rendered claim 1 or 10 obvious.

4. Dependent Claims

Petitioner contends that dependent claim 2–9 and 11–18 would have been obvious over the combination of Mehta and Mulholland. Pet. 55–66. Because Petitioner has not met its institution burden on independent claims 1 and 10, we determine that Petitioner has also not demonstrated a reasonable likelihood that the combination of Mehta and Mulholland would have rendered obvious dependent claims 2–9 and 11–18.

E. Asserted Obviousness over the INTRAcel Video and Mulholland (Ground 2)

Petitioner contends that claims 1–18 also would have been obvious over the INTRAcel Video and Mulholland. Pet. 66–95. For the reasons that follow, Petitioner has also not established a reasonable likelihood of prevailing on this ground.

1. Overview of the INTRAcel Video (or “the Video”)

The INTRAcel Video is a 13 minute, 54 second, video with audio narration that describes the INTRAcel RF Micro-needling workstation (“INTRAcel device”) for treating skin. Ex. 1006. Below is a screen capture from the video, depicting the INTRAcel device:

Insulated micro-needle Fractional Radiofrequency



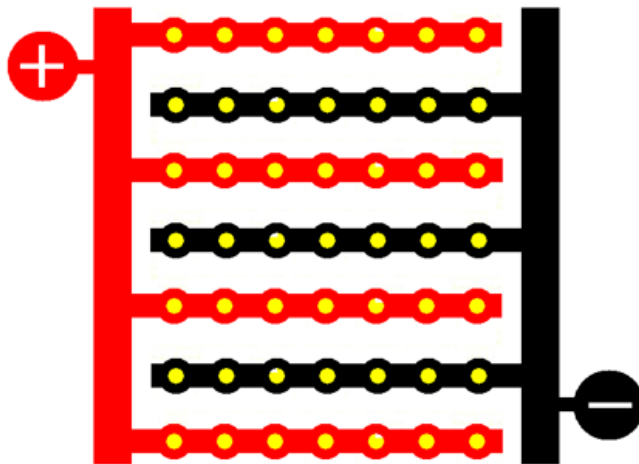
Id. at 0:11–0:19; Pet. 14–15. As shown in the above screen capture and described by audio narration in reference to the above screen capture, the INTRAcel device includes a handheld module with an array of microneedles. Ex. 1006, 0:11–0:19; Pet. 14–15. The INTRAcel device can operate in different modes as shown in the following screen capture, annotated by Petitioner:

Specification

Applied Energy	RF (Radio Frequency)-1Mhz
Output Power	Mono-polar : up to 700W (Peak power & 200Ω) Bi-polar : up to 700W (Peak power & 200Ω)
Spot Size (Treated Area)	1cm X 1cm / 0.2cm X 0.2cm
Disposable tip matrix	49 electrode needles 4 electrode needles 7 electrode needles

Ex. 1006, 0:28; Pet. 16. In the above screen capture, “Output Power” is depicted as being “Mono-polar” or “Bi-polar.” Ex. 1006, 0:28.

The following screen capture from the video depicts an RF circuit diagram for the microneedles:



Id. at 0:33–0:45; Pet. 71–72. According to the Video’s audio narration, the above diagram shows an arrangement of needles used to achieve the bipolar mode. Ex. 1006, 0:33–0:45; Pet. 71–72.

Petitioner submits that the INTRAcel Video “is a true and correct copy of the INTRAcel Video extracted from YouTube®.” Pet. 5. Petitioner further submits “a Certificate of Authenticity from a Custodian of Records at Google LLC attesting that the records relating to INTRAcel Video (EX1006) are true and correct copies and confirm that INTRAcel Video was published and publicly available on April 8, 2011.” *Id.* (referencing Ex. 1007-002). Petitioner further submits, “as explained by YouTube support website, the date listed under the video is the date it was published and the ‘the video is made available for anyone to watch.’” *Id.*

Petitioner contends that “a POSA would generally turn to YouTube® to search on-line video content such as INTRAcel Video Accordingly, INTRAcel Video is a printed publication and prior art to the ’379 patent.” *Id.* at 6.

2. Independent Claims 1 and 10

a. Printed Publication

Patent Owner argues that Petitioner “can only raise challenges ‘on the basis of prior art consisting of patents or printed publications.’” *See* Prelim. Resp. 28–29 (referencing 35 U.S.C. § 311(b)). Specifically, Patent Owner explains that Petitioner relies on “statements about the INTRAcel Device’s capabilities not expressly disclosed in the Intracel Video,” and that these statements are irrelevant and should be disregarded. *See id.* at 29.

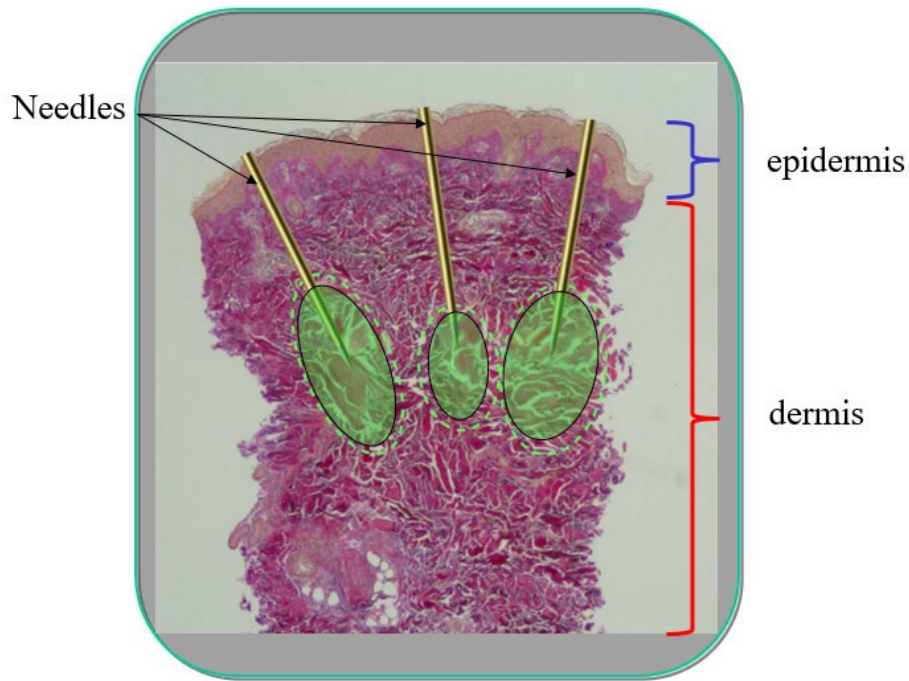
We agree with Patent Owner. The INTRAcel Device, as well as any statements about the device not disclosed in the prior art, fall outside the

scope of our review, as they do not qualify as a “printed publication” under 35 U.S.C. § 311(b). Although Patent Owner argues that Petitioner “impermissibly focused on details of the INTRAcel Device, rather than on permissible prior art under the law” (Prelim. Resp. 29), Patent Owner does not dispute that the INTRAcel Video itself is a printed publication.⁶ We therefore confine our discussion of Petitioner’s arguments to those based on the prior art, including the INTRAcel Video, and do not address any of Petitioner’s comments on the INTRAcel Device apart from the prior art.

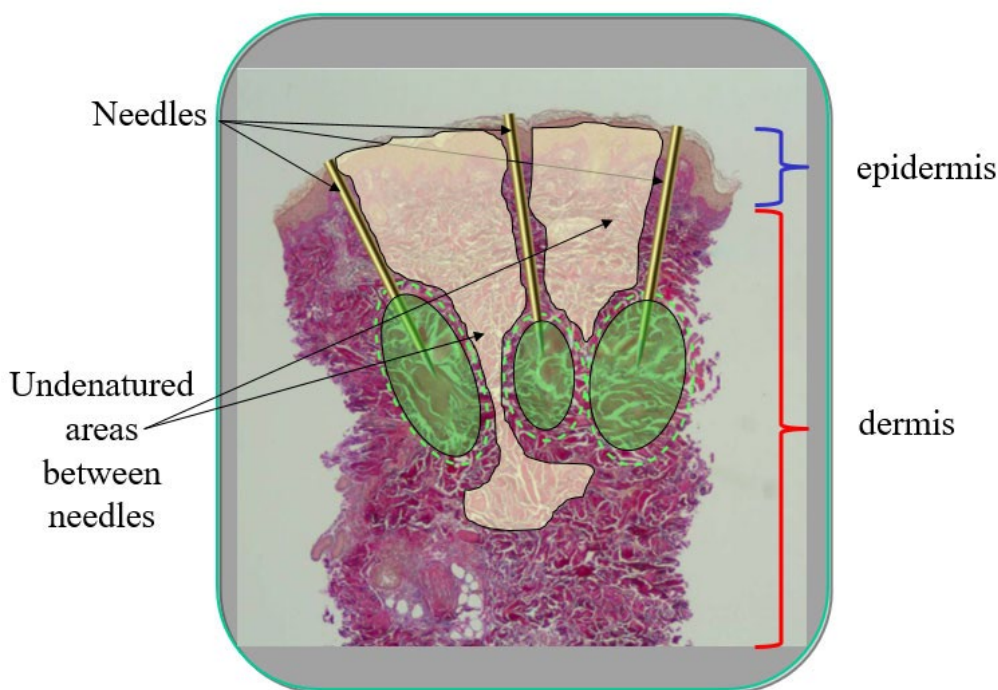
b. “apply energy to body segments around each electrode rather than to body segments between the electrodes”

Petitioner contends that the INTRAcel Video discloses or suggests this limitation. *See* Pet. 84–85. Petitioner relies on “histology results” shown in the INTRAcel Video, a screen capture of which we reproduce below (as annotated by Petitioner):

⁶ As the parties do not dispute that the INTRAcel Video is a printed publication, and as we deny on the merits, we find it unnecessary to address the issue raised in the concurrence regarding whether the INTRAcel Video is a printed publication.



Id. at 83–84 (citing Ex. 1006, 6:22–30). The above screen capture depicts, according to Petitioner, where microneedles penetrate the skin and emit RF energy from the tip of the needles, as well as denatured areas indicated by dotted lines. *Id.* at 84. Petitioner’s annotations include green shading and labeling of the needles (yellow), epidermis, and dermis. *Id.* Petitioner provides a further annotated version of this same screen capture, shown below:



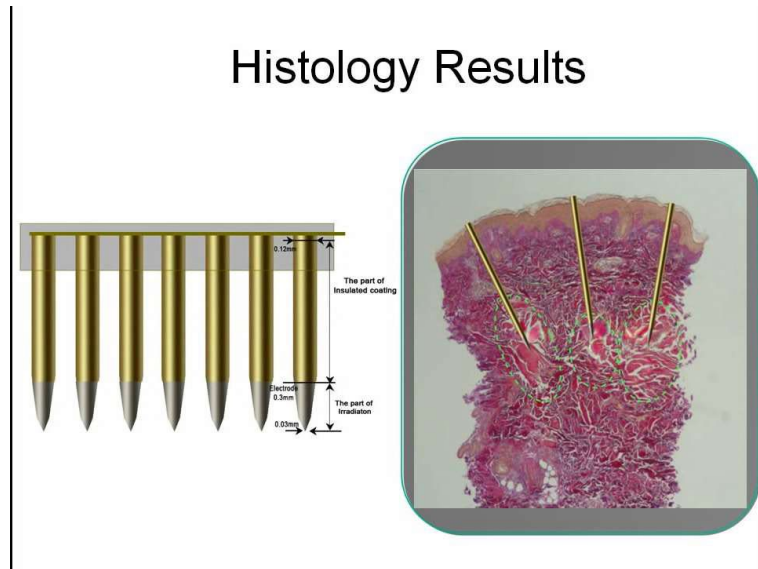
Id. at 85 (citing Ex. 1006, 6:22–30). In the above screen capture, Petitioner has added further shading to depict areas where the epidermis and dermis allegedly remain undamaged. *Id.* at 84–85. Petitioner asserts,

Therefore, a POSA would understand from INTRAcel Video that the body segments immediately around the electrodes were subject to the concentration of energy. But the area between the needles represented by yellow shading are not impacted, and therefore no denaturation occurs in those areas. . . . Accordingly, INTRAcel Video discloses configuring the RF generation module to provide an RF signal to the plurality of electrodes to “apply energy to body segments around each electrode rather than to body segments between the electrodes.”

Id. at 85 (citing Ex. 1003 ¶ 206).

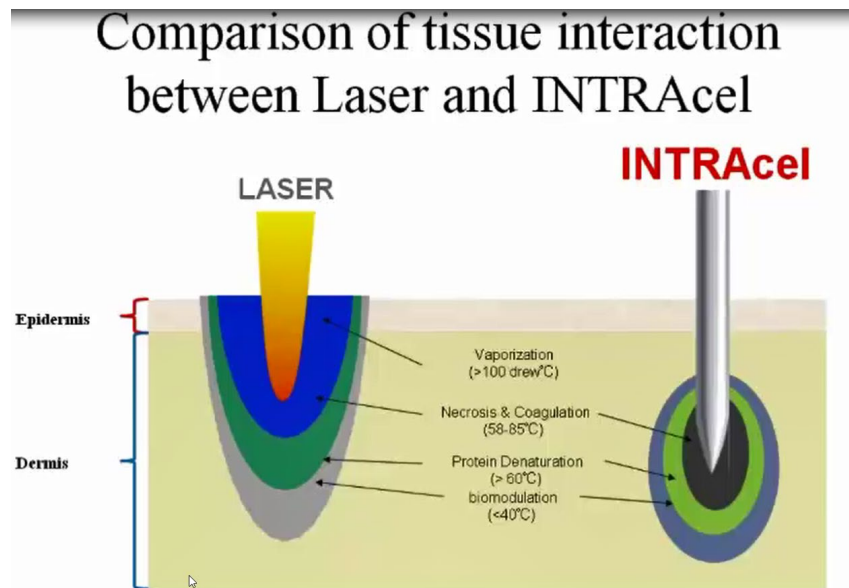
Patent Owner describes the histology report screen capture above as “ambiguous.” Prelim. Resp. 33. According to Patent Owner, “the Intracel Video does not explain how this cross-section was obtained, and along which lines of electrodes the cross-section was allegedly captured.” *Id.* at 33–34. “Specifically,” Patent Owner argues, “the Intracel Video fails to

disclose whether this image captures electrodes of common polarity, electrodes of different polarities, or even electrodes that are not directly adjacent to each other.” *Id.* at 34. Adding to this uncertainty, Patent Owner argues, Petitioner only includes a portion of the video’s screenshot. *Id.* Patent Owner reproduces the full screenshot as follows:



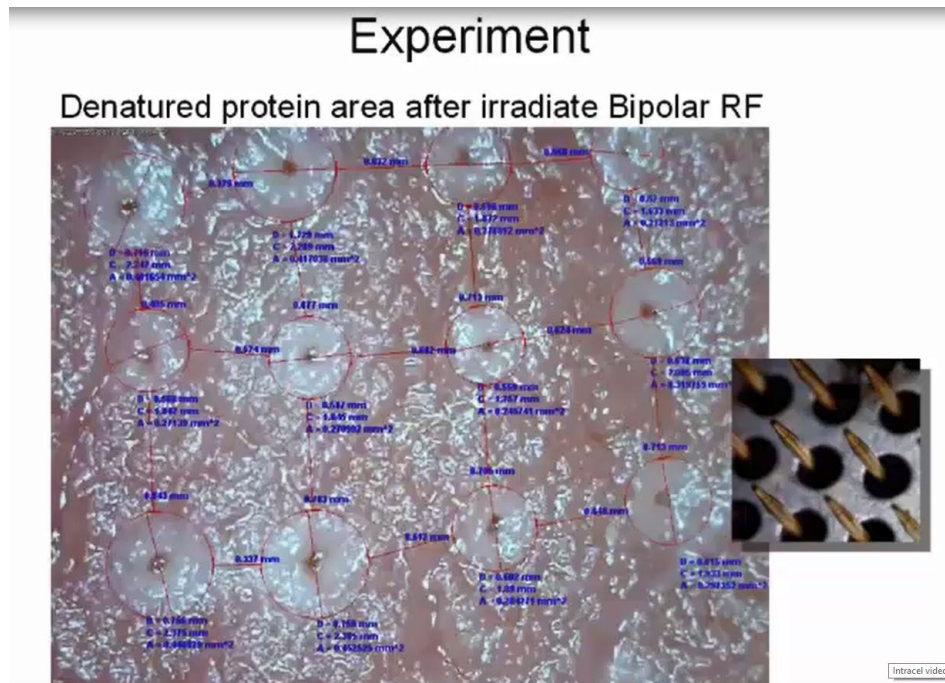
Id. (citing Ex. 1006, 6:22–6:30). In the above screenshot, Patent Owner explains, an array of electrodes is shown on the left “that are closely arranged and parallel to each other,” whereas “in the image on the right, electrodes are not parallel to each other, and are clearly spaced farther apart.” *Id.* (citing Ex. 1006, 6:22–6:30, 0:16–0:20 (illustrating a 49-needle tip matrix)).

Not only that, but Patent Owner asserts that Petitioner overlooks other aspects of the INTRAcel Video that illustrate a zone of biomodulation in the dermis, outside the denatured areas. *Id.* at 35 (citing Ex. 1006, 2:49–3:46). A screen capture of this zone is shown below:

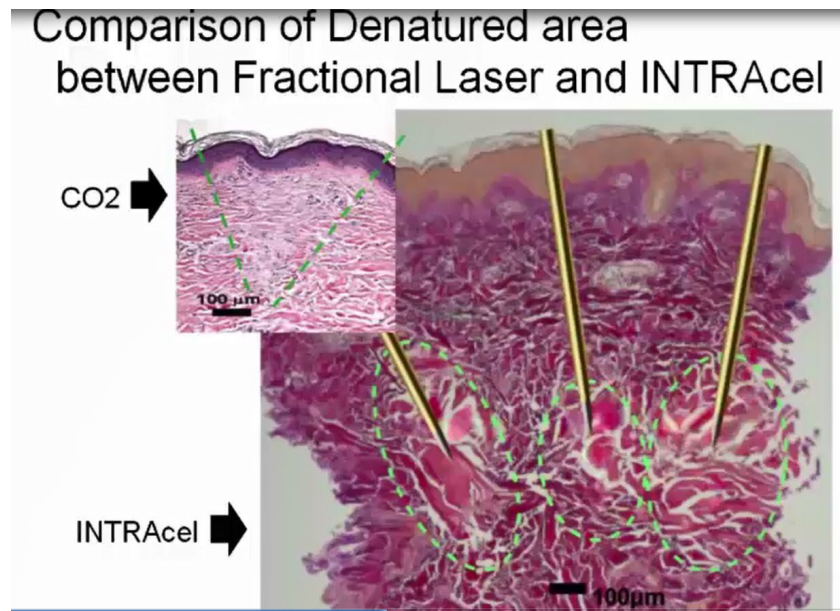


E.g., Ex. 1006, 3:45. The above screen capture compares a laser’s biomodulation zone with the INTRAcet’s biomodulation zone. *See id.* Patent Owner faults Petitioner and its expert for providing “absolutely no analysis directed to this biomodulation zone, how large the biomodulation zone is, or why they assert that this biomodulation zone can be disregarded when evaluating the claimed applying energy ‘to body segments around each electrode rather than to body segments between the electrodes.’” Prelim. Resp. 35. In Patent Owner’s view, “Ppetitioner[’s] decision to overlook these aspects of the Intracel Video in favor of self-serving annotations of the denatured area is faulty.” *Id.* at 36.

We agree with Patent Owner. The INTRAcet Video does not disclose whether the “histology results” screen capture was taken using electrodes in monopolar or bipolar mode. *See* Ex. 1006, 6:22–6:30. Petitioner does not persuasively explain that the histology results were taken using bipolar mode. Instead, Petitioner merely asserts that “[t]his picture is *after bipolar irradiation.*” Pet. 83. The problem with this argument is that the “picture” Petitioner refers to is different from the histology results picture:



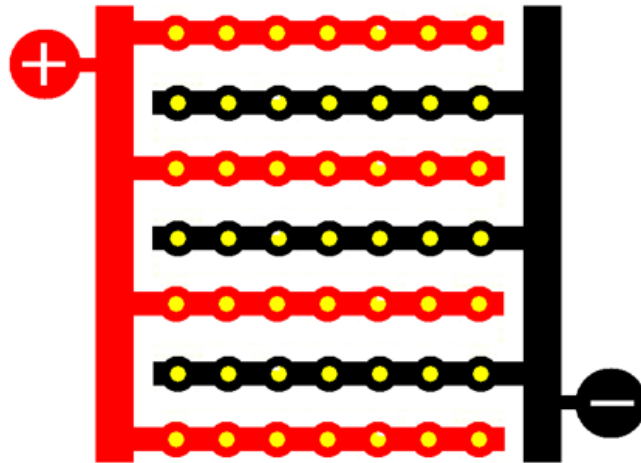
Id. (citing Ex. 1006, 5:14–5:18). The above screen capture depicts an experiment showing a denatured protein area after irradiation by bipolar RF energy. Ex. 1006, 5:14–5:18. While it is possible that the above image is related to the histology results upon which Petitioner relies, Petitioner does not persuasively explain how the INTRAcEL Video links the two images. In fact, the first time the video shows histology results happens a few images *after* the preceding “bipolar” irradiated image, as follows:



Id. at 5:53. According to the video, the above picture “shows the difference in changes between CO2 fractional laser and the INTRAcel.” *Id.* at 5:53–6:10. The Video does not mention which RF mode was applied for this image (whether monopolar or bipolar). The same is true for the histology results image relied on by Petitioner—the video does not state which RF mode was applied to obtain those results. Nor does Petitioner assert that one of ordinary skill in the art would have understood these images to have been obtained with bipolar energy or that it would have been obvious to have done so. *See* Pet. 83–85.

Yet even if the histology results were obtained using bipolar energy, Petitioner’s argument has another defect. As Patent Owner persuasively explains, “the Intracel Video does not explain how this cross-section was obtained, and along which lines of electrodes the cross-section was allegedly captured.” Prelim. Resp. 33–34. “Specifically,” Patent Owner argues, “the Intracel Video fails to disclose whether this image captures electrodes of common polarity, electrodes of different polarities, or even electrodes that

are not directly adjacent to each other.” *Id.* at 34. We reproduce again the RF circuit diagram from the INTRAcel video below:



Ex. 1006, 0:33–0:45. As we noted above, this diagram shows the arrangement of the needles to achieve bipolar mode. *Id.* at 0:33–0:45; *see* Pet. 71–72 (reproducing the same). The needles shown in the histology report could have been a horizontal cross section or a vertical cross section of needles in the above circuit diagram—but the INTRAcel video and Petitioner do not fully address this point. Claims 1 and 10 require “the electrodes being bipolar” and “apply[ing] energy . . . around each electrode rather than to body segments between *the* electrodes,” yet Petitioner does not persuasively explain how the INTRAcel Video’s needles satisfy these limitations.

Lastly, we agree with Patent Owner that Petitioner provides “absolutely no analysis directed to [the INTRAcel Video’s] biomodulation zone, how large the biomodulation zone is, or why . . . this biomodulation zone can be disregarded when evaluating the claimed applying energy ‘to body segments around each electrode rather than to body segments between the electrodes.’” Prelim. Resp. 35. Again, Petitioner’s analysis is lacking,

and the INTRAcel Video itself is not sufficiently detailed to support Petitioner's arguments.

For all these reasons, Petitioner has not shown a reasonable likelihood that the INTRAcel Video discloses "apply energy to body segments around each electrode rather than to body segments between the electrodes." As we agree with Patent Owner's above arguments, we need not address Patent Owner's remaining arguments on this ground.

a. Summary as to Claims 1 and 10

Based on the preliminary record before us, we find that Petitioner has not shown a reasonable likelihood that the combination of the INTRAcel Video and Mulholland would have rendered claim 1 obvious.

3. Dependent Claims

Petitioner contends that dependent claim 2–9 and 11–18 would have been obvious over the combination of the INTRAcel Video and Mulholland. Pet. 86–95. Because Petitioner has not met its institution burden on independent claims 1 and 10, we determine that Petitioner has also not demonstrated a reasonable likelihood that the combination of the INTRAcel Video and Mulholland would have rendered obvious dependent claims 2–9 and 11–18.

IV. CONCLUSION

As Petitioner has not met its burden to show a reasonable likelihood that it would prevail with respect to at least one of the challenged claims, we do not institute *inter partes* review.⁷

⁷ We also do not reach Patent Owner's arguments under 35 U.S.C. § 325(d) because we deny institution on the merits. *See* Prelim. Resp. 41–42.

V. ORDER

It is, therefore,

ORDERED that the Petition is *denied* as to the grounds and all challenged claims of the '379 patent.

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CARTESSA AESTHETICS, LLC and
AESTHETICS BIOMEDICAL, INC.,
Petitioner,

v.

SERENDIA, LLC,
Patent Owner.

IPR2022-00593
Patent 10,058,379 B2

Before CARL M. DeFRANCO, MICHAEL L. WOODS, and SCOTT
RAEVSKY, *Administrative Patent Judges*.

DeFRANCO, *Administrative Patent Judge*, concurring.

I concur with the majority’s decision denying institution of *inter partes* review. I write separately only to address the issue of whether the INTRAcel Video qualifies as a “printed publication” within the scope of our review under 35 U.S.C. § 311(b). The majority “find[s] it unnecessary to address the issue” because “Patent Owner does not dispute that the INTRAcel Video itself is a printed publication.” *See* Majority Op. 29, n.6. I am not so sure that is the case. For instance, in alleging that “Petitioners

do not limit the scope of their challenge to the categories—patents and printed publications—allowed under the law,” Patent Owner contends that “the Petition’s sections V.B.1 *and* V.B.2, respectively entitled ‘Background on the INTRAcel Device’ *and* ‘The INTRAcel Video’ . . . *are* irrelevant to permissible challenges in IPRs and should be disregarded.” Prelim. Resp. 28–29 (emphases added). Those statements, at the very least, indicate Patent Owner’s unease with Petitioner’s reliance on the Video as a basis for challenging the claims. So, to dispel any doubt, I would find expressly that the Video, including its text, images, and audio, qualifies as a “printed publication” within the scope of our review.

At the outset, I note that Patent Owner does not dispute Petitioner’s proof that the Video was *published*, i.e., disseminated and sufficiently accessible to the public interested in the art before the critical date of the challenged patent. *See* Majority Op. 28 (discussing Petitioner’s proof). Thus, it appears Patent Owner’s sole concern is that the Video is not a *printed* publication. I submit that legal precedent clearly holds it is.

To that end, our reviewing court and this Board repeatedly point to the case of *In re Wyer*, 655 F.2d 221 (CCPA 1981) for the proposition that a video is a “printed publication” so long as it is publicly accessible. There, the court explained that

“printed publication” should be approached as a unitary concept. *The traditional dichotomy between “printed” and “publication” is no longer valid.* Given the state of technology in document duplication, data storage, and data retrieval systems, the “probability of dissemination” of an item very often has little to do with whether or not it is “printed” in the sense of that word when it was introduced into the patent statutes in 1836. . . .

[T]he printed publication provision was designed to prevent withdrawal by an inventor, as the subject matter of a patent, of that which was already in the possession of the public. Thus, the question to be examined under [the statute] is the accessibility to at least the pertinent part of the public, of a perceptible description of the invention, *in whatever form it may have been recorded*.

Id. at 226 (emphases added). In other words, accessibility to the relevant public is the “criterion” by which a prior art reference is judged when resolving the “printed publication” inquiry, *not* whether the reference is “printed” in the word’s strictest sense. *See In re Klopfenstein*, 380 F.3d 1345, 1350 n.2 (Fed. Cir. 2004).

Indeed, that “printed publication” under the statute is interpreted broadly to encompass videos is nothing new. *See, e.g., Medtronic, Inc. v. Barry*, 891 F.3d 1368, 1379–83 (Fed. Cir. 2018) (vacating Board’s decision for failing to consider all relevant factors in determining whether video demonstration and related slide presentation were publicly accessible); *Jazz Pharm., Inc. v. Amneal Pharm., LLC*, 895 F.3d 1347, 1352, 1354–60 (Fed. Cir. 2018) (addressing public accessibility of “video” of FDA advisory committee meeting); *Acco Brands Corp. v. Think Prods., Inc.*, 2015 WL 6232937, *7 (PTAB Oct. 21, 2015) (finding that “product video” published on website qualifies as “printed publication”); *Intex Recreation Corp. v. Bestway Inflatables & Material Corp.*, 2017 WL 2312915, *10 (PTAB May 26, 2017) (holding challenged claims unpatentable as obvious “over the Intex Video and Blomquist”); *MerchSource, LLC v. DODOCase VR, Inc.*, 2018 WL 4043241, *8 (PTAB Aug. 22, 2018) (instituting review of challenged claims based on “YouTube Video”); *Ex Parte Mettke*, 2008 WL 4448201, *6 (PTAB Sept. 30, 2008) (finding “video tape” qualifies as

“printed publication” under the statute because “the key . . . is the ‘probability of dissemination’ rather than form”).

Those cases show that the term “printed” as used in the statute no longer takes on an overly-narrow and outdated meaning of being produced by mechanical means involving the transfer of text or images to paper. Thus, contrary to what Patent Owner might think, so long as the INTRAcel Video was publicly accessible, which it was, it qualifies as “printed publication” within the scope of our review under § 311(b).