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United States District Court  
Northern District of California

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA  
SAN JOSE DIVISION

APPLIED MATERIALS, INC.,  
Plaintiff,  
v.  
DEMARAY LLC,  
Defendant.

Case No. [5:20-cv-09341-EJD](#)

**ORDER GRANTING IN PART AND DENYING IN PART MOTION FOR SUMMARY JUDGMENT OF NON-INFRINGEMENT**

Re: ECF No. 204

Plaintiff, Applied Materials, Inc., (“Applied”), brought this suit against Defendant, Demaray LLC (“Demaray”), seeking a declaration of non-infringement of U.S. Patent Nos. 7,381,657 and 7,544,276 (collectively, “Patents-in-Suit”). Compl., ECF No. 1. Demaray countersued for a declaration of validity and infringement of the Patents-in-Suit, and Applied brought a counterclaim for a declaration of invalidity for the same Patents-in-Suit. ECF Nos. 174, 180. Before the Court is Applied’s motion for summary judgment of non-infringement. Pl.’s Mot. for Summ. J. (MSJ”), ECF No. 204. Demaray filed an opposition and sur-reply, and Applied filed a reply. Def.’s Opp’n to MSJ (“Opp’n”), ECF No. 255; Pl.’s Reply in Supp. of MSJ (“Reply”), ECF No. 274; Def.’s Sur-Reply to MSJ (“Sur-Reply”), ECF No. 289.

Having carefully reviewed the relevant documents, the Court finds this matter suitable for decision without oral argument pursuant to Civil Local Rule 7-1(b). For the reasons stated below, the Court **GRANTS IN PART** and **DENIES IN PART** Applied’s motion for summary judgment of non-infringement.

**I. BACKGROUND****A. Procedural Background**

Applied filed its motion for summary judgment on March 23, 2023. MSJ. Demaray filed its opposition on April 24, 2023. Opp'n. On May 9, 2023, the Court issued its Claim Construction Order. Order on Claim Construction (“Claim Construction”), ECF No. 268. Applied filed its reply on May 22, 2023. Reply. The Court allowed additional briefing by Demaray following the Claim Construction Order, and Demaray filed its sur-reply on June 8, 2023. Sur-Reply; *see also* Order re Additional Briefing, ECF Nos. 284. The Court took this matter under submission on June 9, 2023. ECF No. 291.

**B. Factual Background**

The two Patents-in-Suit share the title “Biased Pulse DC Reactive Sputtering of Oxide Films.” The ‘276 Patent claims are apparatus claims and the ‘657 Patent claims are method claims. Claim Construction 1. The invention here concerns a way to deposit thin films of materials, such as metals, onto a surface, such as a silicon wafer. MSJ, Ex. 5 (“‘657 Patent”) col. 2:45–62, ECF No. 204-7. Such deposition has uses for producing semiconductor devices and optical devices. *Id.* at col. 1:15–23. It is desirable to precisely control properties of the deposited films, such as the index of refraction, physical and chemical uniformity, low stress, and high density. *Id.* at col. 1:53–2:2. To that end, the Patents-in-Suit present a “sputtering reactor apparatus” that includes a “pulsed DC power supply coupled through a filter to a target and a substrate electrode coupled to an RF [*i.e.*, radio frequency] power supply,” with a “substrate mounted on the substrate electrode [that] is therefore supplied with a bias from the RF power supply.” *Id.* at col. 2:45–54; MSJ, Ex. 6 (“‘276 Patent”) col. 2:45–53, ECF No. 204-8.

In its Claim Construction Order, the Court adopted the following construction of “pulsed DC power”: “direct current power that oscillates between positive and negative voltages,” wherein “oscillates” should have its plain and ordinary meaning. Claim Construction 5. The Court further adopted the parties’ undisputed proposed construction of “pulsed DC power supply” as a “supply for providing pulsed DC power.” *Id.*

1 The accused Cirrus chambers all include both a DC power source and an RF power source  
2 for providing power to the target. Joint Statement of Undisputed Facts (“Undisputed Facts”) ¶ 12,  
3 ECF No. 204-2. Demaray contends that Applied’s Cirrus chambers infringe on both Patents-in-  
4 Suit. *Id.* ¶ 10. Applied argues that its Cirrus chambers do not meet all the limitations of the  
5 Patents-in-Suits’ claims, and that Demaray is precluded from raising its doctrine of equivalents  
6 (“DOE”) theory under prosecutorial estoppel. *Id.* ¶ 11; MSJ.

## 7 **II. LEGAL STANDARD**

8 Under Federal Rule of Civil Procedure 56, a court may grant summary judgment only  
9 when the moving party shows that there is no genuine dispute of material fact. A genuine dispute  
10 exists if there is sufficient evidence that a reasonable fact finder could decide in favor of the  
11 nonmoving party. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986). And that dispute is  
12 material if it might affect the outcome of the suit. *Id.* In determining if a genuine dispute of  
13 material fact exists, a court must “tak[e] the evidence and all reasonable inferences drawn  
14 therefrom in the light most favorable to the non-moving party.” *Torres v. City of Madera*, 648  
15 F.3d 1119, 1123 (9th Cir. 2011).

16 The moving party bears the burden of persuading the Court that there is no genuine dispute  
17 of material fact, and it also bears the initial burden of producing evidence that demonstrates there  
18 is no dispute. *Cunningham v. Medtronic, Inc.*, 2018 WL 4053446, at \*2 (N.D. Cal. Aug. 24,  
19 2018) (citing *Celotex Corp. v. Catrett*, 477 U.S. 317, 323 (1986)). When the moving party bears  
20 the ultimate burden of persuasion, its initial burden of production is to “establish ‘beyond  
21 controversy every essential element of’” its claim or defense. *S. Cal. Gas Co. v. City of Santa*  
22 *Ana*, 336 F.3d 885, 888 (9th Cir. 2003) (citation omitted). If the moving party satisfies this initial  
23 burden, the nonmoving party can nonetheless defeat summary judgment by showing “the  
24 evidence, taken as a whole, could lead a rational trier of fact to find in its favor.” *Id.*

### III. DISCUSSION

To establish infringement, a patentee must show that the accused product “meets each claim limitation either literally or under the doctrine of equivalents.” *Seachange Int’l, Inc. v. C-COR, Inc.*, 413 F.3d 1361, 1377 (Fed. Cir. 2005). The Court will address each in turn.

#### A. Literal Infringement

Literal infringement requires a showing that each claim element is present. *Becton Dickinson & Co. v. C.R. Bard, Inc.*, 922 F.2d 792, 796 (Fed. Cir. 1990). Courts engage in a two-step literal infringement analysis: (1) interpreting the meaning and scope of patent claims through claim construction; and (2) determining whether the claims, as construed, read on the accused product. *Markman v. Westview, Instruments Inc.*, 52 F.3d 967, 976, 979 (Fed. Cir. 1995) (en banc). This Court issued its claim construction ruling on May 9, 2023. Therefore, the Court will proceed to determine whether the product meets each claim as construed in its Claim Construction Order.

Here, there are four relevant claim limitations, which, per the Court’s Claim Construction Order, are effectively identical in terms of what they require: ’276 Patent claims 1 and 6, and ’657 Patent claims 1 and 2, all require “a pulsed DC power supply” that supplies “alternating positive and negative voltages” to the target. Claim Construction 5–6. There are two parts to the limitation, and both must be satisfied for a product to satisfy the limitation. First, there must be a component, “a pulsed DC power supply,” which the Court construed to mean a supply providing “direct current power that oscillates between positive and negative voltages.” *Id.* at 6. Second, that component must have a certain function, which is to supply “alternating positive and negative voltages” to the target. *Id.*

#### 1. Pulsed DC Power Supply

To reiterate, a pulsed DC power supply is a “supply for providing pulsed DC power.” Claim Construction 6–7. Pulsed DC power is “direct current power that oscillates between positive and negative voltages.” *Id.* at 6. Therefore, a pulsed DC power supply is necessarily a supply for providing direct current power that oscillates between positive and negative voltages.

1 In other words, a pulsed DC power supply depends on whether the power supply itself emits  
2 positive and negative voltages; the presence of alternating voltages to the target is a separate part  
3 of the limitation and is independent of the requirement of a pulsed DC power supply.

4 There is no genuine dispute that the DC power supplies in the accused Cirrus chambers  
5 never provide a positive voltage. *See, e.g.*, MSJ, Ex. 11 (“Pankratz Dep.”) 184:6–13 (“The [DC  
6 power supply] does not provide an oscillation to the . . . load.”), 184:15–185:1 (“The [DC power  
7 supply] does not provide a method to oscillate or change the polarity of the voltage between  
8 positive and negative.”), 185:4–7, 185:17–186:6 (“The [DC power supply] does not have the  
9 ability to alternate between positive and negative outputs,” or “provide[] DC power that oscillates  
10 between positive and negative voltages”), 192:17–193:9 (“There is nothing in the [DC power  
11 supply] design that is intended to reverse the voltage.”), 209:5–15 (“There is nothing in the design  
12 of the [DC power supply] that would intentionally cause a polarity of the voltage.”), 210:23–  
13 211:14, ECF No. 204-13; *see also* Sur-Reply 1 (arguing only that “the pulsed DC power supplies  
14 in the Cirrus chambers provide DC power that, *together with other power in the system*, causes the  
15 voltage to the target to oscillate between positive and negative to prevent microarcs”) (emphasis  
16 added). Thus, the DC power supplies do not provide “direct current power that oscillates between  
17 positive and negative voltages,” and therefore are not “pulsed DC power supplies” as the Court  
18 has construed them.

19 Demaray’s arguments to the contrary are unpersuasive. First, Demaray essentially argues  
20 that the Court’s construction does not require that the pulsed DC power supplies output a positive  
21 voltage; rather, a pulsed DC power supply “encompasses arrangements in which the DC power  
22 supply *works together* with other elements to provide a positive voltage to the target encompasses  
23 systems where the voltage to the target oscillates positive and negative.” Sur-Reply 1 (emphasis  
24 added). Demaray misinterprets the Court’s construction. The presence of alternating voltages to  
25 the target is a separate part of the limitation and is independent of the requirement of a pulsed DC  
26 power supply providing direct current power that oscillates between positive and negative  
27 voltages.

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