United States District Court,
S.D. California.

MAXWELL TECHNOLOGIES, INC,
Plaintiff.
v.
NESSCAP, INC., and Nesscap Co., Ltd,
Defendants.

Civil No. 06cv2311 JAH (BLM)

Aug. 27, 2007.

Background: Patentee brought infringement action against alleged infringer regarding patent related to electric double layer capacitors (EDLC) having carbon powder electrodes. Patentee moved for a preliminary injunction.

Holdings: The District Court, John A. Houston, J., held that:
(1) patent claim relating to first and secondary coatings on the electrode structures of EDLC was a device or product claim, rather than a process or method claims;
(2) terms "layers" and "coatings," as used in the claim, were synonymous; and
(3) patentee did not demonstrate substantial likelihood of success on the merits.

Motion denied in part.

6,631,074. Construed.

David C. Doyle, Brian M. Kramer, Eric Martin Acker, Katherine Lind Parker, Morrison and Foerster, San Diego, CA, for Plaintiff.

Brian M. Gaff, Scott B. Weston, George W. Neuner, Edwards Angell Palmer & Dodge LLP, Boston, MA, Andrea M. Kimball, Callie A. Bjurstrom, Michelle Ann Herrera, Luce Forward Hamilton and Scripps, San Diego, CA, for Defendants.

ORDER DENYING PLAINTIFF'S MOTION FOR PRELIMINARY INJUNCTION OF U.S. PATENT NO. 6,631,074

JOHN A. HOUSTON**, District Judge.**

INTRODUCTION

Now pending before this Court is Plaintiff Maxwell Technologies, Inc.'s ("Plaintiff") motion for preliminary injunction of U.S. Patent No. 6,631,074 (the "'074 Patent"). Doc. No. 13. Defendants Nesscap, Inc. and Nesscap Co., Ltd. (collectively "Defendants") oppose this motion. This matter came on for hearing on June 21, 2007 and August 9, 2007 with appearances by David Doyle and Eric Acker for Plaintiff, and George Neuner, Brian Gaff, Andrea Kimball and Scott Weston for Nesscap. This Court, after an evidentiary hearing and hearing the oral argument of counsel, took the matter under submission. Now, after a careful consideration of the pleadings, relevant evidence, the oral argument of counsel at the hearing, and for the reasons set forth below, this Court DENIES Plaintiff's motion for preliminary injunction as to the ' 074 Patent only.

BACKGROUND

On October 17, 2006, Plaintiff filed a complaint for patent infringement and filed a motion for preliminary injunction on October 18, 2006. Plaintiff filed an amended complaint on November 2, 2006, alleging patent infringement of U.S. Patent No. 6,525,924 (the "'924 Patent") and U.S. Patent No. 6,631,074 (the "'074 Patent"), naming Nesscap, Inc. and Nesscap Co., Ltd as defendants. Doc. No. 12. Plaintiff also filed a motion for preliminary injunction on November 2, 2006. Doc. No. 13.

Defendants filed motions to dismiss on November 9, 2006, which were set for hearing on January 18, 2007. Doc. Nos. 25 and 26. Defendants also filed an *ex parte* application to continue the preliminary injunctionhearing until after this Court's decision on Defendants' motion to dismiss. This Court granted Defendants' *ex parte* application on November 15, 2006, finding that although the motions to dismiss would be decided first, a shortened briefing schedule was warranted. Doc. No. 34. The Court subsequently rescheduled the preliminary injunction hearing date until February 22, 2007. Doc. No. 34. Plaintiff filed an opposition on December 14, 2006. Doc. No. 35. Defendants filed replies on December 21, 2006. Doc. Nos. 36 and 37. The matter was taken under submission pursuant to Civ.LR 7.1(d.1) on January 16, 2007. Doc. No. 41.

On January 25, 2007, Defendants renewed their *ex parte* application to continue the preliminary injunction hearing date. Doc. No. 42. On January 26, 2007, Plaintiff filed an opposition and Defendants filed a reply. Doc. Nos. 44 and 45. This Court granted in part and denied in part Defendants' *ex parte* application. Doc. No. 46. The Court found it appropriate to continue the preliminary injunction hearing until March 1, 2007, but required Defendants to file under seal their opposition in response to the preliminary injunction motion. *Id*.

This Court granted in part and denied in part Defendants' motion to dismiss on March 13, 2007, finding personal jurisdiction over Defendant Nesscap, Inc., but quashing service and ordering Plaintiff to serve Nesscap Co. within 45 days of the order. Doc. No. 59. The Court also rescheduled the preliminary injunction hearing date to April 5, 2007. Doc. No. 59. Defendants' opposition in response to the preliminary injunction motion was subsequently unsealed on February 1, 2007. Doc. No. 62. Plaintiff filed a reply on March 22, 2007. Doc. No. 66.

On April 5, 2007, this Court held a hearing on Plaintiff's motion for preliminary injunction. Doc. No. 70. At the hearing, the Court indicated that it would entertain an evidentiary hearing on the '074 Patent only, and set a telephonic status conference date for April 11, 2007. On April 11, 2007, the Court held a status conference, with David Doyle and Eric Acker appearing on behalf of Plaintiff, and George Neuner, Brian Gaff and Callie Bjurstrom on behalf of Nesccap. Doc. No. 74. The Court set a tentative evidentiary hearing

date on the '074 Patent for May 18, 2007, and orally granted Plaintiff's preliminary injunction motion on the '924 Patent only. Id. On April 23, 2007, this Court issued a written Order granting Plaintiff's motion for preliminary injunction on the '924 Patent only. Doc. No. 79. The Court also rescheduled the evidentiary hearing on the '074 Patent to June 21, 2007. Doc. No. 80. Plaintiff posted a stipulated bond to conform to this Court's preliminary injunction Order on April 27, 2007.

On May 4, 2007, Defendants filed an *ex parte* motion to shorten the time for a hearing on its motion to stay, as well as temporarily stay this Court's preliminary injunction until a decision on the motion to stay. Doc. No. 86. This Court denied Defendants' motion to temporarily stay, but granted their motion to shorten time, setting the hearing date on Defendants' motion to stay to May 24, 2007. Doc. No. 91. Plaintiff filed a response in opposition to Defendants' motion to stay on May 16, 2007. Doc. No. 95. Defendants filed a reply on May 18, 2007. Doc. No. 98. On May 24, 2007, this Court held a hearing on Defendants' motion to stay, with Eric Acker and Brian Kramer appearing as counsel for Plaintiff, and George Neuner and Andrea Kimball for Defendants. Doc. No. 99. The Court denied Defendants' motion to stay at the hearing, and subsequently issued a written order on the motion. Id.; Doc. No. 102.

An evidentiary hearing on the '074 Patent was held on June 21, 2007. Doc. No. 113. At the hearing, this Court allowed the parties to file supplemental declarations as a result of new evidence presented by Defendants. The Court held a telephonic conference on June 25, 2007, setting forth deadlines for the parties' submissions. Defendants filed supplemental declarations on July 12, 2007. Doc. Nos. 119-121. On July 26, 2007, Plaintiff filed responses in opposition to Defendants' supplemental declarations. Doc. Nos. 123-126. Defendants filed replies to Plaintiff's opposition responses on August 6, 2007, as well as objections to affidavits filed by Plaintiff. Doc. Nos. 127-130. On August 9, 2007, this Court continued the evidentiary hearing on the '074 Patent. At the continued hearing, the Court allowed Defendants to file a surrebuttal declaration. Defendants filed a surrebuttal declaration on August 21, 2007. Doc. No. 134.

DISCUSSION

I. Legal Standard-Preliminary Injunction

[1] [2] [3] To prevail on a motion for preliminary injunction on a patent infringement claim, a reviewing court must weigh the following factors: "1) likelihood of the patentee's success on the merits; 2) irreparable harm if the injunction is not granted; 3) the balance of hardships between the parties; and 4) the public interest." Abbott Laboratories v. Andrx Pharmaceuticals, Inc., 473 F.3d 1196, 1200-01 (Fed.Cir.2007), quoting Oakley, Inc. v. Sunglass Hut Int'l, 316 F.3d 1331, 1338-39 (Fed.Cir.2003). To find likelihood of success, a patentee must present proof of the accused products infringement of a "valid and enforceable patent." Pfizer, Inc. v. Teva Pharmaceuticals, USA, Inc., 429 F.3d 1364, 1372 (Fed.Cir.2005). The burden lies with the patentee for proving infringement on the patent, and with the accused infringer in proving invalidity or unenforceability of the asserted patents. Id. at 1201, citing to Gonzales v. O Centro Espirita Beneficente Uniao Do Vegetal, 546 U.S. 418, 126 S.Ct. 1211, 1219-20, 163 L.Ed.2d 1017 (2006) ("[T]he burdens at the preliminary injunction stage track the burdens at trial.").

The basic function of a mandatory injunction is to "preserve status quo pending determination of an action on the merits." Chalk v. U.S. District Court Central District of California, 840 F.2d 701, 704 (9th Cir.1988). "It is so well settled as not to require citation of authority that the usual function of a preliminary injunction is to preserve the status quo ante litem pending a determination of the action on the merits." Larry P. v. Riles, 502 F.2d 963, 965 (9th Cir.1974).

II. Analysis

Plaintiff moves for a preliminary injunction of Defendants' electric double layer ultracapacitor products. Doc. No. 13. Plaintiff asserts that Defendants' ultracapacitors infringe on at least claim 1 of the '074 Patent. Id. at 17.

A. *Ultracapacitor Technology*

Ultracapacitors, also known as Electric Double Layer Capacitors ("EDLC"), are energy storage devices consisting of a series of electrodes separated by a permeable membrane. The permeable membrane allows the movement of charged ions in an electrolyte solution surrounding the electrodes, such that upon application of an electrical current or energy source to the electrode, charged particles in the electrolyte solution migrate to the opposite electrode, wherein negatively charged ions migrate to the positively charged electrode, and positively charged ions migrate to the negatively charged electrode. The electrostatic build-up of energy as a result of the process of separating the charges can be stored by the device, and then released to power an electrical device. Ultracapacitors are double layered, in that one layer of charges is supplied by the electrode, and the other by the ions in the electrolyte solution.

B. *Likelihood of Success on the Merits*

Plaintiff asserts that Defendants' accused products infringe on the'074 Patent.

1. '074 Patent

The '074 Patent, titled "Electrochemical double layer capacitor having carbon powder electrodes," was filed on November 1, 2001, and issued on October 7, 2003 to assignee Maxwell Technologies, Inc. The '074 Patent discloses a method and device for an electrode structure containing a primary and secondary coating. *See* '074 Patent at Abstract.

The relevant claim at issue is independent Claim 1. Claim 1 reads:

1. A double layer capacitor comprising:

a first electrode structure that includes a first current collector foil, a first primary coating formed on a portion of the first current collector foil, and a first secondary coating formed on the first primary coating;

a second electrode structure that includes a second current collector foil, a second primary coating formed on a portion of the second current collector foil, and a second secondary coating formed on the second primary coating, wherein the first and second primary coatings include conducting carbon powder and the first and second secondary coatings include activated carbon powder;

a porous separator positioned between the first and second electrodes structures such that the porous separator contacts and separates the first and second secondary coatings; and means for saturating the porous separator and the first and second electrodes structures with a prescribed electrolyte solution.

'074 Patent at 27:10-29.

a. '074 Patent ***Infringement***

Plaintiff asserts that all of Defendants' EDLC ultracapacitors infringe on the '074 Patent. Doc. No. 13 at 2. Plaintiff relies on its expert report and numerous declarations by John Miller, which contains scanning electron micrograph (SEM)/Auger experiments allegedly supporting that the accused infringing products have a primary coating of a conductive carbon, and a secondary coating of activated carbon, as recited by claim 1 of the '074 Patent. Id.

In response, Defendants dispute that its EDLC ultracapacitors meet the limitations claimed in the '074 Patent, arguing that "layers and coatings" are not synonymous. Doc. No. 47 at 8. Defendants also contend that Plaintiff's experiments are deficient because the particular technique used by Miller "is not well-suited for an examination of the structure of the ultracapacitor electrodes, as viewed in cross section." Id. at 8-9.

[4] [5] [6] [7] Determining the likelihood of patent infringement on a preliminary injunction motion requires two steps: 1) construction of the relevant claims; and 2) comparison of the construed claims to the accused product(s). Pfizer, 429 F.3d at 1372. Because of the nature of a preliminary injunction proceeding, claim construction at this stage is itself preliminary because of the incomplete record provided to a reviewing court. FN1 The Federal Circuit recognizes the difficulty of claim construction at the preliminary injunction stage because of the incomplete record. *See* Gillette Co. v. Energizer Holdings, Inc., 405 F.3d 1367, 1374-75 (Fed.Cir.2005), citing to CVI/Beta Ventures, Inc. v. Tura, LP, 112 F.3d 1146, 1160 n. 7 (Fed.Cir.1997); Bayer AG. v. Biovail Corp., 279 F.3d 1340, 1349 (Fed.Cir.2002); Metaullics Sys. Co. v. Cooper, 100 F.3d 938 (Fed.Cir.1996). Because of this, a district court may issue a "tentative" or "rolling" claim construction when faced with the task of claim construction on an expedited basis. Oakley, Inc. v. Sunglass Hut Intern., 316 F.3d 1331, 1344 n. 3 (Fed.Cir.2003), citing to Jack Guttman, Inc. v. Kopykake Enters., Inc., 302 F.3d 1352, 1361 (Fed.Cir.2002). As in any patent infringement suit, the burden lies with the patentee in establishing infringement by the accused product in a preliminary injunction motion by a preponderance of the evidence. Id. at 1340. However, if Defendants " 'raise[ ] a substantial question concerning ... infringement ... *i.e.* asserts an infringement ... defense that the patentee cannot prove "lacks substantial merit," the preliminary injunction should not issue.' " National Steel Car, Ltd. v. Canadian Pacific Ry., 357 F.3d 1319, 1325 (Fed.Cir.2004), quoting Amazon.com, Inc. v. Barnesandnoble.com, Inc., 239 F.3d 1343, 1350-51 (Fed.Cir.2001).

FN1. On July 21, 2007, Defendants filed the prosecution file history for the '074 Patent as an exhibit to Michael Cima's declaration. *See* Doc. No. 119-3, Exh. C. The prosecution file wrapper for the '074 Patent was not submitted in conjunction with Defendants' opposition to the motion for preliminary injunction. *See* Doc. No. 47, filed February 1, 2007. At the evidentiary hearing, this Court permitted the parties to submit supplemental declaration regarding new evidence presented by Defendants, and for Plaintiff to submit additional evidence on this limited scope. *See* Rough Transcript at 95-96. The Court did not permit the parties to submit additional evidence or declarations on claim construction, especially in light of this filing occurring almost six months after Defendants' initial opposition was filed. Defendants provide no excuse for the late filing of this evidence, nor do they explain how this evidence relates to the limited scope of the evidentiary hearing regarding scanning electron micrograph technology. Accordingly, this Court will not take into consideration the prosecution file history of the '074 patent to tentatively construe the claims of the '074 Patent.

i. Claim Construction-First and Second Coatings

[8] Defendants argue that the accused products do not infringe Claim 1 of the '074 Patent because coating

and layers are not synonymous. Doc. No. 47 at 7. Defendants conclude that because it uses only one coating of a mixture of activated and conducting carbon, it does not meet the limitations of the ' 074 Patent. Id. In response, Plaintiff states that claim 1 of the ' 074 Patent is not a process claim, but a device claim. Accordingly, even if Defendants only apply its carbon slurry in one mixture, it will infringe the ' 074 Patent if the mixture nonetheless forms two layers, or coatings, on the aluminum current conductor. Doc. No. 66 at 3.

A review of the patent specification supports Plaintiff's construction of "coating" as including both layers and coatings. First, Plaintiff is correct that Claim 1 is a device or product claim, and not a process or method claim. The claim, for example, describes physical properties and characteristics of the device, and not a method or process of making the device. As such, Defendants' method of applying a mixture of activated and conductive carbons, instead of as layers as taught in the '074 Patent, is irrelevant if it possesses the structural limitations of Claim 1. *See* AFG Industries, Inc. v. Cardinal IG Co., Inc., 375 F.3d 1367, 1370 (Fed.Cir.2004) (A product claim covers any infringing structure "however it is made or however it is used.").

[9] [10] In addition, Defendants' contention that layers are not synonymous with coatings lacks merit in light of the patent specification. Claim construction requires that a reviewing court read the claims "in view of the specification, of which they are a part." Nystrom, 424 F.3d at 1142 (Fed.Cir.2005). "The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." Phillips, 415 F.3d at 1316. Here, the specification repeatedly uses the terms "layers" and "coatings" interchangeably:

The first layer ... is of a "conducting carbon ..." '074 Patent at 7:19-20

The second layer is of an "activated carbon ..." *Id*. at 7:32

The first layer is formed onto the surface of the current collector. *Id*. at 7:48

The second layer is formed onto the first layer ... *Id*. at 7:60

The first step involves applying a first layer (or primary coating) ... *Id*. at 9:8-9

The primary coating reduces the interfacial resistance and serves as a seed coat for a secondary coating. *Id*. at 9:25-26

The second layer (or secondary coating) is applied over the primary coating. *Id*. at 9:58-59.

As can be seen, the first layer and the second layer are coated onto the foil, with the three lanes having been cleared of the first layer and the second layer by the set of wipers. *Id*. at 11:37-40.

Thus, Defendants' argument that "layers" and "coatings" are not synonymous lack merit in light of the specification's interchangeable use of the terms. Accordingly, this Court construes Claim 1 as a product claim, and the disputed term "coating" to include "coatings or layers." However, as discussed, because the record is not complete, this Court is mindful that any claim construction at this stage is preliminary and tentative.

ii. Accused Products Infringement

Plaintiff asserts that all of Defendants' EDLC ultracapacitors infringe the '074 Patent. Doc. No. 13 at 2. In scanning electron micrograph (SEM) images magnified 2500-times, three distinct layers are seen that Plaintiff attributes to: 1) an aluminum current collector; 2) a smaller layer of conducting carbon; and 3) a larger layer of activated carbon. *See* Miller Decl. at 13. Defendants refute Plaintiff's evidence, contesting the use of the Auger Spectroscopy technique in analyzing the chemical composition of the alleged "layers" seen in the SEM image obtained. Doc. No. 47 at 9. Defendants state that "Dr. Buiel's EDS method is superior to Dr. Miller's Auger method because the latter is limited to analyzing the surfaces of materials, whereas the former can penetrate to greater depths to disclose information about the material in the structure." *Id*. Defendants conclude that the "primary" coating alleged by Plaintiff is actually the ground layer aluminum collector that has been etched. *Id*.

In reply, Plaintiff refutes that the Auger technique is inferior to Buiel's EDS method, and instead contends that the EDS method is inferior because it "depicts the primary and secondary coatings blurred together." Doc. No. 66 at 4.

1. Plaintiff's Auger Method

Plaintiff's expert, John Miller, describes the Auger method as one that "probes the chemistry of small regions on a surface by measuring the energy of electrons emitted from that surface when it is irradiated with electrons." Miller Decl. at 13. "The electrons emitted from the surface have energies characteristic of the element from which they were emitted, [and] can be compared to standard values to determine the chemical properties of the material, and quantify the relative concentrations in the material being examined." *Id*. The Auger method, therefore, when used in conjunction with scanning electron micrography(SEM), measures the "electron signature" emitted from the surface of a sample in order to determine the chemical composition of specific areas of a prepared sample.

Miller asserts that the Auger method is more precise than Defendants' EDS method. Miller Reply Decl. at 8. Miller contends that he first used the EDS method, "and found the results were not precise enough for the measurements necessary in this case." *Id*. Miller concludes "[u]sing EDS is like using an axe, where Auger is equivalent to using a scapel. In this analysis, a surgeon was needed, not a lumberjack." *Id*. Miller further contends that:

Auger offers [ ] two distinct advantages over EDS when performing compositional analysis. These advantages are 1) Auger's ability to have very small analysis volumes, and 2) Auger's very high sensitivity for detecting light elements, carbon for instance. The first advantage allows the analysis of very thin layers of material. The second advantage ensures that no element will be missed by Auger, which can happen by EDS because of its poor sensitivity for light element detection. Furthermore, Auger allows quantitative analysis on any examined sample whereas EDS generally requires flat, highly polished samples to make quantitative analysis.

Miller Reply Decl. at 9. Miller claims that the Auger method is, therefore, superior when dealing with the analysis of thin films on a wafer format. Miller also points to several articles published in the Journal of Vacuum Science Technology, as well as commercial statements from spectroscopy companies that recognize the superiority of the Auger method over EDS when analyzing thin films. *See* Miller Reply Decl. at Exhs. J and K.

Miller hypothesizes that the two layers are formed from the slurry mixture on Defendants' accused infringing devices when the smaller conductive carbon particles seep or migrate into the larger pores of the aluminum conductor platform via a capillary effect. *See* Miller Reply Decl. at 12. The aluminum conductor pores also act to exclude the larger activated carbon particles, thus forming two layers. *Id*. An analogy would be a sieve or filter where rocks and silt are applied to the filter. The smaller silt particles, or conductive carbon, would be free to pass through the filter, thus forming a first layer within the filter itself. However, the larger rocks, or activated carbon, would be impeded by the opening size of the filter. The rocks would thus form a second layer on the surface of the filter.

In response, Defendants' expert Buiel asserts that the "EDS [method] is [ ] a better analytical tool to determine the composition of the 'layers' compared to the Auger used by Dr. Miller." Buiel Decl. at 15. Buiel contends that because the Auger method "is a surface sensitive technique that only can penetrate a few atomic layers," making the Auger method suitable "for analyzing contaminants on surfaces, [ ] the deeper penetration achieved by EDS is much more appropriate for the analysis presented in this case." *Id*. at 15-16. Buiel further claims that "cross-contamination of the surface will always occur" when preparing a sample by "cut[ting] along the surface which is to be analyzed." *Id*. at 16. In addition, Defendants proffer testimony from Michael Cima, who postulates that declarations provided by Plaintiff by their experts Miller and Jennings "are based on a flawed methodology." Doc. No. 119-3 at para. 65. In particular, Cima asserts that the experiments performed by Miller and Jennings were not properly validated according to acceptable scientific practices. Cima Suppl. Decl. at para. 10. Cima and Buiel also contend that the cleaning, or "sputtering" technique performed by Jennings did not sufficiently clean the sample surface. Instead, Buiel postulates that any carbon found in the disputed first layer is due to carbon contamination, and not to conductive carbon present in the etched aluminum conductor layer. Buiel Second Suppl. Decl. at para. 25. Finally, Cima and Buiel question the conclusions made by Miller and Jennings regarding the ability of the Auger technique to distinguish between activated and conductive carbon, contending instead that any differences seen in the "carbon peaks" can be attributed to carbon contamination, as well as the failure by Miller and Jennings to properly clean the SEM samples. *See* Cima Surrebuttal Decl. at para.para. 23-29; Buiel Second Suppl. Decl. at para.para. 24-29.

In reply, Miller points to his detailed declaration submitted in support of the preliminary injunction motion, outlining his sample preparation methods. Miller agrees with Defendants' expert, Buiel, that the Auger method is a "surface analysis technique." *Id*. at 10. Miller states he took full advantage of the Auger method's ability to focus on the surface analysis technique by cutting the sample "through a tensile break" to reveal a cross-section of the layers. Miller claims that using a "tensile break" rather than a cut with a sharp blade is necessary because of the soft characteristics of aluminum, creating a smeared sample. *Id*. Miller then "scraped away" the surface area of the cut through argon-gas sputter cleaning, which took away approximately 30 A (angstroms) of the cross-section surface to remove any potential contaminants. *Id*. Miller claims that by using this method he was able "to precisely visualize an area for analysis, and measure that finely focused area for its chemical properties." *Id*. at 10-11. Miller and Jennings also provide additional data and experiments to support that sputter cleaning would not change their analysis. Miller Supp. Decl. at para.para. 15-20; Jennings Decl. at para.para. 15-21.

2. EDS Method

The EDS method, an acronym for "Energy Dispersive Spectroscopy", is "a chemical microanalysis technique performed in conjunction with a SEM." Buiel Decl. at 15. Buiel describes the technique as one that "utilizes characteristic x-rays that are emitted from the sample during bombardment by an electron beam

to characterize the elemental composition of the analyzed volume." *Id*. The technique, thus, utilizes electron beams that penetrate the surface of a sample. The reflected x-rays that are emitted from the sample as a result of the electron bombardment can be measured to reveal the chemical composition in the sample.

Buiel asserts that EDS is the superior technique because it "has a deeper penetration in the range of a few microns which provides approximately 1,000 times greater penetration than Auger." Buiel Decl. at 15. Buiel contends that "it is important to have deeper penetration because the analysis is being performed on the cross-section of the sample." *Id*. Buiel claims that cross-contamination of the sample surface requires that the analysis is performed beyond the surface, and into the deeper layers of the sample. *Id*. Furthermore, Buiel states that EDS allows measurements to occur on an SEM machine, precluding the need to take "the sample out and reload[ ] it into another machine." *Id*. Finally, Buiel asserts that EDS "allows for the images taken with the SEM to be directly colored based on the presence of specific atoms." *Id*.

In reply, Miller states that because the EDS method has a much deeper penetration than the Auger method, the results become complicated. "When the depth of penetration is potentially greater than the layer under examination, the results obtained are blurred or averaged over the whole area of penetration." MillerReply Decl. at 8. Miller cautions that the Court must "remember that the layer or coating containing the conductive carbon particles is only approximately 1 to 3 micrometers thick," referencing to his exhibits measuring the layers. *Id*. Miller contends that because the conductive carbon layer is so thin, "the x-rays gathered from the analysis would be heavily favored towards aluminum." *Id*. at 9. Miller adds that, depending on the filter criteria of the EDS method used, "the whole sample volume [would be] portrayed as that element, or the whole sample area can be portrayed as the element with the most number of x-rays bouncing back from that sample area." Plaintiff's expert Jennings also contends that the use of EDS may distort the data because it "penetrates samples deeper than Auger, exciting particles at an increased depth of penetration." Jennings Decl. at para. 9. Jennings also asserts that the sample preparation or polishing required in EDS "may actually alter the sample being analyzed and compromise the results." *Id*. at para. 10. Jennings finally points out that EDS method would not be capable of detecting carbon in an aluminum layer because of its lack of sensitivity to the detection of carbon particles. *Id*. at para. 9.

3. Court's Analysis

[11] The Court has extensively reviewed the opinions proffered by the parties' expert witnesses, and the experiments performed on the accused Nesscap products. The Court notes that the parties do not dispute the physical presence of a thin layer between the non-etched aluminum conductor and a presumed carbon layer. Defendants only dispute the composition of that thin middle layer, contending through their expert Buiel that the structure is only the etched aluminum conductor, and not a separate conductive carbon layer. Buiel further postulates that any carbon that may be found in this thin middle layer is due to contamination of the sample from Plaintiffs' poor sample preparation techniques.

Although Buiel may dispute the presence of carbon in the etched aluminum conductor, or "etch pit" structures, the parties appear to agree, through Plaintiff's experts Jennings and Miller and Defendant's expert Cima, that these etch pits may contain either conductive carbon, or possibly activated carbon if the etch pits are large enough. *See* Cima Decl. at para. 79; Miller Rebuttal Decl. at para. 7. Moreover, notwithstanding the alleged difficulties or inadequacies of the Auger or EDS techniques or sample preparation procedures, the parties also agree that the middle layer seen is likely etch pits in the uppermost layer of the aluminum conductor that are the result of the etching process used in NessCap's accused products. *See* Cima Decl. at para. 71; Miller Rebuttal Decl. at para. 6. Finally, although the parties disagree on whether the etch pits are

"interconnected" and are part of the same topological surface, they appear to agree that the individual etch pits are physically separated on the surface of the aluminum conductor. *See* Cima Decl. at para. 77; Miller Decl. at para. 7.

With this in mind, and after carefully comparing the Court's tentative construction of Claim 1 to the accused Nesscap device structure, this Court finds that Plaintiff has not met its burden at this preliminary injunction stage of showing by a preponderance of the evidence that the accused devices read on the limitations of Claim 1 of the '074 Patent. Claim 1 requires the presence of two layers or coatings:

1) "a first primary coating [or layer] formed on a portion of the first current collector foil," and

2) "a first secondary coating [or layer] formed on the first primary coating". '074 Patent at 27:12-14. Plaintiff asserts that the "etch pits layer" allegedly containing primarily conductive carbon and etched aluminum conductor, and less likely activated carbon, meets this first limitation of Claim 1, and that the larger "activated carbon" layer meets the second limitation. However, a plain language interpretation of the term "layer" or "coating" does not comport with Plaintiff's conclusions. The term "layer" connotes continuity of a substance, in this case carbon particles, to form a continuous physical structure. The '074 Patent specification supports this interpretation, defining the first layer as "the layer in direct mechanical and electrical contact with the thin metal collector," reinforcing the continuous aspect of the term "coating [or layer]" as directly covering the thin metal collector.FN2 '074 Patent at 7:20-21. Because the etch pits are part of the topological surface of the "first current collector foil," carbon particles depositing *in* the etch pits of the aluminum conductor along with carbon particles deposited *between* the etch pits of the aluminum conductor surface would together form the "first primary coating [or layer] formed on a portion of the first collector foil." Thus, by this plain language interpretation, the carbon particle-containing etch pits only form a part of the first layer. There is no dispute here that carbon particles deposited between the etch pits are part of the larger layer seen in both parties' SEM photographs, irrespective of whether the Auger or EDS technique is used, or what type of carbon particle is present in this larger layer. *See, e.g.,* Buiel Decl., Exh. G; Miller Suppl. Decl., Exh. B. In addition, the record at this stage supports that the accused devices do not possess a second layer on top of this larger layer. It follows, therefore, that the carbon particles deposited in the etch pits of Defendants' accused products are also part of the larger layer seen in the numerous SEM photographs. Accordingly, for these reasons, the Court finds for purposes of the instant preliminary injunction motion, that the corresponding "first coating [or layer]" within the accused device consists of both the carbon particles in the etch pits and the larger carbon layer above the etched aluminum layer, and thus Plaintiff has not shown that the accused devices possess the limitation of a "secondary coating [or layer] formed on the first primary coating."

FN2. The term "layer" is also defined in a general purpose dictionary as "a single thickness of a material covering a surface or forming an overlying part or segment." *See* THE AMERICAN HERITAGE COLLEGE DICTIONARY (3d ed.1997). While the Court does not rely on this extrinsic evidence, it does note that this dictionary definition comports with the Court's plain language interpretation of layer as a continuous physical composition covering another structure, in this case the carbon particles covering the aluminum conductor.

The Court notes here that the plain language of Claim 1 requires the first coating or layer only be formed on a "portion of the first current collector foil." *See* '074 Patent at 27:12-13. Even if this Court were to consider the etch pits as a "portion of the first current collector foil" for the purposes of the instant motion, and

therefore not require a continuous physical structure of carbon particles on top of the aluminum conductor, the limitation of a "secondary coating [or layer] formed on the first primary coating" would still not be met here. With this interpretation, carbon particles deposited on the portion of the current collector foil between the etch pits would also be considered a "first coating [or layer]." Thus, Plaintiff would still need to demonstrate that Defendants' accused devices possess a "secondary coating [or layer] formed on" this first primary coating or layer. Accordingly, even if this Court employed a broadened interpretation at this preliminary injunction stage, the accused devices would not fall within the limitations of Claim 1.

4. Conclusion

For the reasons stated above, this Court finds that Plaintiff has not meet its burden of showing that the accused devices fall within the limitations of Claim 1 of the '074 Patent. Because the Court has found that Plaintiff has not met its burden of showing likelihood of success on the merits regarding infringement by the accused products, it need not address any other preliminary injunction factor. Reebok Int'l Ltd. v. J. Baker, Inc., 32 F.3d 1552, 1556 (Fed.Cir.1994).

CONCLUSION AND ORDER

For the foregoing reasons, **IT IS HEREBY ORDERED** that Plaintiff's motion for preliminary injunction is **DENIED IN PART.** The Court **DENIES** Plaintiff's motion for preliminary injunction as to U.S. Patent No. 6,631,074 **only.**

S.D.Cal.,2007.
Maxwell Technologies, Inc. v. Nesscap, Inc.