

EXHIBIT F

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9 UNITED STATES DISTRICT COURT
 10 NORTHERN DISTRICT
 11 SAN FRANCISCO DIVISION

13 ATS AUTOMATION TOOLING
 SYSTEM, INC. AND THERMAL FORM
 14 & FUNCTION LLC,

15 Plaintiff,

16 vs.

17 FOXCONN ELECTRONICS, INC.,
 FOXCONN TECHNOLOGY CO., LTD.,
 18 HON HAI PRECISION INDUSTRY CO.,
 LTD., and DOES 1 THROUGH 10,

19 Defendant.
 20

CASE NO. C03-2648 PJH

**REPORT OF EXPERT WILLIAM MALTZ
 IN RESPONSE TO REPORT OF DR.
 ROBERT J. MOFFAT**


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 22 HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY
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Attached hereto as Exhibit A is a report from expert William Maltz regarding United States Patent number 5,494,098. The report, submitted on behalf of defendants Foxconn Electronics, Inc., Foxconn Technology Co., Ltd., and Hon Hai Precision Industry Co., Ltd. (collectively "Defendants") pursuant to Federal Rules of Civil Procedure, Rule 26.

DATED: January 12, 2005

ALSCHULER GROSSMAN STEIN & KAHAN LLP

By 
PETER J. WIED
Attorneys for Defendants
FOXCONN ELECTRONICS, INC., FOXCONN
TECHNOLOGY CO., LTD., AND HON HAI
PRECISION INDUSTRY CO., LTD

PROOF OF SERVICE

I am a resident of the State of California, over the age of eighteen years, and not a party to the within action. My business address is Alschuler Grossman Stein & Kahan LLP, The Water Garden, 1620 26th Street, Fourth Floor, North Tower, Santa Monica, California 90404-4060. On January 12, 2005, I served a true copy of the within documents:

REPORT OF EXPERT WILLIAM MALTZ IN RESPONSE TO REPORT OF DR. ROBERT J. MOFFAT

- by transmitting via facsimile the document(s) listed above to the fax number(s) set forth below on this date.
- by placing the document(s) listed above in a sealed envelope with postage thereon fully prepaid, in the United States mail at Santa Monica, California, addressed as set forth below.
- by placing the document(s) listed above in a sealed envelope, with the overnight delivery charge prepaid, addressed as set forth below, and deposited in a box or facility regularly maintained by the overnight delivery service carrier, Overnight Delivery Service.
- by personally delivering the document(s) listed above to the person(s) at the address(es) set forth below.

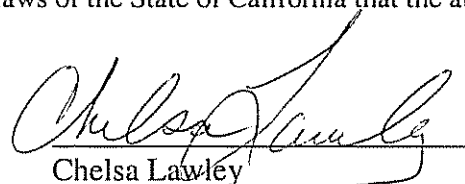
John J. Regan, Esq. Donald R. Steinberg, Esq. Vinita Ferrera, Esq. Hale and Dorr LLP 60 State Street Boston, MA 02109 Tel: 617.526.6000 Fax: 617.526.5000 Attorneys for Plaintiffs and Counterdefendants, ATS Automation Tooling Systems, Inc. and Thermal Form & Function, LLC	Thomas J. Friel, Jr., Esq. Kenneth B. Oplinger, Esq. Cooley Godward, LLP One Maritime Plaza 20th Floor San Francisco, CA 94111-3580 Tel: 415.693.2000 Fax: 415.951.3699 Attorneys for Plaintiffs and Counterdefendants, ATS Automation Tooling Systems, Inc. and Thermal Form & Function, LLC
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I am readily familiar with the firm's practice of collection and processing correspondence for mailing. Under that practice it would be deposited with the U.S. Postal Service on that same day with postage thereon fully prepaid in the ordinary course of business. I am aware that on motion of the party served, service is presumed invalid if postal cancellation date or postage meter date is more than one day after date of deposit for mailing in affidavit.

I declare that I am employed in the office of a member of the bar of this court at whose direction the service was made.

I declare under penalty of perjury under the laws of the State of California that the above is true and correct.

Executed on January 12, 2005.



Chelsa Lawley

EXHIBIT A

**REPORT OF EXPERT WILLIAM MALTZ
IN RESPONSE TO REPORT OF DR. ROBERT J. MOFFAT**

January 12, 2005

ATS Automation Tooling Systems, et al.

v.

Foxconn Electronics, Inc.

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

- I. **Background and Qualifications** – I am president of Electronic Cooling Solutions Inc. and I have a B.S. in Mechanical Engineering from San Jose State University. I have 18 years of experience solving thermal management problems for a broad range of electronic products. My experience includes design and evaluation of heat sinks that are used in products that range from notebook computers to high-end servers and networking equipment. My work experience includes:
- a. 10 years of thermal management consulting experience for a wide range of customers. Past and present customers include: 3Com, Apple Computer, Boeing Company, Brocade Communications Systems, Ciena, Cisco Systems, Compaq Computers, Hewlett-Packard, IDEO Product Design, Intel, JDS Uniphase, Motorola Electronics, Nokia, Philips, Sun Microsystems and a large number of smaller companies.
 - b. 12 years of experience modeling electronic systems using Computational Fluid Dynamics (CFD) software.
 - c. I worked in the thermal engineering field prior to establishment of Electronic Cooling Solutions for Tandem Computers, Amdahl, Network Equipment Technologies, and Hewlett-Packard. I was a founder of Two Consulting Companies

Other professional experience includes:

- a. Program Committee for Semi-Therm: 2000 through 2005
- b. Session Chair for Semi-Therm: 2000, 2001 and 2005
- c. Program Committee and Session Chair for IMAPS Advanced Technical Workshop on Thermal Management: 2002 through 2004
- d. Reviewer for Articles in IEEE and ASME Journals
- e. Reviewer for Several Handbooks on Heat Transfer and Electronic Cooling

I have been retained by *Alschuler Grossman Stein and Kahan* to do analysis of US Patent No. 5,494,098 (“’098 Patent”).

I am being compensated at the rate of \$225.00 per hour for my work. My resume is attached to this document.

- II. **Task and Overview of Opinions** - Specifically, I have been asked to review and analyze the *Expert Report of Dr. Robert J. Moffat*. My conclusion is that the five Foxconn heat sinks do not infringe on any of the asserted claims.

I may also offer testimony on the general background and history of heat sink technology. Specifically, I will discuss the various designs available to thermal engineers currently and in the past.

- III. **Materials Reviewed** – Below is a list of documents that were looked at and analyzed prior to generating this report.

- a. “Morosas” US Patent No. 5,494,098, issued on December 27, 1994.
- b. Defendants’ Final Invalidity Contentions Pursuant to Patent Local Rule 3-6
- c. ATS Automation Tooling System, Inc., et al., Plaintiffs vs. Foxconn Electronics Inc, et. Al., Defendants – Claim Construction Order
- d. “Lee” US Patent No. 5,375,655
- e. “333100 Disclosure”, A Heat Sink with Integrated Fans, Research Disclosure Database, January 1992, Number 333100, Kenneth Mason Publication Ltd, England
- f. “Yoshii” Japan Patent No. 63-164294 by Yoshii published on October 26, 1988 (Certified Translation included).
- g. “Tanaka” Japan Patent No. 63-157994 by Tanaka et al. published on October 17, 1988 (certified Translation included).
- h. “IBM Tech Disclosure” Cooling Apparatus, IBM Technical Disclosure Bulletin, September 1970, p. 959.
- i. “TW 186944” Taiwan Patent No. 186944 issued on July 1, 1992 (Certified Translation included).
- j. “Kitahara and Shimanuki” US Patent 5,583,316.
- k. Complaint for Patent Infringement filed by Automated Tooling Systems and Thermal Form and Function against Foxconn Electronics, Foxconn International, and Hon Hai Precision Industry

- l. Declaration of Dr. Robert J Moffat in Support of Plaintiff's Opening Claim Construction Brief
- m. Expert Report of Dr. Robert J. Moffat.
- n. ATS002885 – ATS002886 (Drawing of Foxconn heat sink 32P4003).
- o. DEF20165 – DEF20172, "Flow Pattern Through Heat sink Thermal Results," August 24, 2004, Foxconn/Thermal (1) Division, San Jose.
- p. DEF00006 – DEF00009, DEF00010 – DEF00013, DEF00055, DEF09147, DEF09152, DEF09153 – DEF09158 (Drawings of Foxconn heat sinks).
- q. Samples of 22P4369 (" '369"), 23K4713 (" '713"), 01R3329 (" '329"), 32P4003 (" '003")
- r. TFF00048 – TF00055 (pages from '098 file history)
- s. ATS002533- ATS002547 (drawings of ATS heat sink A100123)

IV. **Summary of US Patent 5,494,098** - US Patent No. 5,494,098 discloses a fan driven heat sink assembly that includes a fan, fan housing, a flat metal base, a plurality of fins and housing that is fixed to the base. The fins are also fixed to the base and extend from the base to a top wall of the housing. This top wall has an aperture or opening that is aligned with the opening of the fan assembly. The fins extend from one end of the housing to the other end of the housing. The airflow path is through the fan housing, the aperture, and then through the two end opening of the assembly.

The language of the limitations evaluated in this brief is shown below.

Claim 1

A heat sink assembly for use in removal of heat from a heat generating electronic device, said heat sink assembly comprising:

- (a) solid base;
- (b) a housing which is fixed relative to said base, said housing having a top wall which is spaced from said base, and side walls which extend from said base to said top wall, a first end opening at a first end of said base which is defined by said base, side walls and top wall, a second end opening which is defined by said base, side walls and top wall at a second end of said base which is opposite said first end opening, and an aperture in said top wall which is spaced from said first and second end openings;
- (c) a plurality of parallel spaced fins which are fixed to said base, and fins extending from said base to said top wall, said fins defining with said base and said top wall a plurality of channels which extend from said first end opening to said second end opening, the portion of said channels which lie beneath said aperture being open to said aperture; and
- (d) a fan assembly which is fixed to said top wall above said aperture for blowing air through said aperture and creating an airflow through said channels from said aperture to each of said first and second end openings.

Claim 2

A heat sink assembly as recited in claim 1, wherein said fan assembly comprises:

- (a) a fan housing which is fixed to said top wall, said fan housing having a bottom opening at said aperture and a top opening; and
- (b) a rotor which has at least one fan blade, said rotor being rotatably mounted within said fan housing between said bottom and top openings.

Claim 7

A heat sink assembly for use in removal of heat from a heat generating electronic device, said heat sink assembly comprising:

- (a) a flat base wall;
- (b) a housing which is fixed relative to said base wall, said housing having a top wall which is spaced from said base wall, and side walls which extend from said base wall to said top wall, a first end opening at a first end of said base wall which is defined by said base wall, said side walls and said top wall, a second end opening which is defined by said base wall, said side walls and said top wall at a second end of said base wall which is opposite said first end opening, and an aperture in said top wall which is spaced from said first and second end openings;

(c) a plurality of parallel spaced fins which are fixed to said base wall, said fins extending from said base wall to said top wall, said fins defining with said base and said top wall a plurality of channels which extend from said first end opening to said second end opening, the portion of said channels which lie beneath said aperture being open to said aperture; and

(d) a fan assembly which is fixed to said top wall above said aperture for blowing air through said aperture and creating an airflow through said channels from said aperture to each of said first and second end openings.

and fan assembly comprising:

(1) a fan housing which is fixed to said top wall, said fan housing having a bottom opening at said aperture and a top opening; and

(2) a rotor which has at least one fan blade, said rotor being rotatably mounted within said fan housing between said bottom and top openings, said fan blade being spaced from the fins so as to define a plenum chamber between said blade and said fins.

Claim 8

A heat sink assembly as recited in claim 7, wherein the portions of said fins which are directly below said aperture are below the level of said top wall and are vertically spaced from said aperture.

Claim 9

A heat sink assembly for use in removal of heat from a heat generating electronic device, said heat sink assembly comprising:

(a) a flat base wall;

(b) a housing which is fixed relative to said base wall, said housing having a top wall which is spaced from said base wall, and side walls which extend from said base wall to said top wall, a first end opening at a first end of said base wall which is defined by said base wall, said side walls and said top wall, a second end opening which is defined by said base wall, said side walls and said top wall at a second end of said base which is opposite said first end opening, and an aperture in said top wall which is spaced from said first and second end openings;

(c) a plurality of parallel spaced fins which are fixed to said base, said fins extending from said base wall to said top wall, said fins defining with said base wall and said top wall a plurality of channels which extend from said first end opening to said second end opening, the portion of said channels which lie beneath said aperture being open to said aperture; said fins being a single continuous length of material which extends transversely of said channels, each of said fins having an upper end which is connected to the upper end of an adjacent fin and a lower end which is connected to the lower end of a different adjacent fin, the portion of said fins which are vertically aligned which said aperture being unconnected at their upper end so that all of said channels are operatively connected to said aperture; and

(d) a fan assembly which is fixed to said top wall above said aperture for blowing air through said aperture and creating an airflow through said channels from said aperture to each of said first and second end openings.

V. Discussion of Limitations of Asserted Claims

The accused products, '369, '713, '329, '001, and '003, lack certain limitations of the asserted claims.

1. The shroud of heat sinks '369, '713, '329, '001, and '003 is not fixed to the base, as required by claims 1, 7 and 9 of the '098 patent¹. The shroud is not bonded, brazed, fastened with screws or rivets, or otherwise firmly attached to the base. Instead, tabs, located on the bottom of the shroud or frame in each of the four corners, are bent inward so that they are captured by a pair of grooves the run along the bottom of the base in a direction that is perpendicular to the fins. Because this is not a fixed attachment there is play between the shroud and the base. The shroud is easily removed by unbending the tabs, as Dr. Rhee did in her testing. Figure 1, below, shows one example of the tabs positioned within the grooves of a Foxconn heat sink.

¹ It is my understanding that if a product does not infringe claim 1 it cannot infringe claim 2, and that if a product does not infringe claim 7 it cannot infringe claim 8.

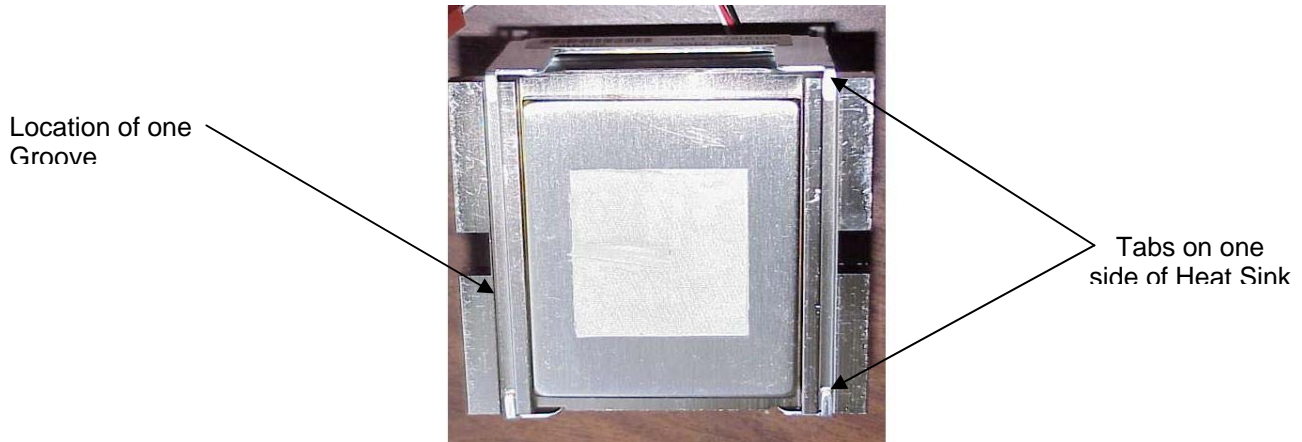


Figure 1. Location of Tabs and Groove used to hold Shroud and Fan Assembly to Heat Sink ('329 heat sink)

2. The shroud of heat sinks '369, '713, '329, '001, and '003 lack sidewalls as required by claims 1, 7 and 9 of the '09 patent. In the Foxconn heat sinks the top wall and fan assembly are secured to the base using a shroud that has the features of a frame and has an arch like structure. This structure has a member in each corner that has a length that defines the distance between the top wall and the base of the heat sink. A beam runs across the top. Figure 2, below, is a picture of a disassembled '329 heat sink which shows that the shroud does not have sidewalls; the shrouds of other Foxconn heat sinks have a similar structure.

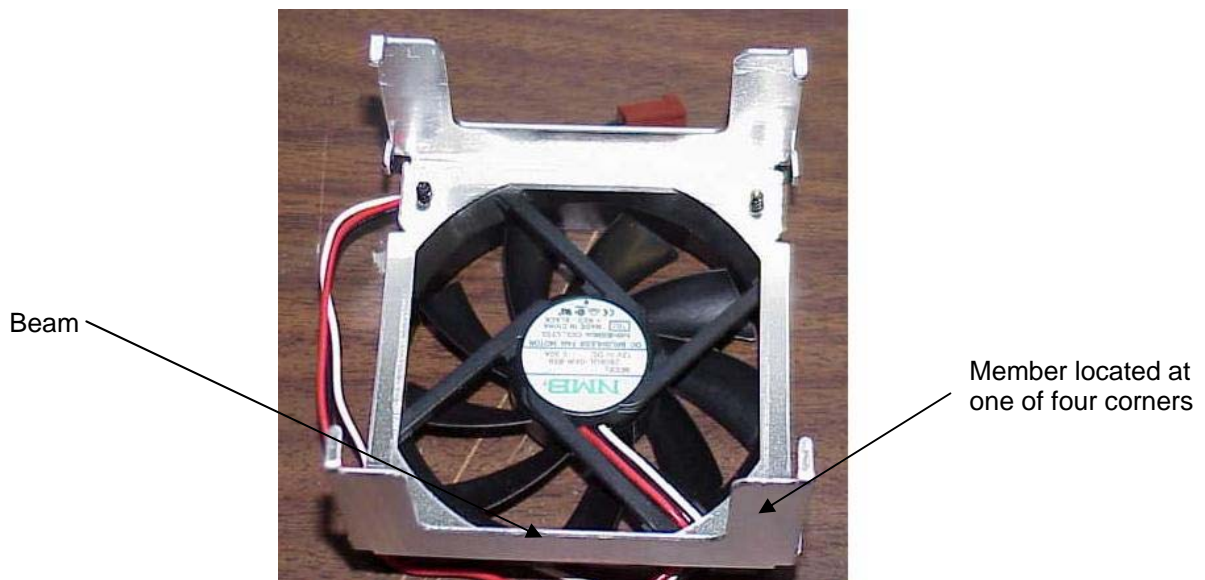


Figure 2. Shroud and Fan Assembly for '329 Heat Sink

Likewise. I understand that the Court has construed "housing" to mean, "an enclosure located over the fins of the heat sink." The structure shown above and the structure of other accused products do not enclose the fins and therefore is not a housing as used in the '098 Patent.

3. Heat sinks '369, '713, '329, and '003 have a gap between the fins and the top wall that is neither trivial nor insignificant. I understand that the Court's claim construction requires the fins to reach a point where only a trivial or insignificant gap exists between the fin and the top wall. None of the Foxconn products meet this requirement.

First of all, spacers are used to ensure that there is a gap between the front and rear ends of the fins and the top wall. ATS002885 and ATS002886 are drawings of the '003 heat sink. These drawings show that the sheet

metal shroud has been bent in a manner to create four spacers that define the 1.56 mm gap between the top wall and the front and rear ends of the fins². The other Foxconn heat sinks all have similar spacers in the shroud and similar gaps between the top wall and the front and rear end in of the fins. The fact that the spacers were added, requiring an additional manufacturing step, indicates that the gap is neither trivial nor insignificant.

The best way to determine whether the gap between the top wall and the fins is trivial or insignificant is to consider manufacturing processes and costs. In his declaration in support of the plaintiff's opening claim construction brief, page 9, item 30, Dr. Moffat states that "A person of ordinary skill in the art would recognize that the words "extending" and "extends" in the claims of '098 patent mean that the fins should come as close to the top wall as is reasonable from a manufacturing cost standpoint, but that it is not necessary for the fins actually to touch the top wall." Document ATS002885 and ATS002886 show a manufacturing tolerance of .25 mm for the height of the fins in the '003 heat sink, which indicates that coming within a distance of .25 mm from the top wall can be reasonably achieved. I have also reviewed drawings for ATS heat sink A100123, which I understand ATS claims embodies the '098 patent. In the A100123 heat sink, manufacturing tolerance is again .25 mm and the tops of the fins are within .25 mm of the top wall. Since the gap between the front and rear edges of the fins and the top wall in the accused Foxconn heat sinks is six times greater than the .25 mm tolerance, it is neither trivial nor is it physically insignificant. I also note that the gap between the top wall and the front and rear ends of the fins is approximately the same size as the gap between the fins. Since the gap between the fins is clearly significant and non-trivial, this suggests that the gap between the top wall and the front and rear ends of the fins is also significant and non-trivial.

The only argument made to back up the plaintiff's claim that the gap between the fins and the top wall is trivial or insignificant is based upon the thermal performance of the heat sink being similar for cases where there is a different gap size. In order to argue this point the plaintiff presents data provided by Dr. Jinny Rhee. The thermal performance was measured for three cases. The three cases are as follows:

- a. There is no gap or the gap is trivial between the front and rear edges of the fins and the top wall
- b. The gap between the front and rear edges of the fins and the top wall is held to approximately 1.5 to 2 mm as in the accused products
- c. The gap between the front and rear edges of the fins and top wall is held to approximately 4 mm

It is my opinion that thermal performance cannot be used as basis for determining if the gap between the top wall and the fins is trivial. First, it should be noted that US Patent No. 5,494,098 only references geometry or physical design when defining the invention. Similarly, the patentee's use of the language "trivial or insignificant" in the file history did not relate to thermal performance. Therefore, one of ordinary skill in the art would not believe that whether the gap was trivial or significant would depend upon the thermal performance.

Using thermal performance would also lead to bizarre results. CFD simulations³ of the '003 heat sink completed by Foxconn confirm that the gap can be increased significantly without degradation of the thermal performance. Their data shows that a 6 mm gap is optimal and that even a 10 mm gap performs as well or better than a no-gap version of the heat sink (see DEF20170). With a 32.5 mm fin height, this gap distance is 25% of the total distance between the top wall and the base and is clearly neither trivial nor insignificant despite having similar thermal performance to a no-gap version of the heat sink.

ATS' analysis is somewhat misleading because the maximum fin height is used for purposes of defining the gap between the fins and the top wall. When a close examination of the '003 was done, because all but the very end portion of the fins is at a lower height, it was determined that the average fin height is approximately 4 mm less than the maximum fin height. In other words the average gap between the top wall and the fins for the '003 is approximately 5.5 mm. The testing done by Dr. Rhee for the '003 heat sink was actually run with (a) 4 mm average gap, (b) 5.5 to 6 mm average gap, and (c) 8 mm average gap.

4. Heat sinks '369, '713, '329, '001, and '003 do not have channels as defined in the Claim Construction Order. A channel is defined by the Court as "passages for air flow, enclosed within the housing unit with vertical walls

² Dr. Moffat maintains that these spacers are part of the top wall. The spacers are separately called out and identified in the drawings. The side frame structures are also bent from the same piece of sheet metal as the top wall but are clearly not part of the top wall. It is clear that the spacers have their own identity and cannot be considered to be a part of the top wall.

³ Computational Fluid Dynamics ("CFD") simulations are commonly used in thermal engineering in the electronics industry.

reaching at least to the point where only a trivial or insignificant gap exists between the walls and the top wall of the housing." The wording suggests that a channel is fully ducted to the point where the gap between the fins and the top wall is trivial or insignificant. As pointed out earlier, ATS002885 and ATS002886 are drawings of '003 that show that a distance between the top of the fin and the top wall of .25 mm can be easily manufactured. As stated earlier the gap between the top of the fins and the top wall is approximately 5.5 mm for most of the length of the fin in the '713, '329, '001, and '003 accused Foxconn heat sinks. This distance is more than 20 times the manufacturing tolerance, almost four times the distance between the fins, and is structurally not a trivial gap. The gap between the top of the fins and the top wall for the '369 heat sinks is approximately 2 mm. Even this smaller distance is still better than 6 times the manufacturing tolerance is also structurally not a trivial gap.

VI. **Final Conclusion**

For the foregoing reasons, it is my opinion that Foxconn heat sinks '369, '713, '329, '001, and '003 do not infringe on claims 1, 2, 7, 8 or 9 of US Patent No. 5,494,098. I reserve the right to supplement this report as new information is made available to me. In particular, if Dr. Moffat is allowed to submit a supplemental report addressing infringement under the doctrine of equivalents, I reserve the right to address that subject in a supplemental report.

Dated: January 12, 2005


William Maltz

Electronic Cooling Solutions, Inc

612 National Avenue
Mountain View, CA 94043
Phone: (650) 988-1155

Fax: (650) 988-1153

William Maltz

Background:

- ◆ Eighteen years of experience solving thermal management problems for electronic products.
- ◆ Ten years of thermal management consulting experience for a wide range of customers. Past and present customers include: 3Com, Apple Computer, Boeing Company, Brocade Communications Systems, Ciena, Cisco Systems, Compaq Computers, Hewlett-Packard, IDEO Product Design, Intel, Philips, JDS Uniphase, Motorola Electronics, Sun Microsystems and a large number of smaller companies.
- ◆ 12 years of experience modeling electronic systems using Computational Fluid Dynamics (CFD) software.
- ◆ Thermal engineering experience prior to establishment of Electronic Cooling Solutions at Tandem Computers, Amdahl, Network Equipment Technologies, and Hewlett-Packard.

Technical Tools:

- ◆ **Proficient in use of Flotherm and Icepak (Computational Fluid Dynamics software):** Used for prediction of airflow and heat transfer in electronic systems. The software has significant value for evaluation of fan requirements, sizing of inlet and exhaust venting, design of air ducting, heat sink design and optimization, evaluation of fan failure, system servicing and other extreme conditions such as high elevation and high room temperature conditions.
- ◆ **Test Facilities:** Design, setup and management of thermal test laboratories for Tandem Computers, Network Equipment Technologies, Applied Thermal Solutions and Electronic Cooling Solutions. Able to select procure and install and train staff to use all equipment required in a state-of-the-art thermal test lab.
- ◆ **Expertise in Measurement:**
 - ◆ **Volumetric Flow Chambers:** Tool used for laboratory measurement of system impedance, volumetric flow, and measurement of fan performance. This equipment is also used to characterization airflow impedance of heat sinks, board slots, filters and vents.
 - ◆ **Thermocouples and hot wire anemometry:** Air velocity and temperature measurement
 - ◆ **Data Acquisition System:** Integration of equipment and software to do computerized collection and processing of test data. Utilizes programming skills to integrate equipment control and data collection for a matrix of parameters.
 - ◆ **Thermal management solutions:** Recommendations for package, board and system levels solutions for electronic systems.

Current & Past Positions:

- ◆ President, Electronic Cooling Solutions, Sunnyvale, CA
1998-present
- ◆ Sr. Consulting Engineer, Applied Thermal Technologies, Santa Clara, CA
1997-1998
- ◆ President, William Maltz Consulting, San Jose, CA
1993-1997
- ◆ Sr. Mechanical Engineer, Amdahl Corporation, Fremont, CA
1992-1993
- ◆ Mechanical Engineer, Tandem Computers, Cupertino, CA
1986-1992

Other Activities:

- ◆ Founder of Two Consulting Companies
- ◆ Program Committee for Semi-Therm: 2000 through 2004
- ◆ Session Chair for Semi-Therm: 2000 and 2001
- ◆ Program Committee and Session Chair for IMAPS Advanced Technical Workshop on Thermal Management: 2002 through 2004
- ◆ Reviewer for Articles in IEEE and ASME Journals
- ◆ Reviewer for Several Handbooks on Heat Transfer and Electronic Cooling

EXHIBIT G

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NOT FOR CITATION

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

ATS AUTOMATION TOOLING SYST.,
INC., et al.,

Plaintiffs,

No. C 03-2648 PJH

v.

**ORDER RE MOTIONS FOR SUMMARY
JUDGMENT AND SUPPLEMENTAL
CLAIM CONSTRUCTION**

FOXCONN ELECTRONICS, INC., et al.,

Defendants.

The parties' various motions for summary judgment came on for hearing on April 20, 2005 before this court. Plaintiffs appeared through their counsel John Regan, and defendants appeared through its counsel, Peter Wied. The parties also submitted post-hearing briefing.¹ Having read all submitted papers and carefully considered the relevant legal authority, the court DENIES plaintiffs' motion for summary judgment on infringement, GRANTS plaintiff's motion for summary judgment on affirmative defenses as unopposed, and GRANTS IN PART and DENIES IN PART defendants' motion for summary judgment.²

BACKGROUND

Plaintiffs ATS and Thermal Form and Function are, respectively, the exclusive licensee and assignee of U.S. Patent No. 5,494,098 ("the '098 patent"), which covers heat sink devices. Heat sinks are generally used to dissipate the heat generated by computer microprocessors, which would otherwise damage a computer's electronic components.

¹ Defendants' motion to strike plaintiffs' supplemental brief is DENIED, but the court has considered only the portions of plaintiffs' papers that comply with the court's order permitting supplemental briefing.

² Pursuant to Civ. L.R. 7-13, this order may not be cited except as provided by Civ. L. R. 3-4(e).

1 Plaintiffs claim that the heat sinks manufactured and sold by defendants Foxconn
2 Electronics, Foxconn Technology, and Hon Hai infringe claims 1, 2, and 7-9 of the '098 patent.
3 It is undisputed that the defendants manufacture and sell at least five models of heat sinks to
4 IBM in the United States. The five models are known as the '369 heat sink, the '713 heat sink,
5 the '329 heat sink, the '001 heat sink, and the '003 heat sink (collectively, "the accused
6 products").

7 In the operative second amended complaint, plaintiffs have asserted a claim for patent
8 infringement under 35 U.S.C. § 1 et seq. Defendants filed counterclaims against plaintiffs
9 seeking a declaratory judgment that they do not infringe, and that the patent is neither valid nor
10 enforceable. Both parties have filed motions for summary judgment. Plaintiffs move for
11 summary judgment of direct infringement on all asserted claims. Defendants move for
12 summary judgment on 1) direct infringement; 2) invalidity; and 3) the unavailability of lost profits
13 damages.

14 Plaintiffs have also moved for summary judgment on three of defendants' affirmative
15 defenses. Defendants have indicated that they do not oppose the entry of summary judgment
16 on those three defenses.

17 **DISCUSSION**

18 A. Legal Standard

19 Summary judgment is appropriate when the evidence shows there is no genuine issue
20 of material fact and the moving party is entitled to judgment as a matter of law. Fed. R. Civ. P.
21 56(c); Anderson v. Liberty Lobby, Inc., 477 U.S. 242 (1986).

22 B. Infringement

23 1. Legal Standard

24 The court engages in a two-step process in evaluating a motion for summary judgment
25 on infringement. First, the court must determine the scope and meaning of the claims in claim
26 construction, and then compare that construction of the patent against the accused products.
27 See, e.g., Business Objects, S.A. v. Microstrategy, Inc., 393 F.3d 1366, 1371 (Fed. Cir. 2004)

28

1 (citations omitted).

2 While claim construction is a matter of law, infringement itself is a question of fact.
3 See, e.g., Frank’s Casing Crew and Rental Tools, Inc. v. Weatherford International, Inc., 389
4 F.3d 1370, 1376 (Fed. Cir. 2004) (citations omitted). Therefore, a plaintiff is only entitled to
5 summary judgment on the question of infringement “only if the facts and inferences, when
6 viewed in the light most favorable to [defendant], would not persuade a reasonable jury to
7 return a verdict in favor of . . . the non-moving party.” Business Objects, 398 F.3d at 1371.

8 At the hearing, it became apparent that two additional disputed terms were in need of
9 construction. Pursuant to agreement of the parties, additional briefing on claim construction
10 was submitted following the hearing. The court adopts the standard for review set forth in the
11 August 30, 2004 claim construction order in this case, and construes the disputed terms “side
12 wall” and “fixed relative to” as follows.

13 2. “Side Wall”

14 a. Claim Construction

15 Plaintiffs propose that the term “side wall” in the ‘098 patent be construed as “any
16 upright structure that forms the side of something, having a length much greater than its
17 thickness, and that is used for support, enclosure, defining a space, or protecting an area.”
18 Defendants propose the construction “a structure enclosing, dividing, or protecting an area, on
19 the side of the claimed housing.” The parties agree that the term “side wall” should be given
20 its ordinary meaning in construction, and that nothing in the claims, specification, or
21 prosecution history has altered the scope of that term. See, e.g., Texas Digital Sys., Inc. v.
22 Telegenix, Inc., 308 F.3d 1193, 1202 (Fed. Cir. 2002), cert. denied, 538 U.S. 1058 (2003)
23 (claim language to be given ordinary meaning absent clear indication to do otherwise).

24 The court finds that defendants’ proposal more accurately defines the ordinary
25 meaning of the term “wall,” without the added limitation that the wall have a length much
26 greater than its thickness, and construes the term “side wall” as **a structure enclosing,**
27 **dividing, or protecting an area on the side of the claimed housing.**

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1 relation to the wall. The ordinary meaning of the term “fixed” does not necessarily imply that
2 the secured item be completely immovable, but rather, only that it be securely attached.

3 Accordingly, the court finds that plaintiffs’ proposed construction better reflects the
4 ordinary meaning of the term, except as to whether the object being fixed can be fixed to the
5 base wall. Nothing in the ordinary meaning of the term permits the object to be fixed to the
6 base wall. Accordingly, the court construes the term “fixed relative to said base” as “**securely**
7 **placed, fastened, or attached relative to said base.**”

8 b. Infringement Analysis

9 The housing unit on the accused devices is fixed to the base by tabs. Plaintiffs argue
10 that the tabs on defendants’ housing unit securely fix the unit in place and render it stationary
11 as required by the construction of “fixed relative to said base,” whereas defendants claim that
12 the tabs permit limited movement between the housing unit and the base and the unit cannot
13 be found to be fixed firmly in place.

14 Summary judgment is DENIED for both parties on this issue. The question of whether
15 defendants’ housing unit can be considered “securely placed, fastened, or attached” to the
16 base wall when it is attached to the base with tabs is a disputed issue of fact.

17 4. Trivial or Insignificant Gap

18 The parties next dispute whether the gap between the fins and the top wall in the
19 accused products is “trivial or insignificant.” The court found in its claim construction of the
20 term “extending,” that in the prosecution history, the patent applicant distinguished his
21 invention from the prior art on the grounds that the prior art in question featured “more than a
22 trivial or insignificant spacing between the fan from the cooling fins.” Claim Construction
23 Order at 6; see also Ferrera Decl. Exh. 15 at 6 (prosecution history). Thus, the ‘098 patent
24 could only cover products featuring a “trivial or insignificant” gap between the fins and the top
25 wall.

26 Plaintiffs are correct that in the prosecution history, the patent applicant further
27 distinguished his application from the prior art by noting that the significant gap between the
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1 fins and the top wall in the prior art had the result of substantially reducing air velocity towards
2 the fins, whereas the '098 patent application described a system to "provide maximum air flow
3 along the surfaces of the fins to provide maximum heat transfer from the fins." Ferrera Decl.
4 Exh. 15 at 6. Thus, any assessment of the triviality or insignificance of the gap must be
5 assessed in terms of the effect of the gap on air flow or heat transfer.

6 Defendants' expert concedes that the gap present in the accused devices has no effect
7 on air flow or heat transfer. See Supplemental Maltz Expert Report (conceding that any
8 improvement seen was within margin of error). Accordingly, the gap in the accused device
9 must be considered "trivial" or "insignificant" in considering whether the fins "extend" towards
10 the top wall. Because the accused devices feature a "trivial or insignificant" gap between the
11 fins and the top wall, they thus read directly onto the requirement that the fins "extend" to the
12 top wall, and summary judgment on this issue is GRANTED in favor of plaintiffs and DENIED
13 as to defendants.

14 5. Continuous Length of Material

15 In its papers, defendants raised the argument that it did not infringe the '098 patent
16 because its fins were not made of a continuous length of material. However, defendants
17 appear to have subsequently abandoned that argument in the reply and at the hearing.
18 Summary judgment of non-infringement on this issue in favor of defendants is thus DENIED.

19 6. Other Asserted Devices

20 Finally, defendants move for summary judgment of non-infringement on nineteen other
21 devices for which they provided discovery to plaintiffs but against which plaintiffs asserted no
22 contentions. As discussed at the hearing, summary judgment in defendants' favor on those
23 devices is DENIED, and the court would likely grant any motion to exclude evidence of those
24 devices if proffered by plaintiffs at trial.

25 C. Invalidity

26 Defendants next move for summary judgment on invalidity, claiming that the '098 patent
27 is either anticipated or rendered obvious by the prior art. Because an issued patent enjoys
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1 the presumption of validity, invalidity must be proven by clear and convincing evidence. See,
2 e.g., Medical Instrumentation and Diagnostics Corp. v. Elekta AB, 344 F.3d 1205, 1220 (Fed.
3 Cir. 2003), cert. denied, 541 U.S. 959 (2004) (citation omitted).

4 1. Anticipation

5 Defendants argue that claims 1, 2, and 7 of the '098 patent are anticipated by the prior
6 art references of both Yuan and Lee.

7 a. Legal Standard

8 "To anticipate, a single reference must teach each and every limitation of the claimed
9 invention." Eolas Technologies, Inc. v. Microsoft Corporation, 399 F.3d 1325, 1335 (Fed. Cir.
10 2005) (citation omitted). Anticipation is a question of fact, see, e.g., Medical Instrumentation,
11 344 F.3d at 1220, and summary judgment is thus proper only if "no reasonable jury could find
12 that the patent is not anticipated," Telemac Cellular Corp. v. Topp Telecomm Inc., 247 F.3d
13 1316, 1327 (Fed. Cir. 2001).

14 b. Claims 1 and 2

15 Taiwan Patent No. 186944 ("Yuan"), filed in 1992, discloses a heat sink that consists of
16 a metal base with wedges cut into it. A housing unit with a round aperture is screwed onto the
17 base, and a fan is screwed into the aperture and the base. Wied Decl. Exh. C ("Yuan
18 Patent"); id. at Fig 1 (metal base with fins labeled "30"). Plaintiffs appear to concede that
19 Yuan contains all the elements in claims 1 and 2 of the '098 patent, except for one. Plaintiffs
20 argue that because the base of the Yuan heat sink is the heat sink itself, it thus cannot be said
21 to contain a separate flat base, or fins fixed to that flat base. Moffat Opp. Decl. ¶ 11.

22 Plaintiffs' argument is unavailing. The "heat sink" described in the '098 patent does not
23 exist separately from the base but rather, is comprised of the elements of a) a base with fins
24 attached to it, b) a housing unit attached to the base, and c) a fan attached to the top wall of
25 the base. This is exactly what is described by Yuan, which contains a thick metal base with
26 fins cut into it, a housing unit over the fins, and a fan attached to the top of the base.

27 This entire contained unit constitutes the heat sink as a whole, and thus the thick base
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1 in Yuan constitutes the flat base required by the '098 patent. This is further supported by the
2 Yuan specification, which describes the bottom of the base wall as "the bottom surface of the
3 heat sink." Id. at 2, 6-7; see also Fig. 3 (showing base wall mounted on top of a
4 microprocessor).

5 Claims 1 and 2 of the '098 patent are thus anticipated by Yuan.

6 c. Claim 7

7 Defendants claim that both Yuan and U.S. Patent No. 5,375,655 ("Lee," issued in
8 1993) anticipate claim 7 of the '098 patent as well.

9 i. Yuan

10 Claim 7 of the '098 patent requires the disclosure of, among other things, a fan blade
11 spaced from the fins sufficiently to create a plenum chamber between the base and the fins.
12 As construed, the term "plenum chamber" as used in the '098 patent requires only that there
13 be sufficient space between the base and the fins for air to circulate.

14 Disputed issues of fact exist on the question of whether Yuan discloses that amount of
15 space, with plaintiffs arguing that Yuan shows no space between the fan and the fins for air
16 circulations and defendants arguing the opposite. Construing all facts in favor of plaintiffs as
17 the non-moving parties, defendant's motion for summary judgment on the anticipation of claim
18 7 of the '098 patent by Yuan is DENIED.

19 ii. Lee

20 Lee discloses a heat sink with multiple corrugated fins that are arranged in a
21 staggered formation and thus offset from one another, creating short channels that do not run
22 the length of the heat sink.

23 Claim 7 of the '098 patent also requires the presence of a fan assembly fixed to the top
24 wall of the heat sink. Defendants concede that Lee does not disclose the presence of a fan
25 assembly, but does describe systems in which air flow can be directed through the heat sink
26 through "forced fluid flow application." Lee Patent at 5:67-6:3, 8:43-46. There is thus a
27 genuine disputed issue of material fact concerning whether a person of ordinary skill in the art
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1 would read the Lee patent and understand that it in fact disclosed a fan assembly through its
2 discussion of “forced fluid flow application.” Defendant’s motion for summary judgment of
3 anticipation of claim 7 of the ‘098 patent by Lee is DENIED.

4 2. Obviousness

5 Next, defendants argue that claims 7, 8, and 9 of the ‘098 patent are rendered obvious
6 by a combination of Yuan, Lee, Tanaka, and the 333100 Disclosure.

7 A patent is considered obvious if “the differences between it and the prior art “are such
8 that the subject matter as a whole would have been obvious at the time the invention was
9 made to a person having ordinary skill in the art.” 35 U.S.C. § 103(a). To determine
10 obviousness, the court must “examine 1) the scope and the content of the prior art; 2) the level
11 of ordinary skill in the art; 3) the differences between the claimed invention and the prior art;
12 and 4) the objective evidence of nonobviousness.” Iron Grip Barbell Co., Inc. v. USA Sports,
13 Inc., 392 F.3d 1317, 1320 (Fed. Cir. 2004), citing Graham v. John Deere Co., 383 U.S. 1, 17-
14 18 (1966). Obviousness is a question of law based on underlying questions of fact. Medical
15 Instrumentation, 344 F.3d at 1220 (Fed. Cir. 2003) (citation omitted).

16 To prevail on a claim for obviousness, defendants must show “a motivation or
17 suggestion” to combine the separate elements of prior art cited, along with “a reasonable
18 expectation of success” in doing so. Boehringer Ingelheim Vetmedica, Inc. v. Schering-
19 Plough Corp., 320 F.3d 1339, 1354 (Fed. Cir. 2003). See also Teleflex, Inc. v. Ficosa North
20 Am. Corp., 299 F.3d 1313, 1334 (Fed. Cir. 2002) (“The showing of motivation to combine
21 must be clear and particular, and it must be supported by actual evidence.”)

22 Plaintiffs argue, among other things, that defendants have failed to show any motivation
23 to combine these references to render claims 7-9 obvious. Defendants argue in response
24 that it is clear from reviewing the references that the issue of air flow was significant and any
25 practitioner with ordinary skill in the art would have known to add a plenum chamber of some
26 design to the top of the heat sink. However, this creates at a minimum significant questions of
27 fact as to the motivation to combine, which is sufficient to defeat summary judgment on
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1 obviousness for claims 7-9. In re Gartside, 203 F.3d 1305, 1316 (Fed. Cir. 2000) (“The
2 presence or absence of a motivation to combine references in an obviousness determination
3 is a pure question of fact.”). Defendants’ motion for summary judgment on obviousness is
4 DENIED.

5 D. Lost Profits

6 Defendants next move for summary judgment on the issue of damages, claiming that
7 plaintiffs are barred from recovering lost profits damages in this matter as a matter of law.

8 To prevail on a request for lost profits, plaintiffs must show the absence of non-
9 infringing substitutes for its products. Rite-Hite Corp. v. Kelley Co., Inc., 56 F.3d 1538, 1545
10 (Fed. Cir. 1995), citing Panduit Corp. v. Stahlin Brothers Fibre Works, Inc., 575 F.2d 1152,
11 1156 (6th Cir. 1978). There is a genuine dispute of material fact as to whether IBM would
12 have accepted alternate designs for heat sinks and whether the witnesses testifying otherwise
13 are credible. Summary judgment on this issue in favor of defendants is DENIED and
14 evidence of lost profits damages may be presented at trial.

15 E. Affirmative Defenses

16 Finally, plaintiffs moves for summary judgment on the first, fifth, and thirteenth
17 affirmative defenses asserted by defendants, which are: failure to state a claim, inequitable
18 conduct, and failure to mark. Defendants have filed a notice of non-opposition to the request.
19 Accordingly, plaintiffs’ motion for summary judgment on these three affirmative defenses is
20 GRANTED.

21 F. Conclusion

22 Summary judgment on the issue of direct infringement is GRANTED in favor of
23 defendants and DENIED for plaintiffs. Defendants thus do not directly infringe the ‘098 patent
24 under the court’s interpretation of the term “side wall.” The issue of infringement under the
25 doctrine of equivalents remains outstanding for trial. Summary judgment under the court’s
26 construction of “fixed relative to said base” is DENIED as to both parties, but summary
27 judgment under the court’s construction of “extending” is GRANTED in favor of plaintiffs and
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1 DENIED as to defendants. Summary judgment in favor of defendants on “continuous length of
2 material” is DENIED, and summary judgment in favor of defendants on other devices for which
3 plaintiffs asserted no contentions is DENIED.

4 Defendants’ motion for summary judgment on the issue of invalidity is GRANTED IN
5 PART and DENIED IN PART. Summary judgment of invalidity is GRANTED as to claims 1
6 and 2 of the ‘098 patent, as anticipated by Yuan, and DENIED as to claims 7-9, because
7 there are disputed issues of fact on anticipation concerning whether Yuan discloses a plenum
8 chamber, whether Lee discloses a fan assembly, and also disputed issues of fact as to
9 whether there was any motivation to combine any of the prior art, as required for obviousness.


10 Defendants’ motion for summary judgment on lost profits is DENIED, and plaintiffs’
11 motion for summary judgment on the three affirmative defenses is GRANTED.

12 This order fully adjudicates the matters listed at nos. 130, 139, 141, 147, 151, 153,
13 191, and 200 on the clerk’s docket for this case.

14 Counsel may arrange to retrieve the exemplars submitted at the hearing for the court’s
15 examination by calling the courtroom deputy for the undersigned.

16 **IT IS SO ORDERED.**

17 Dated: May 20, 2005



PHYLLIS J. HAMILTON
United States District Judge

United States District Court
For the Northern District of California

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