

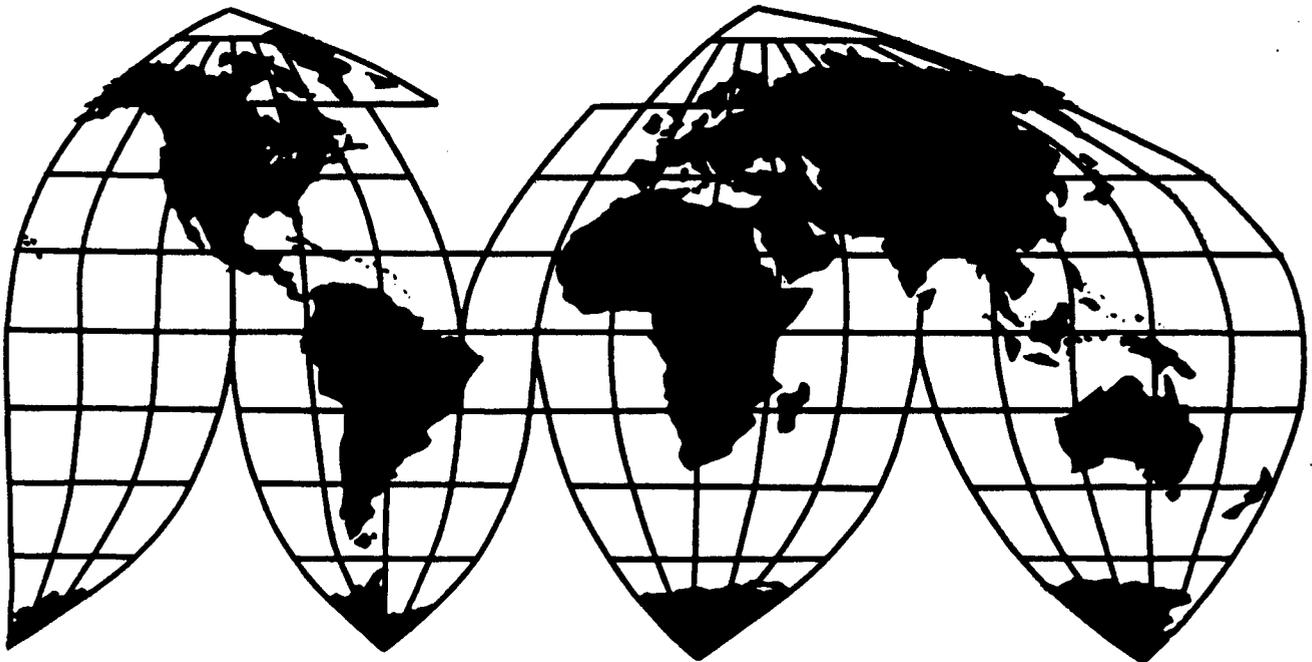
# **Certain Ink Jet Print Cartridges and Components Thereof**

Investigation No. 337-TA-446

**Publication 3549**

**October 2002**

**U.S. International Trade Commission**



Washington, DC 20436

# **U.S. International Trade Commission**

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Washington, DC 20436**

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Washington, DC 20436

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In the Matter of

**CERTAIN INK JET PRINT CARTRIDGES  
AND COMPONENTS THEREOF**

Investigation No. 337-TA-446

**NOTICE OF ISSUANCE OF LIMITED EXCLUSION ORDER  
AND CEASE AND DESIST ORDERS;  
TERMINATION OF THE INVESTIGATION**

AGENCY: U.S. International Trade Commission.

ACTION: Notice.

SUMMARY: Notice is hereby given that the U.S. International Trade Commission determined to reverse-in-part the presiding administrative law judge's ("ALJ") initial determination ("ID") of January 25, 2002, in the above-captioned investigation, and determined that the accused devices infringe claim 4 of U.S. Letters Patent 4,635,073 ("the '073 patent"), and that complainant Hewlett-Packard Company ("HP") has satisfied the technical prong of the domestic industry requirement with respect to the '073 patent. Having found a violation of section 337 of the Tariff Act of 1930, 19 U.S.C. § 1337, the Commission issued a limited exclusion order and cease and desist orders, and terminated the investigation.

FOR FURTHER INFORMATION CONTACT: Peter L. Sultan, Esq., Office of the General Counsel, U.S. International Trade Commission, 500 E Street, S.W., Washington, D.C. 20436, telephone 202-205-3094. Copies of the limited exclusion order and cease and desist order and all other nonconfidential documents filed in connection with this investigation are or will be available for inspection during official business hours (8:45 a.m. to 5:15 p.m.) in the Office of the Secretary, U.S. International Trade Commission, 500 E Street S.W., Washington, D.C. 20436, telephone 202-205-2000. General information concerning the Commission may also be obtained by accessing its Internet server (<http://www.usitc.gov>). The public record for this investigation may be viewed on the Commission's electronic docket (EDIS-ON-LINE) at <http://dockets.usitc.gov/eol.public>. Hearing-impaired persons are advised that information on the matter can be obtained by contacting the Commission's TDD terminal on 202-205-1810.

SUPPLEMENTARY INFORMATION: The Commission instituted this investigation on the basis of a complaint filed by HP, alleging a violation of section 337 of the Tariff Act of 1930 in the importation and sale of certain ink jet print cartridges and components thereof by reason of infringement of U.S. Letters Patent 4,827,294; 4,635,073 ("the '073 patent"); 4,680,859; 4,872,027; 4,992,802; and 5,409,134. The complaint named five respondents: Microjet Technology Co., Ltd. of Taipei, Taiwan; Printer Essentials of Reno, Nevada; Price-Less Inkjet Cartridge Company of Port Charlotte, Florida ("Price Less");

Cartridge Hut and Paperwork Plus of Sun City, California (“Cartridge Hut”); and ABCCo.net, Inc. of Port Charlotte, Florida (“ABC”). The investigation was later terminated on the basis of consent order agreements with respect to Printer Essentials and Cartridge Hut.

The ALJ issued his final ID, along with a recommended determination on remedy and bonding, on January 25, 2002. He concluded that there was a violation of section 337, based on the following findings: (a) that the asserted claims of all of the patents at issue, except for claim 4 of the ‘073 patent, are infringed by respondents Microjet, Price-Less and ABC; and (b) that an industry exists in the United States that exploits each of the patents in issue, except the ‘073 patent. The ALJ recommended a bond of 100% of entered value during the Presidential review period, and a limited exclusion order issue against Microjet, and cease and desist orders against Price-Less and ABC.

On March 7, 2002, the Commission determined (1) to review the ALJ’s construction of claim 4 of the ‘073 patent and his findings of no infringement and no domestic industry with respect to the ‘073 patent; (2) not to review the remainder of the ID. On review, the Commission determined that the accused devices infringe claim 4 of the ‘073 patent, and that complainant HP has satisfied the technical prong of the domestic industry requirement with respect to the ‘073 patent.

The Commission found that each of the statutory requirements has been met for the issuance of a limited exclusion order with respect to respondent Microjet, and for the issuance of a cease and desist order with respect to respondents Price-Less and ABC. The Commission further determined that the public interest factors enumerated in section 337(g)(1) did not preclude the issuance of such relief. Finally, the Commission determined that bond under the limited exclusion order during the Presidential review period shall be in the amount of one hundred (100) percent of the entered value of the imported articles.

This action is taken under the authority of section 337 of the Tariff Act of 1930, 19 U.S.C. § 1337, and section 210.45 of the Commission’s Rules of Practice and Procedure, 19 C.F.R. § 210.45.

By order of the Commission.

  
Marilyn R. Abbott  
Secretary

Issued: April 25, 2002

UNITED STATES INTERNATIONAL TRADE COMMISSION  
Washington, D.C.

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In the Matter of

**CERTAIN INK JET PRINT CARTRIDGES  
AND COMPONENTS THEREOF**

Inv. No. 337-TA-446

**LIMITED EXCLUSION ORDER**

The Commission has determined that there is a violation of section 337 of the Tariff Act of 1930 (19 U.S.C. § 1337) in the unlawful importation and sale by Respondent Microjet Technology Co., Ltd. of Taiwan ("Microjet") of ink jet print cartridges by reason of infringement of claim 4 of U.S. Letters Patent 4,872,027, claim 4 of U.S. Letters Patent 4,635,073, claims 1 and 3 of U.S. Letters Patent 4,827,294, claims 1-4 and 12 of U.S. Letters Patent 4,992,802, claims 8-9 and 18-20 of U.S. Letters Patent 5,409,134, and claims 2-3 of U.S. Letters Patent 4,680,859, in violation of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337.

Having reviewed the record in this investigation, including the written submissions of the parties, the Commission has made its determination on the issues of remedy, the public interest, and bonding. The Commission has determined that the appropriate form of relief is a limited exclusion order prohibiting the unlicensed entry of infringing ink jet print cartridges manufactured by Respondent Microjet. The Commission has also determined to issue a cease and desist order against Respondents Price-Less Inkjet Cartridge Company and ABCCo.net, Inc.

The Commission has also determined that the public interest factors enumerated in 19 U.S.C. § 1337 (d) and (f) do not preclude issuance of the limited exclusion order or the cease and desist order, and that the bond during the Presidential review period shall be in the amount of 100% of the entered value of any imported infringing ink jet print cartridges.

Accordingly, the Commission hereby **ORDERS** that:

1. Ink jet print cartridges covered by claim 4 of U.S. Letters Patent 4,872,027, claim 4 of U.S. Letters Patent 4,635,073, claims 1 and 3 of U.S. Letters Patent 4,827,294, claims 1-4 and 12 of U.S. Letters Patent 4,992,802, claims 8-9 and 18-20 of U.S. Letters Patent 5,409,134, or claims 2-3 of U.S. Letters Patent 4,680,859, that are manufactured abroad and/or imported by or on behalf of Microjet, or any of its affiliated companies, parents, subsidiaries, or other related business entities, or their successors or assigns, are excluded from entry for consumption into the United States, entry for consumption from a foreign-trade zone, or withdrawal from a warehouse for consumption, for the remaining terms of the patents, except under license of the patent owner or as provided by law.

2. Ink jet print cartridges that are excluded by paragraph 1 of this Order are entitled to entry for consumption into the United States, entry for consumption from a foreign-trade zone, or withdrawal from a warehouse for consumption, under bond in the amount of 100% of entered value pursuant to subsection (j) of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337(j), from the day after this Order is received by the President until such time as the President notifies the Commission that he approves or disapproves this action but, in any event, not later than sixty (60) days after the date of receipt of this order.

3. In accordance with 19 U.S.C. § 1337(l), the provisions of this Order shall not apply to ink jet print cartridges that are imported by and for the use of the United States, imported for, and to be used for, the United States with the authorization or consent of the Government.

4. The Commission may modify this Order in accordance with the procedures described in Rule 210.76 of the Commission's Rules of Practice and Procedure, 19 C.F.R. § 210.76.

5. The Secretary shall serve copies of this Order upon each party of record in this investigation and upon the Department of Health and Human Services, the Department of Justice, the Federal Trade Commission, and the U.S. Customs Service.

6. Notice of this Order shall be published in the *Federal Register*.

By Order of the Commission.

  
Marilyn R. Abbott  
Secretary

Issued: April 25, 2002



UNITED STATES INTERNATIONAL TRADE COMMISSION  
Washington, D.C.

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US INT'L TRADE COMM

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In the Matter of

CERTAIN INK JET PRINT CARTRIDGES  
AND COMPONENTS THEREOF

Investigation No. 337-TA-446

**ORDER TO CEASE AND DESIST**

IT IS HEREBY ORDERED THAT Respondent cease and desist from conducting any of the following activities in the United States: importing, selling, marketing, advertising, distributing, offering for sale, transferring (except for exportation), or soliciting U.S. agents or distributors for certain ink jet print cartridges, as described below, covered by claim 4 of U.S. Letters Patent 4,872,027, claim 4 of U.S. Letters Patent 4,635,073, claims 1 and 3 of U.S. Letters Patent 4,827,294, claims 1-4 and 12 of U.S. Letters Patent 4,992,802, claims 8-9 and 18-20 of U.S. Letters Patent 5,409,134, or claims 2-3 of U.S. Letters Patent 4,680,859 in violation of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337.

I.

(Definitions)

As used in this Order:

(A) "Commission" shall mean the United States International Trade Commission.

(B) "Complainant" shall mean Hewlett-Packard Company, Complainant in this investigation, and its successors and assigns.

(C) "Respondent" shall mean ABCCo.net, Inc..

(D) "Person" shall mean an individual, or any non-governmental partnership, firm, association,

corporation, or other legal or business entity other than Respondents or their majority owned or controlled subsidiaries, their successors, or assigns.

(F) "United States" shall mean the fifty States, the District of Columbia, and Puerto Rico.

(G) The terms "import" and "importation" refer to importation for entry for consumption, entry for consumption from a foreign-trade zone, and withdrawal from warehouse for consumption under the Customs Laws of the United States.

(H) The term "covered products" shall mean: ink jet print cartridges covered by claim 4 of U.S. Letters Patent 4,872,027, claim 4 of U.S. Letters Patent 4,635,073, claims 1 and 3 of U.S. Letters Patent 4,827,294, claims 1-4 and 12 of U.S. Letters Patent 4,992,802, claims 8-9 and 18-20 of U.S. Letters Patent 5,409,134, or claims 2-3 of U.S. Letters Patent 4,680,859 that are not imported by, under license from, or with the permission of Complainant.

## II.

### (Applicability)

The provisions of this Cease and Desist Order shall apply to Respondent and to any of its principals, stockholders, officers, directors, employees, agents, licensees, distributors, controlled (whether by stock ownership or otherwise) and/or majority owned business entities, successors, and assigns, and to each of them, insofar as they are engaging in conduct prohibited by Section III, *infra*, for, with, or otherwise on behalf of Respondent.

## III.

### (Conduct Prohibited)

The following conduct of the Respondent in the United States is prohibited by the Order. For the remaining term of the respective patents, Respondent shall not:

(A) import or sell for importation into the United States covered products;

(B) market, distribute, offer for sale, sell, or otherwise transfer (except for exportation), in the

United States imported covered products;

(C) advertise imported covered products; and

(D) solicit U.S. agents or distributors for imported covered products.

(E) aid or abet other entities in the importation, sale for importation, sale after importation, transfer, or distribution of covered products.

#### IV.

##### (Conduct Permitted)

Notwithstanding any other provision of this Order, specific conduct otherwise prohibited by the terms of this Order shall be permitted if, in a written instrument, the owner of U.S. Letters Patent 4,872,027, 4,635,073, 4,827,294, 4,992,802, 5,409,134, and 4,680,859 licenses or authorizes such specific conduct, or such specific conduct is related to the importation or sale of covered products by or for the United States.

#### V.

##### (Reporting)

For purposes of this reporting requirement, the reporting periods shall commence on July 1 of each year and shall end on the subsequent June 30. However, the first report required under this section shall cover the period from the date of issuance of this Order through June 30, 2002. This reporting requirement shall continue in force until such time as Respondent will have truthfully reported, in two consecutive timely filed reports, that it has no inventory of covered products in the United States.

Within thirty (30) days of the last day of the reporting period, Respondent shall report to the Commission the quantity in units and the value in dollars of covered products that the Respondent has imported or sold in the United States after importation during the reporting period and the quantity in units and value in dollars of reported covered products that remain in inventory in the United States at the end of the reporting period.

Any failure to make the required report or the filing of any false or inaccurate report shall constitute a violation of this Order, and the submission of a false or inaccurate report may be referred to the U.S. Department of Justice as a possible criminal violation of 18 U.S.C. § 1001.

## VI.

### (Record Keeping and Inspection)

(A) For the purpose of securing compliance with this Order, Respondent shall retain any and all records relating to the sale, offer for sale, marketing, or distribution in the United States of covered products, made and received in the usual and ordinary course of business, whether in detail or in summary form, for a period of three (3) years from the close of the fiscal year to which they pertain.

(B) For the purposes of determining or securing compliance with this Order and for no other purpose, and subject to any privilege recognized by the federal courts of the United States, duly authorized representatives of the Commission, upon reasonable written notice by the Commission or its staff, shall be permitted access and the right to inspect and copy in Respondent's principal office during office hours, and in the presence of counsel or other representatives if a Respondent so chooses, all books, ledgers, accounts, correspondence, memoranda, and other records and documents, both in detail and in summary form as are required to be retained by subparagraph VI(A) of this Order.

## VII.

### (Service of Cease and Desist Order)

Respondent is ordered and directed to:

(A) Serve, within fifteen (15) days after the effective date of this Order, a copy of this Order upon each of its respective officers, directors, managing agents, agents, and employees who have any responsibility for the importation, marketing, distribution, or sale of imported covered products in the United States;

(B) Serve, within fifteen (15) days after the succession of any persons referred to in

subparagraph VII (A) of this Order, a copy of the Order upon each successor; and

(C) Maintain such records as will show the name, title, and address of each person upon whom the Order has been served, as described in subparagraphs VII(A) and VII(B) of this Order, together with the date on which service was made.

The obligations set forth in subparagraphs VII(B) and VII(C) shall remain in effect until the expiration of the last to expire of the patents specified in Section I above.

## VIII.

### (Confidentiality)

Any request for confidential treatment of information obtained by the Commission pursuant to Sections V and VI of the Order should be in accordance with Commission Rule 201.6, 19 C.F.R. § 201.6. For all reports for which confidential treatment is sought, Respondent must provide a public version of such report with confidential information redacted.

## IX.

### (Enforcement)

Violation of this Order may result in any of the actions specified in section 210.75 of the Commission's Rules of Practice and Procedure, 19 C.F.R. § 210.75, including an action for civil penalties in accordance with section 337(f) of the Tariff Act of 1930, 19 U.S.C. § 1337(f), and any other action as the Commission may deem appropriate. In determining whether Respondent is in violation of this Order, the Commission may infer facts adverse to Respondent if Respondent fails to provide adequate or timely information.

## X.

### (Modification)

The Commission may amend this Order on its own motion or in accordance with the procedure described in section 210.76 of the Commission's Rules of Practice and Procedure, 19 C.F.R. § 210.76.

## XI.

### (Bonding)

The conduct prohibited by Section III of this Order may be continued during the sixty (60) day period in which this Order is under review by the President pursuant to section 337(j) of the Tariff Act of 1930, 19 U.S.C. § 1337(j), subject to Respondent posting a bond in the amount of 100% of the entered value of the covered products. This bond provision does not apply to conduct that is otherwise permitted by Section IV of this Order. Covered products imported on or after the date of issuance of this order are subject to the entry bond as set forth in the limited exclusion order issued by the Commission, and are not subject to this bond provision.

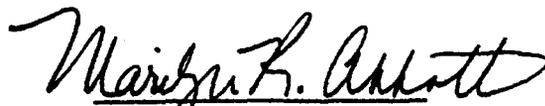
The bond is to be posted in accordance with the procedures established by the Commission for the posting of bonds by complainants in connection with the issuance of temporary exclusion orders. See Commission Rule 210.68, 19 C.F.R. § 210.68. The bond and any accompanying documentation is to be provided to and approved by the Commission prior to the commencement of conduct which is otherwise prohibited by Section III of this Order.

The bond is to be forfeited in the event that the President approves, or does not disapprove within the Presidential review period, this Order, unless the U.S. Court of Appeals for the Federal Circuit, in a final judgment, reverses any Commission final determination and order as to Respondent on appeal, or unless Respondent exports the products subject to this bond or destroys them and provides certification to that effect satisfactory to the Commission.

The bond is to be released in the event the President disapproves this Order and no subsequent order is issued by the Commission and approved, or not disapproved, by the President, upon service on

Respondent of an order issued by the Commission based upon application therefore made by Respondent  
to the Commission.

By Order of the Commission.

  
Marilyn R. Abbott  
Secretary

Issued: April 25, 2002

**PUBLIC CERTIFICATE OF SERVICE**

I Marilyn R. Abbott, hereby certify that the attached **NOTICE OF ISSUANCE OF LIMITED EXCLUSION ORDER AND CEASE AND DESIST ORDERS; TERMINATION OF THE INVESTIGATION**, was served upon the following parties via first class mail and air mail, where necessary on **April 25, 2002..**



Marilyn R. Abbott, Secretary  
**U.S. International Trade Commission**  
500 E Street, SW - Room 112  
Washington, DC 20436

**ON BEHALF OF COMPLAINANT HEWLETT-  
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**ON BEHALF OF PRINTER ESSENTIAL.COM,  
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F. David Foster, Esq.  
**Miller and Chevalier**  
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**ON BEHALF OF MICROJET TECHNOLOGY  
COMPANY LIMITED:**

Jeffrey Weiss, Esq.  
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1101 14<sup>th</sup> Street, NW  
Suite 500  
Washington, DC 20005

**RESPONDENTS:**

**Price-Less Inkjet Cartridge Company**  
3890-Bb Tamiami Trail  
Port Charlotte, Florida 33952

**ABCCo.net, Incorporated**  
3890 Tamiami Trail  
Port Charlotte, Florida 33952

**ON BEHALF OF THE COMMISSION:**

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UNITED STATES INTERNATIONAL TRADE COMMISSION  
Washington, DC 20436

In the Matter of

CERTAIN INK JET PRINT CARTRIDGES  
AND COMPONENTS THEREOF

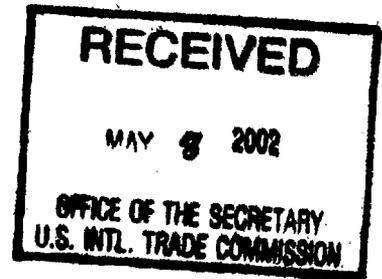
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Inv. No. 337-TA-446

COMMISSION OPINION

INTRODUCTION



On January 25, 2002, the presiding administrative judge (“ALJ”) issued his final initial determination (“ID”) in the above-captioned investigation finding a violation of section 337 by three respondents in the importation and sale of certain ink jet print cartridges. On March 17, 2002, the Commission determined to review the ID in part. 67 Fed. Reg. 11708 (March 15, 2002). The ID is now before the Commission for final disposition.

DISCUSSION

I. Background

A. Procedural History

This investigation was instituted on January 19, 2001, based on a complaint by Hewlett-Packard Company (“HP”). 66 Fed. Reg. 7783 (Jan. 25, 2001). HP’s complaint alleged unfair acts in violation of section 337 in the importation and sale of inkjet cartridges. The complaint alleged that five respondents had infringed one or more claims of six patents held by HP, viz. --

- (1) claims 1, 2 or 3 of U.S. Letters Patent 4,827,294 (‘294 patent);
- (2) claims 4 or 5 of U.S. Letters Patent 4,635,073 (‘073 patent);
- (3) claims 2 or 3 of U.S. Letters Patent 4,680,859 (‘859 patent);
- (4) claim 4 of U.S. Letters Patent 4,872,027 (‘027 patent);
- (5) claims 1, 2, 3, 4 or 12 of U.S. Letters Patent 4,992,802 (‘802 patent); and
- (6) claims 8, 9, 12, 13, 14, 18, 19 or 20 of U.S. Letters Patent 5,409,134 (‘134 patent).

The five named respondents were: Microjet Technology Co., Ltd. of Taipei, Taiwan (“Microjet”); Printer Essentials of Reno, Nevada (“Printer Essentials”); Price-Less Inkjet Cartridge Company of Port Charlotte, Florida (“Price-Less”); Cartridge Hut and Paperwork Plus of Sun City, California (“Cartridge Hut”); and ABCCo.net, Inc. of Port Charlotte, Florida (“ABC”).

The Commission determined to institute an investigation of HP’s complaint and referred the complaint to an ALJ for an evidentiary hearing, the issuance of an ID on violation, and a recommended determination (RD) on remedy and bonding. The investigation was subsequently terminated with respect to Printer Essentials and Cartridge Hut, based on consent orders with these respondents. On August 21, 2001, the ALJ issued an initial determination, Order No. 12, granting HP’s motion for partial summary determination that HP has satisfied the economic prong of the domestic industry requirement. The Commission determined not to review Order No. 12.

An evidentiary hearing was held from August 27-31, 2001. On November 15, 2001, the ALJ issued an initial determination, Order No. 17, granting HP’s motion to terminate the investigation in part by withdrawing its infringement allegations based on claim 5 of the ‘073 patent, claim 2 of the ‘294 patent and claims 12-14 of the ‘134 patent. The Commission determined not to review Order No. 17.

On January 25, 2002, the ALJ issued his final ID, along with a recommended determination (“RD”) on remedy and bonding. He concluded that there was a violation of section 337, based on the following findings: (a) that the asserted claims of all of the patents at issue, except the ‘073 patent,<sup>1</sup> are infringed by respondents Microjet, Price-Less and ABC; and (b) that an industry exists in the United States that exploits each of the patents in issue, except the ‘073 patent.

The ALJ recommended that a limited exclusion order issue against Microjet, and that cease and desist orders issue against Price-Less and ABC. He also recommended that a bond of 100 percent of

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<sup>1</sup> In the ‘073 patent, there is only one claim asserted, claim 4.

entered value be set during the Presidential review period.

On February 14, 2002, both HP and the Commission investigative attorney (“IA”) filed petitions for review of the ID, arguing that the ALJ erred in finding that the ‘073 patent is not infringed and that there is no domestic industry with respect to that patent. No responses to the petitions for review were filed.

On March 7, 2002, the Commission determined (1) to review the ALJ’s claim construction of claim 4 of the ‘073 patent and his findings of no infringement and no domestic industry with respect to that patent; and (2) not to review the remainder of the ID. The unreviewed portion of the ID became the Commission’s determination pursuant to Commission rule 210.42 (h), 19 C.F.R. § 210.42(h)(2001). The Commission requested written submissions from the parties on the issues of remedy, the public interest and bonding. It received submissions and proposed orders from HP and the IA. HP and Microjet filed reply submissions.

#### **B. The Products**

The products at issue in this investigation are ink jet print cartridges (“ink jet cartridges”) that use the drop-on-demand method of printing. Ink is held in a reservoir in a replaceable inkjet cartridge at below atmospheric pressure and is ejected by several drop generators on a printhead. The type of drop-on-demand printing employed by the cartridges at issue is known as a thermal inkjet system. In this system, an electrical heating element (typically a thin-film resistor) in the drop generator is heated, causing sudden vaporization of the ink (thereby creating a tiny bubble), and then ejection of a tiny drop of ink. The printhead of the cartridge is at the bottom of the cartridge. The printhead is a silicon chip with a nozzle plate on the front of it. The resistors under the nozzle plate are active transducers which eject ink drops out of the nozzles. A contact pad on the cartridge connects electrically to the carriage of the printer, and receives commands generated by the software, firmware and digital electronics.

The six patents involved in this investigation relate to improvements in the following four areas

of basic ink jet print cartridge technology: (1) identification of the type of cartridge (black ink or color) that has been inserted into the printer; (2) regulation of the below-ambient pressure inside the ink reservoir, to allow the cartridge to function properly and prevent leakage; (3) the “wiring” of the cartridge (i.e., how the cartridge transmits electrical current from the printer to the tiny resistors in the inkjet cartridge that heat the ink); and (4) the mode of transfer of the ink from the main reservoir through a substrate to the resistors.

## II. Violation Issue Under Review

### A. The ID

The ALJ’s construction of claim 4 of the ‘073 patent and his findings of no infringement and no domestic industry with respect to this patent are under review. Claim 4 is as follows:

4. A thermal inkjet print head assembly including in combination:
  - a. a print head substrate mounted on a header member and operative to receive ink therefrom,
  - b. a plurality of conductive traces deposited atop said substrate and electrically connected to a plurality of resistive heater elements therein, and
  - c. a beam lead interconnect circuit having a plurality of beam leads bonded, respectively, to said plurality of conductive traces in adjacent abutting parallel planes to thereby maximize packing density in said print head assembly.

(Emphasis added). The specific claim construction issue in dispute concerns the term “bonded.” The ALJ found that “bonded,” as used in claim 4 of the ‘073 patent, is limited to thermosonic bonding – a method of bonding using heat generated by sonic energy. He based his finding on an examination of the title of the ‘073 patent, its abstract, and the patent specification.<sup>2</sup> The ALJ found SciMed Life Systems, Inc. v. Advanced Cardiovascular Systems, Inc., 242 F.3d 1337 (Fed. Cir. 2001) (“SciMed”), a case in

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<sup>2</sup> Final Initial and Recommended Determinations (“ID”) at 31.

which the U.S. Court of Appeals for the Federal Circuit limited the literal meaning of patent claims by reference to language appearing in the specification of the patent, to be controlling. The ALJ also determined that HP did not satisfy the technical prong of the domestic industry requirement because he found that HP failed to prove that it uses thermosonic bonding in its own cartridges.<sup>3</sup>

HP and the IA argued that the claim term “bonded” is unambiguous, and that one of ordinary skill in the art would understand “bonded” in claim 4 to have its plain meaning of “to permanently affix one part to another” (according to HP<sup>4</sup>), or “the use of heat and pressure to permanently attach the beam leads to the conductive traces” (according to the IA<sup>5</sup>). HP and the IA each argued that the ALJ improperly read an additional limitation (that of “thermosonic” bonding) into the unambiguous language of the claim, and further argued that the ALJ’s reliance on SciMed is misplaced. They noted that in SciMed the patentee expressly stated that a particular limitation was used in “all embodiments” of the invention, and the only possible alternative embodiment was expressly disclaimed in order to distinguish the invention over the prior art. HP and the IA argued that in the present case, by contrast, the specification of the ‘073 patent does not identify thermosonic bonding as the only type of bonding used in all embodiments of the invention and does not disclaim other means of bonding, such as thermocompression bonding (bonding by heat and pressure). They also noted that, while the abstract of the ‘073 patent does refer to “thermosonic bonding,” it seems to do so only with reference to the process

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<sup>3</sup> ID at 58. Section 337 provides relief from infringing imports only if there is an industry in the United States relating to the patent at issue, or if such an industry is in the process of being established. 19 U.S.C. § 1337(a)(2) (1999). The domestic industry requirement is traditionally viewed as having two “prongs,” the economic prong and the technical prong. Complainants must show that an industry exists, the economic prong, and that they practice at least one claim of the patents at issue, the technical prong. *Certain Variable Wind Turbines and Components Thereof*, Inv. No. 337-TA-376, Commission Opinion (Sept. 23, 1996). As explained above, the ALJ and the Commission previously found that HP had satisfied the economic prong.

<sup>4</sup> HP Petition for Review at 6.

<sup>5</sup> IA Petition for Review at 7.

claims of that patent, and claim 4 is not a process claim. Finally, HP maintains that application of the doctrine of claim differentiation confirms that thermosonic bonding is not required by claim 4. HP points out the two other independent claims of the '073 patent, claims 1 and 10, refer specifically to "thermosonic bonding," thereby demonstrating that when the patentee intended to claim "thermosonic bonding" he did so explicitly.<sup>6</sup>

B. Analysis and Decision

Patent claims are construed with reference to the text of the claims themselves, the patent specification, and (if in evidence) the prosecution history, which together constitute the "intrinsic evidence." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). It is well-established that the starting point for claim interpretation must be the language of the claim itself, which takes precedence over all else. Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1248 (Fed. Cir. 1998) ("the claims define the scope of the right to exclude; the claim construction inquiry, therefore, begins and ends in all cases with the actual words of the claim."). The words of the claims are to be given their ordinary and customary meaning, unless the patent or its prosecution history makes clear that a particular special definition is intended. Vitronics, 90 F.3d at 1582.

We agree with HP and the IA that the evidence in this investigation shows that the term "bonded" would be understood by a person of ordinary skill in the art to have a plain meaning that is broader than thermosonic bonding. This interpretation is supported by the dictionary definition of "bond" as:

**3:** to bind together or connect by or as if by bonds: **as:** **a:** to cause to adhere firmly (as metal to glass or plastic) **b:** to make secure and adequate electrical connection between (two or more conductors) either to ensure free passage of current <a railroad track with ~ *ed* joints> or to maintain uniformity of electric potential (as of water and gas piping or the sheaths of electric cables) – compare <sup>3</sup> BOND 3d **c:** to embed in a matrix

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<sup>6</sup> HP Petition for Review at 7-10, IA Petition for Review at 5-7. The '073 patent's process claims were not asserted by HP.

<abrasive material ~ ed in a resinous binder to form a grinding wheel > compare <sup>3</sup> bond  
3f d: to hold together in a molecule or crystal by means of chemical bonds ~ vi: to  
hold together or solidify by or as if by means of a bond or a binder <a cement failing to  
make materials ~>; *specif*: to cohere (as the fibers in paper, the coating of the surface  
of paper, the elements in laminated board) <the coatings ~ tightly to many surfaces –  
*Graphics Arts Monthly*> <sup>7</sup>

HP's expert testified that the term "bonded" would be understood by a person of ordinary skill in the art as "to permanently affix one part to another," but not to require any particular method of affixing.<sup>8</sup> The expert also testified, based on prior art patents, that the term "bonding" was not understood in the art to be restricted to thermosonic bonding.<sup>9</sup>

We also agree with petitioners that, since the claim term "bonded" was not shown to be ambiguous, we may not import a limitation from the specification, namely that the bonding be performed thermosonically. The specification is always highly relevant to the claim construction analysis. Vitronics, 90 F.3d at 1582. It is well-established, however, that courts may not import a limitation found in the specification or the prosecution history into a claim, unless the claim specifically requires such a limitation.<sup>10</sup>

We agree with HP and the IA that the special circumstances that persuaded the Federal Circuit in SciMed to make an exception to the rule against reading limitations from the specification into a claim are not present in this case. In SciMed, the patentee expressly stated that a particular limitation was used in "all embodiments" of the invention. Moreover, the only possible alternative embodiment in SciMed

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<sup>7</sup> Webster's Third New International Dictionary, p. 250 (1981).

<sup>8</sup> Hearing Transcript at 388, 389, 390, 393, 982, 993, 1027 (Mills).

<sup>9</sup> Hearing Transcript at 388-390, 393, 982, 990-991, 993, and 1027.

<sup>10</sup> Burke, Inc. v. Bruno Indep. Living Aids, Inc., 183 F.3d 1334, 1340 (Fed. Cir. 1999) (holding that limitations in the written description of the patent specification should not be read into patent claims); Markman, 52 F.3d at 980 ("[The] written description part of the specification itself does not delimit the right to exclude. That is the function and purpose of the claims."); Intel Corp. v. United States Int'l Trade Comm'n, 946 F.2d 821, 836 (Fed. Cir. 1991); SRI Int'l v. Matsushita Elec. Corp. of Am., 775 F.2d 1107, 1121 n.14 (Fed. Cir. 1985) (en banc) ("Specifications teach. Claims claim.").

was expressly disclaimed. In this case, the specification of the '073 patent does not expressly disclaim means of bonding other than thermosonic bonding, and does not state that thermosonic bonding is used in all embodiments of the invention. Finally, we also agree with HP that the doctrine of claim differentiation supports a finding that claim 4 of the '073 patent does not involve thermosonic bonding.

Based on the foregoing, we find that the term “bonded” in claim 4 of the '073 patent means “to permanently affix one part to another” (the definition advocated by HP). We believe that HP’s definition is, on balance, better supported by the evidence in this investigation than the definition advocated by the IA (“permanently attached through the use of heat and pressure”). Although there was testimony (from the same witness) supporting both definitions, HP’s broader definition is preferable because, as explained above, it is supported by the dictionary definition of “bond.”

Where parties do not dispute any relevant facts regarding the accused products but disagree about claim interpretation, the issue of infringement collapses into claim construction and can be determined as a matter of law. See, e.g., Rheox, Inc. v. Entact, Inc., 61 U.S.P.Q. 2d 1368 (Fed. Cir. 2000). There is no dispute here among the parties concerning the actual devices at issue. Consequently, the infringement issue in this case depends on claim construction. The only issue raised in the investigation with respect to literal infringement of claim 4 of the '073 patent concerned whether the claim language “bonded” covered Microjet’s cartridges. The ALJ found, as a matter of fact, that in Microjet’s cartridges “a thermal press is used to bond the beam leads to the thin conductors.”<sup>11</sup> Accordingly, since Microjet’s print cartridges meet the definition of “bonded” set forth above, we find that Microjet’s cartridges literally infringe claim 4 of the '073 patent.

We also find that HP satisfied the technical prong of the domestic industry requirement because the ALJ found, as a matter of fact, that the evidence showed that the beam leads on HP’s cartridge are

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<sup>11</sup> ID at 47.

bonded.<sup>12</sup>

### **III. Remedy, the Public Interest, and Bonding**

When the Commission finds a violation of section 337, as it has here, it must consider the issues of remedy, the public interest, and bonding. 19 U.S.C. §§ 1337 (d), (f), and (j)(3) (1999).

#### **A. Remedy**

##### **1. Limited Exclusion Order**

The ALJ recommended that we issue a limited exclusion order in this investigation.<sup>13</sup> We adopt that recommendation. The parties have raised the following five issues with respect to the limited exclusion order: (i) whether the order should refer to specific Microjet model numbers; (ii) whether the order should extend to components of cartridges; (iii) whether the order should include a certification provision; (iv) whether customs entries for purposes of display at trade shows should be excluded; and (v) whether (as Microjet suggests) the limited exclusion order may be overly broad. We address these issues below.

We decline to list specific Microjet model numbers in the limited exclusion order, as recommended by the ALJ. It has been Commission practice not to include model numbers in exclusion orders because such specificity may lead to circumvention of the order. We see no reason to deviate from that practice in this investigation.

HP requests that the limited exclusion order (and the cease and desist orders, discussed below) cover not only ink jet cartridges but also components thereof. HP argues that the ID refers to importations of certain ink jet cartridges “and components thereof,” and to violations of section 337 based on such importations, and that “it would be incongruous to issue remedial orders that are not

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<sup>12</sup> ID at 58.

<sup>13</sup> ID at 81-82.

commensurate with the violations found to have occurred.” HP also maintains that, even if there had been no showing that components have been imported, this would not preclude including components in the exclusion order. Finally, HP argues that there is a danger of circumvention if components are omitted from coverage by the exclusion order.<sup>14</sup> The IA argues that the remedial orders should be limited to cartridges and should not extend to components of cartridges, because the record contains no evidence that any components are imported.<sup>15</sup>

We deny HP’s request that the limited exclusion order (and the cease and desist orders) extend to cartridge components. Violations of section 337 are based on importation. 19 U.S.C. §1337(a)(1) (1999). Since there was no evidence presented in this investigation that components of Microjet’s ink jet cartridges have been imported, there has been no finding of a violation by such components.

The IA proposes that persons seeking to import ink jet cartridges “potentially subject to the order” be required to certify that their products are not excluded from entry. HP opposes a certification provision. HP notes that the Commission has included such a provision in exclusion orders involving products where it is difficult for the U.S. Customs Service to ascertain infringement upon visual inspection. However, according to HP, this is not the case here because Microjet’s cartridges are easily identified by the labeling on the cartridge and packaging. Thus, HP maintains that such a certification provision should not be included.<sup>16</sup>

We agree with HP that it is not necessary to include a certification provision in the limited exclusion order. The Commission has included certification provisions in exclusion orders where, inter alia, the patent(s) that form the basis of the order cover processes for manufacturing goods and Customs

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<sup>14</sup> Complainant Hewlett-Packard, Co.’s Reply Brief on Remedy, the Public Interest, and Bond (“HP Remedy Reply Br.”) at 2-3.

<sup>15</sup> OUII Remedy Br. at 2, n.3.

<sup>16</sup> HP Remedy Reply Br. at 3-4.

is unable readily to determine how imported goods possibly covered by the order are made. The Commission has also included certification provisions in exclusion orders involving semiconductor chips, where complicated and costly reverse engineering procedures would have to be used by Customs to determine whether the imported merchandise was covered by the patent claims at issue. Although the limited exclusion order covers two method claims, the difficulty in identifying infringing products often associated with such claims does not appear to be an issue in this case. As argued by HP, Microjet's cartridges are easily identified by the labeling on the cartridge and packaging. Moreover, a certification provision may unduly complicate enforcement of the order.

HP argues that the order should not be limited to consumption entries, but should extend also to entries for purposes of trade shows. HP notes that Price-Less and ABC were introduced to Microjet's cartridges at a trade show. HP argues that display at trade shows is a valuable form of marketing, and that Microjet should not be permitted to import its cartridges for this purpose.<sup>17</sup> The IA argues that an exclusion order barring consumption entries will provide HP with sufficient protection, since Microjet will be unable to obtain U.S. customers at trade shows once such an exclusion order is in place (as it would be unable to supply such customers).<sup>18</sup> In response, HP argues that "the mere offer for sale of infringing goods at a trade show in the United States can constitute infringement of HP's patents, regardless of whether the goods are ultimately imported."<sup>19</sup>

We decline to extend the limited exclusion order to ink jet cartridges entered for the limited purpose of display at trade shows. In Certain Devices for Connecting Computers Via Telephone Lines, Inv. No. 337-TA-360, Commission Opinion at 11-12 (December 2, 1994), the Commission determined that section 337 authorizes it to exclude all types of entry, not just entries for consumption. However, the

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<sup>17</sup> HP Remedy Br. at 5-6.

<sup>18</sup> OUII Remedy Br. at 6-7.

<sup>19</sup> HP Remedy Reply Br. at 4.

Commission also determined that, because it exercises its authority to exclude in “measured fashion,” it would not exclude entries other than for consumption in most cases. The Commission stated:

In future investigations, types of entry other than “entry for consumption” may be restricted as appropriate in light of the facts of a given case. A complainant that seeks exclusion of other types of entry should present evidence that activities by respondents involving other types of entry either are adversely affecting it or are likely to do so.

*Id.* at 13.

HP’s arguments -- that display at trade shows is a valuable form of marketing, and that Microjet has in the past been able to sell its cartridges in the United States in this way -- are based on the circumstances existing before an order excluding consumption entries of the offending cartridges is imposed. HP has presented no evidence that it will be adversely affected if Microjet’s cartridges are displayed at trade fairs in the United States after entry of the limited exclusion order. It seems extremely unlikely that Microjet’s cartridges would be imported for display at trade fairs in the United States, if they cannot be imported into the United States for commercial sale. Accordingly, we decline to include a provision concerning entries for display at trade shows in the order.

Finally, Microjet argues that the language of the IA’s proposed order (“are excluded from entry for consumption in the United States, entry for consumption from a foreign-trade zone, or withdrawal from a warehouse for consumption”) “may be susceptible of an interpretation that would extend the order beyond the exclusion of cartridges from entry for consumption into the United States.”<sup>20</sup> We disagree. Microjet has not explained how the order might be interpreted to prohibit anything other than consumption entries into the United States, and we fail to see how it could be interpreted in any other way. The language concerning entries for consumption has long been standard in section 337 exclusion orders, and we are unaware of any instances where the language has been interpreted to extend the

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<sup>20</sup> Submission of Respondent Microjet Technology Co., Ltd. in Response to Briefs of the Office of Unfair Import Investigations and of Complainant Hewlett-Packard, Co. on Remedy, the Public Interest, and Bonding, at 1-2 (emphasis in original).

exclusion order beyond entries for consumption into the United States.

## 2. Cease and Desist Orders

Section 337(f) permits the Commission to issue, in lieu of or in addition to an exclusion order, a cease and desist order directing persons found to have violated section 337 "to cease and desist from engaging in the unfair methods or acts involved." 19 U.S.C. § 1337(f) (1999). Cease and desist orders are warranted with respect to domestic respondents that maintain commercially significant U.S. inventories of the infringing product. See, e.g., Certain Crystalline Cefadroxil Monohydrate, Inv. No. 337-TA-293, USITC Pub. 2391 at 37-42 (June 1991).

The ALJ recommended that cease and desist orders be issued against Price-Less and its affiliated company, ABC, based on the fact that Price-Less retained some inventory of Microjet cartridges, and also in view of the fact that these companies did not appear at the hearing or file briefs. HP and the IA both supported this recommendation. The only point of disagreement among the parties with respect to such orders was whether the orders should extend to print cartridge components as well as to the cartridges themselves (with HP urging coverage of components and the IA opposing this request). Since there is no evidence in the record concerning inventories of components, we decline to apply the cease and desist orders to ink jet cartridge components.

The cease and desist orders provide that Price-Less and ABC will not, except under license of the patent owner or as provided by law, conduct any of the following activities in the United States: importing, selling, marketing, advertising, distributing, offering for sale, transferring (except for exportation), and soliciting U.S. agents or distributors for Microjet's ink jet print cartridges that infringe the patent claims in issue. The orders also provide that during the Presidential review period, the conduct prohibited by the cease and desist orders may be continued subject to Price-Less and ABC posting a bond in the same amount as required by the limited exclusion order.

## B. The Public Interest

Under sections 337(d) and (f), the Commission must provide a remedy if it has found a violation of section 337 unless, after considering the effect of any remedy on (1) the public health and welfare, (2) competitive conditions in the U.S. economy, (3) the U.S. production of articles that are like or directly competitive with those which are the subject of the investigation, and (4) U.S. consumers, it finds that a remedy should not be issued. 19 U.S.C. §§ 1337(e) and (f) (1999). There have been only three investigations in which consideration of the public interest factors has prevented issuance of a remedy. In Certain Automatic Crankpin Grinders, Inv. No. 337-TA-60, USITC Pub. 1022 (1979), relief was denied because of an overriding national policy in maintaining and increasing the supply of fuel efficient automobiles and the domestic industry was unable to supply domestic demand. In Certain Inclined Field Acceleration Tubes, Inv. No. 37-TA-67, USITC Pub. 1119 (1980), the Commission denied relief because of the overriding public interest in continuing basic atomic research with the imported acceleration tubes, which were deemed to be of higher quality than the domestic industry's product. In Certain Fluidized Supporting Apparatus, Inv. No. 337-TA-182/188, USITC Pub. 1667 (1984), relief was denied because the domestic producer could not supply demand for hospital beds for burn patients within a reasonable time, and there were no therapeutically comparable substitutes available.

No public interest concerns have been raised in this investigation. We do not find that the general health and welfare are implicated in the distribution of ink jet cartridges, and there is no evidence that the U.S. demand for printer cartridges could not be supplied by HP or other manufacturers. The fact that some retailers and consumers may have to pay a higher price for printer cartridges does not outweigh the public interest in protecting intellectual property rights. See, e.g., Certain Telecommunications Chips, USITC Inv. No. 337-TA-337, Comm'n Op. at 40-41, USITC Pub. 2670 (August 1993); Cefadroxil Monohydrate, Inv. No. 337-TA-293, USITC Pub. 2391 at 46-47.

### C. Bonding

Section 337(j) provides for the entry of infringing articles and sales of such articles from inventory upon the payment of a bond during the 60-day Presidential review period. The bond is to be set at a level sufficient to "protect complainant from any injury" during the Presidential review period. 19 U.S.C. §1337(j), see also 19 C.F.R. § 210.50(a)(3) (1998).

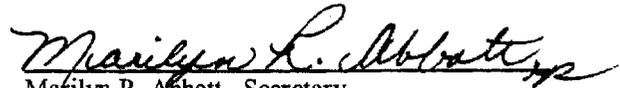
The ALJ recommended that the bond be set at 100 percent of the entered value. He noted that the Commission's practice is to set the bond to eliminate the price differential between the domestic and the imported infringing product where reliable price information is available. The ALJ supported bonding at 100 percent based on his finding regarding the price differential between HP and Microjet's cartridges and Microjet's price to its customers.<sup>21</sup> We adopt the ALJ's recommendation that bond during the period of Presidential review be set at 100 percent of entered value as well as his findings in support of his recommendation.

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<sup>21</sup> ID at 83-84.

**PUBLIC CERTIFICATE OF SERVICE**

I, Marilyn R. Abbott, hereby certify that the attached **COMMISSION OPINION**, was served upon the following parties via first class mail and air mail, where necessary on **May 8, 2002**.



Marilyn R. Abbott, Secretary  
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and Paperwork Plus of Sun City, California; and ABCCo.net, Inc. of Port Charlotte, Florida.

Based on joint stipulations and proposed consent orders, the ALJ issued IDs terminating the investigation as to Printer Essentials (Order No. 7, dated May 11, 2001) and as to Cartridge Hut (Order No. 15, dated October 12, 2001). These IDs became Commission final determinations, pursuant to 19 C.F.R. § 210.42(h)(3).

On August 21, 2001, the ALJ issued an ID (Order No. 12) granting HP's motion for summary determination on the economic prong of the domestic industry requirement for all patents at issue. This ID became a Commission final determination, pursuant to 19 C.F.R. § 210.42(h)(3).

On October 24, 2001, HP filed a motion to terminate the investigation as to its infringement allegations based on claim 5 of U.S. Letters Patent 4,635,073, claim 2 of U.S. Letters Patent 4,827,294 and claims 12-14 of U.S. Letters Patent 5,409,134. On November 15, 2001, the ALJ issued an ID (Order No. 17) terminating the investigation as to the patent claims that were the subject of HP's motion. These IDs were not reviewed by the Commission, and thus became the determinations of the Commission, pursuant to 19 C.F.R. § 210.42(h)(3).

The ALJ issued his final ID, along with a recommended determination on remedy and bonding, on January 25, 2002, concluding that there was a violation of section 337, based on his findings that (a) the accused devices infringe claims of five of the six patents at issue, U.S. Letters Patent 4,827,294, 4,680,859, 4,872,027, 4,992,802, and 5,409,134; and (b) that a domestic industry exists with respect to each of these patents. The ALJ found no infringement of U.S. Letter Patent 4,635,073, and he found that HP had not satisfied the technical prong of the domestic industry requirement with respect to this patent.

On February 14, 2002, complainant HP and the Commission investigative attorney ("IA") petitioned for review of parts of the ID concerning the '073 patent. No responses to these petitions for review were filed.

Having examined the record in this investigation, including the ID, and the petitions for review, the Commission has determined to review:

- (1) the ID's construction of the asserted claim of the '073 patent;
- (2) the ID's finding of no infringement with respect to the '073 patent; and
- (3) the ID's findings with respect to the technical prong of the domestic industry requirement with respect to the '073 patent.

The Commission has determined not to review the remainder of the ID. The Commission does not request further briefing on the issues that it has determined to review.

In connection with the final disposition of this investigation, the Commission may issue

(1) an order that could result in the exclusion of the subject articles from entry into the United States, and/or (2) cease and desist orders that could result in respondents being required to cease and desist from engaging in unfair acts in the importation and sale of such articles. Accordingly, the Commission is interested in receiving written submissions that address the form of remedy, if any, that should be ordered. If a party seeks exclusion of an article from entry into the United States for purposes other than entry for consumption, the party should so indicate and provide information establishing that activities involving other types of entry that either are adversely affecting it or are likely to do so. For background information, see the Commission Opinion, *In the Matter of Certain Devices for Connecting Computers via Telephone Lines*, Inv. No. 337-TA-360.

If the Commission contemplates some form of remedy, it must consider the effects of that remedy upon the public interest. The factors the Commission will consider include the effect that an exclusion order and/or cease and desist orders would have on (1) the public health and welfare, (2) competitive conditions in the U.S. economy, (3) U.S. production of articles that are like or directly competitive with those that are subject to investigation, and (4) U.S. consumers. The Commission is therefore interested in receiving written submissions that address the aforementioned public interest factors in the context of this investigation.

If the Commission orders some form of remedy, the President has 60 days to approve or disapprove the Commission's action. During this period, the subject articles would be entitled to enter the United States under a bond, in an amount to be determined by the Commission and prescribed by the Secretary of the Treasury. The Commission is therefore interested in receiving submissions concerning the amount of the bond that should be imposed.

**WRITTEN SUBMISSIONS:** The parties to the investigation, interested government agencies, and any other interested persons are encouraged to file written submissions on the issues of remedy, the public interest, and bonding. Such submissions should address the ALJ's recommended determination on remedy and bonding. Complainant and the Commission investigative attorney are also requested to submit proposed remedial orders for the Commission's consideration. The written submissions and proposed remedial orders must be filed no later than 14 days from the date of issuance of this notice. Response submissions must be filed no later than seven days after the deadline for filing the main submissions. No further submissions will be permitted unless otherwise ordered by the Commission.

Persons filing written submissions must file with the Office of the Secretary the original and 14 true copies thereof on or before the deadlines stated above. Any person desiring to submit a document (or portion thereof) to the Commission in confidence must request confidential treatment unless the information has already been granted such treatment during the proceedings. All such requests should be directed to the Secretary of the Commission and must include a full statement of the reasons why the Commission should grant such treatment. *See* 19 C.F.R. § 201.6. Documents for which confidential treatment is granted by the Commission will be treated accordingly. All nonconfidential written submissions will be available for public

inspection at the Office of the Secretary.

This action is taken under the authority of section 337 of the Tariff Act of 1930, as amended (19 U.S.C. § 1337), and in sections 210.42 -.45 of the Commission's Rules of Practice and Procedure (19 C.F.R. §§ 210.42 -.45).

By order of the Commission.

A handwritten signature in black ink, appearing to read 'Marilyn R. Abbott', written in a cursive style.

Marilyn R. Abbott  
Secretary

Issued: March 12, 2002

**CERTAIN INK JET PRINT CARTRIDGES AND  
COMPONENTS THEREOF**

337-TA-446

**PUBLIC CERTIFICATE OF SERVICE**

I Marilyn R. Abbott, hereby certify that the attached **NOTICE OF COMMISSION DECISION TO REVIEW-  
IN-PART AN INITIAL DETERMINATION THAT FINDS A VIOLATION OF SECTION 337 OF THE  
TARIFF ACT OF 1930** was served upon the following parties via first class mail and air mail, where necessary on  
**March 12, 2002..**



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PUBLIC VERSION

UNITED STATES INTERNATIONAL TRADE COMMISSION  
Washington, D.C.

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In the Matter of	)	
	)	
CERTAIN INK JET PRINT	)	Investigation No. 337-TA-446
CARTRIDGES AND	)	
COMPONENTS THEREOF	)	

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Final Initial and Recommended Determinations

This is the administrative law judge's final initial determination, under Commission rule 210.42. The administrative law judge, after a review of the record developed, finds that a violation by respondents Microjet Technology Co., Ltd. (Microjet), Price-Less Inkjet Cartridge Company (Price-Less) and ABCCo.net, Inc. (ABC) of section 337 of the Tariff Act of 1930, as amended (19 U.S.C. § 1337), has occurred.

This is also the administrative law judge's recommended determination on remedy and bonding, pursuant to Commission rule 210.42(a)(1)(ii). The administrative law judge recommends that the Commission issue a limited exclusion order against respondent Microjet, cease and desist orders against each of respondents Price-Less and ABC and a bond, during Presidential review, of 100% of the entered value of the accused products in issue found violating section 337.

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## ABBREVIATIONS

CPost	Complainant's Post Hearing Brief
CFF	Complainant's Proposed Findings Of Fact
CORFF	Complainant's Objection To Respondent's Proposed Finding
CRBr	Complainant's Post Hearing Reply Brief
CRcFF	Complainant's Reply To Respondent's Proposed Finding
CRRFF	Complainant's Rebuttal Findings
CX	Complainant's Exhibit
FF	Administrative Law Judge's Findings Of Fact
RPre	Respondent Microjet's Prehearing Statement
RPost	Respondent Microjet's Post Hearing Brief
RFF	Respondent Microjet's Proposed Finding Of Fact
ROcFF	Respondent Microjet's Objection To Complainant's Proposed Finding
RRBr	Respondent Microjet's Post Hearing Reply Brief
RRCFF	Respondent Microjet's Rebuttal Finding
RReCFF	Respondent Microjet's Reply To Complainants' Proposed Findings
RX	Respondent Microjet's Exhibit
SPre	Staff's Prehearing Statement
SPost	Staff's Post Hearing Brief
SFF	Staff's Proposed Finding
SRBr	Staff's Post Hearing Reply Brief
SX	Staff's Exhibit

Tr. Transcript of Hearing



## OPINION

### I. Procedural History

By notice, which issued on January 19, 2001, the Commission instituted an investigation, pursuant to subsection (b) of section 337 of the Tariff Act of 1930, as amended, to determine whether there is a violation of subsection (a)(1)(B) of section 337 in the importation into the United States, the sale for importation into the United States, or the sale within the United States after importation of certain inkjets of claims 1, 2 or 3 of U.S. Letters Patent 4,827,294 ('294 patent), claims 4 or 5 of U.S. Letters Patent 4,635,073 ('073 patent), claims 2 or 3 of U.S. Letters Patent 4,680,859 ('859 patent), claim 4 of U.S. Letters Patent 4,872,027 ('027 patent), claims 1, 2, 3, 4 or 12 or U.S. Letters Patent 4,992,802 ('802 patent) or claims 8, 9, 12, 13, 14, 18, 19 or 20 of U.S. Letters Patent 5,409,134 ('134 patent); and whether there exists an industry in the United States as required by subsection (a)(2) of section 337. The notice of investigation was published in the Federal Register on January 25, 2001 (66 Fed. Reg. No. 17 at 7783-84).

Complainant identified in the Commission notice was Hewlett-Packard Company (HP). As respondents, the following were named in the notice: Microjet Technology Co., Ltd. (Microjet), Printer Essentials.com, Inc. (Printer Essentials), Price-Less Inkjet Cartridge Company (Price-Less), Cartridge Hut and Paperwork Plus (Cartridge Hut) and ABCCo.net, Inc. (ABC).

While Order No. 3, which issued on February 13, 2001, set a target date of March 25, 2002, Order No. 18, which issued on December 20, 2001, extended the target date from March 25 to April 25, 2002.

Order No. 7 was an initial determination granting Motion No. 446-3 of HP and Printer Essentials to terminate the investigation as to Printer Essentials based on a consent order. The

Commission determined not to review Order No. 8 on May 30, 2001.

Order No. 9, which issued on May 18, 2001, granted HP's Motion No. 446-4 to amend the complaint by amending paragraph 72 of the complaint by adding U.S. Patent No. 4,680,859 to the list of patents that were subject of litigation brought by HP against NuKote International, Inc. on September 19, 1994 in the U.S. District Court for the Northern District of California.

Order No. 12, which issued on August 21, 2001, was an initial determination granting HP's Motion No. 446-8 for partial summary determination that HP has satisfied the economic prong of the domestic industry requirement. The Commission determined not to review Order No. 12 on September 7, 2001.

Order No. 15, which issued on October 12, 2001, was an initial determination terminating the investigation as to Cartridge Hut based upon a consent order stipulation and a proposed consent order. On November 1, the Commission determined not to review Order No. 15.

HP, on October 24, 2001, moved to terminate the investigation in part by withdrawing its infringement allegations based on claim 5 of the '073 patent, claim 2 of the '294 patent and claims 12-14 of the '134 patent. Order No. 17, which issued on November 15, granted said motion. The Commission, on December 4, determined not to review Order No. 17.

On August 27, 2001, the hearing commenced and continued on August 28, 29, 30 and 31, 2001. Post hearing submissions have been made. In addition, closing arguments were heard on October 22.<sup>1</sup> The matter is now ready for decision.

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<sup>1</sup> Respondents Price-Less and ABC remain parties in this investigation. However, they did not participate in the evidentiary hearing nor did they file any prehearing and post hearing submissions nor did they appear at closing arguments.

The final initial and recommended determinations are based on the record compiled at the hearing and the exhibits admitted into evidence. The administrative law judge has also taken into account his observation of the witnesses who appeared before him during the hearing. Proposed findings submitted by the parties not herein adopted, in the form submitted or in substance, are rejected as either not supported by the evidence or as involving immaterial matters and/or as irrelevant. Certain findings of fact included herein have references to supporting evidence in the record. Such references are intended to serve as guides to the testimony and exhibits supporting the findings of fact. They do not necessarily represent complete summaries of the evidence supporting said findings.

II. Parties

See FF 1 to 8.

III. Importation

See FF 6.

IV. Subject Matter In Issue

In issue are certain claims of the '294 patent, '073 patent, '859 patent, '027 patent, '802 patent and '134 patent.<sup>2</sup> The asserted patents relate to aspects of inkjet cartridges.

Referring to the cartridges in issue, at closing argument (Tr. at 1157-1188) the parties admitted that in the "drop-on-demand" method of printing, ink is held in a replaceable inkjet cartridge (which is often referred to as a "pen") at below atmospheric pressure and is ejected by several drop generators, each expelling one drop at a time, on demand (CX-5 at col. 1, lns. 36-39;

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<sup>2</sup> The face of the '294 patent (CX-1) shows the '294 patent is terminally disclaimed in view of the '073 patent. See also RX-9 at HP 06381.

Tr. at 1159); that the type of drop-on-demand printing employed by the cartridges at issue is known as a thermal inkjet system (CX-5 at col. 1, lns. 41-46; Tr. at 1159); that in this system, an electrical heating element (typically a thin-film resistor) in the drop generator is heated, which causes sudden vaporization of the ink (thereby creating a tiny bubble), and then ejection of a tiny drop of ink (CX-5 at col. 1, lns. 41-46; Tr. at 1159); and that the contact pads in an inkjet cartridge can connect electrically to the carriage of the printer, and receive commands generated by the software, firmware and digital electronics. (Tr. at 270).

The parties further admitted that HP 51626A inkjet cartridge, which HP relies on to satisfy the technical prong of the domestic industry requirement, has a pressure controller inside of its body that keeps the ink in the reservoir at slightly below atmospheric pressure; that the printhead of the HP 51626A inkjet cartridge is at the bottom of the cartridge; that the printhead is the silicon chip with a nozzle plate on the front of it and that the resistors under the nozzle plate are active transducers which eject ink drops out of the nozzles. (Tr. at 1160-61). It was further admitted that (1) ink is stored in a reservoir in the body of the HP 51626A inkjet cartridge above the printhead (Tr. at 1163), (2) with the ink ejection chambers adjacent to, but below, the heating elements (Tr. at 1163), (3) the heating elements (resistors) heating the ink that is in the adjacent ink chambers (Tr. at 1163) and (4) the ink in the chambers being vaporized by the heat, creating a pressure wave which interacts with the meniscus in the nozzle to eject a droplet of ink. (Tr. at 1163-64).

The parties also admitted that the HP 51626A cartridge utilizes what was described as a “top-shooter” design (although the ink actually shoots down, onto the paper, it is referred to as a

“top-shooter” because the nozzle is on top of the resistor or on the roof of the ejection chambers) (Tr. at 1166);<sup>3</sup> that, basically, such a cartridge is structured so that the ink flows from a main ink reservoir through the substrate, where it is then heated by the resistors and ejected perpendicular to the plane of the resistors (Tr. at 1168); that the paper moves parallel to the ground as ink is applied; that, in contrast, a prior art Canon cartridge was described by HP as being a side-shooter cartridge<sup>4</sup> wherein the ink flows from the reservoir alongside the substrate, where it is

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<sup>3</sup> On the “top-shooter” design David Manner, Microjet’s expert (FF 10), testified (Tr. at 885):

Q Okay. So figure 10 [of RX-1 (Endo UK GB 2007162A)] and why is that a top-shooter? You said figure 10 is a top-shooter. Why is it a top-shooter?

A. It’s a top-shooter, and this is HP jargon, it’s a top-shooter because the resistor heating element is opposite the nozzle.

Q. You said it was HP jargon, are you sure about that?

A. Well, it’s certainly not Canon jargon.

Q. Isn’t that very commonly, isn’t “roof-shooter” or “top-shooter” a very common term used in the inkjet industry?

A. I think it is now, yes.

Q. Okay. So it’s not HP, maybe HP started it because they were the first ones to make it a commercial success, but it’s commonly used in the industry now, right?

A. Yes, I believe it is.

<sup>4</sup> Ross Mills, HP’s expert (FF 9), testified (Tr. at 267-268):

A I said I would explain about the orientation a little earlier and I forgot.

But as you see in the case of this system, the nozzle is on top of the resistor or on the roof of the ejection chamber and so that’s why this is

then heated and ejected through nozzles that are parallel to the surface of the substrate and where the paper moves perpendicular to the ground when ink is applied to it (Tr. at 268; 998).<sup>5</sup>

## V. Claim Construction

Claim construction is a question of law. Markman v. Westview Instruments, Inc., 52 F.3d 967, 978, 34 U.S.P.Q.2d 1321, 1328 (Fed. Cir. 1988). (Markman). The construction of the language of a claim should be made independently of what is being alleged to infringe the claim. See Donald S. Chisum, Patents § 18.03.

Proper claim construction requires that

the intrinsic evidence of record i.e., the patent itself, including the claims, the specification and if in evidence the prosecution history. Such intrinsic evidence is the most significant source of the legally operative meaning of disputed claim language.

Vitronics Corp. v. Conceptronic Inc., 90 F.3d 1576, 1582, 39 U.S.P.Q.2d 1573, 1576 (Fed. Cir.

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called a top shooter or sometimes referred to as a roof shooter.

What it means is that the direction of ink ejection is perpendicular to the plane of the resistor.

In a side-shooter, edge shooter, the direction of ink ejection is parallel to the plane of the resistor. And the orientation of the printhead in terms of whether it shoots up, sideways, downward only matters in the sense that you have to be able to control the back pressure.

Q So then top shooter or roof shooter refers to the orientation of the nozzles as it relates to - - relates to the substrate?

A Yes.

<sup>5</sup> The staff argued that the question of whether and when the terms “top shooter” and “side shooter” were known are not key issues, but rather the functional differences between the two types of cartridges are key issues. (Tr. at 1175).

1996) (citation omitted) (Vitronics). To construe the claims of a patent “a court principally consults the evidence intrinsic to the patent, including the claims, the written description, and the relevant prosecution history.” Watts v. XL Sys. Inc., 232 F.3d 877, 882 (Fed. Cir. 2000). The specification contains a written description of the invention that must enable one of ordinary skill in the art to make and use the invention. For claim construction purposes the written description may act as a sort of dictionary, which explains the invention and may define terms used in the claims. A patentee is free to be his own lexicographer, although any special definition given to a word must be clearly defined in the specification. Markman, 52 F.3d at 978, 979, 34 U.S.P.Q.2d at 1328, 1329; Vitronics, 90 F.3d at 1580.

The administrative law judge may, in his discretion, receive extrinsic evidence to aid him in coming to a correct conclusion as to the true meaning of language employed in a patent. Markman, 52 F.3d at 981, 34 U.S.P.Q.2d at 1331. Extrinsic evidence consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries and learned treatises. The evidence may be helpful to explain scientific principles and the meaning of technical terms, and terms of art that appear in the patent and prosecution history. It may also demonstrate the state of the prior art at the time of the invention. Extrinsic evidence, however, is not to be used for the purpose of clarifying ambiguities in claim terminology. Markman, 52 F.3d at 81, 34 U.S.P.Q.2d at 1331. Moreover, neither the patentee nor the alleged infringer may alter the scope of the claims. Thus,

where the public record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper. The claims, specification, and file history, rather than extrinsic evidence, constitute the public record of the patentee’s claim, a record on which the public is entitled to rely.

Vitronics, 90 F.3d at 1538, 39 U.S.P.Q.2d at 1577. The testimony of an inventor on the proper construction of claims, based on the text of the patent, is entitled to no deference because it amounts to no more than legal opinion about the process of construction that the administrative law judge must undertake. No inquiry as to the subjective intent of the inventor or of the U.S. Patent and Trademark Office (PTO) is appropriate or even possible in the context of a patent infringement action. In fact, commonly the claims are drafted by the inventor's patent solicitor and they may even be drafted by the patent examiner in an examiner's amendment subject to the approval of the inventor's solicitor. Markman, 52 F.3d at 985, 34 U.S.P.Q.2d at 1334, 1335. The scope of a patent is defined by the claims, and not by the description of the preferred embodiment in the drawings and in the specification. Gart v. Logitech, Inc. 254 F.3d 1334, 59 U.S.P.Q.2d 1290 (Fed. Cir. 2001).

Only the disputed claim elements need to be interpreted by the administrative law judge. See In the Matter Certain Hardware Logic Emulation Systems and Components Thereof, Inv. No. 337-TA-383, (July 31, 1997) (Hardware Logic); and In the Matter of Certain Ion Trap Mass Spectrometers and Components Thereof, Inv. 337-TA-393 at p. 24-25 (February 25, 1998).<sup>6</sup>

A. The '027 Patent

Independent claim 4 of the '027 patent to Buskirk, Landsness and Rhodes (FF 12) in issue

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<sup>6</sup> This course of action has been sanctioned by the Court of Appeals for the Federal Circuit, which, referring to Hardware Logic, stated that "by agreement, the appeal turns on the proper construction of certain disputed terms in the three asserted claims. The operation and structure of the accused device are neither uncertain nor disputed. In sum we adopt the claim construction of the Commission which was correct and derived according to our case law on appropriate methodology." Mentor Graphics Co. v. United States International Trade Commission, 124 F.3d 226 (Fed. Cir. 1997).

reads:

4. Thermal inkjet printhead identification means, comprising:  
[(a)] a printhead body having at least one ink chamber;

[(b)] a nozzle plate on said printhead body having nozzles communicating with said chamber;

[(c)] a resistor network having an ink expulsion resistor at each nozzle;

[(d)] contact pads in said resistor network and individual circuits connecting individual contact pads to individual resistors; and

[(e)] at least two printhead identification contact pads, each disposed between selected different pairs of said contact pads, and forming part of a printhead identification resistor network including at least two resistors for each printhead identification contact pad.

(Emphasis added), (CX-4)

HP argued that the only dispute between HP and Microjet as to infringement of claim 4 of the '027 patent concerns the fifth element of the claim (identified as (e) above), and, in particular, the claim term "for" in the claimed phrase "for each printhead identification contact pad." HP's position is that the printhead identification contact pads may be (but are not necessarily) connected to the resistors in the printhead resistor network. (CRe at 1). Thus, it was argued by HP that the word "for" as used in claim 4 does not mean that an identification contact pad is necessarily connected to a resistor, but rather, that a resistor is available for connection if need be.

Microjet argued that the intrinsic evidence demonstrates that claim 4 is directed to a printhead identification network on a printhead, with printhead identification contact pads connected on the printhead to resistors of a printhead identification resistor network on the

printhead and that the claim language itself literally informs that the claim requires contact pads in a resistor network with individual circuits connecting individual contact pads to individual resistors, and that the identification contact pads form part of a printhead identification resistor network. (RPost at 12). At closing argument, Microjet argued that the words of claim 4 states “at least two resistors” are required. (Tr. at 1189).

The staff argued that neither the claim language, the patent specification, nor the prosecution history supports Microjet’s interpretation requiring the connection of at least two resistors to each printhead identification contact pad; and that the specification makes clear that the purpose of requiring the “printhead identification network” to consist of at least two printhead identification contact pads, with at least two resistors “for” each printhead identification contact pad, is to allow for at least nine possible code identities, based on three distinct possibilities for each printhead identification contact pad: connection to resistor #1, connection to resistor #2, or connection to neither resistor. (SPost at 18-19; SRe at 8).

#### 1. Claim Language

The administrative law judge finds that the plain language of claim 4 requires a thermal inkjet printhead which has contact pads in a resistor network and individual circuits connecting individual contact pads to individual resistors and at least two printhead identification contact pads which are disposed between selected different parts of said contact pads which printhead identification contact pads merely form part of a printhead identification resistor network which has at least two resistors for each printhead identification contact pad. Hence while the the claim language requires that each resistor is connected to a contact pad, the language does not

require that each resistor be connected to a printhead identification contact pad. Thus the administrative law judge finds no contradiction between describing the resistors as part of a “network” and maintaining that neither of the two resistors that are required for each printhead identification contact pad must be connected to that identification contact pad. As the staff argued (SPost at 19) if the invention described in claim 4 contemplated that at least two resistors must be connected to each printhead identification contact pad, the word “connected” would have been used rather than the word “for”.

## 2. Specification

The administrative law judge finds that Microjet’s argument that claim 4 requires a printed identification network on a printhead with printhead identification contact pads connected on the printhead to resistors of a printhead identification resistor network on the printhead is directly contrary to the ‘027 specification. Thus, FIG. 5 depicts one embodiment of the resistor network disclosed in claim 4 of the ‘027 patent. (CX-4 at col. 3, lns. 15-16). The discussion of Figure 5 in the specification of the ‘027 patent shows that the term “for” as used in claim 4 must mean that the identification contact pads I1 and I2 of FIG. 5 in the network are connectable to resistors, and not connected. Hence the specification provides:

In reference to FIG. 5 identification contact pads I1 and I2 are provided. The contact pad I1 is located between the contact pads 48 and 50. In these positions the contact pad may be connected to contact pad 47 and 49 or it may be connected to neither. The contact pad I2 may be connected to the contact pad 48 or the contact page 50 or it may be connected to neither.

CX-4 at col. 6, lns. 60-68 (emphasis added). The numbered contact pads (47, 48, 49 and 50 of FIG. 5) are in turn connected to corresponding resistors. (CX-4 at col. lns. 3-8 and Fig. 5).

Hence the specification teaches that the identification contact pad I1 (or I2) still meets the limitation of claim 4 even if it is not connected to a resistor.

In addition, FIG. 6 of the '027 patent expressly provides that information about printhead identity is conveyed when an identification contact pad is not connected to a resistor (the "OPEN" configuration in Figure 7). (CX-4 at col. 7, lns. 9-27 and FIG. 7). Also the specification emphasizes what is shown in Figure 7: "In the circuit configuration described above, there are nine possible code identities." (CX-4 at col. 7, lns. 9-10). As HP's expert Mills (FF 9) testified, if claim 4 of the '027 patent requires that a printhead identification contact pad always be connected to a resistor there would only be four (not nine) possible combinations which is directly contrary to the teachings of Figure 7 of the '027 patent:

Q So can you describe how figure 7, particularly in connection with the text that we just saw, supports your construction?

A Yes. We see across the top of the figure or the table, ID [identification contact] pad number I2, or I2, and on the left-hand side we see ID pad number 1.

And three conditions for those, ID pad number 1 associated with R47, open; or R49, and then ID pad number 2 associated with R48, open, or R50, and we see that that forms a nine position matrix in which we can identify potentially nine printheads and there are five examples given here.

Q Okay. So if the construction urged by Microjet, that is that the resistors always had to be connected to one or the other, were the correct construction, would figure 7 make any sense whatsoever?

A No.

Q Why not?

A Well, we'd have to construct a new table that would be more limited and open would not be an option.

Q So in other words, the open possibility for either ID pad would not be an option under their construction?

A Yes, and the column under open would not be an option, either. So you've highlighted the row of open and the column of open would also not be an option.

Q How many possibilities would there be if you had to have the resistor connected?

A Well, this would leave you four.

Q Four instead of nine?

A Yes.

(Mills, Tr. at 277-279). (Emphasis added).

### 3. Prosecution

Microjet argued that an amendment in the prosecution of the '027 patent confirms that the claim language in issue must refer to a connection formed on the printhead between the printhead identification contact pads and the resistors on the printhead. (RPost at 17). In support Microjet argued that the patentees distinguished a cited Chan reference in an Amendment B on the ground that "in Fig. 5 of Chan . . . one of these contact pads is not connected to the resistor network." (RPost at 16-17). However contrary to Microjet's argument, in an amendment after final rejection received in the Patent Office on June 9, 1989, applicants distinguished Chan on the grounds that "Chan et al . . . [is] unconcerned about printhead identification." (CX-16 at Amendment B, page 5) (FF 18) and further added:

In examining these references, the applicants observe that Chan, while disclosing the use of individual resistors for firing ink drops

from the individual nozzles, makes no suggestion with respect to the possible use of a resistor pattern on the nozzle substrate for the purpose of identifying a particular printhead.

(CX-16 at Amendment B, p. 6) (emphasis added) (FF 18). Hence the administrative law judge finds that in the prosecution history applicants did not distinguish the Chan patent (or any other prior art reference) on the ground that the printhead identification contact pads must always be connected to the resistors, but rather that Chan was distinguished on the basis that it is “unconcerned about” and “makes no suggestion” as to a possible use of a resistor pattern on the nozzle substrate for the purpose of identifying a particular printhead.

While Microjet acknowledged that printhead identification contact pads are used “for connecting the printhead carriage and the printer” (RPost 3) (emphasis added), Microjet argued that applicants in Amendment B at 8 in the prosecution history argued that the claim language recites “the connection of at least two printhead identification contact pads” (RPost at 17) (emphasis in original). The administrative law judge finds that Microjet has taken said quoted statement out of context. Thus the language in context read:

Claim 6 describes a printhead identification means for thermal inkjet which has a nozzle plate which communicates with the ink chamber. An ink expulsion resistor is defined at each nozzle in the nozzle plate. Contact pads are described in the resistor network with individual circuits connecting individual contact pads to individual resistors, and the claim concludes reciting the connection of at least two printhead identification contact pads, each of which is disposed between selected pairs of the contact pads and which form part of a printhead identification resistor network, including at least two resistors for each printhead identification contact pad.

(CX-16 at Amendment B, p. 8) (FF 18). Hence the complete passage does not require that the identification contact pads are always to be connected to the resistor. Instead, the passage merely

repeats the claim language, noting that there are “at least two resistors for each printhead identification contact pad.”

#### 4. Conclusion

Based on the foregoing the administrative law judge finds, in view of the intrinsic evidence, that the identification contact pads may be (but are not necessarily) connected to the resistor on the printhead.

#### B. The '802 Patent

The asserted claims of the '802 patent to Dion and Winslow (FF 32) in issue (CX-5) read:

1. An inkjet printing apparatus comprising:
  - a. an ink reservoir;
  - b. a printhead for ejecting ink from the reservoir, the ejection of ink from the reservoir decreasing the pressure in the reservoir;
  - c. first pressure control means for limiting the decrease in the pressure in the ink reservoir by controllably introducing replacement fluid into the reservoir; and
  - d. second pressure control means for limiting the decrease in the pressure in the ink reservoir by changing the volume thereof.
2. The inkjet printing apparatus of claim 1 in which the second pressure control means comprises a member movable in response to the pressure in the reservoir.
3. The inkjet printing apparatus of claim 1 in which for excursions of negative pressure in the ink reservoir below a threshold value, the first pressure control means is inoperative.
4. The inkjet printing apparatus of claim 2 in which the movable member includes biasing means tending to increase the volume of the reservoir.

12. A method of operation [sic] an inkjet pen that includes a reservoir for containing ink, comprising the steps:

a. regulating the reservoir underpressure by varying the size of the reservoir during a first phase of operation; and

b. regulating the reservoir underpressure by introducing air thereto during a second phase of operation.

HP argued that while independent method claim 12 does require a particular order of operation, apparatus claims 1 through 4 require no particular order of operation. (CRBr at 12).

Microjet argued that the description of the invention in the specification and applicants' statements about their invention made during prosecution, on the distinction of the prior art, compel a conclusion that all of the asserted claims require a particular order of operation. Thus, it was argued by Microjet that the claims are drawn to an apparatus and a method of control where, first, a movable member responds to a change in pressure not by compensation (i.e., ink out, air in), but by traveling a maximum or minimum travel limit to change the volume of the apparatus and thereby limit a change in pressure, and second, after the moveable member has moved to a maximum or minimum travel distance, and if there continues to be an additional change in pressure, in the same direction that caused the moveable member to reach a maximum or minimum travel limit, an orifice and catchbasin arrangement introduces fluid to effect a change in pressure. (RPost at 43, 44).

The staff argued that Microjet's interpretation adds an additional limitation that is not present in the ordinary and customary understanding of the plain language of the asserted claims, and that the evidence demonstrates that a person of ordinary skill in the art (FF 11) would understand that nothing in the language of claims 1-4 suggests a requirement that the two

pressure control means recited in the claims operate in a particular sequence. (SPost at 21). It was also argued by the staff that Microjet contended for the first time that the claims require “a movable member traveling to a limit.” The staff argued that while this language appears in the specification, the asserted claims do not recite “a movable member traveling to a limit”. The staff further argued that reading a new limitation into the asserted claims at this late date must be rejected, pursuant to ground rules 9(d) and 9(e). (SRBr at 9). On the merits the staff argued that, as Microjet acknowledged, the specification of the ‘802 patent describes in great detail a system of pressure regulation, involving two mechanisms operating in a sequence, including “a movable member traveling to a limit.” (SRBr at 10). The staff also argued that the specification describes the invention in more general terms corresponding to the language of claim 1. (SRBr at 10).

#### 1. Claim Language

The administrative law judge finds that the plain language of independent claim 1 does not require a particular order of operation, but rather the claim simply provides for one “pressure control means for limiting the decrease in the pressure in the ink reservoir by controllably introducing replacement fluid into the reservoir” and another “pressure control means for limiting the decrease in the pressure in the ink reservoir by changing the volume thereof.” He finds nothing in the language of independent apparatus claim 1 which requires, much less suggests, that the pressure control means operate in a particular order. To the contrary, the order of operation that Microjet is attempting to read into the claim (inflating of the bag followed by introduction of air into the reservoir) is contrary to the language of claim 1, because it is the exact opposite of the order in which two elements are listed in that claim. Hence the claim

language itself contradicts Microjet's proposed interpretation.

## 2. Specification

The administrative law judge finds that specification of the '802 patent is not limited to a particular order of operation. Thus, it specifically teaches (CX-5, at col. 3, lns. 52-65):

While the foregoing description has focused on a very particular embodiment of an inkjet pen according to the present invention, the invention can more generally be described as including:

- a) an ink reservoir;
- b) a print head for ejecting ink from the reservoir and thereby leaving a negative pressure therein;
- c) a first pressure control mechanism for limiting the negative pressure in the ink reservoir by controllably introducing replacement fluid (i.e. air or ink) thereto; and
- d) a second pressure control mechanism for limiting the negative pressure in the ink reservoir by changing the volume thereof.

That language is substantially identical to the language of claim 1.

## 3. Prosecution

Microjet argued that "in an effort to secure allowance, the applicant represented to the examiner with respect to all claims" that the invention employs a particular order of operation. (RPost at 42).

Analysis of the amendment in question reveals that prior to applicants' discussion of the specific distinctions between the claims and the prior art, applicants described the "present invention" both in general terms and with reference to the specific embodiment disclosed in the specification and then turned to a discussion of the Dagna and Terasawa prior art references,

followed by specific argument as to why each claim was patentable notwithstanding those references. It was argued that while the claimed apparatus includes a print head that ejects ink from the reservoir with the ink ejection decreasing the pressure in the reservoir, such print head and reservoir arrangement is not contemplated by Dagna; and that Teresawa fails “to suggest a printing device that operates with underpressure maintained in the reservoir,” and in fact “teaches away from such operation.” (FF 36). Those distinctions were made relying solely on the claim language to distinguish the cited prior art without any reference to the embodiment described in the specification. (FF 36). The administrative law judge finds no basis in the prosecution history for requiring an additional limitation in the asserted claims, which limits said claims to a specific method of operation or embodiment disclosed in the specification.

#### 4. Conclusion

The administrative law judge finds, based on the intrinsic evidence, that while independent method claim 12 does require a particular order of operation, apparatus claims 1 through 4 require no particular order of operation.

#### C. The '134 Patent

The asserted claims of the '134 patent to Cowger, Baldwin, Tarver (Fred E), Tarver (Gary D.), Wydronek and Custer (FF 38) in issue (CX-6) read:

8. An accumulator apparatus comprising:
  - a. An expandable and contractible bag;
  - b. mounting means for mounting the bag within a fluid volume of a particular size so that expansion of the bag decreases the size of the fluid volume, the bag including an opening mounted so that an interior of the bag is continuous communication with ambient air outside the fluid volume,

wherein the bag is formed of flexible material and is contractible into a generally flat configuration; and

c. wherein the fluid volume is defined by a reservoir, the reservoir being sealed and containing ink therein under a backpressure, the backpressure being present irrespective of whether the bag is expanded or contracted.

9. The accumulator apparatus of claim 8 further comprising a printhead connected to the reservoir for ejecting drops of ink from the reservoir.

18. An accumulator apparatus comprising:

a. a sealed reservoir for containing ink and having a backpressure established therein;

b. an expandable and contractible bag mounted within the reservoir, the bag having an opening therein arranged so that an interior of the bag is in communication with ambient air outside of the reservoir, the bag being arranged so that contraction of the bag increases backpressure in the reservoir; and

c. a print head mounted to the reservoir and adapted for ejecting ink drops from the reservoir.

19. The apparatus of claim 18, further comprising a spring disposed adjacent to the bag and arranged to urge contraction of the bag for increasing the reservoir backpressure.

20. The apparatus of claim 19, wherein the spring and bag are configured and arranged so that the bag is substantially fully contracted when the spring is in a relaxed state.

HP argued that Microjet only disputes HP's interpretation of the term "sealed" as used in independent claims 8 and 18; and that HP's position is that "sealed" in the asserted claims means sufficiently sealed so to be able to maintain the described backpressure, i.e., reading the term "sealed reservoir" in conjunction with the phrase "under a back pressure" or "having a back

pressure” and arguing that surface tension or any other means whereby ambient air is kept out of the reservoir so that back pressure is maintained is sufficient to qualify as a “seal.” (CPost at 43).

Microjet argued that claims 8 and 18 contain the distinct limitation of a reservoir that is sealed and contains a back pressure within the sealed reservoir; that those claims do not call for a generally enclosed reservoir that has an opening for the admission of ambient air, nor do they call for a reservoir that is “substantially sealed” as in claim 12 but rather that they require a “sealed” reservoir by express limitation which requires that the reservoir not permit the admission of ambient air. (RPost at 30).

The staff argued that in the context of the ‘134 patent and consistent with the manner in which the term is used in the asserted claims and in the specification, “sealed” is linked to the concept of “having a back pressure,” and does not preclude openings to the outside air that are sealed by surface tension; that an interpretation of “sealed” that precludes any openings to the outside air is contrary to the teachings of the specification, which describes relieving back pressure through the introduction of ambient air into the reservoir; that the term “sealed” is used in the specification of the ‘134 patent in conjunction with an embodiment of the invention that has openings to the outside air; and that the evidence demonstrates that a person of ordinary skill in the art of inkjet printing (FF 11) would understand that the term “sealed,” as used in claims 8, 9, 18, 19, and 20 of the ‘134 patent, means sufficiently sealed so as to be able “to maintain a back pressure relative to atmosphere.” (SPost at 23, 24).

It was further argued by the staff that openings to the outside air that are sealed by surface tension, such that back pressure can be maintained in the reservoir notwithstanding such

openings, are entirely consistent with an understanding of “sealed” that focuses on the maintenance of back pressure. The staff argued that there is no reason to depart from that understanding, especially since doing so would not only be contrary to the specification, but would mean that the preferred embodiment of the invention was not covered by the claims at issue.<sup>7</sup> (SRBr at 12-13).

1. Claim Language

Independent claim 8 has the language “the reservoir being sealed”. Independent claim 18 has the language “a sealed reservoir.” The word “sealed” is not explicitly defined in the claims.

2. Specification

The administrative law judge finds that the specification describes a reservoir with some openings to ambient air through the nozzle in the printhead. Thus, as complainant’s expert Mills (FF 9) testified, with respect to the figures of the ‘134 patent (Tr. at 365-366):

Q So starting with figure 2 of CX-6, could you just describe generally the Cowger invention?

A Yes. The Cowger invention describes a bag and spring system for controlling the back pressure in a cartridge, print cartridge.

Q Okay. Using figure 2, can you describe how it works?

A Yes. We see in figure 2, the bag has two halves down the outside of the cartridge from the top down to the bottom of the interior reservoir on each side, with a mounting means and a vent hole that

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<sup>7</sup> The staff noted that although Microjet acknowledged that the preferred embodiment includes an orifice that permits ambient air into the reservoir, contrary to Microjet’s definition of “sealed” (RPost at 32), Microjet contended that the preferred embodiment is “inoperative”. (SRBr at 13). Microjet relied on certain testimony of Manner for inoperativeness. See RFF 87. However Manner’s testimony was not based on testing or observation of any actual inkjet cartridge but only upon theoretical modeling. (See Tr. at 839, 762).

vents the interior of the bag to the atmosphere.

Inside the bag are two leaf-springs that are initially curved and tend to flatten the bag.

Q Is this very similar to the structure in the 26A?

A Yes.

Q Okay. Take a look at exhibit - - at figure 6 of Exhibit 6. And describe, if you would, what that shows about the invention.

A Figure 6 is a side view which shows the bag with the spring inside, and the vent to the atmosphere above. And then we note down below at the bottom of the cartridge 104, we have a bubbler.

Q And what's the bubbler?

A The bubbler is the device that allows air in to the interior of the cartridge for the first pressure control means, or to control the back pressure.

Q Okay. Is that the only opening to the outside for the reservoir?

A No, there's an opening in the nozzle, the nozzles are open.

Q How many nozzles?

A 50.

Q Do claims 8, 9, 18, 19 and 20 of the Cowger '134 patent cover the 26A cartridge?

A Yes.

(Emphasis added). Moreover, the preferred embodiment described in the '134 patent includes an opening (called a bubble generator) that introduces ambient air to the cartridge's reservoir to help regulate back pressure:

At the point when the bag 42 of the preferred embodiment has expanded to its maximum volume condition, about 30% of the pen's ink has been printed out. Any further printing will cause a

further increase in back pressure, which may be relieved by the introduction of ambient air into the reservoir 24. To this end, the pen 22 includes a bubble generator 102 formed in the bottom wall of the reservoir 24.

(CX-6 at col. 12, lns. 11-16). (Emphasis added)

### 3. Prosecution

The administrative law judge rejects Microjet's argument that the applicants added the "sealed" limitation and distinguished the invention in the parent application of the '134 patent from the Weber and Frerichs references on the grounds that the invention of the '134 patent employed an "air tight seal." (RPost at 33-34). Far from distinguishing the Weber and Frerichs references on the ground that his invention has an "air tight seal," the inventors distinguished the prior art on the ground that the invention in issue has a sealed reservoir having a back pressure established therein. Thus it was stated:

Claim 1 has been rewritten as new claim 29. Claim 29 recites an accumulator apparatus that includes an expandable and contractable bag mounted within a sealed reservoir that has a back pressure established in the reservoir. Contraction of the bag increases (that is, makes more negative) the back pressure in the reservoir. Nothing in Frerichs, Matsumoto, or any other reference of record teaches or suggests a sealed reservoir having a back pressure established therein in combination with a bag that is arranged so that contraction of the bag increases the back pressure in the reservoir.

For example, Frerichs shows a coupling arrangement whereby a valve 53 is periodically forced open by positive pressure in chamber 59 as a result of ink being pumped into a chamber 53. Thus, the intermediate ink chamber 31, into which periodically flows ink from chamber 59 can not be characterized as being sealed with a back pressure established therein. Back pressure cannot be established in chamber 31 because it would be lost each time ink is pumped into the chamber.

The Frerichs reference does not suggest modification of that device to operate with a back pressure in chamber 31. Frerichs specifies a printing head 9 that is connected to a supply source that is maintained at ambient pressure . . . .

Nothing in Weber teaches or suggests the modification of Frerichs so as to seal a reservoir having a bag and spring inside the reservoir and arranged so that contraction of the bag increases the back pressure in the reservoir. Weber shows a bellows 46 positioned and arranged so that contraction on the bellows will reduce any back pressure in the reservoir. The use of the spring for urging contraction of a bag with an ink reservoir to increase the reservoir back pressure will not, therefore, be shown by a combination of Frerichs and Weber.

(CX-65 at February 13, 1991 Amendment, pp. 4-5 (Emphasis added with the exception of the word “reduce”) (FF 42). Hence the administrative law judge finds that the February 13, 1991 amendment in the parent application of the ‘134 patent supports the finding that “sealed” means sealed to maintain a backpressure.<sup>8</sup>

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<sup>8</sup> Microjet acknowledged in its initial posthearing brief that the concept of a “sealed reservoir” is linked to the concept of back pressure:

“Claims 8 and 18 contain the distinct limitation of a reservoir that is sealed and contains a back pressure within the sealed reservoir.” p. 30.

“The specification . . . provides the inventor’s explanation that a sealed reservoir contains a ‘back pressure’” *Id.*

“a sealed reservoir as required by the claims is sealed and contains a back pressure” *Id.*

“the specification supports the view of the claim as providing a sealed reservoir that contains a back pressure” p. 32.

[in an amendment to a claim in the parent application, applicant was] “claiming a truly ‘sealed reservoir’ with a bag and spring arrangement to maintain back pressure.” p. 34.

Microjet argued that the addition of the claim language “wherein the fluid volume is defined by the reservoir, the reservoir being sealed and containing ink therein under a back pressure, the back pressure being present irrespective of whether the bag is expanded or contracted” was added to gain patentability, thereby supporting Microjet’s interpretation of the claim term “sealed.” The context however makes it clear that “sealed” means capable of “containing ink therein under a pressure.”

#### 4. Conclusion

Based on the plain language of the asserted claims, the specification and prosecution history of the ‘134 patent, the administrative law judge finds that the claimed term “sealed” as used in claims 8, 9, 18, 19 and 20 of the ‘134 patent means sufficiently sealed so as “to maintain a back pressure relative to the atmosphere.”

#### D. The ‘073 Patent

The asserted claim of the ‘073 patent to Gary E. Hanson in issue (CX-2) reads:

4. A thermal inkjet print head assembly including in combination:
  - a. a print head substrate mounted on a header member and operative to receive ink therefrom,
  - b. a plurality of conductive traces deposited atop said substrate and electrically connected to a plurality of resistive heater elements therein, and
  - c. a beam lead interconnect circuit having a plurality of beam leads bonded, respectively, to said plurality of conductive

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“limitation [reciting a sealed reservoir was added] to gain patentability, specifically reciting that the reservoir is not just any reservoir, but a reservoir that is ‘sealed,’ and sealed to maintain ink under a back pressure.” Id.

traces in adjacent abutting parallel planes to thereby maximize packing density in said print head assembly.

(Emphasis added).

HP argued that the term "bonded" means bonded using heat and pressure, not necessarily using thermosonic bonding in which heat is generated by sonic energy. (CPost at 48). It was also argued by HP that although the specification of the '073 patent provides for sequential, thermosonic bonding in one embodiment of the invention, the specification nowhere indicates that thermosonic bonding is the exclusive method of bonding. (CRBr at 26).

Microjet argued that because the inventor only described thermosonic bonding, because all variations in the specification involved thermosonic bonding, because the title of the patent boasts of a thermosonic bonding process, and because the inventor states quite clearly that the invention features thermosonic bonding, that the public and this administrative law judge should interpret the claim to be limited to thermosonic bonding. (RRBr at 13).

The staff argued that although thermosonic bonding is discussed in the specification of the '027 patent, claim 4 simply uses the term "bonded," while other non-asserted claims, *viz.*, claims 1 and 10, specifically call for thermosonic bonding; and that the evidence indicates that the term "bonded" as used in claim 4 of the '027 patent would be understood by a person of ordinary skill in the art to mean the use of heat and pressure to permanently attach the beam leads to the conductive traces. (SPost at 11, 12).

#### 1. Claim Language

The claim in issue recites the term "bonded". However the claim does not define "bonded." While other non-asserted claims specifically call for thermosonic bonding the

doctrine of claim differentiation can not be used to broaden claims beyond the scope that is supported by the specification. See ATD Corp. V. Lydall, Inc., 159 F.3d 534, 541 (Fed.Cir. 1998); Toro Co. V. White Consolidated Indus., Inc. 199 F.3d at 1295, 1302 (Fed. Cir. 1999) (noting that the doctrine cannot be used to broaden claims beyond their meaning in light of the specification and does not override clear statements in the specification); Hormone Research Found Inc. v. Genentech Inc., 904 F.2d 1558, 1567 n.15, 15 U.S.P.Q.2d at 1039, 1047 N.15 (Fed. Cir. 1990). See also Kraft Foods, Inc. v. Int'l Trading Co., 203 F.3d 1362, 1368 (Fed. Cir. 2000) (observing that claim differentiation is not a “hard and fast rule of construction,” and cannot be relied upon to “broaden claims beyond their correct scope”).

## 2. Specification

The '073 patent is titled “Replaceable Thermal Ink Jet Component And Thermosonic Beam Bonding Process For Fabricating Same” (Emphasis added) (CX-2). The abstract<sup>9</sup> in turn reads:

This application discloses a new and improved thermal inkjet printhead and method of manufacture wherein a tape automated bond (TAB) flexible circuit is sequentially thermosonically bonded in a one-by-one wire bonding process to aligned conductive traces on a thin film resistor substrate. These traces provide electrical current paths for a corresponding plurality of heater resistors on the substrate, and these resistors function to heat a corresponding plurality of ink reservoirs in a thermal inkjet printhead.

(Emphasis added). Hence a person of ordinary skill in the art, reading the title and abstract would conclude that the claimed invention involved thermosonically bonding.

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<sup>9</sup> The abstract is frequently looked to for determining the scope of a claimed invention. Hill-Rom Company, Inc. v. Kinetic Concepts Inc. 209 F.3d 1337, 1341, n. 1, 54 U.S.P.Q.2d 1437, 1440 n. 1 (Fed. Cir. 2000).

The '073 patent under the heading "TECHNICAL FIELD" reads (CX-2, at col. 1, lns. 7-12).

This invention relates generally to thermal inkjet printing and more particularly to a new and improved low cost, high density thermal inkjet print head assembly and process for manufacturing same. This process features thermosonic beam lead bonding in the plane of the thermal inkjet thin film resistor substrate.

(Emphasis added).

The '073 patent, under the heading "Disclosure Of Invention" discloses that the objects and novel features of the invention (CX-2 col. 1, lns. 62-68, col. 2, lns. 1-7)

are accomplished by the provisions of a new and improved planar bonded thermal inkjet print head substrate and thermosonic beam lead attachment process for fabricating same wherein a thin film resistor print head substrate of predetermined dimensions is mounted on a header member. This header member in turn provides a source of ink supply to the print head. The print head substrate contains a plurality of conductive traces thereon which make electrical connection to resistive heater elements in the substrate. These conductive traces are thermosonically bonded to a plurality of beam leads in an interconnect circuit which extends in the plane of the upper surface of the substrate to thereby maximize packing density of the print head assembly.

(Emphasis added).

Under the heading "Best Mode For Carrying Out The Invention" repeated reference is made to obtaining a thermosonic bond. Thus it is stated that once beam lead members are positioned in place, they are bonded to traces using a preferred type of bonding tool and a controlled combination of ultrasonic energy, pressure, heat and time "so as to provide a good metal-to-metal thermosonic bond" (col. 4, lns. 1-2). In a later passage it is stated that the effect of "this thermosonic bond" is to compress the original thickness of a beam lead (col. 4, ln. 68

col. 6, ln. 1). The '073 patent does state that various modifications may be made to the described embodiments. See col. 5 lns. 14-25. However, there is nothing said in the various modifications to suggest that any bonding other than thermosonic bonding is involved in the invention of the '073 patent.

The administrative law judge finds SciMed Life Systems, Inc. v. Advanced Cardiovascular Systems, Inc., 242 F.3d 133, 1343 (Sci Med) to be controlling. In SciMed, the Court found that the abstract of the patent in issue, the manner in which the patentee distinguished the prior art, the Summary Of The Invention section of the patent and the reference in the specification that the “intermediate sleeve structure defined above is the basic sleeve structure for all embodiments of the present invention contemplated and disclosed herein” limited the claimed invention to said intermediate sleeve structure. SciMed, 242 F.3d at 1342, 1343. As in SciMed, the administrative law judge finds that the title of the '073 patent, its abstract, the manner in which the patentee distinguished the prior art in the specification, the “Technical Field” of the claimed invention, and the specification, including its embodiments,<sup>10</sup> limits the claimed invention to therosonically bonding.

### 3. Conclusion

While HP argued that the claimed term “bonded” merely means using heat and pressure and the staff argued that a person of ordinary skill in the art would understand “bonded” to mean merely the use of heat and pressure to permanently attach the beam leads to the conductive traces, the administrative law judge finds that those arguments ignore the specific teachings in

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<sup>10</sup> There was no substantive prosecution leading up to the '073 patent. See RX 8.

the '073 patent which mandates that "bonded" as used in claim 4 means thermosonically bonded.

E. The '294 Patent

The asserted claims of the '294 patent to Gary E. Hanson (FF 20) in issue (CX-1) read:

1. An inkjet printhead assembly adapted for insertion into a printhead carriage, said assembly including in combination:

a. a printhead substrate mounted on a header member and operative to receive ink therefrom,

b. a plurality of thin conductors disposed atop said substrate and electrically connected to a plurality of transducer elements therein, and

c. a beam lead interconnect circuit having a plurality of beam leads bonded, respectively, to said plurality of thin conductors and extending over a chosen outer surface of said header member, and said header member having a surface geometry configured for insertion into a printhead carriage, whereby the portions of said beam leads on said chosen outer surface of said header member may be brought into electrical contact with corresponding mating conductors on said printhead carriage.

3. An inkjet pen including in combination:

(a) a pen body housing having an ink storage compartment therein and an ink flow port adjacent one surface thereof and further having outer surfaces which are contoured to mate with adjacent surfaces of a pen carriage member,

(b) a thin film printhead mounted on said one surface of said pen body housing and adjacent to said ink flow port therein for receiving ink from said ink flow port during an inkjet printing operation, and

(c) a flexible electrical circuit member including a plurality of beam leads bonded at predetermined locations on said thin film printhead for supplying electrical power and signals thereto during an inkjet printing operation, said flexible

electrical circuit being extended over one of said contoured outer surfaces of said pen body housing and secured thereto, whereby electrical conductors in a pen carriage are adapted to mate with certain ones of said beam leads of said flexible electrical circuit for supplying power and electrical drive signals to said beam leads when said pen body housing is mounted in said carriage.

HP argued that the limitation of claim 1 that the beam leads “may be brought into electrical contact” with the mating conductors on the printhead carriage does not necessarily require physical contact between the beam leads and the mating conductors, but only that they can be brought into “electrical contact” with each other, so that they are electrically connected to each other. (CPost at 58). HP also argued that such an electrical connection can be made without the beam leads or mating conductors coming into actual physical contact with each other. (CPost at 58). HP further argued that even if the administrative law judge interprets claim 1 as requiring the beam leads to be in physical contact with the mating conductors of the printer, such a limitation is satisfied with respect to Microjet’s and HP’s products, as the contact pads on the those products’ printheads, are part of the beam leads and do come into contact with the printer’s mating conductors. (CPost at 59).

Microjet argued that the intrinsic evidence shows that claim 1 concerns a specific configuration to achieve an electrical connection between the beam leads on the printhead and the corresponding mating conductors on a printer carriage; that, in this regard, the claims explicitly require a header member having a surface geometry configured for insertion into a printhead, beam leads that extend over an outer surface of the printhead, and that the extended portion of the beam leads on the outside surface of the printhead be available for electrical connection with mating conductors on a printhead carriage; that the “electrical contact” refers to

an electrical contact achieved along the length of the extended beam lead; and that the specific physical configuration required by the claim is confirmed by the prosecution history. (RPost at 23).

The staff argued that the evidence demonstrates that a person of ordinary skill in the art of inkjet printing would understand that printhead carriages come in varying shapes, and that claim 1 does not require that the header member be of a particular shape. The staff further argued that claim 1 requires direct physical contact between the portions of the beam leads on the outer surface of the header member and the printhead carriage, but that such a limitation would be satisfied by HP's and Microjet's products, as in each of those products the contact pads on the printhead are part of the beam leads and come into contact with the mating conductors on the printers. The staff further argued that claim 3, like claim 1, requires direct physical contact between the beam leads and the electrical conductors in the pen carriage. (SPost at 13-16, SRBr at 14).

#### 1. Claim Language

The plain language of the asserted claims require that the "beam leads on said chosen outer surface of said header member may be brought into electrical contact with corresponding mating conductors on said printhead carriage" (claim 1 supra) or that the "flexible electrical circuit be[] extended over one of said contoured outer surfaces of said pen body housing and secured thereto," so that electrical conductors in the pen carriage can "mate" with the beam leads of the flexible circuit (claim 3, supra). The claim language fails to provide any description of how the beam leads of the print head circuit are to be brought into "electrical contact" or "mat[ed]" with the conductors of the carriage.

## 2. Specification

Referring to element (c) of claim 1 supra, while the term “electrical contact” by itself does not necessarily imply direct physical contact, the administrative law judge finds that the express claim language, viz. “the portions of said beam leads on said chosen outer surface [being] brought into electrical contact with corresponding mating conductors on said printhead carriage,” requires that a portion of the beam leads be in physical contact with the mating conductors.

In the description of the preferred embodiment, and specifically referring to Figs. 3a and 3b<sup>11</sup>, the presence of this physical contact is made clear in the ‘294 patent at col. 4, lns. 40-59<sup>12</sup>:

. . . . This elastomer 114 or other equivalent member having the required elastomeric properties is brought in contact with the TAB bond flex circuit 16 where it extends over the slanted outer wall 26 of the header 20. Here the TAB bond flex circuit 16 makes pressure contact another flexible circuit 118 which extends vertically along the outer vertical side walls of the header 20. Here it is accessible [sic] to driving circuitry (not shown) which provides driving current pulses for the heater resistors previously described.

The use of the elastomer 114 enables the TAB bond flex circuit 16 and the flexible circuit 118 to the driving electronics to be brought into good firm electrical contact when the inkjet print head structure of Fig. 1b is inserted into carriage 120 of the thermal inkjet printer. The carriage 120 includes a slanted interior wall 122 for receiving the circuits 16 and 118 on each side of the thermal inkjet print head. Approximately 25 pounds of pressure are applied to the

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<sup>11</sup> Fig. 3a is described as “a schematic cross-section view of the print head assembly according to the invention in its pressure connect position in a printer carriage;” while Fig. 3b is described as “a greatly enlarged view of the pressure connect portion of the slanted header wall, including the elastomer insert portion thereof.” ‘294 patent, col. 2, lns. 49-54.

<sup>12</sup> This section of the specification is relied on by both the staff and Microjet to support their positions that physical contact between the beam leads and the mating conductors is required by the claim language. See SPre at 14 (citing ‘073 patent at col. 4, lns. 35-40, Figs. 3a, 3b) and RPost at 26-27 (citing ‘294 patent at col. 4, lns. 28-59).

electrical connection adjacent the elastomer ring 114.

(Emphasis added).

Therefore the specification of the '294 patent describes the print head's TAB circuit's beam leads coming into pressure contact with the carriage's flexible circuit as a result of the elastomer's application of 25 pounds of pressure to the connection between the TAB circuit and the flexible circuit, which in turn results in a "good firm electrical contact" between the two circuits. The patent contains no description any alternative method of bringing the two circuits into electrical contact other than through physical contact.

HP had argued that, as an example of two circuits being brought into electrical contact without being brought into physical contact, two car batteries connected through a set of jumper cables would be in "electrical contact" with each other even if the terminals of the batteries were not physically touching. (CPost at 58). However, HP provided no support for this contention, and failed to even argue that one of ordinary skill in the art would interpret two batteries so connected through jumper cables would be considered to be in "electrical contact" consistent with claim 1 of the '294 patent. Moreover, HP did not indicate that the specification of the '294 patent disclosed any method of connecting the beam leads with the mating conductors that was the result of anything other than direct physical contact between the beam leads and the mating conductors.

Thus, the administrative law judge finds that physical contact is needed between the beam leads and the mating conductors so as to bring those structures into electrical contact with each other. The administrative law judge does, however, reject Microjet's argument that the portions of the beam leads which extend across the chosen surface of the printhead have to be accessible

along their entire lengths to being brought into physical contact with the mating conductors of the carriage. Rather, the administrative law judge finds that this limitation can be satisfied when only a portion of the extended beam leads are accessible to being brought into physical contact with the mating conductors. Such a finding is again supported by the specification in the '294 patent at col. 4, lns. 40-59, see supra, which although discloses that physical contact is needed between the TAB circuit and the flexible circuit so as to achieve a "good firm electrical contact" between the two, it makes such a disclosure in reference to Figs. 3a and 3b. Fig. 3b clearly shows that the physical contact between the flexible circuit and the TAB circuit is only possible on about half of the TAB circuit's length as it extends up over the outer wall of the header. Therefore, "good firm electrical contact" is possible between the two circuits, even though half of the printhead's TAB circuit is inaccessible to being brought into physical contact with the flexible circuit.

### 3. Prosecution

In abandoned Serial No. 937,945<sup>13</sup> in a preliminary amendment applicant cancelled claims 1 through 9 of the parent application Ser. No. 801,034 which had been allowed and added claim 10 through 21 in the continuation Serial No. 937,945. Added claim 16 read:

16. A thermal inkjet printhead assembly including in combination:
  - (a) a printhead substrate mounted on a header member and operative to receive ink therefrom,

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<sup>13</sup> Serial No. 93,924 on which the '294 patent is based is a division of Serial No. 937,945 (FF 20, 21).

(b) a plurality of conductive traces deposited atop said substrate and electrically connected to a plurality of resistive heater elements therein, and

(c) a beam lead interconnect circuit having a plurality of beam leads bonded, respectively, to said plurality of conductive traces.

(RX-9 at HP 06269).

Application claim 16 in Serial No. 937,945, which was renumbered as claim 19, was rejected on May 22, 1987 "as being anticipated by Poleshuk 4,612,554," (RX-9 at HP 06277), (FF 23) and was also

rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are considered indefinite because they fail to positively recite elements (e.g. The substrate in claim 1), they contain unused terms (eg. Printhead in claim 16), and they recite functions which are unsupported by the claimed structure (e.g. lines 4-1 of claim 20). The claims should be revised to comply with the requirements of 35 USC 112, second paragraph.

(RX-9 at HP 06280) (FF 24).

Applicant elected to withdraw claim 19 without traverse. (RX-9 at HP 06293) (FF 25).

In this regard, the applicant in Serial No. 937,945 in amendment dated Dec. 9, 1987 stated that

[t]he Examiner's remaining rejections of claim 16-24 based upon a number of additional references are duly noted. These additional references have been carefully considered by the Applicant and his undersigned attorney and are not believed to suggest either the Applicant's group I invention or the Applicant's group II and III inventions as defined by the Examiner on page 5 of the Office Action. However, Applicant will not respond herein to these further rejections at the present time and will leave any further necessary responses to these rejections to be made in the prosecution of yet-to-be filed divisional applications to the claims of groups II and III.

(RX-9 at HP 06303-06304). (FF 26).

In a preliminary amendment of a divisional application, the applicant filed on September

8, 1987 new claim 25 with these remarks:

New claims 25 and 26 submitted herewith correspond in subject matter to previously filed claim 19 and also recite some additional structure of Applicant's preferred embodiment directed to extending the beam lead interconnect circuit over a chosen outer surface of the printhead member for subsequent interconnection with mating conductors on a printhead carriage.

(RX-9 at HP 06352) (FF 27). Accordingly, element c of claim 25 read:

c. A beam lead interconnect circuit having a plurality of beam leads bonded, respectively, to said plurality of thin conductors and extending over a chosen outer surface of said header member, and said header member having a surface geometry configured for insertion into a printhead carriage, whereby the portions of said beam leads on said chosen outer surface of said header member may be brought into electrical contact with corresponding mating conductors on said printhead carriage.

(RX-9 at HP 06351) (FF 28).

Claim 25 was renumbered as claim 13. (RX-9 at HP06360). Claim 13 was withdrawn in an amendment, but, in the same amendment, was resubmitted as claim 22. (RX-9 at HP06364-66).<sup>14</sup> Claim 22 was rejected because of "obviousness-type double patenting as being unpatentable over the prior invention as set forth in claims 4-9 of U.S. patent no. 4, 635, 073."

(RX-9 at HP06371). Claim 22 was also

rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are considered incomplete. Claim 22 calls for the header member to have a surface geometry configured for insertion into a printhead carriage. The printhead carriage has no antecedent basis in the claim.

(RX-9 at HP06372-73) (FF 30).

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<sup>14</sup> Withdrawn claim 13 was identical to the new claim 22 except that element b required there to be "a plurality of thin conductors deposited atop [the printhead] substrate" whereas element b of claim 22 stated there were "a plurality of thin conductors disposed atop [the printhead] substrate". None of the parties have attached any significance to this difference.

Applicant overcame the objections of the Examiner by amending the preamble of claim 22 so as to provide an antecedent basis of the “printhead carriage” (FF 31), and by filing a terminal disclaimer to overcome the Examiner’s double patenting concerns. (RX-9 at HP 06379-81). Claim 22 was then allowed, and became claim 1 of the ‘294 patent. (RX-9 at HP 06393).

Microjet placed great weight on the applicant’s remarks that accompanied the submission of claim 25 to the Examiner, which acknowledged that claim 25 in comparison to claim 16 “recit[ed] some additional structure of applicant’s preferred embodiment directed to extending the beam lead interconnect circuit over a chosen outer surface of the printhead member for subsequent interconnection with mating conductors on a printhead carriage.” (RX-9 at HP 06352). However the administrative law judge finds that applicant’s remarks are not inconsistent with the administrative law judge’s finding that only part of the portion of the beam leads that extend across the outer surface of the printhead need to be in physical contact with the mating conductors on the carriage or even accessible to such physical contact. Thus applicant’s remarks do not specify how the beam leads, after being extended across an outer surface of the printhead member, are to be “interconnect[ed] with mating conductors on a printhead carriage,” i.e., whether direct physical contact is required between the mating conductors and the entire length of the portion of the beam lead that extends across the outer surface of the printhead, or whether direct physical contact is required between the mating conductors and only parts of the portion of the beam lead that extends across the surface of the printhead.

#### 4. Conclusion

Based on the claim language, specification and prosecution history the administrative law judge finds that direct physical contact is required between the beam leads and the mating

conductors, along the portion of the beam leads that extend across the outer surface of the printhead. However, he further finds that only part of the portion of the beam leads that extend across the outer surface of the printhead need to be in physical contact with the mating conductors on the carriage or even accessible to such physical contact.

F. The '859 Patent

The asserted claims of the Johnson '859 patent (CX-3) read:

2. A process for maximizing packing density of resistor heater elements and associated inkjet orifices in thermal inkjet printheads which includes:

(a) providing a thin film resistor structure having an ink feed opening therein around which resistor heater elements are spaced at predetermined distances,

(b) making electrical contacts to said resistor heater elements,

(c) mounting an orifice plate member atop said thin film resistor structure for ejecting ink therefrom upon receiving thermal energy from said resistor heater elements, and

(d) affixing said thin film resistor structure to an insulating header having a matching ink feed opening therein for providing ink to said ink feed opening in said thin film resistor structure

3. The process defined in claim 2 which also includes extending electrical contacts along surfaces of said insulating heater [SIC, header], whereby the packing density of said contacts is also maximized.

HP argued that the term "maximizing" as used in claims 2 and 3 of the '859 patent is not a limitation on the claimed apparatus, which is demonstrated by the fact that the term is in the

preamble of claim 2, and follows a "whereby" clause in claim 3; and that the remaining claim elements and limitations in claims 2 and 3 describe a complete, patentable process without reference to the term "maximize," and accordingly, "maximize" merely describes a goal or purpose of the invention and is not a claim limitation. It was further argued by HP that the specification is clear that "maximizing," as used in the claims of the patent, merely means a more dense arrangement of resistor heater elements than the prior art method (where multiple holes were drilled in the substrate) allowed:

The above described slotted geometry structure greatly increases the packing density of heater resistors on the common printhead substrate. This increase in packing density is partially a result of the fact that, in the prior art multiple hole printhead structures, the conductive traces to the individual resistor elements had to be routed around the holes, thus increasing the required substrate area. Thus, by using the elongated slot arrangement of this invention instead of vertical holes in the prior art structures, a packing density increase of 8:1 to 10:1 may be achieved.

(CX-3 at col. 2, lns. 25-35). It was also argued by HP that the term "matching" in claim 2 means simply "aligned with" as can be readily appreciated by comparing the relative size and orientation of slots 16 and 22 shown in Fig. 2 of the Johnson '859 patent; that claim 2 simply requires an opening in the header member that is "aligned" with the opening in the substrate so ink can flow through to the resistors; and that the specification provides that "[t]he header manifold 20 will include an ink reservoir (not shown) within the confines thereof which communicates with an ink feed slot 22. The slot 22 is aligned with the ink feed slot 16 in the thin film resistor substrate." (CPost at 62-65).

The staff argued that the evidence demonstrated that a person of ordinary skill in the art would understand that "matching," as used in paragraph (d) of claim 2, refers to an opening of

similar shape and size. (SPost at 18).

Microjet, in its posthearing submissions, did not dispute any claim language of the asserted claims. In closing argument, Microjet admitted that it had no issue with respect to claim construction of any of the asserted claims of the '859 patent. (Tr. at 1205).

Based on the plain language of the claims and the specification and the fact that none of the terms of the asserted claims are in dispute by the parties, the administrative law judge finds that the term "maximizing" as used in claims 2 and 3 of the '859 patent is not a claim limitation for either of the asserted claims, but rather describes a goal or purpose of the processes disclosed in the claims. Furthermore, as the specification makes clear, "maximizing" as used in the asserted claims, at most, merely refers to a more dense arrangement of resistor elements than the prior art method allowed. (See CX-3 at col. 2, lns. 25-35). Finally, the administrative law judge finds that the term "matching" means that the hole in the header member is aligned with the opening in the substrate so that ink can flow to the resistors.

## VI. Infringement

Each of HP and the staff argued that Microjet has infringed each of the asserted claims. Microjet denies infringement.

HP has the burden of proving, by a preponderance of the evidence, that the claims in issue are infringed by the accused products. See e.g., Conroy v. Reebok International, Ltd., 14 F.3d 1570, 1573 (Fed. Cir. 1994); Braun Inc. v. Dynamics Corp., 975 F.2d 815 (Fed. Cir. 1992); Chisum, § 18.06(1). To find infringement, an accused product must meet each claim limitation, either literally or under the doctrine of equivalents. Charles Greiner & Co. v. Mari-med Mfg. Inc., 962 F.2d 1031, 1034 (Fed. Cir. 1992). Literal infringement requires that every limitation of

the claim be found in the accused device, exactly. Southwall Techs., Inc. Cardinal IG Co., 54 F.3d 1570, 1575 (Fed. Cir.), cert. denied, 116 S. Ct. 515 (1995). For a means-plus-function limitation under 35 U.S.C. § 112, para. 6, to read literally on an accused device, the accused device must (1) employ means identical to or the equivalent of the structures, material, or acts described in the patent specification and (2) also perform the identical functions as specified in the claims. Valmount, 983 F.2d at 1042; Johnson v. IVAV Corp., 885 F.2d 1574, 1580 (Fed. Cir. 1989). To be an equivalent of the disclosed means under section 112, para. 6, a structure must perform the express functions. Sage Prods. Inv. v. Devon Indust., Inc., 126 F.3d 1420, 1428 (Fed. Cir. 1997).

A device that does not literally infringe a claim can infringe under the “doctrine of equivalents.” The “doctrine of equivalents” prevents an accused patent infringer from avoiding liability for infringement by changing only minor or insubstantial details of a claimed invention while retaining the invention’s essential identify. Festo Corp. v. Shokeetsu Kinzoku Kogyo Mabashihi Co., 234 F.3d 558. (Fed. Cir. 2000), cert. granted, 2001 WL 378251 (June 18, 2001).

The accused Microjet products include models HC-01, HC-02, HC-03, HC-04, HC-C03, HC-C01, HC-S01, and HC-S03, each of which allegedly infringes the asserted claims of the ‘073, ‘294, ‘859, and ‘027 patents. See CX-235. Only models HC-01, HC-03, HC-C01, and HC-C03 are also alleged to infringe the asserted claims of the ‘802 and ‘134 patents. See CX-235.

Complainant HP presented evidence at the hearing with respect to Microjet models HC-01, HC-02, HC-03, HC-04, and HC-C03. With respect to Microjet models HC-C01, HC-S01, and HC-S03, Microjet and HP have stipulated that each of those products is structurally similar

in all relevant details to one of the products about which evidence was presented,<sup>15</sup> and that if the corresponding model is found by the evidence to infringe any claim of any asserted patent, the evidence also demonstrates infringement of that same claim by the HC-C01, HC-S01, or HC-S03. See CX-235. The following chart lists the accused products (including those subject to stipulation) and the asserted patents:

<b>Asserted Patents</b>	<b>Microjet products (evidence presented)</b>	<b>Microjet products (stipulated)</b>
Hanson '073	HC-01, HC-02, HC-03, HC-04, HC-C03	HC-C01, HC-S01, HC-S03
Hanson '294	HC-01, HC-02, HC-03, HC-04, HC-C03	HC-C01, HC-S01, HC-S03
Johnson '859	HC-01, HC-02, HC-03, HC-04, HC-C03	HC-C01, HC-S01, HC-S03
Buskirk '027	HC-01, HC-02, HC-03, HC-04, HC-C03	HC-C01, HC-S01, HC-S03
Dion '802	HC-01, HC-03, HC-C03	HC-C01
Cowger '134	HC-01, HC-03, HC-C03	HC-C01

A. The '027 Patent

As required by the claim 4 of the '027 patent, each of Microjet's HC-01, HC-02, HC-03, HC-04 and HC-C03 has a printhead body having at least one ink chamber (Tr. at 292, 293; CX-47 at 2; CX-48 at 2; CX-49 at 2; CX-50 at 2; CX-51 at 2); the printhead having a nozzle plate with nozzles communicating with the ink chamber (Tr. at 292, 293; CX-47 at 3); a resistor network with an ink expulsion resistor at each nozzle (Tr. at 292, 293-94; CX-47 at 4; CX-48 at

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<sup>15</sup> The HC-C01 model corresponds to the HC-01 model, and the HC-S01 and HC-S03 correspond to the HC-02 and HC-04 models, respectively. See CX-235.

4; CX-49 at 4; CX-50 at 4; CX-51 at 4); the resistor network having contact pads (Tr. at 292, 294; CX-47 at 5; CX-48 at 5; CX-49 at 5; CX-50 at 5; CX-51 at 5); and two printhead identification pads, each being disposed between selected pairs of contact pads (Tr. at 292, 295-97; CX-47 at 6; CX-48 at 6; CX-49 at 6; CX-50 at 6; CX-51 at 6).

Microjet argued that while claim 4 calls for printhead identification contact pad to form part of a printhead identification resistor network, on the accused device one of the pads alleged to be one of the printhead identification contact pad “is not connected to anything” and therefore cannot be part of a printhead identification resistor network. (RPost at 44). Although HP’s expert Mills testified that one of the printhead identification contact pads “is not connected to anything”, the administrative law judge finds that this testimony, in context, was referring to the fact that said pad was not connected to its adjacent contact pads. (Tr. at 539-40). There is no requirement in claim 4 that the printhead identification pads be connected to an adjacent contact pad. Mills did, however, testify that printhead identification contact pads I1 and I2 each had two resistors associated with them, so as satisfy the requirement of a printhead identification resistor network. (Tr. at 292).

Based on the foregoing, the administrative law judge finds that, on the evidence presented at the hearing, HP has satisfied its burden in establishing that Microjet’s HC-01, HC-02, HC-03, HC-04 and HC-C03 and, through stipulation by the parties, Microjet’s HC-C01, HC-S01, and HC-S03 infringe claim 4 of the ‘027 patent.

B. The ‘073 Patent

As found, supra, thermosonic bonding is required by the claim 4 of the ‘073 patent. None of Microjet’s cartridges accused of infringing claim 4 utilizes thermosonic bonding. Thus rather

than thermosonic bonding, a thermal press is used to bond the beam leads to the thin conductors. (CX-215 at 29) (Deposition of Chan, the designer of Microjet's HC-02 and HC-04 cartridges, CX-215 at 18). Accordingly, Microjet's accused cartridges do not literally infringe the asserted claim.

HP has argued that the accused cartridges should be found to infringe under the doctrine of equivalents, as the only difference between bonding using a thermal press, and thermosonic bonding is in the manner the heat is created (Tr. at 402); that with Microjet's thermal compression technique, heat is generated by resistive heating, whereas with thermosonic bonding the heat is generated by sonic energy which causes very small vibrations on the surface and that friction on the surface generates the heat that effects the bonding (Tr. at 403); and that both methods form bonds in the same way as they both generate heat and pressure to make the bonds and the bonds are essentially the same. (Tr. at 403-404).

However, as the specification of the '073 patent states, when beam leads are bonded to their corresponding conductive trace members using thermosonic bonding "a good metal-to-metal thermosonic bond" is created through the application of "a controlled combination of ultrasonic energy, pressure, heat and time". ('073 patent at col. 30, ln. 65-col.4, ln. 5 (emphasis added)). HP has not introduced any evidence that the thermal press used by Microjet for bonding creates a "thermosonic bond" using ultrasonic energy in addition to pressure and heat. Accordingly, the administrative law judge does not find the bonding by thermal press to be equivalent to thermosonic bonding under the doctrine of equivalents.

Based on the foregoing, the administrative law judge finds that HP has not satisfied its burden in establishing that each of Microjet's accused HC-01, HC-02, HC-03, HC-04, HC-C03,

HC-C01, HC-S01, and HC-S03 infringe the asserted claim of the '073 patent.

C. The '294 Patent

As required by claim 1 of the '294 patent, each of Microjet's HC-01, HC-02, HC-03, HC-04, and HC-C03 has a printhead substrate mounted on a header member and operative to receive ink from the header member (Tr. at 446; CX-35 at 2; CX-36 at 2; CX-37 at 2; CX-38 at 2; CX-39 at 2) with a plurality of thin conductors disposed atop of the printhead substrate and electrically connected to a plurality of transducer elements located in the substrate (Tr. at 446-47; CX-35 at 3, 4; CX-36 at 3, 4; CX-37 at 3, 4; CX-38 at 3, 4; CX-39 at 3, 4). Also, the accused products have a beam lead interconnect circuit having a plurality of beam leads bonded to a plurality of thin conductors, and extending over a chosen outer surface of said header member, with said header member having a surface geometry configured for insertion into a printhead carriage, such that the portions of said beam leads on the outer surface of the header member may be brought into contact with mating conductors on the printhead carriage. (Tr. at 446, 447-48; CX-35 at 5; CX-36 at 5; CX-37 at 5; CX-38 at 5; CX-39 at 5).

As required by claim 3 of the '294 patent, each of Microjet's HC-01, HC-02, HC-03, HC-04, and HC-C03 has a pen body with an ink storage compartment and an ink flow port adjacent to one surface. (Tr. at 446, 448, 449; CX-35 at 7; CX-36 at 7; CX-37 at 7; CX-38 at 7; CX-39 at 7). Moreover, the pen body's outer surfaces are contoured to mate with adjacent surfaces of a pen carriage member. (Tr. at 446, 448, 449; CX-35 at 8; CX-36 at 5; CX-37 at 8; CX-38 at 8; CX-39 at 8). Also, a thin film printhead, for receiving ink from the pen body's ink flow port during printing, is mounted on one surface of the pen body and adjacent to the ink flow port in pen body (Tr. at 446, 448-49; CX-35 at 9; CX-36 at 9; CX-37 at 9; CX-38 at 9; CX-39 at 9).

Finally, the accused devices have a flexible electrical circuit member, for supplying electrical power and signals, with a plurality of beam leads bonded in predetermined location on the thin film print head (Tr. at 446, 449; CX-35 at 10; CX-36 at 10; CX-37 at 10; CX-38 at 10; CX-39 at 10), and the flexible circuit is extended over and secured to one of the pen's contoured surfaces, such that electrical conductors in a pen carriage can mate with the beam leads of the flexible circuit when the pen body housing is mounted in the carriage. (Tr. at 446, 449; CX-35 at 11; CX-36 at 11; CX-37 at 11; CX-38 at 11; CX-39 at 11).

Microjet argued that while claims 1 and 3 require extended portions of beam leads accessible on the linear extension on an outside surface for electrical connection, HP has not shown that the accused devices satisfy those limitations, because the only the beam leads' contact pads on the accused devices have been shown to be accessible for an electrical connection. (RPost at 48). As stated supra, the contact pads of the beam leads are part of the beam leads and as only a portion of the extended beam leads need to be accessible for an electrical connection, the administrative law judge finds that those limitations are satisfied by the beam leads' contact pads being so accessible.

Based on the foregoing, the administrative law judge finds, on the evidence presented at the hearing, that HP has satisfied its burden in establishing that Microjet's HC-01, HC-02, HC-03, HC-04, and HC-C03 and, through stipulation by the parties, Microjet's HC-C01, HC-S01, and HC-S03 infringe claim 4 of the '027 patent.

#### D. The '802 Patent

As required by claim 1 of the '802 patent, each of Microjet's HC-01, HC-03 and HC-C03 has an ink reservoir. (CX-53 at 2; CX-54 at 2; CX-55 at 2; Tr. at 360, 363). Also they have a printhead for ejecting ink from the ink reservoir (CX-53 at 3; CX-54 at 3; CX-55 at 3; Tr. at 360), a first pressure control means for limiting the decrease in the pressure by controllably introducing replacement fluid into the reservoir (CX-53 at 4; CX-54 at 4; CX-55 at 4; Tr. at 360, 363) and a second pressure control means for limiting the decrease in pressure in the ink reservoir by changing the volume of the ink reservoir, in the form of a "a baggy in the middle which inflates as volume is reduced in the reservoir." (CX-53 at 5; CX-54 at 5; CX-55 at 5; Tr. at 361, 363). The administrative law judge finds that the "baggy that has movable walls" of each of the HC-01, HC-03 and HC-C03 also satisfies the requirement of claim 2 that the second pressure control means comprises a member movable in response to pressure on the reservoir. (CX-53 at 7; CX-54 at 7; CX-55 at 7; Tr. at 361, 363). He further finds that each of HC-01, HC-03 and HC-C03 satisfies the requirement of claim 3 that during incursions of negative pressure below a threshold value the first pressure control means is inoperative, in "that while the baggy is inflating, the bubbler or the snorkel is not working." (CX-53 at 9; CX-54 at 9; CX-55 at 9; Tr. at 361, 363). The administrative law judge finds further that each of HC-01, HC-03 and HC-C03 satisfies the requirement of claim 4 wherein the apparatus of the movable member of claim 2 includes biasing means tending to increase the volume of the reservoir, in the form of a spring which is pushed out as the bag in the reservoir inflates, and which, when pressure is reduced in the bag, tends to collapse the bag. (Tr. at 362, 363; CX-53 at 11; CX-54 at 11; CX-55 at 11). Furthermore, as required by claim 12 of the '802 patent, he finds that each of Microjet's HC-101, HC-03 and HC-C03 performs a method of operation that includes an ink reservoir (Tr. at 362,

363; CX-53 at 13; CX-54 at 13; CX-55 at 13), in which the reservoir is regulated by varying the size of the reservoir during the first phase of the operation (Tr. at 362, 363; CX-53 at 14; CX-54 at 14; CX-55 at 14) and regulates the reservoir under pressure by introducing air into the reservoir during the second phase of operation. (Tr. at 362-63; CX-53 at 15; CX-54 at 15; CX-55 at 15).

Microjet argued that HP had not met its burden of proving that anyone in the United States practices method claim 12 of the '802 patent with a Microjet device and since "the number of accused products imported in the United States is de minimus and Respondent's customer has entered into a consent order, . . . the inference of direct use is not even supported by longstanding and well-known commercial use of the device." (RPost at 49). The administrative law judge rejects this argument as the evidence shows that Microjet identified twenty one companies that were purchasing Microjet products either in the United States or for importation into the United States (CX-91 at 5-8), and that approximately 47, 000 of the accused devices have sold to customers with U.S. addresses. (CX-111). Furthermore, it has been shown that the method of claim 12 would be practiced anytime one of the cartridges in issue was operated. (Tr. at 564). The administrative law judge finds that HP has met its burden of proving that claim 12 of the '802 patent is practiced in the United States by the accused devices.

Microjet argued that claim 12 requires a volume control mechanism that operates to control pressure not by compensation (ink out, air in) but by the movement of a movable member traveling to a partial vacuum to a maximum or minimum travel limit. It was argued that the evidence expressly shows that the accused devices operate by a compensation method and do not have movable members that travel to a maximum or minimum travel limit. (RPost at 49-50).

The sole support for Microjet's contention regarding the operation of the accused cartridges is the following colloquy between the administrative law judge and complainant's expert Mills:

Judge Luckern: Yes. In any of the Microjet devices that you have studied, have you seen any device in which the bag is first expanded to its limit only thereafter the air is admitted into the reservoir?

The Witness: The only difficulty I have with your statement is the word "limit." I've observed the Microjet bag inflating to a threshold. The limit of inflation is beyond that threshold. As I indicated earlier, that threshold shows in the videotape and is also between the two figures that show in the exhibit that describes the inflation of the bag. So I have not seen a condition where the Microjet device was operation in which bubbles appeared prior to the bag reaching its inflation threshold. That threshold being a function of the back pressure.

(Tr. at 555-56).

The administrative law judge finds that this testimony by Mills does not in anyway contradict Mills' testimony that the accused products control the underpressure of the inkjet pen's ink reservoir through a method other than compensation. Rather he finds that said testimony confirms that the accused products vary the volume of the ink reservoir prior to the introduction of air, as the bags begin to inflate to the threshold prior to the air being admitted into the reservoir. The administrative law judge further finds the said testimony confirms that after reaching the threshold the bags then can continue to expand until they reach their limit.

Based on the foregoing, the administrative law judge finds, on the evidence presented at the hearing, that complainant has satisfied its burden in establishing that Microjet's HC-01, HC-03 and HC-C03 and, through stipulation by the parties, Microjet's HC-C01 infringe claims 1, 2, 3, 4 and 12 of the '802 patent.

E. The '134 Patent

As required by claim 8 of the '134 patent, each of Microjet's HC-01, HC-03 and HC-CO3 has an expandable and contractible bag (CX-57 at 2; CX-58 at 2; CX-59 at 2; Tr. at 375-76, 381) and a mounting means for mounting the bag within a fluid volume of a particular size so that expansion of the bag decreases the size of the fluid volume. (CX-57 at 3-4; CX-58 at 3-4; CX-59 at 3-4; Tr. at 376-77, 381). The administrative law judge also finds that each of the accused products has the bag having an opening mounted so that the interior of the bag is in contact with the ambient to the fluid volume (CX-57 at 4; CX-58 at 4; CX-59 at 4; Tr. at 377,381) with the bag being constructed of a flexible material and contractible into a generally flat configuration (CX-57 at 5; CX-58 at 5; CX-59 at 5; Tr. at 377, 381) and wherein the reservoir defines the fluid volume and is sealed and contains ink under a back pressure, such back pressure being present whether or not the bag is contracted or expanded. (CX-57 at 6; CX-58 at 6; CX-59 at 6; Tr. at 377-78, 381). Furthermore, as required by claim 9 of the '134 patent in addition of the requirements of claim 8, the administrative law judge finds that each of Microjet's HC-01, HC-03 and HC-CO3 has a print head connected to the reservoir for ejecting drops of ink from the reservoir. (CX-57 at 8; CX-58 at 8; CX-59 at 8; Tr. at 379, 381).

As required by claim 18 of the '134 patent, each of Microjet's HC-01, HC-03 and HC-CO3 has a sealed reservoir for containing ink and with a back pressure established therein (CX-57 at 10; CX-58 at 10; CX-59 at 10; Tr. at 379, 381) and an expandable and contractible bag mounted within the reservoir. (CX-57 at 11; CX-58 at 11; CX-59 at 11; Tr. at 379, 381). He also finds that the bag has an opening that allows the bag's interior to interact with ambient air outside of the reservoir (CX-57 at 12; CX-58 at 12; CX-59 at 12; Tr. at 379-80, 381); that the bag

is arranged such that a contraction of the bag increases the back pressure in the reservoir (CX-57 at 13; CX-58 at 13; CX-59 at 13; Tr. at 380, 381); and that the printhead is mounted to the reservoir and adapted for ejecting ink drops from the reservoir. (CX-57 at 14; CX-58 at 14; CX-59 at 14; Tr. at 380, 381). Furthermore, in addition to the elements required by claim 18, he finds that each of Microjet's HC-01, HC-03 and HC-C03 has a spring adjacent to the bag and arranged so as to urge the contraction of the bag so as to increase the reservoir back pressure (CX-57 at 16; CX-58 at 16; CX-59 at 16; Tr. at 380, 381) as required by claim 19 of the '134 patent.

Microjet argued that there is no factual dispute that each of the accused devices contains an opening so as to allow ambient air into the reservoir and as such are not sealed. (RPost at 50). As found above, "sealed" as used in the asserted claims of the '134 patent, means "sufficiently sealed 'to maintain a back pressure relative to atmosphere.'" See, supra. Accordingly, Microjet's argument is rejected.

Based on the foregoing, the administrative law judge finds, on the evidence presented at the hearing, that complainant has satisfied its burden in establishing that Microjet's HC-01, HC-03 and HC-C03 and, through stipulation by the parties, Microjet's HC-C01 infringe claims 8, 9, 18, 19 and 20 of the '134 patent.

#### F. The '859 Patent

As required by the process disclosed in claim 2 of the '859 patent, each of Microjet's HC-01, HC-02, HC-03, HC-04, and HC-C03 cartridges has been provided with a thin film resistor structure with an ink feed opening (Tr. at 461; 468-69; CX-41 at 2; CX-42 at 2; CX-43 at 2; CX-44 at 2; CX-45 at 2) with the ink feed slot being surrounded by resistor heater elements that are

spaced at predetermined distances (Tr. at 461-62; 468-69; CX-41 at 3; CX-42 at 3; CX-43 at 3; CX-44 at 3; CX-45 at 3) and with electrical contacts being made with the resistor heater elements by way of the conductive leads of the TAB circuit's beam leads. (Tr. at 462; 468-69; CX-41 at 4; CX-42 at 4; CX-43 at 4; CX-44 at 4; CX-45 at 4). He further finds that each of the accused products has an orifice plate member, for ejecting ink upon the receipt of thermal energy from the resistor heater elements, mounted on top of the thin film resistor (Tr. at 462; 468-69; CX-41 at 5; CX-42 at 5; CX-43 at 5; CX-44 at 5; CX-45 at 5) and that the thin film resistor structure is affixed to an insulating header having a matching ink feed opening so as to provide ink to the thin film resistor structure's ink feed opening. (Tr. at 462; 468-69; CX-41 at 6; CX-42 at 6; CX-43 at 6; CX-44 at 6; CX-45 at 6). Furthermore, as required by claim 3, the administrative law judge finds that the contacts on the accused products have been extended along the surfaces of the insulating header, so as to maximize the packing density of the contacts. (Tr. at 468-69; CX-41 at 8; CX-42 at 8; CX-43 at 8; CX-44 at 8; CX-45 at 8).

Microjet argued that claims 2 and 3, as construed by HP, renders the '859 patent invalid for double patenting. As such it argued "non-practice" of the '859 patent. (RPost at 50). For the reasons stated infra, the administrative law judge rejects Microjet's double patenting argument.

Therefore, based on the foregoing, the administrative law judge finds that, on the evidence presented at the hearing, that complainant has satisfied its burden in establishing that Microjet's HC-01, HC-02, HC-03, HC-04, and HC-C03 and, through stipulation by the parties, Microjet's HC-C01, HC-S01, and HC-S03 infringe claims 2 and 3 of the '859 patent.

## VII. Domestic Industry

Microjet argued that there is no domestic industry that practices each of the '207 patent,

'073 patent, '294 patent, '802 patent, '134 patent and '859 patent.

The administrative law judge has already determined that HP satisfied the economic prong of the domestic industry requirement. See Order No. 12 (August 21, 2001). HP, however, must still satisfy the technical prong of the domestic industry. Certain Microsphere Adhesives, Process for Making Same, and Products Containing Same, Including Self-Stick Repositionable Notes, Inv. No. 337-TA-366, Comm. Op. at 8 (Dec. 15, 1995), aff'd sub nom, Minnesota Mining & Manufacturing Co. v. U.S. Int'l Trade Comm., 91 F.3d 171 (Fed. Cir. 1996). The test for claim coverage for the purpose of a domestic industry under section 337 is the same as that for infringement. Certain Doxorubicin and Preparations Containing Same, Inv. No. 337-TA-300, Initial Determination at 22 (Oct. 22, 1990). A complainant need only show that it practices one of the claims of an asserted patent to satisfy the domestic industry requirement. See Certain Microsphere Adhesives Processes for Making Same, and Products Containing Same, Including Self-Stick Repositionable Notes Inv. No. 337-366 Commission Opinion at 16 (1996), USITC Pub. 2949 (Microsphere).

A. The '027 Patent

As required by claim 4 of the '027 patent the administrative law judge finds that HP's 51626A inkjet cartridge has a printhead body with at least one ink chamber (Tr. at 280; CX-60 at 18), a nozzle plate on the side of the printhead body having nozzles communicating with said chamber (Tr. at 280-81; CX-60 at 19), a resistor network having an ink expulsion resistor at each nozzle (Tr. at 282-83; CX-60 at 20), contact pads in the resistor network (Tr. at 287; CX-60 at 21), and two printhead identification contact pads each disposed between selected different pairs of said contact pads (Tr. at 287-89; CX-60 at 22), which form part of a printhead identification

network with two resistors for each printhead identification pad. (Tr. at 289-90; CX-60).

Therefore, HP's 51626A ink cartridge practices claim 4 of the '027 patent.

Microjet argued that while claim 4 calls for the printhead identification contact pads to form part of a printhead identification resistor network, on the HP device one of the pads alleged to be a printhead identification contact pad "is not connected to anything" and therefore cannot be part of a printhead identification resistor network. (RPost at 44). Although complainant's expert Mills testified that one of the printhead identification contact pads "is not connected to anything", this testimony, in context, was referring to a comparison of printhead identification contact pad I2, which was connected to an adjacent contact pad by a serpentine structure<sup>16</sup>, to printhead identification contact pad I1, which was not connected to an adjacent contact pad. There is no requirement in claim 4 of the '027 patent that the printhead identification pads be connected to an adjacent contact pad. Mills did, however, testify that both printhead identification contact pads I1 and I2 each had two resistors associated with them, so as satisfy the requirement of a printhead identification resistor network.

B. The '073 Patent

Microjet argued that {  
 } (RPost at 47). However, Microjet fails to provide any  
citation to the record to support the contention that it is undisputed that the HP 51626A inkjet  
cartridge does not use{ }

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<sup>16</sup> Microjet also finds fault that Mills was unable to testify as to why the structure in question was serpentine rather than straight. (RPost at 45-47). Although Mills did not know why the structure was serpentine, he testified consistently that its function was to connect I2 with the adjacent contact pad. (Tr. at 288-89).

However, HP has the burden of proving that its cartridge practices the '073 patent in order to satisfy the technical prong of the domestic industry requirement. The administrative law judge finds that HP has failed to prove that it{ } HP relies on following testimony of its expert Mills to satisfy its burden on the bonding issue:

{

}

(Tr. at 398-99). The administrative law judge finds that neither Mills in said testimony nor CX-60 at 5 state that the beam leads are{

}

#### C. The '294 Patent

As required by claim 1 of the '294 patent, the administrative law judge finds that the HP 51626A inkjet cartridge has a printhead substrate which is mounted to a header member and is operative to receive ink (Tr. at 434; CX-60 at 7), a plurality of thin conductors on top of the printhead substrate and which are electrically connected to a plurality of transducer elements (Tr. at 434-35; CX-60 at 8-9), a beam lead interconnect circuit having a plurality of beam leads bonded to said plurality of thin conductors and extending over an outer surface of the header

member (Tr. at 435-36; CX-60 at 10); and the header member is shaped so as to be configured for insertion into a printhead cartridge (Tr. at 436-37; CX-60 at 10) so that the beam leads on the outer surface of the header member may be brought into electrical contact with corresponding mating conductors on the printhead carriage. (Tr. at 437-38; CX-60 at 10).

Microjet argued that while claims 1 and 3 require extended portions of beam leads accessible on the linear extension on an outside surface for electrical connection, HP has not shown that its own device satisfies those limitations, because only the beam leads' contact pads on the HP devices have been shown to be accessible for an electrical connection. (RPost at 48). As stated supra, the contact pads of the beam leads are part of the beam leads and, as only a portion of the extended beam leads need to be accessible for an electrical connection, those limitations are satisfied by the beam leads' contact pads being so accessible.

Accordingly, the administrative law judge finds that HP has established that the HP 51626A inkjet cartridge practices claim 1 of the '294 patent.

#### D. The '802 Patent

As required by claim 12 of the '802 patent, the administrative law judge finds that HP's 51626A inkjet cartridge utilizes a method of operation, whereby the cartridge's inkjet pen with a reservoir containing ink, regulates the reservoir underpressure by varying the size of the reservoir (Tr. at 343-44; CX-60 at 26) and then further regulates the reservoir underpressure through the introduction of air into the reservoir. (Tr. at 344; CX-60 at 27).

Microjet argued that claim 12 requires a volume control mechanism that operates to control pressure not by compensation (ink out, air in) but by the movement of a movable member

traveling to a partial vacuum to a maximum or minimum travel limit. It was argued that the evidence expressly shows that the HP devices operate by a compensation method and do not have movable members that travel to a maximum or minimum travel limit. (RPost at 49, 50).

The sole support for Microjet's contention regarding the operation of HP's inkjet cartridges is the following testimony by complainant's expert Mills:

And then I was able to see how the mechanisms actually operate. In the case – in the case of the HP print cartridge, I was able to observe that the bags inside the cartridge began to fully inflate as ink was being injected from the print cartridge. After, a while, the bags became not necessarily fully inflated, but inflated at least to a threshold such that the bubbler took over and I could see bubbles periodically coming up through the cartridge.

(Tr. at 339).

The administrative law judge finds that said testimony by Mills does not in anyway contradict Mills' testimony that the HP 51526A inkjet cartridge operates to control the underpressure of the inkjet pen's ink reservoir through a method other than compensation. Rather the administrative law judge finds that said testimony confirms that the HP 51626A varies the volume of the ink reservoir prior to the introduction of air, as the bags begin to inflate prior to the bubbler "[t]aking] over" and as they inflate they decrease the volume of the ink reservoir. (CX-60 at 25-26).

With respect to claims 1, 2, 3 and 4 of the '802 patent in issue HP relies solely on the following testimony by Mills to support its contention that its HP 51626A inkjet cartridge practices claims 1, 2, 3, and 4 of the '802 patent:

Q Okay. So does the 26A cartridge use claim [sic] 1, 2, 3, 4 and 12 of the Dion '802 patent?

A Yes, it does.

(Tr. at 320). In its proposed findings of fact, HP cites to no other evidence in the record to support the contention that the HP 51626A cartridge practices than this conclusory testimony. As such, HP failed to shoulder its burden of proving that its HP 51626A cartridge practices claims 1, 2, 3 and 4 of the '802 patent. The administrative law judge however finds that HP has established that the HP 51626A cartridge practices claim 12 of the '802 patent and hence has satisfied the technical prong of the domestic industry requirement as to the '802 patent. See Microsphere, supra.

E. The '134 Patent

As required by claim 18 of the '134 patent, the administrative law judge finds that the HP 51626A inkjet cartridge has a reservoir for containing ink which is sealed so as to be able to maintain a back pressure. (CX-60 at 29; Tr. at 374). He further finds that the cartridge has an expandable and contractible bag mounted within the reservoir and which has an opening that is in communication with the ambient air (Tr. at 374; CX-60 at 30) with the bag being so arranged such that contraction of the bag increases the back pressure in reservoir. (Tr. at 374-75). He also finds that the cartridge and has a printhead mounted to a reservoir and is adapted for ejecting ink drops from the reservoir. (Tr. at 375).

Microjet argued that there is no factual dispute that the HP device contains an opening so as to allow ambient air into the reservoir and as such are not sealed. (RPost at 50). As found above, "sealed" within the '134 patent, means "sufficiently sealed 'to maintain a back pressure relative to atmosphere.'" See, supra. Accordingly, Microjet's argument is rejected.

With respect to claim 8, 9, 19 and 20 of the '134 patent, in its post hearing brief and its proposed findings of fact, HP relies solely on the following conclusory testimony by its expert

Mills that the HP 51626A inkjet cartridge practices claim 8, 9, 19 and 20 of the '134 patent:

Q Do claims 8, 9, 18, 19 and 20 of Cowger '134 patent cover the 26A cartridge?

A Yes.

(Tr. at 366). The administrative law judge finds that the conclusory testimony does not establish that HP has met its burden of proving that its cartridge practices claims 8, 9, 19 and 20 of the '134 patent. However, the administrative law judge has found that the HP 51626A practices claim 18 of the '134 patent and hence that HP has satisfied its burden with respect to the technical prong of the domestic industry requirement as to the '802 patent.

F. The '859 Patent

As required by claim 2 of the '859 patent, the administrative law judge finds that the HP 51626A inkjet cartridge is provided with a thin film resistor structure having an ink feed opening (Tr. at 458, CX-60 at 12) with resistor heater elements spaced predetermined distances around the ink feed opening. (Tr. at 458, CX-60 at 13). He also finds that said cartridge has electrical contacts made to the resistor heater elements (Tr. at 459, CX-60 at 14) and an orifice plate member for ejecting ink therefrom after receiving thermal energy from the resistor heater elements is mounted on top of the thin film resistor structure. (Tr. at 459, CX-60 at 15). He further finds that the thin film resistor structure in the HP 51626A inkjet cartridge is affixed to an insulating header that has a matching ink feed opening for providing ink to the thin film resistor structure's ink feed opening. (Tr. at 459-60; CX-60 at 16).

To meet its burden of proving that the HP 51626A cartridge practices claim 3 of the '859 patent HP cites two portions of the transcript and CX-60, both of which deal exclusively with the

HP 51626A inkjet cartridge's relationship to claim 2.<sup>17</sup> As such, the administrative law judge finds that HP has failed to meet its burden of proving that its HP 51626A inkjet cartridge practices claim 3 of the '859 patent.

Microjet argued that claims 2 and 3, as construed by HP, renders the '859 patent invalid for double patenting. As such it argued "non-practice" of the '859 patent. (RPost at 50). For the reasons stated infra, the administrative law judge rejects Microjet's double patenting argument.

Based on the foregoing, the administrative law judge finds that HP has satisfied its burden in establishing that the HP 51626A inkjet cartridge practices claim 2 of the '859 patent and hence has satisfied the technical prong of the domestic industry requirement regarding the '859 patent.

#### VIII. Validity

Patents are presumed valid. 35 U.S.C. § 282. That presumption remains with the patent owner and can be overcome only by clear and convincing evidence. Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1375 (Fed. Cir. 1986), cert. denied 480 U.S. 947 (1987).

##### A. The '859 Patent

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<sup>17</sup> Indeed claim 3 is referenced only once in the cited portions of the transcript, in following testimony:

Q Do claims 2 and 3 of the Johnson patent cover the HP 26A -- actually, let me ask the question this way: Does claim 2 of the HP 26A patent -- of the Johnson patent the HP 26A?

A Yes, it does.

(Tr. at 453).

Microjet, in its proposed conclusion of law 28, asserted that “[c]laims 2 and 3 of the ‘859 patent are invalid for double patenting.”<sup>18</sup> Each of HP and the staff argued that Microjet has not satisfied its burden.

Microjet, to support its assertion, argued (RPost at 55):

It is axiomatic that all claims must be supported by the disclosure that is centered on and includes the drawings. Applied here, the claims of the ‘859 patent are obviously drawn to, and supported by, the structure shown in drawings of the ‘859 patent. Likewise, the claims of the ‘859 patent are drawn to, and supported by, the structure shown in the substantially similar drawings in the ‘073 patent and ‘294 patent. Moreover, claim 3 of the ‘859 patent recites the beam lead maximizing effort which claim 4 is said to be directed toward, and claim 2 of the ‘859 patent, in turn, is virtually identical to claim 3 of the ‘294 patent. Although there may be slight variations in text, where, as here, the claims are all drawn to the same structure shown in the substantially similar drawing, one cannot conclude that the claims of the ‘859 patent - - even though not totally identical to the claims of the ‘073 and ‘294 patents - - are patentably distinct.

Obviousness-type double patenting is appropriately alleged when the language of the claims in issue differ. It prohibits a party from obtaining a second patent having a claim that is not patentably distinct from a claim in a commonly owned earlier patent. In re Longi, 759 F.2d 887, 892 (Fed. Cir. 1985).<sup>19</sup>

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<sup>18</sup> Microjet in its posthearing submissions raised no other argument with respect to challenging the validity of any of the claims in issue. While Microjet, in its proposed findings under the subheading “VII. Invalidity And Double Patenting,” proposed that British patent UK 2006162A to Endo et al. is a more complete reference than any of the references considered in the course of prosecution of the ‘073 and ‘859 patents, citing Manner Tr. at 809 (RFF 730), Microjet made no argument that any asserted claim of the ‘073 and ‘859 patents was not valid in view of British patent UK 2006162A.

<sup>19</sup> The private parties have agreed that obviousness-type double patenting is in issue. (CPost at 84, RPe at 26, 27). Obviousness-type double patenting is distinct from “same invention”

The opinion in In re Vogel, 422 F.2d 438, 164 U.S.P.Q. 619 (CCPA 1970) (Vogel) undertook a “restatement of the law of double patenting as enunciated by this court [Federal Circuit]”. The Court in General Foods v. Studiengesellschaft Kohle mbH, 972 F.2d 1272, 1278 (Fed.Cir. 1992) summarized the opinion in Vogel as follows:

the opinion says that the first question is: Is the same invention being claimed twice? If the answer to that is no, a second question must be asked: Does any claim in the application define merely an obvious variation of an invention claimed in the patent asserted as supporting double patenting? If the answer to that question is no, there is no double patenting. . . . If the rejected claim defines more than an obvious variation, it is patentably distinct.

(Emphasis in original). Comparison can be made only with what invention is claimed in the earlier patent, paying careful attention to the rules of claim interpretation to determine what invention a claim defines, and not by looking to the claim for anything that happens to be mentioned in it as though it were a prior art reference. Id. at 1280. The disclosure of a patent cited in support of a double patenting rejection cannot be used as though it were prior art, even where the disclosure is found in the claims. Id. at 1281.

Microjet, supra, argued that “claim 2 of the ‘859 patent . . . is virtually identical to claim 3 of the ‘294 patent”. The ‘859 patent however issued on July 21, 1987 on Serial No. 915,292 filed October 3, 1986 which in turn is a divisional of Serial No. 860,294 filed Dec. 6, 1985 (CX-

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double patenting. A same invention double patenting analysis compares two claims, and if one can be literally infringed without literally infringing the other then no same invention double patenting exists. See In re Lonardo, 119 F.3d 960, 965-67 (Fed. Cir. 1997); Kloster Speedsteel AB v. Crucible, Inc., 793 F.2d 1565 (Fed. Cir. 1986); Manual of Patent Examining Procedure, Sec. 804 (July 1998).

3) while the '294 patent based on Serial No. 93,924 filed October 26, 1987<sup>20</sup> did not issue until May 2, 1989. (CX-1). The doctrine of double patenting law principles “extend to merely obvious variants of what has been patented” General Foods Corp., 972 F.2d at 1280 (Emphasis added). Since the '294 patent is a patent, which issued after the '859 patent, the administrative law judge finds that Microjet improperly relies upon the '294 patent. Microjet argued that because the '294 patent is terminally disclaimed over the '073 patent, the '294 and '073 patents “can be treated as one” (RPre at 25). A terminal disclaimer shows that the claims of the '294 patent would be obvious in light of the claims of the '073 patent. See In re Zukendraht, 319 F.2d 225, 138 U.S.P.Q. 22 (CCPA 1963) and 35 U.S.C. § 253. Microjet has cited no authority for its argument that a terminal disclaimer allows Microjet to rely on the '294 patent to attempt to invalidate a claim of the previously issued '859 patent based on double patenting.

Microjet, in support of its argument, makes references to claim 4 of the '073 patent and claim 2 of the '859 patent (RRBr at 38, 39). Claim 4 of the '073 patent is directed to “[a] thermal inkjet print head assembly including in combination: . . . .” (supra). Claim 2 of the '859 patent however is directed not to a composition of matter but rather to a process, viz., “[a] process for maximizing packing density of resistor heater elements and associated inkjet orifices in thermal inkjet printheads which includes . . . .” In addition claim 4 of the '073 patent does not have language directed to a matching opening in a header or resistors spaced around the slot as in the claimed process of claim 2 of the '859 patent. Also claim 2 of the '859 patent does not refer

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<sup>20</sup> Serial No. 93,924 is a divisional of Serial No. 937,945 filed December 4, 1986 which in turn is a continuation of Serial No. 801,034 filed Nov. 22, 1985 now the '073 patent which issued on January 6, 1987. (CX-1).

to beam leads or bonding features recited in claim 4 of the '073 patent.

Microjet, in its prehearing statement, cited claim 2 of the '859 patent and claim 1 of the '073 patent. (RPre at 32, 33). However claim 1 of the '073 patent (CX-2) (not at issue in this investigation) provides for a process of thermosonically bonding a plurality of beam leads to a plurality of conductive traces to help maximize the packing density of resistors on the substrate. (CX-2 at col 5, lns. 27-44). Claim 2 of the Johnson '859 patent provides, in contrast, for an ink feed slot designed to supply ink through the substrate from the ink reservoir to the resistors, and for a matching ink feed slot in the cartridge's header member. (CX-3 at col. 4, ln. 66 – col. 6, ln. 6). In addition, no claim of the '073 patent provides for a “thin film resistor structure having an ink feed opening therein around which resistor heater elements are spaced at predetermined distances.” (CX-2 at col. 5, ln. 27– col. 6, ln. 63; CX-3 at col. 5, lns. 1-6). Also, no claim of the '073 patent discloses “affixing a thin film resistor structure to an insulating header having a matching ink feed opening therein for providing ink to said ink feed opening in said thin film resistor structure.” (CX-2, at col. 5, ln. 27 – col. 6, ln. 63; CX-3 at col. 6, lns 3-6). Moreover, the administrative law judge finds that Microjet has not established that it would be obvious to a person of ordinary skill in the art to add the features of the claims of the '859 patent to the claims of the '073 patent. As complainant's expert Mills testified (Tr. at 1005 -1007):

Q Okay. I think I meant to say this is claim 4 of the Hanson '073 patent refer at all to the center feed slot of the Johnson '859 patent?

A Yes, I have the '073 patent in front of me with claim 4 and it does not refer to the feed slot.

\* \* \*

Q In fact, aren't the features of the Johnson claims, the ink feed slot,

the matching opening in the header and resistors spaced around the slot all missing from all the Hanson ['073]claims?

A Yes, they are.

Q Would it have been obvious to add those features to the Hanson ['073] claims, in your opinion?

A I don't believe so.

Q Now, do claims 2 and 3 of the Johnson ['859] patent refer to beam leads or bonding features t

\* \* \*

THE WITNESS: No, they do not.

BY MR. ALLCOCK:

Q Would it have been obvious to add those features of the Hanson ['073] claims to Johnson claims?

A I don't believe so.

Microjet, supra, has referred to the drawings of the '073 and '859 patents. However the only relevant comparison in a double patenting allegation is a claim of the '859 patent to a claim of the '073 patent. See General Foods supra.

Microjet relies on Eli Lilly and Company v. Barr Laboratories Inc., 251 F.3d 955, 58 U.S.P.Q..2d 1865 (Fed. Cir. 2001) (Lilly) (RPost at 54). In Lilly, the Court concluded that claim 7 of the '549 patent was invalid for obviousness-type double patenting in view of claim 1 of the '213 patent. The Court found that the only differences between claim 1 of the '213 patent and claim 7 of the '549 patent was that the former addressed a method of treating anxiety in humans with fluoxetine hydrochloride while the latter claimed a method of using fluoxetine hydrochloride to block serotonin uptake in animals. It further found that there was ample

evidence, through expert testimony, that the administration of fluoxetine hydrochloride naturally and inherently inhibits the uptake of serotonin. The Court then found that the only other difference between claim 1 of the '213 patent and claim 7 of the '549 patent was that the former was directed to humans while the latter was directed to animals. Because humans are a species of the animal genus, it concluded that case law firmly established that a later genus limitation (claim 7 of the '549 patent) was anticipated by, and therefore not patentably distinct from, an earlier species claim (claim 1 of the '213 patent). Lilly, 251 F.3d at 971.

In contrast to Lilly, there are differences in the claims of the '859 patent and '073 patent. Microjet has cited no prior art or testimony which would make the claims of the '859 patent, which recite the differences, obvious in view of any claim of the '073 patent. Moreover the administrative law judge has found evidence to the contrary.

Based on the foregoing Microjet has not established by clear and convincing evidence that claim 2 and dependent claim 3 of the '859 patent are invalid because of double patenting.

#### IX. Unenforceability ('073, '294 And '859 Patents)

Microjet, in its conclusion of law no. 29, asserted that the '073, '294 and '859 patents are unenforceable because of inequitable conduct. However Microjet, in its proposed rebuttal finding no. 487 asserted that "[r]espondent has not argued the '294 patent for inequitable conduct except as may be resulting from the inequitable conduct during the '073 patent prosecution."<sup>21</sup>

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<sup>21</sup> Microjet's assertion of inequitable conduct is grounded on the alleged failure of HP to disclose to the PTO during the prosecution of the '859 and '073 patents British patent application GB2007162A to Ichiro Endo et al. published on May 16, 1979 and assigned to Canon (Endo) (RX-1).

Each of HP and the staff argued that there was no inequitable conduct with regard to the prosecution of the '073, '294 and '859 patents.

A patent is unenforceable on grounds of “inequitable conduct” if the patentee withheld material information from the PTO with intent to mislead or deceive the PTO into allowing the claims. LaBounty Manufacturing, Inc. v. U.S. Int’l. Trade Comm., 958 F.2d 1066, 1070, 1074 (Fed. Cir. 1992) (LaBounty). Both materiality and intent must be proven by clear and convincing evidence. Id.; Kingsdown Medical Consultants, Ltd. v. Hollister, Inc., 863 F.2d 867, 872 (Fed. Cir. 1988), cert. denied, 490 U.S. 1067 (1989) Kingsdown.

According to PTO rule 1.56 (37 C.R.F. § 1.56(a)), the duty to disclose information

exists with respect to each pending claim until the claim is canceled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is canceled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim.

Generally, when withheld information is highly material, a lower showing of deceptive intent will be sufficient to establish inequitable conduct. American Hoist & Derrick Co. v. Sowa & Sons, Inc., 725 F.2d 1350, 1363 (Fed. Cir.), cert. denied, 469 U.S. 821 (1984). Moreover, “[d]irect proof of wrongful intent is rarely available but may be inferred from clear and convincing evidence of the surrounding circumstances.” LaBounty, 958 F.2d at 1076; Hewlett-Packard Co. v. Bausch & Lomb, Inc. 746 F.Supp. 1413 (N.D. Col. 1990), aff’d, 925 F.2d 1480 (Fed. Cir.), cert. denied, 111 S.Ct. 2854 (1991). The conduct at issue must be viewed in light of all the evidence, including evidence of good faith. Kingsdown, 863 F.2d at 876. Any

“[i]nformation is material where there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent.” LaBounty, 958 F.2d at 1074.

One who alleges inequitable conduct arising from a failure to disclose prior art must offer clear and convincing proof of the “materiality of the prior art, knowledge chargeable to the applicant of that prior art and of its materiality, and the applicant’s failure to disclose the prior art, coupled with an intent to mislead the PTO.” Molins PLC v. Texron, Inc., 48 F.3d 1172, 1178 (Fed. Cir. 1995).

A. Intent

An intent to deceive “cannot be inferred solely from the fact that information was not disclosed; there must be a factual basis for a finding of deceptive intent.” Upjohn Co. v. Mova Pharmaceutical Corp., 225 F.3d 1306, 1312 (Fed. Cir. 2000) (quoting Herbert v. Lisle Corp., 99 F.3d 1109, 1116 (Fed. Cir. 1996); Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1482 (Fed. Cir. 1998) (“[I]nference without any probative evidence is insufficient to show culpable intent.”). Inequitable conduct requires proof of the applicant’s actual knowledge:

Telsmith seeks to overcome the fatal lack of evidence that the relevant Nordberg employees knew of the Saunders patent’s existence by contending that “Federal Circuit precedent does not require proof of actual knowledge of the withheld prior art, but only . . . proof that the applicant or its representatives ‘should have known of the art or information,’” citing our decisions in Molins PLC, 48 F.3d at 1178, 33 U.S.P.Q.2d at 1826, and FMC Corp. v. Manitowoc Co., 835 F.2d 1411, 1415, 5 U.S.P.Q.2d 1112, 1116 (Fed. Cir. 1987). We long ago rejected this contention [citation omitted], and neither FMC Corp. nor Molins PLC held to the contrary . . . . Telsmith’s contention that the ‘failure of disclosure’ form of inequitable conduct can be shown with proof that the applicant did not but should have known of a reference’s existence

runs counter to American Hoist [Derrick Co. v. Sowa & Sons, Inc., 725 F.2d 1350, 1362 (Fed. Cir. 1984)] and subsequent cases and must therefore be rejected. As we held in American Hoist, the applicant's actual knowledge of the reference's existence must be proved. [Emphasis added]

Nordberg, Inc. v. Telsmith, Inc., 82 F.3d 394, 397 (Fed. Cir. 1996), (citing American Hoist) (“Nor does an applicant for patent, who has no duty to conduct a prior art search, have an obligation to disclose any art of which, is the [district] court’s words, he ‘reasonably should be aware.’”).

The administrative law judge finds no evidence that either inventors Hanson or Johnson, or the prosecuting attorney for the ‘073 and ‘859 patents, or anybody else involved in the preparation or prosecution of the applications for the ‘073 and ‘859 patents even knew of the Endo reference, much less acknowledged any materiality of said reference and withheld said reference from any prosecution with the intent to deceive the PTO. The testimony of inventors Hanson and Johnson is to the contrary. Hanson, for example, indicated that he did not recall being aware of Endo’s work but believed the first time he had heard of the Endo reference was in preparation for this case. (Tr. at 676). Johnson testified that he was not aware of the Endo reference:

Q Before your patent application was filed, had you ever seen any patents or applications by a Dr. Endo of Canon?

A No, I was not aware of Dr. Endo of Canon.

(Tr. at 649).

Microjet argued that complainant’s Hammond testified that “he became aware of Endo’s disclosure.” (RRBr at 48). Hammond was the head of HP’s research and development facility in Palo Alto, California during the late-1980’s. (Hammond, RX-3 at 10). He was not involved in the

preparation or prosecution of the Hanson and Johnson applications. (Johnson, Tr. at 656; Hanson, Tr. at 689-679). Thus, the administrative law judge finds that Hammond's knowledge cannot support a finding of inequitable conduct. See B.F. Goodrich Co. v. Aircraft Braking Systems, Corp., 72 F.3d 1577, 1585 (Fed. Cir. 1996) (upholding a finding that a material reference in the files of a number of B.F. Goodrich employees was insufficient to support a finding of inequitable conduct where the employees in question were not substantively involved in the preparation or prosecution of the application and had no duty to disclose); Nordberg, Inc., 82 F.3d at 396-97 (material reference assigned to patentee and in patentee's files insufficient to support a finding of inequitable conduct where there was no evidence the relevant control-group employees knew of the reference).

Hammond's lack of involvement in the application for, and prosecution of, the '073 and '859 patents is further supported by the fact that he worked at HP's facilities in Palo Alto, California and in Europe while inventors Hanson and Johnson were involved in the invention and prosecution of their patents in Boise, Idaho. (Johnson, Tr. at 646; Hanson, Tr. at 671; RX-3 at 8 and 73). Thus the administrative law judge finds that there is no evidence that any relevant individual at HP knew of the Endo reference, much less intended to deceive the PTO by withholding that reference during prosecution of the '073 and '859 patents.

#### B. Materiality

Microjet has not argued in its posthearing submissions that any claim of the '073 and '859 patents is not valid in view of Endo. The fact that Microjet made no such argument supports a finding that the Endo reference is not material. Moreover, an analysis of Endo and the inventions claimed in the '073 and '859 patents establishes the lack of materiality. Thus the invention in the

Endo reference relates to a liquid jet recording process and apparatus therefor, and more particularly to such process and apparatus involving vaporizing ink with resistors to form a bubble to eject the ink on a printing medium. (RX-1 at p. 1 lns. 5-7, Mills, Tr. at 961-962). Thus independent claim 1 of Endo reads:

A liquid jet recording process for recording with liquid droplets comprising the steps of:

projecting a liquid from an orifice communicating with a thermal chamber portion by maintaining the same under pressure thereby forming a stream of said liquid directed toward a surface of a record-receiving member;

applying to the liquid contained in said thermal chamber portion a thermal energy generated according to the electrical input signals by an electrothermal transducer coupled to said thermal chamber portion in such a manner as to transmit thermal energy to the liquid, contained in said thermal chamber portion thereby instantaneously forming bubbles in said liquid, and applying a periodical force resulting from periodical state change involving instantaneous volumic change of said bubbles to said liquid stream thereby breaking up said stream into a succession of evenly spaced uniform separate droplets; and

selectively charging electrically the droplets in said succession and either deflecting or intercepting said droplets thereby causing selective deposition onto said record-receiving member. [Emphasis added]

In contrast to Endo, the '073 and '859 patents in issue are directed to improvements in inkjet technology and those improvements are not found to be suggested in the Endo reference.

As complainant's expert, Mills, testified (Tr. at 962):

Q Now, let's turn to Endo, which is RX-1, Your Honor, for the record. And we'll start with figure 10a and 10b. Do those figures have anything to do with the problem that the Hanson '073 and '074 patents address -- '073 and ['294] patents address?

A No.

Q Can you explain that?

A Well, what we see primarily in figure 10b is Endo's adaptation of thermal inkjet technology to an earlier patent by Stemme in which the ink supply is supplied to the nozzle region. Strictly speaking, it is a top-shooter, but it doesn't address the area of making connection and there's no ink supply coming through the substrate.

Q So does it have anything to do with bonding?

A No.

Q Does have it anything to do with beam leads?

A No.

Q Does it have anything to do with ink supply through the substrate at all?

A No.

Q Does it suggest anything about an elongated feed slot?

A No.

Thus Endo does not disclose thermosonically bonding which the administrative law judge has found is critical to the '073 patent. Also, the administrative law judge finds that the Endo reference does not disclose a removable inkjet print cartridge, but rather, contemplates an external ink supply reservoir not contained within the cartridge. (RX-1 at Fig. 11, item 109). In addition Endo is silent as to whether the printhead is part of a cartridge or of the printer. (RX-1). Moreover Endo does not disclose a thin film resistor structure with "an ink feed opening therein" as required by claim 2 of the Johnson '859 patent with resistor heater elements spaced around the periphery of the slot. (CX-3 at col. 5, lns. 1-5; RX-1; Mills, Tr. at 963). Also, Endo does not

disclose affixing the thin film resistor structure to a header member with a “matching” ink feed opening for providing ink to the “ink feed opening in said thin film resistor structure” as required by claim 2 of the Johnson ‘859 patent. (CX-3 at col. 6, lns. 3-6; RX-1). In addition, the administrative law judge finds that the problem of drilling through the substrate, which is addressed by claim 2 of the Johnson ‘859 patent, was not an issue for Endo. (Mills, Tr. at 963). Manner further testified (Tr. at 907-908) that item 179 of Endo could not be a beam lead as defined by inventor Hanson:

Q Now, if we go to Endo, that 179 that you mentioned, it's supported all along the 179 by that 182; is that right?

A Well, 179 is a conductive layer that's deposited on the flexible insulating sheet there. It's supported actually by 167.

Q Well no, but the wire 179 is supported by 182 at every -- at every place shown on figure 29, isn't it?

A That's right.

Q There's no part of 179 that is hanging out in the air not supported by 182; is that right?

A Not in this figure, that is correct.

Q Well, not in any figure?

A That's right.

Q So if a beam lead is defined as a portion of a wire that's unsupported, that 179 doesn't fit that definition, right?

A That's correct.

In addition, experts Mills and Manner agreed that Figure 29 of Endo teaches that the conductive lead 179 is clamped and held down by screws that appear in the more-complete view

of figure 28 and extend through clamping support members labeled as items 168 and 170. (RX-1 at Fig. 11 items 168 and 170; Mills, Tr. at 983; Manner, Tr. at 804). The administrative law judge finds that one of ordinary skill in the art of inkjet printing would recognize that the clamps disclosed in Endo are different from the thermosonically bonding disclosed in the '073 patent and that such clamps would frustrate the purpose of the claimed invention:

THE WITNESS: Yes. I think one of ordinary skill in the art could understand that you don't normally bond things by just clamping. You would have to have some sort of other intermediary and the clamp would be part of the process in which you would, you might use to, say, hold two parts together while epoxy cures.

And that would effect a bond using the clamp but then you would remove the clamp.

In the case of Hanson, also you would -- it would be very clear that you had no room for a clamp in the end device. You remember the paper is one millimeter, which would be forty-thousandths of an inch above the nozzle plate which is very close to the same plane of the bonds on the beam lead.

And so a clamp, it would be very obvious to one skilled in the art that a permanent clamp to hold these together first of all would not effect a bond unless you had some other system functioning to do the bonding, and that you would have no room for a clamp and you would have to remove it.

So clamping by itself to one of ordinary skill in the art would not mean bonding.

(Mills, Tr. at 975 - 976).

The administrative law judge also finds that one of ordinary skill in the art would understand that the design disclosed in the '073 patent requires a low profile due to the proximity of the nozzles to the paper that would not be possible to achieve by using the clamps disclosed in Figure 29 of the Endo reference. Thus Mills testified:

THE WITNESS: Well, in figure 29 [of Endo] you don't have a low profile because you have all of these pieces of equipment, the

clamping devices, the screws and so forth that hold this together, you don't have a low profile in the regions that are perpendicular to the plane of the resistor element. Here's the resistor element right here.

Q That's 174, 37?

JUDGE LUCKERN: Can you put it in words?

THE WITNESS: Right, 174 would be the resistor element which is shown in section view and so the plane of the resistor element would be from left to right and of course into the figure, into and out of the figure.

So in that case, where the ejection direction is parallel to the plane of the resistor, we see that we don't have any of the apparatus out beyond the nozzle. In the case of the Hewlett-Packard devices, the direction of ejection, remember, it's a roof-shooter, shoots perpendicular or upward toward the 175 . . . So the paper has to be very, very close to the nozzle exit which is just above the resistor.

(Tr. at 998 - 999).

#### C. Conclusion

Based on the foregoing, the administrative law judge finds that Microjet has not established, by clear and convincing evidence, that Endo is material to the claimed subject matter of the '073 and '859 patents or that complainant intentionally withheld Endo to deceive the PTO.

#### X. Remedy

HP argued that the appropriate remedy is a limited exclusion order barring imports of inkjet cartridges manufactured by Microjet, or inkjet cartridges imported by or on behalf of Microjet; that Microjet is the sole manufacturer of the ink cartridges at issue in this investigation; that the remaining respondents in this investigation, Price-Less and ABC, have violated section 337 by virtue of their sale of Microjet cartridges; that any limited exclusion order should ensure

that Microjet cartridges will be excluded from entry regardless of whether Microjet itself is the importer; that Microjet cartridges are easily identified by the labeling placed directly on the cartridge and the packaging; and that the limited exclusion order should apply to all entries for consumption as well as entries for purposes of display at trade shows. (CPost at 88-89).

HP, while admitting that Price-Less' level of inventory is "by no means, enormous," argued that Price-Less admits to retaining some inventory of Microjet cartridges and that at volumes handled by Price-Less, Price-Less' level of inventory cannot be dismissed as commercially insignificant. It further noted that Price-Less has failed to appear and oppose the request for a cease and desist order. Hence, HP argued that the administrative law judge should recommend entry of a cease and desist order prohibiting Price-Less and its affiliated company ABC from importing or selling infringing Microjet cartridges. (CPost at 90).

Microjet argued that no remedy is appropriate because there has been no showing of infringement of a valid and enforceable patent; that if the Commission determines that there is infringement of a valid and enforceable patent, and determines to issue a remedy, there is no basis for a cease and desist order because Microjet is not present in the United States and does not have inventory in the United States. (RPost at 69). It was also argued that if the Commission determines to issue an exclusion order, the order should particularly point out models that have been found to infringe (Id).

The staff argued that the appropriate remedy is a limited exclusion order prohibiting the entry of each Microjet inkjet print cartridge that infringe any of the claims of the patents upon which the finding of violation is based. (SPost at 45, 46). It further argued that, while the staff concurs with HP's assertion that display at trade shows is a valuable form of marketing in this

industry, it is questionable whether entry for display at trade shows would be harmful to HP if the limited exclusion order bars the “entry for consumption” of Microjet’s cartridges. However, the staff argued that it would not oppose a limited exclusion that includes such a provision and noted that the Commission has broad discretion to bar entries other than those for consumption. (SRBr at 20). It also argued that, in light of the lack of opposition resulting from Price-Less’ non-participation in this investigation, a cease and desist order against Price-Less and its affiliated website ABC may be appropriate. (SRBr at 21).

Based on the record, the administrative law judge recommends that a limited exclusion order issue against Microjet, the sole manufacturer of the inkjet cartridges at issue. Microjet’s cartridges are easily identified by the labeling placed directly on the cartridge and the packaging. See CPX-1 through CPX-4. Moreover, the administrative law judge recommends that inkjet cartridges imported by or on behalf of Mircojet covered by one or more of the following claims of the following patents:

- claims 1 and 3 of the ‘294 patent;
- claims 2 and 3 of the ‘859 patent;
- claims 4 of the ‘027 patent;
- claims 1, 2, 3, 4 and 12 of the ‘802 patent; and
- claims 8, 9, 18, 19 and 20 of the ‘134 patent

be excluded from entry into the United States for the remaining terms of those patents, except under license of the patent owner or as provided by law.

The administrative law judge further recommends that the word “entry” in the limited exclusion order include entry for purposes of display at trade shows as complainant has requested. The Commission has broad discretion in selecting the form, scope, and extent of the remedy in a section 337 proceeding. Viscofan, S.A. v. United States International Trade Commission, 787

F.2d 544, 548 (Fed. Cir. 1986). Moreover exclusion orders may exclude all types of entry. See Certain Devices for Connecting Computers via Telephone Lines, Inv. No. 337-TA-360, USITC Pub. No. 2843 at 9 (Dec. 1994). Significantly, complainant presented findings (FF 50, 51, 52) which were not objected to by any party, which demonstrate that Microjet products were introduced during a trade show.

The administrative law judge does recommend that the limited exclusion order include, but not be limited, to the following models:

'294 patent	HC-01, HC-02, HC-03, HC-04, HC-C03, HC-C01, HC-S01, HC-S03
'859 patent	HC-01, HC-02, HC-03, HC-04, HC-C03, HC-C01, HC-S01, HC-S03
'027 patent	HC-01, HC-02, HC-03, HC-04, HC-C03, HC-C01, HC-S01, HC-S03
'802 patent	HC-01, HC-03, HC-C03, HC-C01
'134 patent	HC-01, HC-03, HC-C03, HC-C01

With respect to any cease and desist order, the administrative law judge recommends that cease and desist orders issue against each of Price-Less and its affiliated company ABC. Price-Less has ordered Microjet cartridges and has admitted retaining some inventory of Microjet cartridges. See FF 53 to 65. Significantly Price-Less and ABC have failed to appear at the hearing and did not file any prehearing or post hearing submissions. See Certain Rare-Earth Magnets and Magnetic Materials and Articles Containing the Same, Inv. No. 337-TA-413, Publication No. 3307 (May 2000). In that investigation, this administrative law judge recommended a cease and desist orders against respondent Harvard which, while Harvard had not been held in default pursuant to Commission rule 210.16, did not participate at the hearing nor did

it file any post hearing submissions denying the existence of inventory (ID at 167-168). The Commission did issue a cease and desist order against Harvard. See Publication No. 3307.

## XI. Bond

Section 337(j)(3) provides for the entry of infringing articles upon the payment of a bond during a 60-day Presidential review period. 19 U.S.C. § 1337(j)(3). The bond is to be set at a level sufficient to “offset any competitive advantage resulting from the unfair method of competition or unfair act enjoyed by persons benefitting from the importation.” Certain Dynamic Random Access Memories, Components Thereof and Products Containing Same, Inv. No. 337-TA-242, Commission Opinion on Violation, Remedy, Bonding and the Public Interest, USITC Pub. No. 2034, (1987). When reliable price information is available, the Commission has set the bond by eliminating the price differential between the domestic and the imported infringing product. Certain Digital Satellite Systems (DSS) Receivers and Components Thereof, Inv. No. 337-TA-392, Final Initial and Recommended Determination on Remedy and Bonding, USITC Pub. No. 3418 (April 2001).

HP argued that a bond of 100% of the entered value should be set. (CPost at 91). The staff agreed with HP’s argument. (SRBr at 21, 22).

Microjet argued that a bond should not be set in an amount so high as to render importation and sale a complete commercial impracticality. Hence, it proposed a bond of no more than 10 percent of the entered value of product. (RPost at 70).

The staff argued that a bond of 100% is an appropriate bond during the Presidential review period, as it would protect HP from injury by eliminating the price differential between the competing products. (SRBr at 21-22).

The evidence shows that the retail price of an infringing Microjet HC-01 or HC-03 cartridge is approximately \$19 (FF 66 to 71), while the retail price of the patented HP product is, at a minimum, \$29. (FF 72, 73). Accordingly, the administrative law judges finds there is at least a price differential in the \$10 range. The evidence also demonstrates that Microjet's price to its customers is approximately{ } (FF 74-79). Hence, the administrative law judge recommends that the bond to be imposed during the Presidential review period should be set at 100% of the entered value.

## XII. Additional Findings

### A. Parties

1. Complainant HP is a Delaware corporation with its principal place of business in Palo Alto, California. (Complaint, ¶ 2, p. 1; CX-163, p. 3, Resp. to Int. No. 1).

2. HP manufactures and sells computers, printers, and other electronic products, including ink jet printers and print cartridges. (Complaint, ¶¶ 2-3, pp. 1-2).

3. HP is the assignee of the '073, '294, '859, '027, '802, and '134 patents at issue in this investigation, and is the owner of all right, title and interest to those patents. (Complaint, ¶ 1, p. 1; CX-7, 8, 9, 10, 11, 12).

4. At several facilities in the United States, HP manufactures ink jet print cartridges. See Order No. 12.

5. Respondent Microjet is a Taiwanese limited liability company with its principal place of business in Taiwan. (Complaint, ¶ 6, p. 2; CX-138).

6. Microjet has imported and sold for importation into the United States ink jet print cartridges with model numbers HC-01, HC-02, HC-03, HC-04, HC-C01, HC-C03, HC-S01, and HC-S03. (CX-235).

7. Respondent Price-Less is a Florida corporation with its principal place of business in Port Charlotte, Florida. Price-Less has sold in the United States certain accused ink jet print cartridges manufactured by Microjet, specifically the HC-01 and HC-03 models. (Complaint, ¶ 8, pp. 2-3, Exs. 20, 24; CX-231).

8. Respondent ABCCo. is a Florida corporation with its principal place of business in Port Charlotte, Florida. ABCCo has sold in the United States certain accused ink jet print

cartridges manufactured by Microjet, specifically the HC-01 and HC-03 models. (Complaint, ¶ 8.2., Exh. 27; CX-231).

B. Experts

9. Complainant HP's expert witness, Ross N. Mills, received his Ph.D. in Engineering Science from the University of California at Berkley in 1978. Dr. Mills has over 20 years of experience in the field of computer printing. He worked as a product engineer, development engineer, manufacturing engineer, and manager of product development, all in the field of inkjet technology, before founding Imaging Technology International, a research and development and consulting company for inkjet technology. Mills holds approximately 11-12 patents in the field of inkjet technology. Mills was qualified as an expert in inkjet technology. (Mills, Tr. at 232-234, CX-25-, 27).

10. Respondent Microjet's expert witness, David Manner, received his Ph.D. in Mechanical Engineering from Michigan State University. Dr. Manner has years of experience working as an engineer, has several patent applications pending, and has a patent issued. Manner was qualified as an expert in electrical and mechanical systems. (Tr. at 731, 736, RX-39).

C. Person Of Ordinary Skill

11. A person of ordinary skill in the art, with respect to each of the patents at issue in this investigation, would be a person with a Bachelor of Science in mechanical engineering or in electrical engineering, and, at least one year of experience in the field of ink jet print cartridge design. (Mills, Tr. at 273; Manner, Tr. at 739).

D. Prosecution Of The '027 Patent

12. Serial No. 07/116,093 which resulted in the '027 patent, was filed by Williams A. Buskirk, Carl J. Landsness and John D. Rhodes on November 3, 1987 with original independent claims 1 and 6 and dependent claims 2, 3, 4, 5, 7 and 8. (CX-4).

13. Claim 4, as originally presented in the application (as application claim 6) contained the limitation:

at least two pen identification contact pads, each disposed between selected different pairs of said contact pads, and forming part of a pen identification network including at least two resistors for each pen identification contact pad. (RX 13 at HP 05785).

Original Claim 4 read in toto:

In a thermal inkjet pen having a nozzle plate and a resistor network having an ink expulsion resistor at each nozzle, pen identification means comprising:

contact pads in said resistor network and individual circuits connecting individual contact pads to individual resistors; and

at least two pen identification contact pads, each disposed between selected different pairs of said contact pads, and forming part of a pen identification network including at least two resistors for each pen identification contact pad.

(CX-16).

14. The examiner in an office action dated 11/30/88 rejected original claim 6 as follows:
4. Claims 6-8 are rejected under 35 U.S.C. 103 as being unpatentable over Noda 4,396,923. Noda discloses an identification means (r3, r4) for interchangeable ink jet heads (col. 5 lines 3-9). It would have been obvious to provide this means in a thermal ink jet, a type of ink jet well known in the art, for the reasons given by Noda.
  5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nozaki 4,741,634 discloses a

printer head identification system. Baker 4,771,295 discloses a thermal ink jet. Koizumi Ja 0206662 discloses a thermal ink jet with identification means 7.

(RX-13 at 05802)

15. To overcome the rejections of 11/30/88, applicants, in an amendment received on 3/13/89, added the limitation "a resistor network having an ink expulsion resistor at each nozzle," and further added the limitation that the printhead identification network was a printhead identification resistor network. (RX 13 at 05845). Applicants went on to explain that with those amendments, together with the original language of the claim, the claims provides [sic] "the essential structural elements together with their relationship and organization." (RX 13 at HP 05851).

16. Applicants, in a response received by the PTO on 3/13/89, stated in part:

Claim 6 has been amended to recite a thermal inkjet printhead identification means which comprise a printhead body with an ink chamber, a nozzle plate on the printhead body which has nozzles communicating with the chamber, a resistor network having a resistor at each nozzle. Thereafter claim 6 recites the original structure presented in claim 6, which includes the contact pads which are in the resistor network, together with the individual circuits connecting individual contact pads to the individual resistors. This claim concludes, reciting the structure including at least two of the printhead identification contact pads which are disposed between selected different pairs of the contact pads and which form part of a printhead identification resistor network, including at least two resistors for each printhead identification contact pad.

It is believed that this claim as presently amended provides all of the essential structural elements together with their relationship and organization to particularly point out and distinctly claim the subject matter of the invention.

In view of the foregoing considerations claim 6 in presently amended form is respectfully resubmitted for favorable consideration.

\* \* \*

Claim 6 through 8 have been rejected under 35 U.S.C. 103 as being unpatentable over Noda 4,396,923.

In making this rejection the examiner refers to resistor r3 and r4 as identification means for interchangeable inkjet heads.

Noda discloses a recording head having actuators r1, r2 and so forth. The recording head is denoted by reference 2 in figure 1. Associated with the recording or thermal head is a drive control circuit 5 which includes voltage trimming resistors r3 and r4 in the base circuit of the NPN transistor Tr8. Three varieties of heads are described requiring tailoring of the drive voltage E. Either one or both of these resistor circuits are opened in the head 2 by breaking their connection to the head at the points L(b) and L(c) as indicated.

Attention is directed to the fact that the resistors r3 and r4 are not in any way associated with the resistors r1, r2 and so forth, thus claim 6 in reciting the resistor network with an ink expulsion resistor at each nozzle in contact pads disposed between selected different pairs of contact pads which were a part of the printhead identification resistor network, defines an invention which is clearly not taught by Noda.

All that Noda does is tailor the head circuits so that they can be driven by a driver circuit which remains unchanged, but the voltage of which for driving the resistors in the thermal head is automatically changed whenever the thermal head is connected to driver circuits.

In view of the foregoing, claim 6 is believed to define an invention which is clearly patentable over the teachings of the patent to Noda. Claim 6 is therefore respectfully submitted in presently amended form for favorable consideration and allowance.

(RX-13 at 05851-54)

17. In a final office action dated April 10, 1989 the amended claim was again rejected as obvious in view of prior art references such as Chan U.S. Pat. No. 4,812,859 and Heath U.S. Pat. No. 4,554,559. (RX-13 at 05900). In response, applicants cancelled certain claims as being anticipated by Chan. Applicants did not, however, cancel the claim at issue, maintaining Chan does not anticipate or render obvious this particular claim. (RX-13 at HP 05943-46).

18. In an amendment after final rejection received on June 9, 1989:

The patent to Chan et al describes a multi-chamber thermal inkjet printhead adapted for color use in which individual groups of nozzles have nozzle spacings within the groups and between the groups corresponding to the nozzle patterns of a single color printhead, the sum of the nozzles in all of the nozzles groups being substantially the same as the total number of nozzles in the single color printhead, and the number of nozzles within the individual groups being substantially equal. With this arrangement the multi-color printhead may be substituted in a single color dot matrix-type of printer for control by the single color control system in a print operation requiring print control compensation only to accommodate the formatting of the individual nozzle groups in laterally spaced positions.

Chan et al are unconcerned about printhead identification. In practice with such a printhead an operator upon inserting the multi-color head, need only provide an indication to the control system that a multi-color head is in place.

\* \* \*

In examining these references, the applicants observe that Chan, while disclosing the use of individual resistors for firing ink drops from the individual nozzles, makes no suggestion with respect to the possible use of a resistor pattern on the nozzle substrate for the purpose of identifying a particular printhead. Thus additionally in Chan et al, there is no means recited in a dot matrix-type of printer control system for sensing such patterns of resistors to identify a particular printhead.

\* \* \*

Claims 6 through 8 have been rejected under 36 [sic] U.S.C. 103 as being unpatentable over Chan et al. In this rejection the examiner has indicated it would have been obvious to modify the Chan et al printer with an identification means taught to be old by Heath, referring to Figure 4, for the purpose of identifying the type of head selected for use in the printer.

The patent to Chan et al has been discussed above.

Heath, like Milbrandt, employs contacts to identify a particular head. Since Heath has a larger variety of heads, head identification involves more contacts than the simple micro switch MC of Milbrandt. The strip contacts on the head 7 of Heath are brought into contact with the

contacts of the flexible cable in the receptacle 4 when the head is inserted into the receptacle. The teachings of the patent to Heath with respect to printheads, are directed to thermal printheads used with resistive ribbons in order to print on plan paper, or designed to generate heat directly in order to print on heat-sensitive paper, or electro erosion heads designed to print on electro-sensitive paper. All of these heads are constructed using printed circuit techniques. These heads are not bubble inkjet printheads of the type of Chan et al or Milbrandt, and they do not involve transducers such as employed in the bubble inkjets for the purpose of ejecting ink droplets used in printing. Thus in the patent to Heath, code patterns are determined among contacting devices and not among transducers. In the applicants' opinion, the lack of teachings with respect to the use of transducers in printheads and the lack of the use of such transducers in establishing code patterns for identifying printheads, neither provides a basis for fabricating a structural arrangement of the type described in Claim 1, nor a suggestion as to the possibility of such a structural arrangement.

Claim 6 describes a printhead identification means for a thermal inkjet which has a nozzle plate which communicates with the ink chamber. An ink expulsion resistor is defined at each nozzle in the nozzle plate. Contact pads are described in the resistor network together with individual circuits connecting individual contact pads to individual circuits connecting individual contact pads to individual resistors, and the claim concludes reciting the connection of at least two printhead identification contact pads, each of which is disposed between selected pairs of the contact pads and which form part of a printhead identification resistor network, including at least two resistors for each printhead identification contact pad.

It is respectfully submitted that while the patent to Heath suggests the construction of code identification using contact strips on the printhead, there is no way in which such a circuit fabrication suggests the possibility of using the transducers of a bubble inkjet for head identification purposes. This view seems to be strongly supported by the fact that Milbrandt, having such transducers at his disposal and having a need and providing a teaching of a specific arrangement for providing head identification, did not in the fabrication of such a structure employ the transducers on his printhead.

In view of the foregoing consideration Claims 6, 7 and 8 and respectfully resubmitted for favorable consideration and allowance.

(RX-13 at 05946-48).

19. On June 20, 1989, the examiner issued a notice of allowability. (RX-13 at 05951).

E. Prosecution Of The '294 Patent

20. Serial No. 93,924 which resulted in the '294 patent was filed by Gary E. Hanson on October 26, 1987 with independent claims 1, 4 and 10 and dependent claims 2, 3, 5, 6, 7, 8, 9, 11, 12 (RX-9 at 06334-38).

21. Serial No. 93,924 is a division of abandoned Serial No. 937,945, which is a continuation of Ser. No. 801,034 filed Nov. 22, 1985 which is now the '073 patent (CX-1).

22. [THERE IS NO FF 22]

23. The Examiner in Serial No. 06/937,945 (Serial No. 07/093,924 was a divisional Serial No. 06/937,945) rejected application claim 16, numbered as claim 19 in 06/937,945 in an office action dated 5/22/87 "as being anticipated by Poleshuk 4,612,554. Note Figure 11" (RX-9 at 06277).

24. Application claim 19 in the office action dated 5/22/87 in Serial No. 06/937,945 was also rejected as being indefinite:

"Claims 13-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are considered indefinite because they fail to positively recite elements (e.g. The substrate in claim 1), they contain unused terms (eg. Printhead in claim 16), and they recite functions which are unsupported by the claimed structure (e.g. lines 4-1 of claim 20). The claims should be revised to comply with the requirements of 35 USC 112, second paragraph." (RX-9 at 06280)

25. Applicants in Serial No. 06/937,945 elected to withdraw claim 19 without traverse:

"Election was made without traverse in Paper No. 5." (RX-9 at page 06293).

26. Applicant in an amendment A in Serial No. 06/937,945 dated 12/87 stated:

"The Examiner's remaining rejections of claim 16-24 based upon a number of additional references are duly noted. These additional references have been carefully considered by the Applicant and his undersigned attorney and are not believed to suggest either the Applicant's

group I invention or the Applicant's group II and III inventions as defined by the Examiner on page 5 of the Office Action. However, Applicant will not respond herein to these further rejections at the present time and will leave any further necessary responses to these rejections to be made in the prosecution of yet-to-be filed divisional applications to the claims of groups II and III." (RX-9 at 06303-06304)

27. Applicant in a preliminary amendment received by the PTO on Sept. 8, 1987 amended the claimed subject matter, in response to an Office Action dated 5/22/87 in Serial No. 06/937,945 which was a "divisional of continuation application Serial No. 937,945 filed 12/4/86" with the specific explanation that the language in new claims 25 and 26 correspond in subject matter to previously filed claim 19 and also recite some additional structure of applicant's preferred embodiment directed to "extending the beam lead interconnect circuit over a chosen outer surface of the printhead member for subsequent interconnection with mating conductors on a printhead carriage." (Emphasis added) (RX-9 at 06352).

28. Element c of claim 25 as received by the PTO on 9/8/87 reads:

c. A beam lead interconnect circuit having a plurality of beam leads bonded, respectively, to said plurality of thin conductors and extending over a chosen outer surface of said header member, and said header member having a surface geometry configured for insertion into a printhead carriage, whereby the portions of said beam leads on said chosen outer surface of said header member may be brought into electrical contact with corresponding mating conductors on said printhead carriage. (RX-9 at 06351)

29. Claim 3 of the '294 (application claim 27) was added by amendment to the divisional application received on 9/8/87 with the following comment by the applicant:

New claim 27 is directed to the structure shown in Figures 3A and 3B of the drawing and is fully supported by the portions of Applicant's specification describing these two figures and accordingly represents no new matter. (RX-9 at 06353).

30. Application claim 25 was renumbered as claim 22, and was rejected in an Office Action dated 4/12/88 as follows:

8. Claims 22, 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are considered incomplete. Claim 22 calls for the header member to have a surface geometry configured for insertion into a printhead carriage. The printhead carriage has no antecedent basis in the claim. The functional language of lines 13-16 lacks structural support. The pen carriage and functional statement of claim 24 has the same problems. (RX-9 at 06372-73)

31. Applicant, in an amendment received by the PTO on May 18, 1988, amended claim 22, in an amendment received May 18, 1988 as follows:

(Once amended) An ink jet printhead assembly adapted for insertion into a printhead carriage, said assembly including in combination.... (RX-9 at 06379)

In remarks on the amendment, applicants stated:

"The Examiner's statement in paragraph 9, page 4 of the outstanding Office Action that Claims 22-24 present allowable subject matter is respectfully acknowledged. The Examiner's rejection of these same claims in the previous paragraph 8 of the Office Action under 35 U.S.C. 112 is also noted, including the Examiner's remark that "the printhead carriage has no antecedent basis" in Claim 22. However, it is believed that the above amendatory language to Claim 22 overcomes the Examiner's rejection as set forth in paragraph 8 of the Office Action and therefore places Claims 22-24 in condition for allowance." (RX-9 at 06380)

F. Prosecution Of The '802 Patent

32. Serial No. 289,876, which resulted in the '802 patent, was filed by John H. Dion and Thomas H. Winslow on Dec. 22, 1988 with thirteen original claims (CX-5).

33. Original claims 1 read:

1. An ink jet printing apparatus comprising:  
an ink reservoir;  
a print head for ejecting ink from the reservoir, the ejection of ink from the reservoir leaving a negative pressure therein;  
first pressure control means for limiting the negative pressure in the ink reservoir by controllably introducing replacement fluid thereto; and  
second pressure control means for limiting the negative pressure in the ink reservoir by changing the volume thereof.

(RX-16 at 06454).

34. On November 27, 1989 original claim 1 was rejected under 35 U.S.C. 103 as being unpatentable over Dagna U.S. Patent No. 4,503,443 and Terasawa U.S. Patent No. 4,785,314 (RX-16 at 06476).

35. Applicants amended claim 1 in the amendment dated April 10, 1990 to recite:

second pressure control means for limiting the decrease in the [negative] pressure in the ink reservoir by changing the volume thereof. (RX-16 at 06481).

36. Applicants, in the amendment dated April 10, 1990, also argued (RX-16 at 06481-82):

Claims 1-13 are in the application. Reexamination of this application is respectfully requested.

The invention described and claimed in the present application is directed to pressure control mechanisms for maintaining within the ink jet pen reservoir a proper operating pressure range.

In an ink jet pen of the present invention, the reservoir pressure decreases as the print head ejects ink from the reservoir. The claimed pressure control mechanisms respond to the pressure decrease by (1) changing (decreasing) the volume of the reservoir, and (2) introducing replacement fluid (ink or air) into the reservoir. The volume decrease and introduction of replacement fluid prevent the reservoir pressure from dropping beneath a level that would cause failure of the print head.

The pressure control mechanisms also respond to increase in the reservoir pressure by (1) changing (increasing) the reservoir volume, and (2) removing fluid from the reservoir. The increase in reservoir pressure may result from environmental effects such as a decrease in ambient pressure. The volume increase and reservoir fluid removal by the pressure control mechanisms prevent the reservoir pressure from rising above a level that would cause ink to leak from the print head.

Changes in the reservoir volume are provided by a movable member (such as bladder 27, Fig. 1) that is movable in response to changes in the reservoir pressure. Changes in the reservoir fluid volume are provided by an orifice and catchbasin arrangement (such as shown at 36, 38 in Fig. 1).

The movable member and orifice are configured and arranged so that changes in the reservoir pressure are initially regulated by the mechanism (movable member) for changing the reservoir volume. If, after the movable member moves to a maximum or minimum travel limit the reservoir pressure continues to change in the same sense (that is, increasing or decreasing), the orifice and catchbasin arrangement becomes operable for delivering fluid between the reservoir and the catchbasin to regulate the additional reservoir increase or decrease.

There followed arguments for traversing the Examiner's rejection of claims 1 to 13 on Dagna and Terasawa (RX-16 at 06482-84). For example, it was argued (RX-16 at 06483-84):

Claim 1 has been amended to more particularly point out the present invention. In this regard, the claimed apparatus includes a print head that ejects ink from the reservoir. The ink ejection decreases the pressure in the reservoir. No such print head and reservoir arrangement is contemplated in Dagna. Dagna is concerned with compensating for increases that occur as a result of the Brescia-type nozzle. See Dagna, Column 3, lines 39 through 53.

Furthermore, there is no teaching or suggestion in Dagna of the first pressure control means recited in claim 1, wherein replacement fluid is introduced into the reservoir for limiting a decrease in reservoir pressure. The gas bubbles generated by the nozzle in Dagna cannot be characterized as the replacement fluid because those bubbles cause, not control, the pressure changes in Dagna.

Dagna also fails to teach or suggest a second pressure control means as recited in claim 1. The second pressure control means changes the volume of the reservoir for limiting the decrease in reservoir pressure. In Dagna, the reservoir volume change attributable to the spring-biased diaphragm occurs only as the reservoir pressure increases.

Terasawa provides no basis for a showing of obviousness under 35 U.S.C. § 103. In all of the embodiments described in Terasawa, the ink supply is in fluid communication with ambient air. The diaphragm 85 that appears in the figure referenced by the Examiner is employed in conjunction with a press member 86 for occasionally forcing ink through the nozzle section 82 to unclog the nozzle.

Not only does Terasawa fail to suggest a printing device that operates with an underpressure maintained in the reservoir, Terasawa also

teaches away from such operation. In this regard, Terasawa notes that a negative pressure should not be produced because of adverse effects on the nozzle section (see Column 7, lines 44-54). In short, there is no teaching or suggestion in Terasawa of any of the elements recited in claim 1.

In the arguments with respect to Dagma and Terarawa nothing was said about the sequence of operation of the pressure control means recited therein. Moreover in said arguments for traversing the rejection of claim 1 no reference was made to the embodiment described in the specification. Rather the language of claim 1 was used to distinguish the cited prior art.

37. The applicants in the amendment in Serial No. 07/289,876 dated April 10, 1990 stated that the method [sic] recited in claim 12 points out the “two-part function” of the pressure control mechanism of the invention, and that claim 12 involves “two successively employed mechanisms.” (RX-16 at 06486).

G. Prosecution Of The ‘134 Patent

38. Serial No. 805,438, which resulted in the issuance of the ‘134 patent, was filed by Bruce Cowger, Marc A. Baldwin, Fred E. Tarver, Gary D. Tarver, John G. Wyronek and George M. Custer on December 11, 1991. Serial No. ‘805,438 is a continuation-in-part of abandoned Serial No. 464,258 filed January 12, 1990. (CX-6).

39. Original independent claim 19 of abandoned Serial No. 464,258 was to an “accumulator for an ink-jet pen that has a substantially sealed reservoir volume.” (RRX-3 at 10187).

40. Certain original claims of the abandoned application were rejected under 35 U.S.C. §103 in an office action dated 11/13/90 over Frerichs U.S. Pat. No. 4,496,959 in view of Matsumoto U.S. Pat. No. 4,263,602 and further in view of Weber U.S. Pat. No. 4,412,232. (RRX-3 at 10209-10211).

41. Applicants in an amendment dated 2/27/91 in the abandoned application amended, inter

alia, claim 29 to read an “accumulator apparatus comprising” a sealed reservoir having a back pressure established therein....” (RRX-3 at 10215).

42. In the amendment dated 2/27/91 in Serial No. 805,438 it was argued (RRX3 at 10218-19).

Claim 1 has been rewritten as new claim 29. Claim 29 recites an accumulator apparatus that includes an expandable and contractable bag mounted within a sealed reservoir that has a back pressure established in the reservoir. Contraction of the bag increases (that is, makes more negative) the back pressure in the reservoir. Nothing in Frerichs, Matsumoto, or any other reference of record teaches or suggests a sealed reservoir having a back pressure established therein in combination with a bag that is arranged so that contraction of the bag increases the back pressure in the reservoir.

\* \* \*

Nothing in Weber teaches or suggests the modification of Frerichs so as to seal a reservoir having a bag and spring inside the reservoir and arranged so that contraction of the bag increases the back pressure in the reservoir. Weber shows a bellows 46 positioned and arranged so that contraction of the bellows will reduce any back pressure in the reservoir 42. The use of the spring for urging contraction of a bag with an ink reservoir to increase the reservoir back pressure will not, therefore, be shown by a combination of Frerichs and Weber.

43. On April 16, 1991 the Examiner allowed certain claims. (RRX-3 at 10224).

44. A notice of abandonment dated 5/7/92 of Serial No. 07/464,258 issued because of failure to pay the required issue fee. (RRX-3 at 10238).

45. Original independent claims 1 and 8 in continuation-in-part Serial No. 805,438, which were directed to an “accumulator apparatus,” did not include a limitation of a “sealed” reservoir. (RX-20 at 06075-76).

46. Following rejection on prior art, applicants amended claim 8 in an amendment received

12/30/93 by adding the limitation:

wherein the fluid volume is defined by a reservoir, the reservoir being sealed and containing ink therein under a back pressure, the back pressure being present irrespective of whether the bag is expanded or contracted.

In the remarks, accompanying the amendment it was argued:

Claims 8 and 9 were rejected under 35 USC § 102(b) as being anticipated by Munoz. Claim 10 was rejected under 35 USC § 103 as being unpatentable over Munoz. With this paper, claim 8 has been amended to specify that the expandable and contractible bag component of the present accumulator is located in the sealed reservoir that contains ink under a back pressure. As noted above with respect to claim 1, the notion of storing the beverage of Munoz under a back pressure is not mentioned, nor is it consistent with the teaching of Munoz, which employs a bag in communication with ambient air for equalizing pressure inside and outside of the container thereby to permit gravity flow of the beverage from the container. Accordingly, claim 8 as amended is believed patentable over Munoz.

(RX-20 at 06141,06149).

47. In an amendment after final rejection received on June 10, 1994 it was argued:

In section 1 of the Office action, the Examiner states that the last line in claim 8 is inaccurate, hence the claim is indefinite. The Examiner states that "there must exist an equilibrium condition whereat the backpressure equals the spring force plus the ambient pressure, such as in a superatmospheric (pressurized) condition." This statement does not, however, reflect upon the accuracy of the last four lines of claim 8. Those lines state that the reservoir is sealed and it contains ink at a back pressure that is present irrespective of whether the bag is expanded or contracted. This claim language accurately describes the invention and should be considered by the Examiner.

The Examiner applies U.S. patent No. 4,723,688 to Munoz to reject claims 8, 9 and 10. Munoz was combined with U.S. Patent No. 4,728,004 to Bonerb in rejecting claims 1, 7, 11-15, 17, 18, 21-23 and 25-27.

In responding to the rejections, applicants first respectfully request

the Examiner to respond to applicants' prior-stated position that Munoz and Bonerb represent non-analogous arts. For the reasons set forth in the December 27, 1993 Amendment, the rejections based on the combination of the non-analogous references, Munoz and Bonerb be withdrawn.

As explained below, even if Munoz and Bonerb were in analogous fields, there is no teaching or suggestion for making the Munoz and Bonerb combination as proposed by the Examiner.

In this regard, an aspect of applicants' invention can be summarized as a sealed ink reservoir with a spring-biased bag mounted therein to maintain back pressure within the reservoir. The bag is open to ambient and contracts and expands in response to changes in the reservoir pressure or the ambient pressure. For instance, when the ambient pressure increases or the ink within the reservoir is depleted, the bag expands to decrease the reservoir volume and maintain the reservoir back pressure below a selected maximum. When the ambient pressure decreases, the bag contracts to increase the reservoir volume to maintain the back pressure above a selected minimum.

(RX-20 at 06159-60).

48. In a brief under 37 CFR §1,192 and dated 9/6/94, it was argued:

Claims 8-9 stand rejected under 35 USC § 102(b) as being anticipated by Munoz. As noted above, claim 8 recites an accumulator comprising a contractible and expandable bag that is mounted within the sealed reservoir containing ink. The ink within the reservoir is maintained under a back pressure by the accumulator. The back pressure prevents the ink leaking from the reservoir under the effects of gravity or pressure differentials which might otherwise exist.

Claim 9 recites, in combination with claim 8, an accumulator apparatus wherein the bag comprises sheets formed of heat weldable material. Claim 10 recites, in combination with claim 9, bag sheets that include a film of air impermeable material so as to render the bag substantially impermeable to air.

The Munoz reference shows a beverage dispenser with a bag mounted above the beverage and open to the ambient air. The bag isolates the beverage from the ambient air to prevent spoilage. As the beverage is dispensed, ambient air is drawn into the bag in response to a pressure drop caused by the reduction in beverage volume, and the bag expands.

Expansion of the bag prevents the generation of back pressure within the dispenser, so that the beverage may be dispersed by gravity from the dispensers. The Munoz bag does not establish or maintain a back pressure within the dispenser. Moreover, establishing back pressure in Munoz would prevent or impede the gravity flow dispensing of the beverage.

The language of claim 8 calls for the ink within the reservoir to be maintained under a back pressure. Maintenance of a back pressure within the reservoir of the beverage dispenser described by Munoz would be incompatible with the function of the beverage dispenser. In short, Munoz's need for pressure equalization and gravity flow of the contained liquid directly teaches away from the accumulator defined in claim 8, which calls for a sealed reservoir containing ink maintained under a back pressure.

Therefore, Munoz clearly does not anticipate the invention as defined by claim 8 and the rejection under 35 USC 102(b) should be reversed. [footnote omitted]

(RX-20 at 06174-75).

49. In November 29, 1994 a notice of allowability issued (RX-20 at 06198).

H. Remedy

50. In November 1998, during the Comdex exhibit in Las Vegas, Roman Slipatchuk of Price-Less approached the Microjet booth, where he observed an ink jet cartridge that resembled the HP 51626A. (CX-231 at 3).

51. During the meeting at the Comdex exhibit, a Microjet representative told Mr. Slipatchuk that Microjet was working on developing compatible replacement cartridges for Hewlett-Packard printers. The Microjet representative reported that Microjet had developed a replacement for the HP 26A cartridge and would soon be introducing a replacement for the HP 29A cartridge. (CX-231 at 3).

52. Mr. Slipatchuk told the Microjet representative at the Comdex exhibit that he was interested in obtaining additional information regarding the products, including when Microjet expected

the products to be marketed in the United States. (CX-231 at 3).

53. Price-Less is a small company owned by Roman and Katherine Slipatchuk. (CX-231 at 1).

54. ABC is a website that is affiliated with Price Less. (CX-231 at 1).

55. Price-Less and ABC operate out of the same physical location, 3890-B Tamiami Trail, Port Charlotte, FL 33952. (CX-231 at 1).

56. Price Less sells various replacement printer and copier supplies through a website, [www.priceless-inkjet.com](http://www.priceless-inkjet.com), and two retail locations. Products sold include ink cartridges. Price Less products includes original equipment manufacturer products, compatible replacement parts, and remanufactured items. (CX-231 at 1).

57. In July 2000, Mr. Slipatchuk spoke to a representative of WGI Distribution of Corydon, Indiana. WGI represented itself to Mr. Slipatchuk as "your U.S. Supplier for Hewlett Packard compatible inkjet cartridges." (CX-231 at 4).

58. WGI Distribution provided Mr. Slipatchuk a price list for "Brand New Compatible HP Inkjets". (CX-231 at 4 and attachment at 10). The Price-List advertised wholesale prices of \$12.75 to \$13.25 for HP 51626A compatible cartridges, and \$13.75 to \$14.25 for HP 51629A compatible cartridges. (CX-231 at 4).

59. The WGI Distribution representative informed Mr. Slipatchuk that the cartridges were arriving on a weekly basis, were cleared through U.S. Customs, and were sent from Taiwan. (CX-231 at 4).

60. In July 2000, Price-Less ordered 10 HP compatible cartridges from WGI Distribution. (CX-231 at 4).

61. In August 2000, Price-Less ordered a total of 54 HP compatible cartridges from WGI Distribution. (CX-231 at 4).

62. Price-Less ordered additional HP compatible cartridges from WGI Distribution in September through November 2000. (CX-231 at 5).

63. The HP compatible cartridges that Price Less purchased from WGI Distribution were Microjet cartridges. (CX-231 at 5 and 1/4/2001 email from Slipatchuk to Wang; CX-19, Exhibit 20).

64. In the six months preceding February 2001, Price Less sold 175 Microjet cartridges. (CX-231 at 6).

65. In February 2001, Price Less had about 40 unsold Microjet cartridges in its inventory. (CX-231 at 5).

I. Bond

66. Printer Essentials advertised a wholesale price of between \$14.97 and \$16.97 for Microjet cartridges compatible with the HP 51626A. (CX-19, Exhibit 19).

67. Printer Essentials advertised a wholesale price of between \$15.97 and \$17.97 for Microjet cartridges compatible with the HP 51629A. (CX-19, Exhibit 19).

68. Price-Less advertised a retail price of between \$19.68 and \$19.98 for Microjet cartridges compatible with the HP 51626A. (CX-19, Exhibit 20 at 1).

69. Price-Less advertised a retail price of \$19.97 and \$20.57 for Microjet cartridges compatible with the HP 51629A. (CX-19, Exhibit 20 at 3).

70. Cartridge Hut sold Microjet cartridges compatible with the HP 51626A for between \$19.00 and \$20.97. (CX-196, Exhibit B).

71. Cartridge Hut sold Microjet cartridges compatible with the HP 51629A for \$21.97. (CX-

196, Exhibit B).

72. Cartridge Hut currently offers HP 51626A cartridges for sale at prices between \$29.00 and \$29.50. (CX-196, Exhibit C).

73. Cartridge Hut currently offers HP 51629A cartridges for sale at prices between \$29.00 and \$29.50. (CX-196, Exhibit C).

74. Microjet's sales price to its first level of customer for its HC-01 products is between {  
 } (CX-93, Int. 6(e)).

75. Microjet's sales price to its first level of customer for its HC-03 products is between  
{  
 } (CX-93, Int. 6(e)).

76. In 2000, Microjet sold { } units of HC-01 products in the United States, generating total sales of { } or an average selling price of { } per unit sold. (CX-95, Int. 6(b)).

77. In 2000, Microjet sold { } units of HC-03 products in the United States, generating total sales of { } or an average selling price of { } per unit sold. (CX-95, Int. 6(b)).

78. In October 2000, Microjet was offering to sell HC-01 cartridges to Printer Essentials for between { } per unit, and was offering to sell HC-03 cartridges to Printer essentials for between { } per unit. (CX-112 at 1).

79. In November 2000, Microjet was offering to sell HC-01 cartridges to Printer Essentials for { } per unit and HC-03 cartridges for { } per unit. (CX-112 at 2).

## CONCLUSIONS OF LAW

1. The Commission has in rem jurisdiction and subject matter jurisdiction.
2. There has been an importation of certain ink jet print cartridges and components thereof which are the subject of the unfair trade allegation.
3. An industry exists in the United States, as required by subsection (a) (2) of section 337, that exploits each of the '027, '294, '802, '134 and '859 patents in issue. An industry does not exist in the United States that exploits the '073 patent.
4. Respondent Microjet has failed to establish that the asserted claims of the '859 patent are not valid.
5. Respondent Microjet has failed to establish that each of the '073, '294 and '859 patents is unenforceable.
6. Complainant HP has established that each of the asserted claims of the '027, '294, '802, '134 and '859 patents is infringed by respondents Microjet, Price-Less and ABC. It has failed to establish that the asserted claim of the '073 patent is infringed.
7. Respondent Price-Less and respondent ABC, which did not appear at the hearing and did not file any prehearing or posthearing submissions, and respondent Microjet are in violation of section 337, based on importation into the United States, sale for importation, and sale within the United States after importation of certain ink jet print cartridges and components thereof.
8. It is recommended that a limited exclusion order issue against respondent Microjet, as indicated in the remedy section, supra.
9. It is recommended that cease and desist orders be issued against respondents Price-

Less and ABC as indicated in the remedy section, supra.

10. It is recommended that a bond of 100% entered value be required during Presidential review, as indicated in the bond section, supra.

## ORDER

Based on the foregoing, and the record as a whole, and having considered all of the filings, it is the administrative law judge's final initial determination that there is a violation of section 337 in the importation into the United States, sale for importation, and the sale within the United States after importation of certain ink jet print cartridges and components thereof. It is also the administrative law judge's recommendation that a limited exclusion order should issue against respondent Microjet; that cease and desist orders should issue against respondents Price-Less and ABC; and that a bond of 100% of entered value should be imposed during Presidential review.

The administrative law judge hereby CERTIFIES to the Commission his final initial and recommended determinations together with the record consisting of the exhibits admitted into evidence. The pleadings of the parties filed with the Secretary and the transcript of the hearing, including closing arguments, are not certified, since they are already in the Commission's possession in accordance with Commission rules.

Further it is ORDERED that:

1. In accordance with Commission rule 210.39, all material heretofore marked in camera because of business, financial, and marketing data found by the administrative law judge to be cognizable as confidential business information under Commission rule 201.6(a) is to be given in camera treatment continuing after the date this investigation is terminated.
2. Counsel for the parties shall have in the hands of the administrative law judge those portions of the final initial and recommended determinations which contain bracketed confidential business information to be deleted from any public version of said determinations,

no later than February 15, 2002. Any such bracketed version shall not be served by telecopy on the administrative law judge. If no such bracketed version is received from a party it will mean that the party has no objection to removing the confidential status, in its entirety, from these initial and recommended determinations.

3. The initial determination portion of the "Final Initial and Recommended Determinations," issued pursuant to Commission rule 210.42(h)(2), shall become the determination of the Commission forty-five (45) days after the service thereof, unless the Commission, within that period shall have ordered its review or certain issues therein or by order has changed the effective date of the initial determination portion. The recommended determination portion, issued pursuant to Commission rule 210.42(a)(1)(ii), will be considered by the Commission in reaching a determination on remedy and bonding pursuant to Commission rule 210.50(a).

  
Paul J. Luckern  
Administrative Law Judge

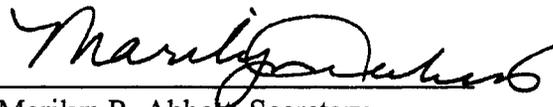
Issued: January 25, 2002

**CERTAIN INK JET PRINT CARTRIDGES  
AND COMPONENTS THEREOF**

Investigation No. 337-TA-446

CERTIFICATE OF SERVICE

I, Marilyn R. Abbott, hereby certify that the attached **Notice/Public Version Final Initial and Recommended Determinations** was served by hand upon James B. Coughlan, Esq., and David H. Hollander, Jr. Esq. and upon the following parties via first class mail, and air mail where necessary, on **June 3, 2002**.



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**CERTAIN INK JET PRINT CARTRIDGES  
AND COMPONENTS THEREOF**

**Investigation No. 337-TA-446**

**CERTIFICATE OF SERVICE cont'd**

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**CERTAIN INK JET PRINT CARTRIDGES  
AND COMPONENTS THEREOF**

**Investigation No. 337-TA-446**

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