

**UNITED STATES INTERNATIONAL TRADE COMMISSION  
WASHINGTON, D.C.**

**In The Matter Of**

**CERTAIN SILICON MICROPHONE  
PACKAGES AND PRODUCTS  
CONTAINING SAME**

**Investigation No. 337-TA-\_\_\_\_\_**

**COMPLAINT OF KNOWLES ELECTRONICS LLC  
UNDER SECTION 337 OF THE TARIFF ACT OF 1930, AS AMENDED**

**COMPLAINANT:**

Knowles Electronics LLC  
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Itasca, Illinois 60143  
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**PROPOSED RESPONDENTS:**

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<b>Exhibit No.</b>	<b>Document Description</b>
1.	United States Patent No. 7,439,616
2.	United States Patent No. 8,018,049
3.	Assignment Documents for the '616 Patent
4.	Assignment Documents related to the '049 Patent
5.	May 20, 2011 Knowles Electronics Press Release
6.	Peter V. Loeppert and Sung B. Lee, <i>SiSonic™ – The First Commercialized MEMS Microphone</i> , Solid-State Sensors, Actuators and Microsystems Workshop, Hilton Head Island, South Carolina, June 4-8, 2006
7.	Amkor Technology, Inc. MEMS Technology Brochure
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9.	<b>CONFIDENTIAL</b> Identification of Licensees
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36.	Knowles SPA2410LR5H-B Datasheet
37.	Knowles SPK0413LM4H-WB Datasheet
38.	Knowles SPK0813LM4H-WB Datasheet
39.	Knowles SPM0410LR5H-QB Datasheet
40.	Knowles SPY0824LR5H-QB Datasheet

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41.	<b>CONFIDENTIAL</b> License Agreements
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### **Appendix No.    Document Description**

- A.            Prosecution History of United States Patent No. 7,439,616
- B.            Copies of References Cited in the Prosecution History of United States Patent No. 7,439,616
- C.            Reexamination Control No. 95/001,364 (*inter partes* reexamination of United States Patent No. 7,439,616)
- D.            Copies of References Cited in Reexamination Control No. 95/001,364
- E.            Reexamination Control No. 90/010,985 (*ex parte* reexamination of United States Patent No. 7,439,616)
- F.            Copies of References Cited in Reexamination Control No. 90/010,985
- G.            Prosecution History of United States Patent No. 8,018,049
- H.            Copies of References Cited in the Prosecution History of United States Patent No. 8,018,049

## I. INTRODUCTION

1. Knowles Electronics LLC (“Complainant” or “Knowles”) requests that the United States International Trade Commission institute an investigation pursuant to Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337 (“Section 337”), to remedy the unlawful importation into the United States, sale for importation into the United States, and/or sale within the United States after importation by the owner, importer, or consignee, of certain silicon microphone packages<sup>1</sup> and products containing the same that infringe, or that are made by a process that infringes, valid and enforceable United States patents owned by Knowles (collectively “Accused Products”).

2. The proposed respondents are: Analog Devices, Inc. (“ADI”), Amkor Technology, Inc. (“Amkor”), and Avnet, Inc. (“Avnet”) (collectively “Respondents”).

3. On information and belief, the proposed Respondents have engaged in unfair acts in violation of Section 337 through and in connection with the unlicensed importation into the United States, sale for importation into the United States, and/or sale within the United States after importation of Accused Products that infringe, or that are made by a process that infringes, one or more claims of United States Patent Nos. 7,439,616 (“the ’616 Patent”) and 8,018,049 (“the ’049 Patent”) (collectively “the Asserted Patents”).

4. Knowles asserts that the ADI Accused Products directly infringe and/or induce infringement of at least claims 1, 2, and 8-18 of the ’616 Patent and claims 1, 2, 5, 6, 11, 12, 15, 16, 19, 21-23, and 26 of the ’049 Patent (collectively “the Asserted Claims”).

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<sup>1</sup> As used throughout this Complaint, a “silicon microphone package” comprises a substrate, a Micro-Electro-Mechanical System (“MEMS”) die, a cover, an acoustic port, and a cavity formed by the attachment of the cover to the substrate, with the MEMS die disposed within the cavity.

5. Certified copies of the '616 and '049 Patents accompany this Complaint as Exhibits 1 and 2, respectively.

6. Knowles owns by assignment the entire right, title, and interest in and to the Asserted Patents. Certified copies of the recorded assignments to Knowles for the '616 Patent accompany this Complaint as Exhibit 3.

7. As required by Section 337(a)(2) and defined by Section 337(a)(3), an industry exists in the United States relating to the Asserted Patents at least by virtue of Knowles's significant investment in plant and equipment, significant employment of labor and capital, and/or substantial investment in the exploitation of the technologies covered by the Asserted Patents.

8. Complainant seeks, as relief, a permanent limited exclusion order, pursuant to Section 337(d), excluding from entry into the United States all of Respondents' Accused Products that infringe, or that are made by a process that infringes, one or more claims of the Asserted Patents. Complainants also seek a permanent cease and desist order, pursuant to Section 337(f), directing Respondents to cease and desist from importing, marketing, advertising, demonstrating, warehousing inventory for distribution, offering for sale, selling, distributing, or using Accused Products that infringe, or that are made by a process that infringes, one or more of the Asserted Claims.

## **II. COMPLAINANT**

9. Knowles is a limited liability company organized under the laws of the State of Delaware and having its principal offices in the city of Itasca, Illinois, employing approximately 241 persons in the United States, and 5,651 worldwide. *See* Parfitt Declaration ("Parfitt Decl."), Confidential Exhibit 10, ¶¶ 4, 7.

10. Knowles is a pioneer in the field of silicon microphones having a MEMS die encased within a surface mountable package (hereinafter “MEMS microphone package”). A MEMS microphone product is a unique type of microphone because integrated circuit fabrication techniques, such as silicon etching, are used to create the silicon diaphragm of the MEMS die encased within the microphone package. Here, the technologies-at-issue relate to (i) a miniature package for a silicon microphone that comprises a substrate with a sealing ring, a MEMS die, and a cover; and (ii) a method for rapid and economical manufacture of miniature microphone packages with a MEMS die disposed within.

11. Knowles is a provider of MEMS microphone packages to, *inter alia*, the cellular telephone industry and the hearing aid industry. Knowles, which shipped its first MEMS microphone package in December 2002, is currently ranked as the number three global supplier of MEMS devices for consumer and mobile applications and is the world leader in MEMS microphone package manufacturing. *See* Exhibits 5, 6.

12. Knowles began to research and develop its MEMS die technology and its MEMS microphone packaging technology in or around 1990, and, to date, has invested millions of dollars in the development of its industry-leading SiSonic™ family of MEMS microphone products. *See* Parfitt Decl., ¶¶ 6, 13. The Knowles SiSonic™ MEMS microphone package was the first commercialized MEMS-based silicon microphone in a surface mountable package. *See* Exhibit 6.

13. One of the challenges Knowles faced in developing a commercially viable product was to create a MEMS microphone package that could compete with the performance, reliability, and pricing of the traditional Electret Condenser Microphone (“ECM”). For a conventional ECM product, a manufacturer typically assembles the components in a “stack”

fashion, and assembles the microphones one at a time. Most ECM products are cylindrical, about 6 millimeters in diameter by 1-2 millimeters high, and inexpensive enough to go into everything from mobile phones to toys. An exemplary ECM product is shown below in Figure 1.



Figure 1

14. At the time of the development of the SiSonic™ MEMS microphone package, one problem with ECM products was that they are generally heat-sensitive, which precluded the use of a lead-free solder reflow process for attachment to bonding pads on a device substrate, and precluded the use of surface mounting techniques. Therefore, high-volume product manufacturers must resort to some type of offline operation, such as highly specialized insertion machinery or labor-intensive hand assembly, to attach an ECM to a circuit board. These offline operations were necessary to accommodate ECMs that would not tolerate high temperatures encountered during product assembly, such as reflow soldering processes.

15. Knowles undertook the challenge to create a microphone suited to high-speed manufacturing techniques and developed a surface mountable package that was less expensive to use and more robust than existing solutions—the SiSonic™ MEMS microphone package was the result (*see* Figure 2 below). The SiSonic™ MEMS microphone package can withstand reflow soldering processes, so a chip shooter machine can place the SiSonic™ MEMS microphone package on a circuit board just like any other integrated circuit component. The SiSonic™ MEMS microphone package fits within normal assembly flow.

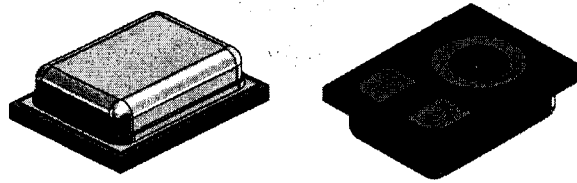


Figure 2

16. More specifically, Knowles developed a unique surface mountable package for surrounding and protecting a MEMS die and other electronic components disposed within the package. The SiSonic™ MEMS microphone package permits the passage of acoustic pressure waves to the diaphragm of the MEMS die, provides an electrical interface to the MEMS die and other electronic components, and provides electromagnetic and environmental protection. A cutaway view of a SiSonic™ MEMS microphone package is shown below in

Figure 3:

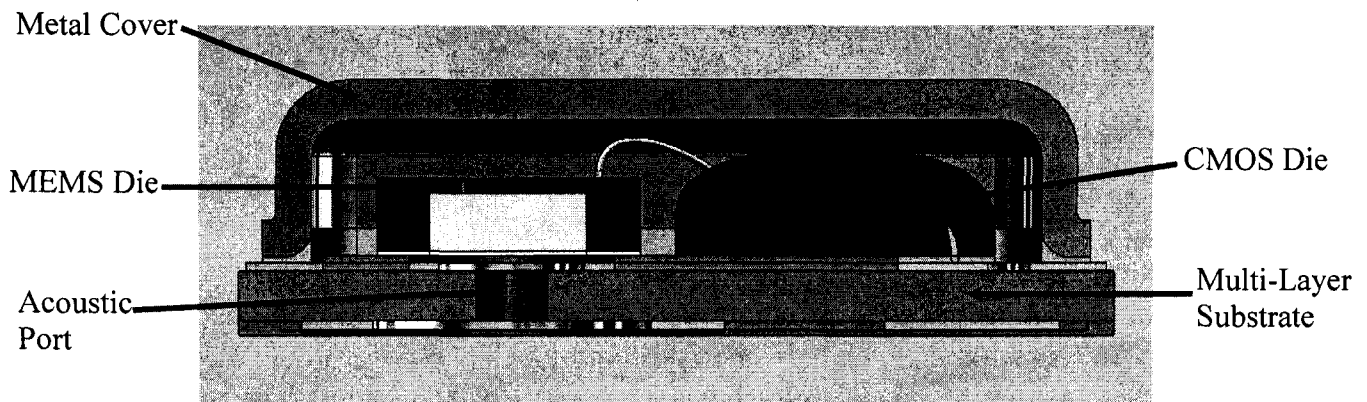


Figure 3

17. Concurrent with the development of the SiSonic™ MEMS microphone package, Knowles also developed an innovative method for manufacturing the miniature SiSonic™ MEMS microphone package in a rapid and economic fashion.

18. Similar to other miniature electronic components, contemporary manufacturing equipment can pick up, place, and attach the SiSonic™ MEMS microphone package to a device substrate without damage to the MEMS die. As such, Knowles's

innovations have substantially reduced the manufacturing costs for MEMS silicon microphone packages, and products utilizing the same. Knowles's MEMS microphone technology significantly improves manufacturability, environmental stability, and reliability of MEMS-based silicon microphones, and substantially reduces the size of a surface mounted microphone package.

19. In May 2011, Knowles reached a major milestone in the history of MEMS technology with the shipment of its two billionth SiSonic™ MEMS microphone package. Today, with over thirty part models and multiple generations available, SiSonic™ MEMS microphone packages are found in all Tier 1 mobile phones and in many other consumer electronic devices including notebooks, headsets, hearing aids, and digital still cameras. *See* Exhibit 5.

### **III. PROPOSED RESPONDENTS**

#### **A. Analog Devices, Inc.**

20. Analog Devices, Inc. ("ADI") is a Massachusetts corporation with offices at One Technology Way, P. O. Box 9106, Norwood, Massachusetts.

21. Upon information and belief, ADI designs, manufactures for import, imports into the United States, and/or sells for importation into the United States a variety of silicon microphone packages that infringe, or that are made by a process that infringes, one or more of the Asserted Claims of the Asserted Patents.

22. Upon information and belief, ADI or one of its affiliates sells its silicon microphone packages to overseas manufacturers. These silicon microphone packages are incorporated into other products assembled outside the United States and are subsequently imported into the United States to be sold to the public.

**B. Amkor**

23. Proposed Respondent Amkor Technology, Inc. (“Amkor”) is a Delaware Corporation with its principal place of business at 1900 South Price Road, Chandler, Arizona 85286. According to publicly available brochures, Amkor is the “world’s leading provider in MEMS packaging technology and offers a variety of modeling and characterization expertise to complement a proven high volume manufacturing (HVM) capability.” *See* Exhibit 7. Amkor’s financial disclosures indicate that ADI was one of their “top 25 customers” for 2010. *See* Exhibit 8.

24. Upon information and belief, Amkor manufactures abroad, imports into the United States, and/or sells for importation into the United States a variety of ADI silicon microphone packages that infringe, or that are made by a process that infringes, one or more of the Asserted Claims of the Asserted Patents.

**C. Avnet**

25. Proposed respondent Avnet, Inc. (“Avnet”) is a New York Corporation with its principal place of business at 2211 South 47th Street, Phoenix, Arizona 85034.

26. Upon information and belief, Avnet imports into the United States and/or sells for importation into the United States a variety of ADI silicon microphone packages that infringe, or that are made by a process that infringes, one or more of the Asserted Claims of the Asserted Patents.

27. Upon information and belief, Avnet or one of its affiliates sells ADI silicon microphone packages. These ADI silicon microphone packages are assembled outside the United States and are subsequently imported into the United States to be sold to the public.

#### **IV. THE PRODUCTS-AT-ISSUE**

28. The Accused Products include, but are not limited to, ADI's silicon microphones having the following part numbers: ADMP401, ADMP404, ADMP405, ADMP421, ADMP441, and ADMP504 (collectively "the Accused Products"). Upon information and belief, Amkor manufactures the Accused Products according to ADI's specifications and requirements, and provides the Accused Products to ADI and Avnet, among others, for sale and distribution to manufacturers for inclusion in products assembled outside the United States, and which are subsequently imported into the United States to be sold to the public. This identification of specific models or types of products is not intended to limit the scope of the investigation, and any remedy should extend to all infringing products.

#### **V. THE PATENTS-AT-ISSUE**

##### **A. The '616 Patent**

##### **1. Identification of the Patent and Ownership by Knowles**

29. U.S. Patent No. 7,439,616 is entitled "Miniature Silicon Condenser Microphone" and issued on October 21, 2008. The '616 Patent issued from U.S. Patent Application Serial No. 11/276,025 ("the '025 Application"), filed on February 10, 2006. The '025 Application is a continuation-in-part of U.S. Application Serial No. 11/112,043, filed on April 22, 2005, which is a division of U.S. Application Serial No. 09/886,854, filed on June 21, 2001, which claims the benefit of Provisional Patent Application Serial No. 60/253,543 filed on November 28, 2000. The '616 Patent identifies Anthony D. Minervini as the inventor.

30. Knowles is the owner, by valid assignment, of the entire right, title, and interest in and to the '616 Patent. *See* Exhibit 3. The '616 Patent is valid, enforceable, and is currently in full force and effect.

31. As required by Rule 210.12(c), Knowles submits the following materials with the Complaint: a uncertified copy and three additional copies of the prosecution history of the '616 Patent, including the on-going reexaminations, in Appendices A, C, and E; and four copies of each technical reference cited in the prosecution history of the '616 Patent in Appendices B, D, and F. Certified copies of the prosecution history of the '616 Patent will be submitted upon receipt from the U.S. Patent and Trademark Office.

**2. Non-Technical Description of the Patented Invention**

32. The '616 Patent describes a package that contains a silicon microphone die. Typically, the package is one of many components mounted on a printed circuit board in a variety of products, including mobile phones, laptops, hearing aids, gaming systems, and headsets. The silicon microphone package generally comprises a substrate, a silicon microphone die attached to the substrate, a cover, an aperture, a back volume, and a sealing ring. These features allow acoustic energy to contact the diaphragm of the silicon microphone die while protecting the silicon microphone die from light, electromagnetic interference, moisture, and physical damage.

**3. Foreign Counterparts to the '616 Patent**

33. No foreign patents or patent applications corresponding to the '616 Patent have been filed, abandoned, withdrawn, or rejected.

**B. The '049 Patent**

**1. Identification of the Patent and Ownership by Knowles**

34. U.S. Patent No. 8,018,049 is entitled "Silicon Condenser Microphone and Manufacturing Method" and issued on September 13, 2011. The '049 Patent issued from U.S. Patent Application Serial No. 11/741,881 ("the '881 Application"), filed on April 30, 2007. The '881 Application is a division of U.S. Patent Application Serial No. 10/921,747, filed on August

18, 2004, now U.S. Patent No. 7,434,305, which is a continuation-in-part of U.S. Patent Application Serial No. 09/886,854, filed on June 21, 2001, now U.S. Patent No. 7,166,910, which claims the benefit of Provisional Patent Application Serial No. 60/253,543 filed on November 28, 2000. The '049 Patent identifies Anthony D. Minervini as the inventor.

35. Knowles is the owner of the entire right, title, and interest in and to the '049 Patent. As indicated above, the '881 Application, which issued as the '049 Patent, is a child application of U.S. Patent No. 7,434,305 and a grandchild application of U.S. Patent No. 7,166,910. Knowles is the owner, by valid assignment, of the entire right, title, and interest in U.S. Patent Nos. 7,166,910 and 7,434,305. *See* Exhibit 4. The '049 Patent is valid, enforceable, and is currently in full force and effect.

36. As required by Rule 210.12(c), Knowles submits the following materials with the Complaint: a certified copy and three additional copies of the prosecution history of the '049 Patent in Appendix G; and four copies of each technical reference mentioned in the prosecution history of the '049 Patent in Appendix H.

## **2. Non-Technical Description of the Patented Invention**

37. The '049 Patent describes a package that contains a silicon microphone die and a method for manufacturing the package. The package generally comprises a multi-layer substrate, a silicon microphone die, a cover, an acoustic port, and a cavity. These features allow acoustic energy to contact the diaphragm of the silicon microphone die while protecting the silicon microphone die from light, electromagnetic interference, moisture, and physical damage. The claimed manufacturing method provides for the production of large quantities of microphone packages by assembling a plurality of components at each step, thereby reducing the overall manufacturing cost.

**3. Foreign Counterparts to the '049 Patent**

38. The following patent applications correspond to the '049 Patent:

CN200580028321.1
EP05761540.3
EP11167778.7
HK07109338.5
JP2007527812
KR7006230/07
SG129857 (this application has issued)

**VI. UNLAWFUL AND UNFAIR ACTS – PATENT INFRINGEMENT**

39. The Accused Products are silicon microphone packages comprising a substrate, a MEMS die, a cover, an acoustic port, and a cavity formed by the attachment of the cover to the substrate, with the MEMS die disposed within the cavity. The Accused Products infringe at least the following claims of the Asserted Patents:

- claims 1, 2, and 8-18 of the '616 Patent.
- claims 1, 2, 5, 6, 11, 12, 15, 16, and 19 of the '049 Patent.

40. Manufacturing processes used to manufacture the Accused Products infringe at least the following claims of the '049 Patent:

- claims 21-23 and 26.

41. An exemplary ADI silicon microphone package is depicted below in Figure 4 (*See* Wenzel Declaration (“Wenzel Decl.”), Exh. 42, ¶¶ 3-4):



Figure 4

42. Other ADI silicon microphone models are depicted on ADI's website and technical materials related to those microphone models are included at Exhibits 11 through 16.

43. The ADI silicon microphone package comprises a multi-layer substrate, which supports a surface-mounted MEMS die. The multi-layer substrate comprises a fiberglass-reinforced epoxy composite with conductive metal layers. A metal alloy cover with internal tin plating is bonded to the substrate with silver conductive epoxy material. An aperture in the bottom of the multi-layer substrate permits acoustic energy to reach the MEMS die. *See, e.g.,* Wenzel Decl., ¶¶ 4-22.

44. Upon information and belief, the ADI microphone shown in Figure 4 is manufactured by starting with a substrate panel, and attaching a plurality of MEMS dies, control electronics, and metal covers to the substrate panel. The panel is then diced into individual substrates, each with a MEMS die, control electronics, and a metal cover. Saw kerf marks can be seen on both the substrate, and the conductive material affixing the metal cover to the substrate, but not in the metal cover. *See* Wenzel Decl., ¶ 6. Upon information and belief, the saw kerf marks indicate that the substrate had been part of a substrate panel prior to dicing.

**A. ADI's Unlawful and Unfair Acts**

45. Upon information and belief, ADI manufactures for import, imports into the United States, sells for importation, and/or sells within the United States after importation, the Accused Products, of which it is the owner, importer, or consignee, which infringe, or which are made by a process that infringes, one or more Asserted Claim of the Asserted Patents.

46. Examples of the Accused Products include, but are not limited to, ADI's silicon microphones ADMP401, ADMP404, ADMP405, ADMP421, ADMP441, and ADMP504, and evaluation boards containing the accused ADI silicon microphones (*see* Exhibits 21 through 26). This identification of specific models or types of products is not intended to limit the scope of the investigation, and any remedy should extend to all infringing products. Claim charts accompanying this Complaint set forth the analysis of infringement by at least one exemplary Accused Product for each of the Asserted Patents.

47. A chart that applies independent claim 1 of the '616 Patent to the accused ADI ADMP421 MEMS silicon microphone package is attached to the Complaint as Exhibit 17.

48. A chart that applies independent claims 1 and 21 of the '049 Patent to the accused ADI ADMP421 MEMS silicon microphone package is attached to the Complaint as Exhibit 18.

49. A chart that applies independent claim 1 of the '616 Patent to the accused ADI ADMP441 MEMS silicon microphone package is attached to the Complaint as Exhibit 19.

50. A chart that applies independent claims 1 and 21 of the '049 Patent to the accused ADI ADMP441 MEMS silicon microphone package is attached to the Complaint as Exhibit 20.

51. The Accused Products are specifically designed to be used in mobile phones, notebooks, headsets, digital still cameras, hearing aids, and many other consumer

electronic devices. Due to their specific design, the Accused Products do not have substantial non-infringing uses. Thus, ADI contributorily infringes the Asserted Claims.

52. ADI induces infringement of the Asserted Claims by publishing technical materials and promotional literature describing and instructing in the use of the Accused Products in an infringing manner, and by offering support and technical assistance to its customers that encourage use of the Accused Products in ways that infringe the Asserted Claims. *See* Exhibits 27 through 30.

53. ADI has had knowledge of the Asserted Patents since before this Complaint was filed, or at a minimum will receive notice of them upon filing of the Complaint, which Knowles is concurrently serving upon ADI (without confidential exhibits) at the address referenced herein.

**B. Amkor's Unlawful and Unfair Acts**

54. Upon information and belief, Amkor manufactures for import, and/or imports into the United States, the Accused Products that infringe, or that are made by a process that infringes, the Asserted Patents.

55. Charts that apply independent claim 21 of the '049 Patent to the manufacturing process for the accused ADI ADMP421 and ADMP441 MEMS silicon microphone packages are attached to the Complaint as Exhibits 18 and 20.

56. Amkor has had knowledge of the Asserted Patents since before this Complaint was filed, or at a minimum will receive notice of them upon filing of the Complaint, which Knowles is concurrently serving upon Amkor (without confidential exhibits) at the address referenced herein.

**C. Avnet's Unlawful and Unfair Acts**

57. Upon information and belief, Avnet imports into the United States, sells for importation, and/or sells within the United States after importation, the Accused Products, of which it is the owner, importer, or consignee, which infringe, or which are made by a process that infringes, the Asserted Patents.

58. Charts that apply independent claim 1 of the '616 Patent and independent claim 1 of the '049 Patent to the accused ADI ADMP421 and ADMP441 MEMS silicon microphone packages are attached to the Complaint as Exhibits 17 and 19.

59. Avnet has had knowledge of the Asserted Patents since before this Complaint was filed, or at a minimum will receive notice of them upon filing of the Complaint, which Knowles is concurrently serving upon Avnet (without confidential exhibits) at the address referenced herein.

**VII. SPECIFIC INSTANCES OF UNFAIR IMPORTATION AND SALE**

60. Prior to filing this Complaint, representatives for Knowles purchased several imported ADI silicon microphone packages in the United States directly from ADI, as well as through its distributors, Avnet and non-respondent Digi-Key.

61. Exhibit 31 includes a copy of the invoice for the purchase of a representative ADI ADMP421 silicon microphone, manufactured by ADI or Amkor and purchased through non-respondent Digi-Key, and a series of photographs of the microphone and of the box in which the microphone was delivered. The label on the box discloses the logo of non-respondent Digi-Key. The invoice for the microphone identifies it as a product of the Philippines. The labeling of the microphone identifies it as an ADI product.

62. Exhibit 32 includes a copy of the receipt for the purchase of a representative ADI ADMP441 silicon microphone evaluation board, purchased directly from

ADI, and a series of photographs of the microphone and of the box in which the microphone was delivered. The label on the box discloses the ADI logo, as well as the labeling of the individual microphone.

63. Exhibit 33 includes a copy of the receipt for the purchase of a representative ADI ADMP404Z-FLEX silicon microphone evaluation board, manufactured by ADI and purchased through Avnet, and a series of photographs of the microphone and of the box in which the microphone was delivered. The label on the box discloses the Avnet logo. The receipt for/labeling of the microphone identifies it as being an ADI product.

#### **VIII. CLASSIFICATION OF THE INFRINGING PRODUCTS UNDER THE HARMONIZED TARIFF SCHEDULE**

64. The Accused Products are believed to fall within at least the following classification of the Harmonized Tariff Schedules of the United States: 8518.10.8030. This classification is intended for illustration only and are not intended to be restrictive of the Accused Products.

#### **IX. LICENSEES**

65. Attached as Confidential Exhibit 9 is a list of persons and entities to which Knowles has licensed one or more of the Asserted Patents. Copies of the license agreements are attached as Confidential Exhibit 41.

#### **X. KNOWLES SATISFIES THE DOMESTIC INDUSTRY REQUIREMENT**

##### **A. Knowles Satisfies the Technical Prong of the Domestic Industry Requirement**

66. As required by Section 337(a)(2) and defined by Section 337(a)(3), an industry in the United States exists in connection with the asserted patents or such an industry is in the process of being established. Claim charts and explanatory information for examples of Knowles products that currently practice at least one exemplary claim of each of the asserted

patents, and/or are expected to practice at least one exemplary claim when development and commercialization are completed (hereinafter “the Domestic Industry Products”), are attached to this Complaint as Exhibit 34 and Confidential Exhibit 35.

67. Photographs, images, datasheets, and other technical information about the Knowles Domestic Industry Products are attached to this Complaint as Exhibits 36 through 40.

**B. Knowles Satisfies the Economic Prong of the Domestic Industry Requirement**

68. A domestic industry, under subparts (A), (B), and (C) of Section 337(a) exists by virtue of Knowles’s activities within the United States, including manufacture, research and development, and application support of its SiSonic™ MEMS silicon microphone package.

69. Knowles’s domestic activities include its significant investment in plant and equipment, significant investment in labor and capital, and substantial investment in the research and development and engineering of the Domestic Industry Products. Knowles’s domestic facility includes salaried research and design engineers, salaried administrative employees, tens of millions of dollars’ worth of equipment, and other assets allowing for the research, development, production, and sales of its acoustic products. *See* Parfitt Decl., ¶¶ 6, 10, 13. A substantial portion of Knowles’s domestic investments is dedicated to its SiSonic™ MEMS silicon microphone products, and to its Domestic Industry Products in particular. *Id.* ¶¶ 14-15. Knowles’s domestic investments are sizeable in relation to its overall Domestic Industry Product-related expenses, and contribute significant value to Knowles’s Domestic Industry Products. *Id.* ¶¶ 6-15.

## **XI. RELATED LITIGATION**

### **A. District Court Litigation**

70. On November 14, 2006, Knowles filed a Complaint against non-respondents American Audio Components, Inc., AAC Acoustic Technologies Holdings, Inc., General MEMS Corporation, two employees of General MEMS Corporation (individually and as employees and agents of the company), and 25 Does (of unknown identity or capacity) in the U.S. District Court for the Northern District of Illinois, alleging misappropriation of trade secrets related to silicon microphones. The resulting action, Civil Action No. 06-cv-6213, was settled by the parties. The case was dismissed with prejudice on January 7, 2008.

71. On December 13, 2006, Knowles filed a Complaint against non-respondent Akustica, Inc., in the U.S. District Court for the Eastern District of Texas, alleging infringement of U.S. Patent No. 6,781,231 (“the ’231 Patent”), which is assigned to Knowles. The resulting action, Civil Action No. 06-cv-527, was settled by the parties. The case was voluntarily dismissed without prejudice pursuant to Federal Rule of Civil Procedure 41(a)(1)(A) on June 15, 2011.

72. On October 6, 2009, Knowles filed a Complaint against respondent ADI in the U.S. District Court for the Northern District of Illinois, alleging infringement of the ’231 Patent and U.S. Patent No. 7,242,089 (“the ’089 Patent”), which is assigned to Knowles. The resulting action, Civil Action No. 09-cv-6238, was dismissed. The case was voluntarily dismissed without prejudice pursuant to Federal Rule of Civil Procedure 41(a)(1)(A) on October 5, 2011.

73. On September 27, 2011, Knowles filed a Complaint against Respondent ADI in the U.S. District Court for the Northern District of Illinois, alleging infringement of U.S. Patent No. 7,537,964, which is assigned to Knowles, and the ’049 Patent. The resulting action,

Civil Action No. 11-cv-6804, is currently pending. ADI filed a Motion to Dismiss on November 18, 2011, and the motion hearing was held on December 2, 2011.

**B. ITC Investigation No. 337-TA-629**

74. On December 5, 2007, Knowles filed a Section 337 complaint with the U.S. International Trade Commission identifying as proposed respondent MEMS Technology Berhad (“MemsTech”), of Malaysia, alleging infringement of the ’231 Patent and the ’089 Patent, both of which are assigned to Knowles. In response, on January 14, 2008, the Commission instituted Investigation No. 337-TA-629, entitled *Silicon Microphone Packages and Products Containing the Same*. On June 12, 2009, the Commission issued an opinion and limited exclusion order finding that Knowles’s patents were valid and infringed and excluding infringing MemsTech silicon microphone packages from importation into the United States. (The order was revised and reissued on August 18, 2009.) The Federal Circuit, in *MEMS Technology Berhad v. International Trade Commission*, Appeal No. 2010-1018, 2011 WL 2214091 (Fed. Cir. June 3, 2011) subsequently affirmed the Commission’s final determination of a Section 337 violation.

75. On October 28, 2011, the Commission partially rescinded its June 12, 2009 Order in Investigation No. 337-TA-629 in light of the determination in Investigation No. 337-TA-695. Specifically, the Commission rescinded all portions of the original exclusion order that referred to claim 1 of the ’231 Patent and claims 1, 2, 17, and 20 of the ’089 Patent, having determined in Investigation No. 337-TA-695, instituted December 16, 2009 (*see below*), that those claims were invalid.

**C. ITC Investigation No. 337-TA-695**

76. On November 12, 2009, Knowles filed a Section 337 complaint with the U.S. International Trade Commission identifying as proposed respondent ADI, alleging

infringement of the '231 and '089 Patents. In response, on December 16, 2009, the Commission instituted Investigation No. 337-TA-695, also entitled *Silicon Microphone Packages and Products Containing the Same*. On November 22, 2010, the ALJ issued his final Initial Determination, finding infringement of the asserted claims, but finding no violation of Section 337 on the basis that the asserted claims were invalid. On January 21, 2011, the Commission issued a final determination of no violation of Section 337.

**D. *Inter Partes* and *Ex Parte* Reexaminations of the '231 Patent**

77. On October 7, 2009, respondent ADI requested an *inter partes* reexamination of the '231 Patent in the U.S. Patent and Trademark Office. The request was granted on November 25, 2009, and assigned reexamination control no. 95/000,509.

78. On November 24, 2009, non-respondent Wolfson Microelectronics PLC (“Wolfson”) requested an *inter partes* reexamination of the '231 Patent in the U.S. Patent and Trademark Office. The original request, filed October 29, 2009, was deemed incomplete and no filing date was accorded until the deficiencies were cured. The request was granted on February 23, 2010, and assigned reexamination control no. 95/001,251.

79. On June 30, 2010, non-respondent BSE Co., Ltd. (“BSE”), requested an *inter partes* reexamination of the '231 Patent in the U.S. Patent and Trademark Office. The request was granted on September 8, 2010, and assigned reexamination control no. 95/001,363.

80. On December 28, 2010, the pending *inter partes* reexaminations (control nos. 95/000,509, 95/001,251, and 95/001,363) of the '231 Patent were merged. On October 14, 2011, the Patent Office issued a non-Final Office Action, and Knowles has not yet filed a response to the Office Action.

81. On May 5, 2010, an unknown Third Party Requester requested an *ex parte* reexamination of the '231 Patent in the U.S. Patent and Trademark Office and was assigned

reexamination control no. 90/009,740. On July 27, 2010, the request was denied as cumulative of the reexamination proceedings already pending against the '231 Patent.

**E. *Inter Partes and Ex Parte* Reexaminations of the '089 Patent**

82. On October 29, 2009, non-respondent Wolfson requested an *inter partes* reexamination of the '089 Patent in the U.S. Patent and Trademark Office. The request was granted March 3, 2010, and assigned reexamination control no. 95/000,513.

83. On November 4, 2009, respondent ADI requested an *inter partes* reexamination of the '089 Patent in the U.S. Patent and Trademark Office. The request was granted on January 8, 2010, and assigned reexamination control no. 95/000,515.

84. On December 3, 2010, the pending *inter partes* reexaminations (control nos. 95/000,513 and 95/000,515) of the '089 Patent were merged. The Patent Office issued a non-final Office Action on July 8, 2011 in the merged proceedings, and Knowles and both non-respondent Wolfson and respondent ADI have timely filed their responses to the Office Action.

85. On May 5, 2010, an unknown Third Party Requester requested an *ex parte* reexamination of the '089 Patent in the U.S. Patent and Trademark Office and was assigned reexamination control no. 90/009,739. The Patent Office issued a non-final Office Action on February 1, 2011 and Knowles timely filed a response to the non-final Office Action.

86. On June 30, 2010, non-respondent BSE requested an *inter partes* reexamination of the '089 Patent in the U.S. Patent and Trademark Office. The original request, filed May 28, 2010, was deemed incomplete and no filing date was accorded until the deficiencies were cured. The request was granted on September 8, 2010, and assigned reexamination control no. 95/001,365. The reexamination was suspended as of January 19, 2011, as cumulative of the other pending reexamination proceedings against the '089 Patent.

**F. *Inter Partes* and *Ex Parte* Reexaminations of the '616 Patent**

87. On June 30, 2010, non-respondent BSE requested an *inter partes* reexamination of the '616 Patent in the U.S. Patent and Trademark Office. The original request, filed May 27, 2010, was deemed incomplete and no filing date was accorded until the deficiencies were cured. The request was granted on September 24, 2010, and assigned reexamination control no. 95/001,364.

88. On May 6, 2010, an unknown Third Party Requester requested *ex parte* reexamination of the '616 Patent in the U.S. Patent and Trademark Office. The request was granted on June 27, 2010, and assigned reexamination control no. 90/010,985.

89. On February 7, 2011, the pending *inter partes* and *ex parte* reexaminations (control nos. 95/001,364 and 90/010,985) of the '616 Patent were merged. A non-final Office Action was issued in the merged proceedings, and both Knowles and non-respondent BSE have timely filed their respective responses to the Office Action.

**XII. REQUESTED RELIEF**

90. WHEREFORE, by reason of the foregoing, Complainants request that the United States International Trade Commission:

(a) institute an immediate investigation, pursuant to Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, with respect to ADI's violations of Section 337 based on the unlawful importation into the United States, sale for importation into the United States, and/or sale within the United States after importation of products that infringe, or that are made by a process that infringes, one or more claims of United States Patent Nos. 7,439,616 and 8,018,049;

(b) schedule and conduct a hearing on the unlawful acts and, following the hearing, determine whether there has been a violation of Section 337;

(c) issue a permanent limited exclusion order, pursuant to Section 337(d) of the Tariff Act of 1930, as amended, excluding from entry into the United States all of Respondents' silicon microphone packages and products containing same that infringe, or that are made by a process that infringes, one or more claims of United States Patent Nos. 7,439,616 and 8,018,049;

(d) issue a permanent cease and desist order, pursuant to Section 337(f) of the Tariff Act of 1930, as amended, prohibiting Respondents and related companies from importing, marketing, advertising, demonstrating, warehousing inventory for distribution, offering for sale, selling, distributing, or using Respondents' silicon microphone packages and products containing same that infringe, or that are made by a process that infringes, one or more claims of United States Patent Nos. 7,439,616 and 8,018,049;

(e) grant such other and further relief as the Commission deems just and proper based on the facts determined by the investigation and the authority of the Commission.

Dated: December 7, 2011



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*Counsel for Complainant Knowles Electronics  
LLC*

## VERIFICATION

I, Austin Victor, declare in accordance with 19 C.F.R. §§ 210.4 and 210.12(a), under penalty of perjury; that the following statements are true:

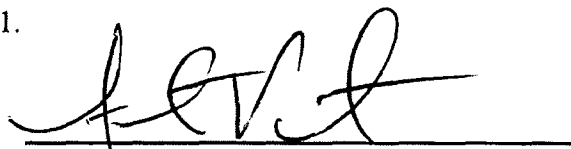
1. I am Lead Intellectual Property Counsel at Knowles Electronics LLC (“Knowles”) and I am duly authorized to verify this Complaint of Knowles Under Section 337 of The Tariff Act of 1930, As Amended (“Complaint”);

2. I have read Knowles’s Complaint;

3. To the best of my knowledge, information, and belief, formed after an inquiry reasonable under the circumstances, (a) the claims and other legal contentions in the Complaint are warranted by existing law or by a non-frivolous argument for the extension, modification, or reversal of existing law or the establishment of new law, and (b) the allegations and other factual contentions in the Complaint have evidentiary support or, if specifically so identified, are likely to have evidentiary support after a reasonable opportunity for further investigation or discovery; and

4. The Complaint is not being presented for any improper purpose; such as to harass or to cause unnecessary delay or needless increase in the cost of the investigation or related proceeding.

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct. Executed on December 7<sup>th</sup>, 2011.

  
Austin Victor