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

In the Matter of

CERTAIN ELECTRONIC DEVICES WITH IMAGE PROCESSING SYSTEMS, COMPONENTS THEREOF, AND ASSOCIATED SOFTWARE Investigation No. 337-TA-\_\_\_\_

# COMPLAINT OF S3 GRAPHICS CO., LTD. AND S3 GRAPHICS, INC. UNDER SECTION 337 OF THE TARIFF ACT OF 1930, AS AMENDED

## **COMPLAINANT**

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Physical
Exhs.

Physical Exh. 1

Physical Apple iPhone (in box with packaging)

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Exh. 2

Physical Apple iPod Touch (in box with packaging)

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Confidential

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App. B	Certified copy of the prosecution history of U.S. Patent No. 6,775,417 and three copies thereof
App. C	Certified copy of the prosecution history of U.S. Patent No. 6,683,978 and three copies thereof
App. D	Copy of the prosecution history of U.S. Patent No. 6,658,146 and three copies thereof
App. E	Four copies of each technical reference identified in the prosecution history of U.S. Patent No. 7,043,087
App. F	Four copies of each technical reference identified in the prosecution history of U.S. Patent No. 6,775,417
App. G	Four copies of each technical reference identified in the prosecution history of U.S. Patent No. 6,683,978
App. H	Four copies of each technical reference identified in the prosecution history of U.S. Patent No. 6,658,146
Confidential Appendix	Document
Conf. App. I	Three copies of each known current license involving the Asserted Patents

## I. INTRODUCTION

- 1. This Complaint is filed by S3 Graphics, Inc. and S3 Graphics Co, Ltd. (collectively, "S3G") under Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, based on the unlawful importation into the United States, the sale for importation, and the sale within the United States after importation, by proposed Respondent Apple Inc., ("Apple") of certain electronic devices with image processing systems, and components thereof, and associated software that infringe one or more of claims 1, 6, or 7 of United States Patent No. 7,043,087 ("the '087 patent"); one or more of claims 1, 7, 8, 12, 13, 15 or 23 of United States Patent No. 6,775,417 ("the '417 patent"); one or more of claims 11, 14, or 16 of United States Patent No. 6,683,978 ("the '978 patent"); and one or more of claims 2, 4, 8, 13, 16, 18, or 19 of United States Patent No. 6,658,146 ("the '146 patent") (collectively, the "Asserted Claims" of the "Asserted Patents").
- 2. Certified copies of the Asserted Patents are attached as Exhibit Nos. 1 through 4, respectively. S3 Graphics Co., Ltd., owns all right, title, and interest in each of the Asserted Patents. S3 Graphics, Inc., a wholly owned subsidiary of S3 Graphics Co. Ltd., holds a nonexclusive license, with a right to grant sublicenses, to the Asserted Patents. (Confidential Appendix I). Certified copies of recorded assignments demonstrating the chain of title of the Asserted Patents are attached as Exhibit No. 5.
- 3. The proposed respondent is Apple Inc. The Accused Products are certain electronic devices with image processing systems, components thereof, and associated software including, but not limited to multimedia devices, smart phones, personal computers, and software for use

<sup>&</sup>lt;sup>1</sup> S3G has not yet obtained a certified copy of the '146 patent. Exhibit No. 4, therefore, is not a certified copy of the '146 patent. S3G will supplement Exhibit No. 4 with a certified copy of the '146 patent upon receipt.

with such devices (collectively the "Accused Products"). Examples of the Accused Products are the Apple iPod Touch, iPhone, iPad, Apple computers such as the MacBook used in conjunction with an Apple software development kit ("SDK"), and other application software. The Accused Products are imported into the United States and sold after importation into the United States by Apple.

- 4. An industry as required by 19 U.S.C. § 1337(a)(2) and (3) exists in the United States relating to the technology protected by the Asserted Patents.
- 5. As set forth more fully in paragraph 119, S3G seeks as relief, a permanent exclusion order barring from entry into the United States all infringing Apple electronic devices with image processing systems, components thereof, and associated software sold for importation into the United States, imported, or sold after importation. S3G also seeks, as relief, a cease and desist order prohibiting Apple's sale for importation into the United States, importation, sale after importation into the United States, offer for sale, solicitation of sales, advertising, testing, technical support and other commercial activity related to Apple electronic devices with image processing systems, components thereof, and/or associated software that infringe one or more Asserted Claims of the Asserted Patents.

#### II. COMPLAINANTS

6. S3 Graphics, Inc., is a Delaware corporation with its principal place of business at 1025 Mission Court, Fremont, CA 94539. S3 Graphics Co., Ltd. is a Cayman Islands corporation with its principal place of business at 2<sup>nd</sup> Fl., Zephyr House, Mary St., P.O. Box 709, Grand Cayman, Grand Cayman Islands, British West Indies. S3 Graphics Co., Ltd. holds all right, title, and interest in the Asserted Patents. (Exhibit No. 5). S3G provides innovative graphics visualization technologies and GPU (graphics processing unit) products for mobile devices, desktop computers, and embedded systems.

- 7. S3G's image processing technologies enable coding of image attributes into data files that can be more efficiently stored and later displayed. Many software developers use S3G image processing technology to convert very large color image data files, particularly animated (motion) images, into compressed data files that can be efficiently distributed to and displayed by end users of the software. For example, video games typically implement life-like animation by the rapid display of a sequence of progressively modified still images to achieve the illusion of movement. Game developers can use S3G's image processing technology to encode the image data into compressed formats that are convenient for distribution and can be decoded and displayed by consumers. S3G's image processing technology is licensed by some of the largest computer hardware and software companies in the world.
- 8. S3G engages in research, development, engineering, and product design activities at S3 Graphics, Inc.'s principal place of business in Fremont, California including research, development, and product design for products utilizing S3G image compression technology, including the S3G Chrome series graphics products.
- 9. S3G operates a licensing business from S3 Graphics, Inc.'s principal place of business in Fremont, California that includes formulation of licensing strategies, identification of products and companies that currently do, or prospectively could, utilize S3G image processing technology, analyzing those products and companies for potential licensing opportunities, negotiating licenses under the S3G patent portfolio, and monitoring and enforcing compliance with those licenses and S3G patent rights.
- 10. On information and belief, S3G's licensees conduct in the United States certain research, development, engineering, manufacturing, and technical support of products with S3G image processing technology.

#### III. PROPOSED RESPONDENT

- 11. On information and belief, respondent Apple Inc. is a corporation organized under the laws of the State of California with its principal place of business at 1 Infinite Loop, Cupertino, CA 95014. (Exhibit No. 6).
- 12. On information and belief, Apple is involved in the design, development, manufacture, sale for importation, importation, and sale after importation of the Accused Products. Further, on information and belief, Apple performs several services to support the importation and sale of Accused Products into and within the United States, including marketing of the Accused Products, repair of the Accused Products, technical support, and other after-sale services, such as supporting and configuring the Accused Products, as well as interfacing with U.S.-based customers and distributors to conform the Accused Products to purchaser requests.

#### IV. THE TECHNOLOGY AND PRODUCTS AT ISSUE

- 13. The technologies at issue relate generally to apparatuses, methods, and data formats for encoding and decoding, including compressing image data, storing of compressed image data, and decompressing of such data. The Asserted Patents generally relate to aspects of an image processing system for encoding and decoding, including compressing image data files into a more compact form, a format for storing that compressed data, and a system for decompressing that data for display as an image.
- 14. The Asserted Patents disclose an image compression technology including an image decomposer, an encoder for computing image data values and generating codeword reference values, and a construction module for creating indices that map each image data value to a set of colors generated from the codewords. The resulting codewords and indices form an encoded image block.

- 15. The Asserted Patents also disclose a format for storage of encoding or compressing image data that includes a portion for storage of multiple codewords from which a set of colors can be computed and a portion for storage of indices for mapping pixel color to a computed color.
- 16. The Asserted Patents also disclose an image data decoding or decompressing technology that includes a decomposer for processing the encoded image data stream into a header and a plurality of encoded image bocks, a header converter for generating an output image header, one or more block data decoders for generating from the codewords and indices pixel image attributes such as color and for mapping those attributes to pixels, and an image composer that reassembles data blocks for a display device and/or a data file.
- 17. On information and belief, Apple provides an SDK specifically adapted for use with Apple computers to compress and decompress image data files using the technology disclosed and claimed in the Asserted Patents.
- 18. On information and belief, Apple's SDK and computers generate encoded image files in the format disclosed and claimed in the Asserted Patents.
- 19. On information and belief, Apple sells a variety of imported products, including the Apple iPod Touch, iPhone, iPad, Apple computers such as the MacBook, certain applications for those products, and associated software that incorporate the image data compression, decompression, and/or data format disclosed and claimed in the Asserted Patents.
- 20. The identification of a specific model, trade name, or type of electronic device with image processing systems and/or the identification of specific software or components is not intended to limit the scope of this Investigation. The remedy sought in this Complaint should

extend to all infringing electronic devices with image processing systems, components thereof, and associated software.

# V. THE ASSERTED PATENTS AND NON-TECHNICAL DESCRIPTION OF THE INVENTIONS

## A. Four Patents from a Single Original Application

21. On October 2, 1997, S3 Incorporated (a predecessor company to S3G) filed United States Patent Application Serial Number. 08/942,860 ("U.S. Pat. App. Ser. No. 08/942,860"). From that single original application, through continuation and continuation-in-part applications, all four of the patents at issue in this investigation were issued.

## B. U.S. Patent No. 7,043,087

## 1. Identification and Ownership of the '087 Patent

- 22. United States Patent No. 7,043,087, entitled "Image Processing System," issued on May 9, 2006, to inventors Zhou Hong, Konstantine I. Iourcha, and Krishna S. Nayak. (Exhibit No. 1). The '087 patent issued from Application No. 10/893,084, filed on July 16, 2004, that claims priority from the original U.S. Pat. App. Ser. No. 08/942,860. *Id*.
- 23. The '087 patent has 1 independent claim and 7 dependent claims. S3G is asserting claims 1, 6, and 7 of the '087 patent in this Investigation.
- 24. The Asserted Claims of the '087 patent are valid, enforceable, and currently in full force and effect until its expiration on October 2, 2017.
- 25. S3 Graphics Co., Ltd., owns by assignment the entire right, title, and interest in and to the '087 patent. (Exhibit No. 5).
- 26. Pursuant to Commission Rule 210.12(c), this Complaint is accompanied by a certified copy of the prosecution history of the '087 patent and three copies thereof.

(Appendix A). Further, this Complaint is accompanied by four copies of each technical reference identified in the prosecution history of the '087 patent (Appendix E).

# 2. Non-Technical Description of the Invention Claimed in the '087 Patent

27. The '087 patent discloses aspects of an image processing system for encoding and decoding image data, including compressing image data files into a more compact form, a format for storing that compressed data, and a system for decoding and/or decompressing that data for display as an image and/or for storage. Asserted Claims 1, 6, and 7 of the '087 patent are directed to aspects of an engine for decoding image data files. A nontechnical description of that decoding engine is that it includes: (a) a decomposer for converting encoded image data files into a modified header and at least one encoded or compressed image block, where each image block is associated with at least one codeword and index values for a plurality of pixels; (b) at least one block decoder for decoding or decompressing image blocks by generating a set of quantized image data values and mapping the index value to one of the quantized image data values from the set of quantized image data values; and (c) at least one decoder configured for decoding or decompressing each of the image blocks. This nontechnical description does not limit or interpret the claims of the '087 patent.

## 3. Foreign Counterparts

28. The foreign patents and patent applications reported as related to the '087 patent are identified in Exhibit No. 7. On information and belief, no other foreign applications or patents corresponding to the '087 patent have been filed, abandoned, or rejected.

#### 4. Licenses

29. As required under Commission Rule 210.12(a)(9)(iii), a list of licensed entities is attached to this Complaint as Confidential Exhibit No. 19C. On information and belief, there are no other current licenses involving the '087 patent.

## C. U.S. Patent No. 6,775,417

## 1. Identification and Ownership of the '417 Patent

- 30. United States Patent No. 6,775,417 (the "'417 patent"), entitled "Fixed-Rate Block-Based Image Compression with Inferred Pixel Values," issued on August 10, 2004, to inventors Zhou Hong, Konstantine I. Iourcha, and Krishna S. Nayak. (Exhibit No. 2). The '417 patent issued from Application No. 10/052,613, filed on January 17, 2002, that claims priority from the original U.S. Pat. App. Ser. No. 08/942,860. *Id*.
- 31. The '417 patent has 8 independent claims and 22 dependent claims. S3G is asserting claims 1, 7, 8, 12, 13, 15 and 23 of the '417 patent in this Investigation.
- 32. The Asserted Claims of the '417 patent are valid, enforceable, and currently in full force and effect until its expiration on March 16, 2018.
- 33. S3 Graphics Co., Ltd., owns by assignment the entire right, title, and interest in and to the '417 patent. (Exhibit No.5).
- 34. Pursuant to Commission Rule 210.12(c), this Complaint is accompanied by a certified copy of the prosecution history of the '417 patent and three copies thereof.

  (Appendix B). Further, this Complaint is accompanied by four copies of each technical reference identified in the prosecution history of the '417 patent (Appendix F).

## 2. Non-Technical Description of the Invention of the '417 Patent

35. The '417 patent discloses aspects of an image processing system for encoding and decoding image data, including compressing image data files into a more compact form, a format

for storing that encoded or compressed data, and a system for decoding and/or decompressing that data for display as an image and/or for storage.

- 36. Asserted Claims 1, 7, and 15 of the '417 patent is directed to aspects of an apparatus and method for encoding image data files. A nontechnical description of that encoding engine is that it includes: (a) a decomposer for decomposing image data files into a header and at least one image block, where each image block has a set of image elements and each image element has an original image data value; (b) at least one block encoder for encoding or compressing each image block by associating each original image data value of the image element with an index to a derived image data value in a set of quantized image data values; and (c) an encoded image composer ordering the encoded image blocks into a data file. This nontechnical description does not limit or interpret the claims of the '417 patent.
- 37. Asserted Claims 8, 12, and 13 of the '417 patent are directed to aspects of an apparatus for decoding image data files. A nontechnical description of that apparatus is that it includes: (a) a decomposer for converting encoded image data files into a modified header and at least one encoded or compressed image block, where each image block is associated with at least one codeword and index values for a plurality of image elements and (b) at least one block decoder for decoding or decompressing image blocks by generating a set of quantized image data values and mapping the index value to one of the quantized image data values in the set of quantized image data values. This nontechnical description does not limit or interpret the claims of the '417 patent.
- 38. Asserted Claim 23 of the '417 patent is directed to aspects of a method for decoding image data files. A nontechnical description of that decoding method is that it includes: (a) decomposing an encoded image into a modified header and a plurality of encoded

image blocks having at least one codeword and a plurality of image elements associated with an index value; (b) generating a set of quantized image data values; and (c) mapping the index value for each image element to one of the quantized image data values. This nontechnical description does not limit or interpret the claims of the '417 patent.

## 3. Foreign Counterparts

39. The foreign patents and patent applications reported as related to the '417 patent are identified in Exhibit No.7. On information and belief, no other foreign applications or patents corresponding to the '417 patent have been filed, abandoned, or rejected.

#### 4. Licenses

40. As required under Commission Rule 210.12(a)(9)(iii), a list of licensed entities is attached to this Complaint as Confidential Exhibit No. 19C. On information and belief, there are no other current licenses involving the '417 patent.

## D. U.S. Patent No. 6,683,978

#### 1. Identification and Ownership of the '978 Patent

- 41. United States Patent No. 6,683,978 (the "'978 patent"), entitled "Fixed-Rate Block Based Image Compression with Inferred Pixel Values," issued on January 17, 2004, to inventors Konstantine I. Iourcha, Krishna S. Nayak, and Zhou Hong. (Exhibit No. 3). The '978 patent issued from Application No. 09/442,114, filed on November 17, 1999, that claims priority from the original U.S. Pat. App. Ser. No. 08/942,860. *Id.*
- 42. The '978 patent has 5 independent claims and 24 dependent claims. S3G is asserting claims 11, 14, and 16 of the '978 patent in this Investigation.
- 43. The Asserted Claims of the '978 patent are valid, enforceable, and currently in full force and effect until its expiration on October 2, 2017.

- 44. S3 Graphics Co., Ltd., owns by assignment the entire right, title, and interest in and to the '978 patent. (Exhibit No. 5).
- 45. Pursuant to Commission Rule 210.12(c), this Complaint is accompanied by a certified copy of the prosecution history of the '978 patent and three copies thereof.

  (Appendix C). Further, this Complaint is accompanied by four copies of each technical reference identified in the prosecution history of the '978 patent (Appendix G).

## 2. Non-Technical Description of the Invention of the '978 Patent

46. The '978 patent discloses aspects of an image processing system for encoding and decoding image data files, including compressing image data files into a more compact form, a format for storing that compressed data, and a system for decoding and/or decompressing that data for display as an image and/or file storage. Asserted claims 11, 14, and 16 of the '978 patent are directed to aspects of a data format for representing an original color image. A nontechnical description of the data format is: (a) a codeword portion for storing at least one codeword and a bitmap portion for storing a set of indices and (b) the bitmap portion constructed by a bitmap construction module utilizing the codeword portion associated with the bitmap portion where (i) at least one codeword defines a set of colors that approximate the pixel color set and (ii) the indices map the pixel color set to at least one color in the set of colors. This nontechnical description does not limit or interpret the claims of the '978 patent.

## 3. Foreign Counterparts

47. The foreign patents and patent applications reported as related to the '978 patent are identified in Exhibit No. 7. On information and belief, no other foreign applications or patents corresponding to the '978 patent have been filed, abandoned, or rejected.

#### 4. Licenses

48. As required under Commission Rule 210.12(a)(9)(iii), a list of licensed entities is attached to this Complaint as Confidential Exhibit No. 19C. On information and belief, there are no other current licenses involving the '978 patent.

## E. U.S. Patent No. 6,658,146

## 1. Identification and Ownership of the '146 Patent

- 49. United States Patent No 6,658,146, entitled "Fixed-Rate Block-Based Image Compression with Inferred Pixel Values" issued December 2, 2003, to inventors Konstantine I. Iourcha, Krishna S. Nayak, and Zhou Hong. (Exhibit No. 4). The '146 patent issued from Application No. 09/351,930, filed on July 12, 1999, that claims priority from the original U.S. Pat App. Ser. No. 08/942,860. *Id*.
- 50. The '146 patent has 9 independent claims and 13 dependent claims. S3G is asserting claims 2, 4, 8, 13, 16, 18, and 19 of the '146 patent in this Investigation.
- 51. The Asserted Claims of the '146 patent are valid, enforceable, and currently in full force and effect until its expiration on October 2, 1017.
- 52. S3 Graphics Co., Ltd., owns by assignment the entire right, title, and interest in and to the '146 patent. (Exhibit No. 5).
- 53. Pursuant to Commission Rule 210.12(c), this Complaint is accompanied by a copy of the prosecution history of the '146 patent and three copies thereof.<sup>2</sup> (Appendix D). Further, this Complaint is accompanied by four copies of each technical reference identified in the prosecution history of the '146 patent (Appendix H).

<sup>&</sup>lt;sup>2</sup> As of the time of filing, S3G has not yet obtained a certified copy of the prosecution history of the '146 patent. S3G will supplement Appendix D with a certified copy of the prosecution history of the '146 patent upon receipt.

## 2. Non-Technical Description of the Invention of the '146 Patent

- The '146 Patent discloses aspects of an image processing system for encoding and decoding image data files, including compressing image data files into a more compact form, a format for storing that compressed data, and a system for decoding and/or decompressing that data for display as an image and/or file storage. Asserted Claims 2 and 4 of the '146 Patent are directed to aspects of an apparatus for encoding image data files. The apparatus includes: (a) a decomposer for breaking an image into one or more image blocks; (b) at least one block encoder for encoding or compressing each image block to generate an encoded image block; and (c) an encoded image composer for ordering the encoded image blocks into a data file. The block encoder also includes a color quantizer for generating codewords from which quantized colors are derived. The color quantizer further includes a block type module for selecting an identifiable block type of the image block.
- Asserted Claims 8, 13, 16, 18, and 19 of the '146 patent are directed to aspects of a method for encoding image data files. A nontechnical description of that method is that it includes: (a) fitting a geometric element to the color points of the image block to the center of gravity of the color points of the image block while minimizing the moment of inertia; (b) computing a set of codewords; (c) computing a set of computed colors; (d) mapping each of the color points of the image block to one of the computed colors to generate an index; and (e) using the indices to represent the color points of the image book. This nontechnical description does not limit or interpret the claims of the '146 Patent.

## 3. Foreign Counterparts

56. The foreign patents and patent applications reported as related to the '146 patent are identified in Exhibit No. 5. On information and belief, no other foreign applications or patents corresponding to the '146 patent have been filed, abandoned, or rejected.

#### 4. Licenses

57. As required under Commission Rule 210.12(a)(9)(iii), a list of licensed entities is attached to this Complaint as Confidential Exhibit No. 19C. On information and belief, there are no other current licenses involving the '146 patent.

# VI. UNLAWFUL AND UNFAIR ACTS OF RESPONDENTS—PATENT INFRINGEMENT

58. Apple has engaged in unfair trade practices, including the sale for importation, importation, and sale after importation of certain electronic devices with image processing systems, components thereof, and associated software that infringe the Asserted Claims of the Asserted Patents.

## A. Infringement of the '087 Patent

59. On information and belief, the Accused Products infringe at least claims 1, 6, and 7 of the '087 patent. A chart that applies representative independent claim 1 of the '087 patent to the Accused Products is attached to this Complaint as Exhibit No. 8.

#### 1. Direct Infringement of the '087 Patent

- 60. On information and belief, Apple sells for importation into the United States, imports, and/or sells after importation in the United States the Accused Products, including the Apple iPod Touch, iPhone, iPad, Apple computers such as the MacBook, the Apple SDK, and application software. S3G has purchased these devices and certain application software in the United States directly from Apple. (*See* Exhibit Nos. 12-16).
- 61. On information and belief, Apple tests or operates the Accused Products in the United States by using the Accused Products, including the Apple iPod Touch, iPhone, iPad, and Apple computers such as the MacBook in combination with associated software (e.g., encoded image data and the Apple SDK), thereby directly infringing claims 1, 6, and 7 of the '087 patent.

## 2. Contributory Infringement of the '087 Patent

- 62. Apple will have knowledge of the '087 patent and the infringing acts at least as early as its receipt of this Complaint.
- 63. On information and belief, Apple contributes to the infringement of claims 1, 6, and 7 of the '087 patent.
- 64. On information and belief, the graphics decoding components of the Apple iPod Touch, iPhone, and iPad are specially adapted for an infringing use of one or more of claims 1, 6, and 7 of the '087 patent; embody a material part of the inventions claimed in the '087 patent; and are not staple articles of commerce suitable for substantial non-infringing use. Apple sells for importation into the United States, imports, and/or sells after importation in the United States the Apple iPod Touch, iPhone, iPad, and the graphics decoding components of those products.
- 65. On information and belief, software application developers and consumers make and use the claimed inventions by using the Apple iPod Touch, iPhone, and iPad, in combination with associated software (e.g., encoded image data) thereby directly infringing claims 1, 6, and 7 of the '087 patent.

## 3. Inducement of Infringement of the '087 Patent

- 66. Apple will have knowledge of the '087 patent and the infringing acts at least as early as its receipt of this Complaint.
- 67. On information and belief, Apple induces others to infringe claims 1, 6, and 7 of the '087 patent by encouraging and facilitating others to perform actions known by Apple to infringe and with the intent that performance of the actions will infringe.
- 68. On information and belief, Apple encourages software application developers to make and use the claimed inventions by providing compressed image data, providing

instructions and support for developing applications, and providing a distribution channel for applications for the Apple iPod Touch, iPhone, and iPad that include the encoded image data.

- 69. On information and belief, Apple induces consumers to use the claimed inventions by providing the Apple iPod Touch, iPhone, and iPad, and by providing software applications for those products that include encoded image data files. Further, Apple actively encourages, promotes, distributes, provides instruction for, and supports the use of software applications for its iPod Touch, iPhone, and iPad products that include encoded image data files.
- 70. On information and belief, software application developers and consumers make and use the claimed inventions by using the Apple iPod Touch, iPhone, and iPad, in combination with associated software (e.g., encoded image data) thereby directly infringing claims 1, 6, and 7 of the '087 patent.
- 71. On information and belief, Apple induces software application developers to make and use the claimed inventions by providing the Apple SDK for use with Apple computers such as the MacBook. The Apple SDK works exclusively on Apple computers such as the MacBook, and the Apple SDK in combination with Apple computers such as the MacBook can be used to produce application software at issue. Apple actively encourages application software developers to use the Apple SDK with Apple computers such as the MacBook to develop application software by distributing the Apple SDK and providing instructions and support for its use with Apple computers such as the MacBook and by selling, promoting, distributing, and marketing applications made using the Apple SDK.
- 72. On information and belief, application software developers make and use the claimed inventions by using Apple computers such as the MacBook in combination with

associated Apple software (e.g., the Apple SDK) thereby directly infringing claims 1, 6, and 7 of the '087 patent.

## B. Infringement of the '417 Patent

73. On information and belief, the Accused Products infringe at least claims 1, 7, 8, 12, 13, 15 and 23 of the '417 patent. Charts that apply representative independent claims 1, 8, 15 and 23 of the '417 patent to the Accused Products are attached to this Complaint as Exhibit No. 9.

## 1. Direct Infringement of the '417 Patent

- 74. On information and belief, Apple sells for importation into the United States, imports, and/or sells after importation in the United States the Accused Products, including the Apple iPod Touch, iPhone, iPad, Apple computers such as the MacBook, the Apple SDK, and application software. S3G has purchased these devices and certain application software in the United States directly from Apple. (Exhibit Nos. 12-16).
- 75. On information and belief, Apple tests or operates the Accused Products in the United States by performing the claimed methods and by using the Accused Products, including the Apple iPod Touch, iPhone, iPad, and Apple computers such as the MacBook in combination with associated software (e.g., encoded image data and the Apple SDK), thereby directly infringing claims 1, 7, 8, 12, 13, 15 and 23 of the '417 patent.

## 2. Contributory Infringement of the '417 Patent

- 76. Apple will have knowledge of the '417 patent and the infringing acts at least as early as its receipt of this Complaint.
- 77. On information and belief, Apple contributes to the infringement of claims 8, 12, 13, and 23 of the '417 patent.

- 78. On information and belief, the graphics decoding components of the Apple iPod Touch, iPhone, and iPad, are specially adapted for practicing an infringing method or an infringing use of one or more of claims 8, 12, 13, and 23 of the '417 patent; embody a material part of the inventions claimed in the '417 patent; and are not staple articles of commerce suitable for substantial non-infringing use. Apple sells for importation into the United States, imports, and/or sells after importation in the United States the Apple iPod Touch, iPhone, iPad, and the graphics decoding components of those products.
- 79. On information and belief, application software developers and consumers make and use the claimed inventions and practice the claimed methods by using the Apple iPod Touch, iPhone, and iPad, in combination with associated software (e.g., encoded image data) thereby directly infringing claims 8, 12, 13 and 23 of the '417 patent.

## 3. Inducement of Infringement of the '417 Patent

- 80. Apple will have knowledge of the '417 patent and the infringing acts at least as early as its receipt of this Complaint.
- 81. On information and belief, Apple induces others to infringe claims 1, 7, 8, 12, 13, 15 and 23 of the '417 patent by encouraging and facilitating others to perform actions known by Apple to infringe and with the intent that performance of the actions will infringe.
- 82. On information and belief, Apple encourages software application developers to make and use the claimed inventions by providing encoded image data, providing instructions and support for developing application software, and providing a distribution channel for application software for the Apple iPod Touch, iPhone, and iPad that include encoded image data.
- 83. On information and belief, Apple induces consumers to use the claimed inventions by providing the Apple iPod Touch, iPhone, and iPad and by providing application

software for those products that include encoded image data files. Further, Apple actively encourages, promotes, distributes, provides instruction for, and supports the use of software applications for its iPod Touch, iPhone, and iPad products that include encoded image data files.

- 84. On information and belief, application software developers and consumers make and use the claimed inventions and practice the claimed methods by using the Apple iPod Touch, iPhone, and iPad, in combination with associated software (e.g., encoded image data) thereby directly infringing claims 8, 12, 13 and 23 of the '417 patent.
- 85. On information and belief, Apple induces application software developers to make and use the claimed inventions and practice the claimed methods by providing the Apple SDK for use with Apple computers such as the MacBook. The Apple SDK works exclusively on Apple computers such as the MacBook, and the Apple SDK in combination with Apple computers such as the MacBook can be used to produce the software applications at issue. Further, Apple actively encourages application software developers to use the Apple SDK with Apple computers such as the MacBook to develop application software by distributing the Apple SDK and providing instructions and support for its use with Apple computers such as the MacBook and by selling, promoting, distributing, and marketing application software made using the Apple SDK.
- 86. On information and belief, application software developers make and use the claimed inventions and practice the claimed methods by using Apple computers such as the MacBook in combination with associated Apple software (e.g., the Apple SDK) thereby directly infringing claims 1, 7, 8, 12, 13, 15 and 23 of the '417 patent.

## C. Infringement of the '978 Patent

87. On information and belief, the Accused Products infringe at least claims 11, 14, and 16 of the '978 patent. Charts that apply representative independent claims 11, 14, and 16 of the '978 patent to the Accused Products are attached to this Complaint as Exhibit No. 10.

## 1. Direct Infringement of the '978 Patent

- 88. On information and belief, Apple sells for importation into the United States, imports, and/or sells after importation in the United States the Accused Products, including certain application software containing encoded image data files, thereby directly infringing claims 11, 14, and 16 of the '978 patent. S3G has purchased certain application software containing encoded image data files in the United States directly from Apple. (Exhibit No. 16).
- 89. On information and belief, Apple makes and uses the claimed invention by testing or operating application software, containing encoded image data files, thereby directly infringing claims 11, 14, and 16 of the '978 patent.

#### 2. Inducement of Infringement of the '978 Patent

- 90. Apple will have knowledge of the '978 patent and the infringing acts at least as early as its receipt of this Complaint.
- 91. On information and belief, Apple induces others to infringe claims 11, 14, and 16 of the '978 patent by encouraging and facilitating others to perform actions known by Apple to infringe and with the intent that performance of the actions will infringe.
- 92. On information and belief, Apple induces application software developers to make and use the claimed inventions by providing the Apple SDK for use with Apple computers such as the MacBook. The Apple SDK works exclusively on Apple computers such as the MacBook, and the Apple SDK in combination with Apple computers such as the MacBook can be used to produce the application software at issue. Further, Apple actively encourages

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application software developers to use the Apple SDK with Apple computers such as the MacBook to develop application software by distributing the Apple SDK and providing instructions and support for its use with Apple computers such as the MacBook and by selling, promoting, distributing, and marketing applications made using the Apple SDK.

- 93. On information and belief, application software developers make and use the claimed inventions by using Apple computers such as the MacBook in combination with associated Apple software (e.g., the Apple SDK) thereby directly infringing claims 11, 14, and 16 of the '978 patent.
- 94. On information and belief, Apple induces consumers to use the claimed inventions by marketing, distributing, promoting, selling, and providing support for software applications, containing encoded image data files, for use with Apple's iPod Touch, iPhone, and iPad.

#### D. Infringement of the '146 Patent

95. On information and belief, the Accused Products infringe at least claims 2, 4, 8, 13, 16, 18, and 19 of the '146 patent. Charts that apply representative independent claims 4, 8, 13, and 18 of the '146 patent to the Accused Products are attached to this Complaint as Exhibit No. 11.

## 1. Direct Infringement of the '146 Patent

- 96. On information and belief, Apple sells for importation into the United States, imports, and/or sells after importation in the United States the Accused Products, including Apple computers such as the MacBook and associated Apple software (e.g., the Apple SDK). S3G has purchased these devices in the United States directly from Apple. (Exhibit No. 15).
- 97. On information and belief, Apple tests or operates the Accused Products in the United States by performing the claimed methods and by using the Accused Products, including

Apple computers such as the MacBook in combination with associated software (e.g., the Apple SDK), thereby directly infringing claims 2, 4, 8, 13, 16, 18, and 19 of the '146 patent.

## 2. Inducement of Infringement of the '146 Patent

- 98. Apple will have knowledge of the '146 patent and the infringing acts at least as early as its receipt of this Complaint.
- 99. On information and belief, Apple induces others to infringe claims 2, 4, 8, 13, 16, 18, and 19 of the '146 patent by encouraging and facilitating others to perform actions known by Apple to infringe and with the intent that performance of the actions will infringe.
- make and use the claimed inventions and practice the claimed methods by providing the Apple SDK for use with Apple computers such as the MacBook. The Apple SDK works exclusively on Apple computers such as the MacBook, and the Apple SDK in combination with Apple computers such as the MacBook can be used to produce the application software at issue. Further, Apple actively encourages application software developers to use the Apple SDK with Apple computers such as the MacBook to develop software applications by distributing the Apple SDK and providing instructions and support for its use with Apple computers such as the MacBook and by selling, promoting, distributing, and marketing applications made using the Apple SDK.
- 101. On information and belief, application software developers make and use the claimed inventions and practice the claimed methods by using Apple computers such as the MacBook in combination with associated Apple software (e.g., the Apple SDK) thereby directly infringing claims 2, 4, 8, 13, 16, 18, and 19 of the '146 patent.

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

- 102. During April 2010, samples of Accused Products were purchased in the United States.
- 103. On or about April 19, 2010, an Apple iPod Touch multimedia player was purchased in the United States. Exhibit No. 14 is a copy of the purchase receipt, and photographs of the packaging and iPod Touch device, including a label indicating that the device was "Assembled in China." A physical sample of the Apple iPod Touch, purchased as described above, is submitted as Physical Exhibit No. 3 to this Complaint.
- 104. On or about April 19, 2010, an Apple iPhone 3GS smart phone was purchased in the United States. Exhibit No. 12 is a copy of the purchase receipt, and photographs of the packaging and iPhone 3GS device, including a label indicating that the device was "Assembled in China." A physical sample of the Apple iPhone, purchased as described above, is submitted as Physical Exhibit No. 1 to this Complaint.
- 105. On or about April 20, 2010, an Apple iPad tablet computer was purchased in the United States. Exhibit No. 13 is a copy of the purchase receipt, and photographs of the packaging and iPad device, including a label indicating that the device was "Assembled in China." A physical sample of the Apple iPad, purchased as described above, is submitted as Physical Exhibit No. 2 to this Complaint.
- 106. On or about May 26, 2010, three software applications for the iPhone were purchased in the United States. Exhibit No. 16 is a copy of the purchase receipt, screenshots from these software applications, and information about the location of the developers. On information and belief, all three software applications were made outside of the United States. A compact disc containing the three iPhone applications, purchased as described above, is submitted as Physical Exhibit No. 6.

107. On or about April 19, 2010, an Apple MacBook Pro computer was purchased in the United States. Exhibit No. 15 is a copy of the purchase receipt, and photographs of the packaging and MacBook Pro device, including a label indicating that the device was "Assembled in China." A physical sample of the Apple MacBook Pro, purchased as described above, is submitted as Physical Exhibit No. 4 to this Complaint.

#### VIII. HARMONIZED TARIFF SCHEDULE ITEM NUMBERS

108. On information and belief, the Harmonized Tariff Schedule of the United States item numbers under which the infringing image processing systems, and products containing same have been imported into the United States may include at least the following HTS numbers: 8517.12.00 (mobile phones), 8519.81.40, 8519.89.30, or 8521.90.00 (portable media players), 8471.30.01, 8471.41.01, or 8471.49.00 (portable computers), and 9504.10.0000 (software).

#### IX. RELATED LITIGATION

109. S3G has not previously asserted any of the Asserted Patents in any other judicial or administrative proceeding.

#### X. THE DOMESTIC INDUSTRY

110. An industry in the United States, relating to the image processing systems protected by the Asserted Patents, exists under 19 U.S.C. § 1337(a)(3)(a)-(c), comprising significant investments in physical operations, employment of labor and capital, and exploitation of the Asserted Patents.

#### A. S3G's Investments in the Domestic Industry

111. S3 Graphics, Inc., employs a work force the United States that conducts research, development, engineering, product design, support, and repair in the United States for S3 Graphics, Inc.'s products that practice the Asserted Patents, including at least the S3 Graphics,

Inc. Chrome series of graphics products (Chrome S25, S27, 2300E; Chrome 430, 435ULP, 440GTX; Chrome 4300E, 4400E; Chrome 535 ULP, and 540GTX. S3 Graphics, Inc., makes significant investments in plant, equipment, labor, engineering, and research and development in the United States in connection with its research, development, design, technical support, and repair of products that practice the Asserted Patents. *See* Confidential Exhibit Nos. 28C-30C.

## B. S3G's Practice of the Asserted Patents

- 112. S3G makes extensive use of the Asserted Patents in several of its own products. As noted above, S3G has a variety of graphics products including the Chrome S25, S27, 2300E, 430, 435ULP, 440GTX, 4300E, 4400E, 535 ULP, 540GTX, and 5400E. Each of these products practices the Asserted Patents. As an example, the Chrome 430 and 440 chips are provided with this Complaint as Physical Exhibit No. 5.
- 113. An exemplary claim chart comparing the Chrome 400 series to a representative claim of the '087 patent is attached as Confidential Exhibit No. 20C.
- 114. An exemplary claim chart comparing the Chrome 400 series to a representative claim of the '417 patent is attached as Confidential Exhibit No. 21C.
- 115. An exemplary claim chart comparing the Chrome 400 series to a representative claim of the '978 patent is attached as Confidential Exhibit No. 22C.
- 116. An exemplary claim chart comparing the Chrome 400 series to a representative claim of the '146 patent is attached as Confidential Exhibit No. 23C.

#### C. S3G's Licensees' Practice of the Asserted Patents

117. On information and belief, S3G's licensees practice at least one claim of each of the Asserted Patents in the United States. For example, a major computer software company holds a license to the Asserted Patents. Charts comparing a representative claim of each of the Asserted Patents to a corresponding product of this major computer software company, are

submitted as Confidential Exhibit Nos. 24C-27C. Similarly, a number of other major computer software and hardware companies hold licenses to the Asserted Patents. On information and belief, certain of S3G's licensees have a contractual obligation to incorporate S3G's image processing technologies in their products and S3G's licensees practice at least one claim of each of the Asserted Patents. On information and belief, S3G's licensees make significant investments in plant, equipment, labor, and consulting services in the United States in the course of researching, developing, engineering, manufacturing, and supporting products that practice one or more Asserted Claims of the Asserted Patents.

## D. S3G's Licensing Business

S3G and its consultants formulate licensing strategies, identify products and companies that currently or prospectively could utilize S3G image processing technology, analyze those products and companies for potential licensing opportunities, negotiate licenses under the S3G patent portfolio, and monitor and enforce compliance with those licenses and S3G patent rights. The work force and compensation of S3 Graphics, Inc., in Fremont, California responsible for licensing S3G's patent portfolios, including the Asserted Patents, is identified in Confidential Exhibit No. 31C. S3G's domestic investments in plant, equipment, labor, and consulting services used to conduct that licensing business are set forth in Confidential Exhibit No. 31C.

## XI. RELIEF REQUESTED

- 119. WHEREFORE, by reason of the foregoing, S3G respectfully requests 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(a)(1)(B)(i) and (b)(1), with respect to violations of Section 337 by the Apple Inc. based upon its sale for importation, importation, and/or sale after

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importation into the United States of certain electronic devices with image processing systems, components thereof, and associated software, that infringe one or more of the Asserted Claims of S3G's United States Patent Nos. 7,043,087; 6,775,417; 6,683,978; and 6,658,146;

- (b) Schedule and conduct a hearing on said unlawful acts and, following said hearing;
- (c) Issue a limited exclusion order pursuant to 19 U.S.C. § 1337(d)(1), barring from entry into the United States all Accused Products, that infringe one or more of the Asserted Claims of S3G's United States Patent Nos. 7,043,087; 6,775,417; 6,683,978; and 6,658,146, including but not limited to the Apple iPod Touch, iPhone, iPad, certain application software for those products, and related software (e.g., the Apple SDK);
- (d) Issue a permanent cease and desist order, pursuant to 19 U.S.C. § 1337(f), directing Apple Inc., to cease and desist from selling for importation into the United States, importing, selling after importation into the United States, offering for sale, marketing, advertising, demonstrating, sampling, warehousing inventory for distribution, offering for sale, selling, distributing, licensing, testing, technical support, use, or other related commercial activity involving imported Accused Products that infringe one or more of the Asserted Claims of S3G's United States Patent Nos. 7,043,087; 6,775,417; 6,683,978; and 6,658,146, including but not limited to the Apple iPod Touch, iPhone, iPad, certain application software for those products, and related software (e.g., the Apple SDK); and
- (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: May 28, 2010

## Respectfully submitted,

Thomas L. Jarvis

Thomas W. Winland

John R. Alison

Paul C. Goulet

John M. Williamson

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Attorneys for Complainants

S3 Graphics Co., Ltd. and

S3 Graphics, Inc.

#### **VERIFICATION OF COMPLAINT**

I, Ken Weng, 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 CEO of S3 Graphics, Inc., and am duly authorized to sign this Complaint on behalf of Complainant S3 Graphics, Inc.;
- 2. I am CEO of S3 Graphics Co., Ltd., and am duly authorized to sign this Complaint on behalf of Complainant S3 Graphics Co., Ltd.;
  - 3. I have read the foregoing Complaint;
- 4. To the best of my knowledge, information, and belief, based on reasonable inquiry, the foregoing Complaint is well-founded in fact and is 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;
- 5. The allegations and other factual contentions have evidentiary support or are likely to have evidentiary support after a reasonable opportunity for further investigation or discovery; and
- 6. The foregoing Complaint is not being filed for an improper purpose, such as to harass or to cause unnecessary delay or needless increase in the cost of litigation.

Executed May 28, 2010.

Ken Weng

CEO

S3 Graphics, Inc.

S3 Graphics Co., Ltd.

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