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UNITED STATES DISTRICT COURT CENTRAL DISTRICT OF CALIFORNIA SOUTHERN DIVISION

MODERN TELECOM SYSTEMS LLC, a California limited liability company,

Case No. SACV 14-1266-DOC (ANx)

Plaintiff,

VS.

LENOVO (UNITED STATES) INC., a Delaware corporation,

JURY TRIAL DEMANDED

AMENDED COMPLAINT FOR PATENT INFRINGEMENT

Defendants.

This is an action for patent infringement in which Plaintiff Modern Telecom Systems LLC ("MTS") makes the following allegations against Lenovo (United States) Inc. ("LENOVO"):

THE PARTIES

- 1. MTS is a California limited liability company.
- 2. On information and belief, Lenovo (United States) Inc. is a Delaware corporation with its principal place of business at 1009 Think Place, Morrisville,

North Carolina 27560. On information and belief, Lenovo (United States) Inc. can be served through its registered agent, C T Corporation System, 818 W Seventh St, Los Angeles, CA 90017.

JURISDICTION

- 3. This action arises under the patent laws of the United States, 35 U.S.C. § 1, et seq., including § 271. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).
- 4. This Court has personal jurisdiction over LENOVO because, on information and belief, LENOVO has done business in this District, has committed and continues to commit acts of patent infringement in this District, and/or has harmed and continues to harm MTS in this District, by, among other things, using, selling, offering for sale, and/or importing infringing products and services in this District. In addition, LENOVO is registered to do business in California.
- 5. Venue is proper in this District under 28 U.S.C. §§ 1391(b)-(d) and 1400(b) because, among other reasons, LENOVO is subject to personal jurisdiction in this District, and has committed and continues to commit acts of patent infringement in this District. On information and belief, for example, LENOVO has used, sold, offered for sale, and/or imported infringing products in this District.

FACTUAL BACKGROUND

6. The technology claimed in the patents asserted in this action was invented during the research and development activities of the Rockwell, Conexant, and Mindspeed family of companies. In 1999, Rockwell International spun off Rockwell Semiconductor group as Conexant Systems Inc. Conexant inherited Rockwell's mixed signal semiconductor expertise and intellectual property portfolio, and was focused on developing semiconductor products for a broad range of communications applications. These applications included wireline and wireless voice and data communication networks. Conexant's Internet

Infrastructure group was incorporated as Mindspeed Technologies (as a wholly-owned subsidiary) in 2001 and spun-off as an independent entity in 2003. Mindspeed's focus is on semiconductor and software solutions for Internet access devices, switching fabric, and network processors.

- 7. MTS is the owner of the patents asserted in this action and has the exclusive right to sue for past, present, and future infringement of these patents. MTS assumed all the rights and obligations related to these patents from Glocom Patents Licensing, LLC, which in turn assumed all the rights and obligations related to these patents from V-Dot Technologies, LLC (formerly V-Dot Technologies, Limited) ("VDOT"), which in turn assumed all the rights and obligations related to these patents from Telecom Technology Licensing, LLC ("TTL"), which in turn assumed all the rights and obligations related to these patents from Mindspeed Technologies, Inc.
- 8. MTS does not make, offer for sale, or sell within the United States any article covered by the patents asserted in this action, nor does MTS import any article covered by the patents asserted in this action into the United States. Accordingly, MTS has complied with 35 USC § 287.

COUNT I

INFRINGEMENT OF U.S. PATENT NO. 6,504,886

9. United States Patent No. 6,504,886 ("the '886 patent"), entitled "Communication of an impairment learning sequence according to an impairment learning sequence descriptor," issued on January 7, 2003 from United States Patent Application No. 09/956,207 filed on September 19, 2001. Application No. 09/956,207 is a Continuation of U.S. Patent Application Ser. No. 08/969,971, entitled Method and Apparatus for Generating a Line Impairment Learning Signal for a Data Communication System, filed Nov. 13, 1997 now U.S. Pat. No. 6,332,009, which is a Continuation-In-Part of U.S. Patent Application Ser. No. 08/922,851, entitled Method and Apparatus for Generating a Programmable

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Synchronization Signal for a Data Communication System, filed Sep. 3, 1997, now U.S. Pat. No. 6,212,247. A true and correct copy of the '886 patent is attached as Exhibit A.

- 10. LENOVO infringes the '886 patent in at least two ways first, with respect to its V.90/V.92 modem products, and second, with respect to its 802.11n compatible devices.
- LENOVO has been and now is directly infringing one or more claims 11. of the '886 patent, in this judicial District and elsewhere in the United States, by, among other things, practicing a method of communicating a learning sequence descriptor for use in constructing a learning sequence, said method comprising: transmitting a first parameter specifying a number of segments in said learning sequence; transmitting a second parameter specifying a sign pattern of each of said segments; and transmitting a third parameter specifying a training pattern of each of said segments, wherein said training pattern is indicative of an ordering of a reference symbol and a training symbol in each of said segments. Upon information and belief, LENOVO practices the claimed method while testing and repairing the StarTech USB56KEM3 1Port USB 2.0 External Modem which operates according to the International Telecommunications Union ("ITU") V.90/V.92 (56Kbps) specification at its research center in Morrisville, North Carolina and at its authorized Warranty Service Providers in the United States. See http://www.lenovo.com/lenovo/us/en/our-company.shtml; http://support.lenovo.com/en US/product-service/serviceprovider/default.page?countryid=17.
- 12. LENOVO has had knowledge of the '886 patent since at least February 8, 2008 or shortly thereafter, when LENOVO received a letter regarding the '886 Patent from TTL, a former assignee of the '886 patent, and LENOVO has induced and is inducing its customers, users of the StarTech USB56KEM3 1Port USB 2.0 External Modem, which is sold by LENOVO at

http://shop.lenovo.com/us/en/itemdetails/USB56KEM3/460/947D38085A4646288 DD9B13EADB727E7, to practice a method of communicating a learning sequence descriptor for use in constructing a learning sequence, said method comprising: transmitting a first parameter specifying a number of segments in said learning sequence; transmitting a second parameter specifying a sign pattern of each of said segments; and transmitting a third parameter specifying a training pattern of each of said segments, wherein said training pattern is indicative of an ordering of a reference symbol and a training symbol in each of said segments.

- 13. For example, LENOVO has instructed its customers, users of the StarTech USB56KEM3 1Port USB 2.0 External Modem, that, "[w]ith support for transfer rates up to 56 Kbps (data) and 14.4 Kbps (fax), and compatibility with the latest transmission standards (V.92, V.90, etc.), this versatile Fax Modem can keep you connected from virtually any USB-capable computer." In making these instructions available to its customers and touting the benefits of "compatibility with the latest transmission standards (V.92, V.90, etc.)", LENOVO specifically intended to encourage its customers to use the StarTech USB56KEM3 1Port USB 2.0 External Modem in an infringing manner, knowing that such use in accordance with its instructions constituted infringement of the '886 patent.
- 14. Thus, LENOVO has induced and is inducing its customers to infringe the '886 Patent literally and/or under the doctrine of equivalents. Upon information and belief, LENOVO acted with the specific intent to induce its customers to practice the method claimed by the '886 Patent by continuing the above-mentioned activities with knowledge of the '886 Patent.
- 15. LENOVO has also been and now is directly infringing one or more claims of the '886 Patent, in this judicial District and elsewhere in the United States, by, among other things, making, using, selling, offering for sale, and/or importing into the United States a communication device capable of communicating a learning sequence descriptor for use in constructing a learning

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sequence, said device comprising: a transmitter; and a processor in communication with said transmitter; wherein said processor is capable of providing a first parameter, a second parameter and a third parameter to said transmitter capable of transmitting said parameters, wherein said first parameter specifies a number of segments in said learning sequence, said second parameter specifies a sign pattern of each of said segments, and said third parameter specifies a training pattern of each of said segments, wherein said training pattern is indicative of an ordering of a reference symbol and a training symbol in each of said segments. For example, the infringing devices include the Lenovo ThinkPad® X220 notebook computer, which includes either an Intel® Centrino® Ultimate-N 6300 (Puma Peak) 3x3 AGN (performance) WLAN card or an Intel® Centrino® Advanced-N 6205 Peak) (Taylor **AGN** (performance) **WLAN** See 2x2card. http://www.lenovo.com/ISS Static/WW/wci/us/ww/pdf/x220 datasheet.pdf.

COUNT II

INFRINGEMENT OF U.S. PATENT NO. 6,332,009

- 16. United States Patent No. 6,332,009 ("the '009 patent"), entitled "Method and apparatus for generating a line impairment learning signal for a data communication system," issued on December 18, 2001 from United States Patent Application No. 08/969,971 filed on November 13, 1997. Application No. 08/969,971 is a Continuation-In-Part of U.S. Patent Application Ser. No. 08/922,851, entitled Method and Apparatus for Generating a Programmable Synchronization Signal for a Data Communication System, filed Sep. 3, 1997. A true and correct copy of the '009 patent is attached as Exhibit B.
- 17. LENOVO has been and now is directly infringing one or more claims of the '009 patent, in this judicial District and elsewhere in the United States, by, among other things, practicing an impairment learning method for use over a communication channel, said method comprising: transmitting a learning sequence descriptor over said communication channel, said learning sequence descriptor

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having a training symbol order; receiving a learning signal over said communication channel, said learning signal having a member of segments, each of said segments being associated with a sequence of symbols configured in accordance with said learning sequence descriptor, wherein said training symbol order is indicative of an assignment of a plurality of training symbols to said number of segments; and learning an impairment of said communication channel according to said learning signal. Upon information and belief, LENOVO practices the claimed method while testing and repairing the StarTech USB56KEM3 1Port USB 2.0 External Modem which operates according to the International **Telecommunications** Union V.90/V.92 ("ITU") (56Kbps) specification at its research center in Morrisville, North Carolina and at its Service Providers in the authorized Warranty United States. See http://www.lenovo.com/lenovo/us/en/our-company.shtml; http://support.lenovo.com/en US/product-service/serviceprovider/default.page?countryid=17.

18. LENOVO has had knowledge of the '009 patent since at least February 8, 2008 or shortly thereafter, when LENOVO received a letter regarding the '009 Patent from TTL, a former assignee of the '009 patent, and LENOVO has induced and is inducing its customers, users of the StarTech USB56KEM3 1Port **USB** 2.0 which External Modem, is sold **LENOVO** by at http://shop.lenovo.com/us/en/itemdetails/USB56KEM3/460/947D38085A4646288 DD9B13EADB727E7, to practice an impairment learning method for use over a communication channel, said method comprising: transmitting a learning sequence descriptor over said communication channel, said learning sequence descriptor having a training symbol order; receiving a learning signal over said communication channel, said learning signal having a member of segments, each of said segments being associated with a sequence of symbols configured in accordance with said learning sequence descriptor, wherein said training symbol

order is indicative of an assignment of a plurality of training symbols to said number of segments; and learning an impairment of said communication channel according to said learning signal.

- 19. For example, LENOVO has instructed its customers, users of the StarTech USB56KEM3 1Port USB 2.0 External Modem, that, "[w]ith support for transfer rates up to 56 Kbps (data) and 14.4 Kbps (fax), and compatibility with the latest transmission standards (V.92, V.90, etc.), this versatile Fax Modem can keep you connected from virtually any USB-capable computer." In making these instructions available to its customers and touting the benefits of "compatibility with the latest transmission standards (V.92, V.90, etc.)", LENOVO specifically intended to encourage its customers to use the StarTech USB56KEM3 1Port USB 2.0 External Modem in an infringing manner, knowing that such use in accordance with its instructions constituted infringement of the '009 patent.
- 20. Thus, LENOVO has induced and is inducing its customers to infringe the '009 Patent literally and/or under the doctrine of equivalents. Upon information and belief, LENOVO acted with the specific intent to induce its customers to practice the method claimed by the '009 Patent by continuing the above-mentioned activities with knowledge of the '009 Patent.

COUNT III

INFRINGEMENT OF U.S. PATENT NO. 6,570,932

21. United States Patent No. 6,570,932 ("the '932 patent"), entitled "Calculation and verification of transmit power levels in a signal point transmission system," issued on May 27, 2003 from United States Patent Application No. 10/026,096 filed on December 21, 2001. Application No. 10/026,096 is a continuation of U.S. Patent Application Ser. No. 09/740,567, filed Dec. 18, 2000, now U.S. Pat. No. 6,359,932, which is a continuation of U.S. Patent Application Ser. No. 09/075,719, filed May 11, 1998, now U.S. Pat. No. 6,163,570. A true and correct copy of the '932 patent is attached as Exhibit C.

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22. LENOVO has been and now is directly infringing one or more claims of the '932 patent, in this judicial District and elsewhere in the United States, by, among other things, practicing a method of communicating over a communication channel using a constellation including a plurality of signal points, said method comprising: determining a probability of transmission of each signal point of said constellation; calculating an average power of said signal points using a power formula based on said probability of transmission of each said signal point; and comparing said average power with a transmit power limit. Upon information and belief, LENOVO practices the claimed method while testing and repairing the StarTech USB56KEM3 1Port USB 2.0 External Modem which operates according to the International Telecommunications Union ("ITU") V.90/V.92 (56Kbps) specification at its research center in Morrisville, North Carolina and at its **Providers** authorized Warranty Service in the United States. See http://www.lenovo.com/lenovo/us/en/our-company.shtml; http://support.lenovo.com/en US/product-service/serviceprovider/default.page?countryid=17.

23. LENOVO has had knowledge of the '932 patent since at least February 8, 2008 or shortly thereafter, when LENOVO received a letter regarding the '932 Patent from TTL, a former assignee of the '932 patent, and LENOVO has induced and is inducing its customers, users of the StarTech USB56KEM3 1Port **USB** 2.0 External Modem, which sold by is LENOVO http://shop.lenovo.com/us/en/itemdetails/USB56KEM3/460/947D38085A4646288 DD9B13EADB727E7, to practice a method of communicating over a communication channel using a constellation including a plurality of signal points, said method comprising: determining a probability of transmission of each signal point of said constellation; calculating an average power of said signal points using a power formula based on said probability of transmission of each said signal point; and comparing said average power with a transmit power limit.

- 24. For example, LENOVO has instructed its customers, users of the StarTech USB56KEM3 1Port USB 2.0 External Modem, that, "[w]ith support for transfer rates up to 56 Kbps (data) and 14.4 Kbps (fax), and compatibility with the latest transmission standards (V.92, V.90, etc.), this versatile Fax Modem can keep you connected from virtually any USB-capable computer." In making these instructions available to its customers and touting the benefits of "compatibility with the latest transmission standards (V.92, V.90, etc.)", LENOVO specifically intended to encourage its customers to use the StarTech USB56KEM3 1Port USB 2.0 External Modem in an infringing manner, knowing that such use in accordance with its instructions constituted infringement of the '932 patent.
- 25. Thus, LENOVO has induced its customers to infringe the '932 Patent literally and/or under the doctrine of equivalents. Upon information and belief, LENOVO acted with the specific intent to induce its customers to practice the method claimed by the '932 Patent by continuing the above-mentioned activities with knowledge of the '932 Patent.

COUNT IV

INFRINGEMENT OF U.S. PATENT NO. 7,062,022

- 26. United States Patent No. 7,062,022 ("the '022 patent"), entitled "Method and apparatus for fast V.90 modem startup," issued on June 13, 2006 from a United States Patent Application No. 10/753,570 filed on January 8, 2004. Application No. 10/753,570 is a Continuation of U.S. Patent Application Ser. No. 09/361,842, filed Jul. 27, 1999 now U.S. Pat. No. 6,819,749, which claims the benefit of U.S. Provisional Application Ser. No. 60/128,874, filed Apr. 12, 1999. A true and correct copy of the '022 patent is attached as Exhibit D.
- 27. LENOVO has been and now is directly infringing one or more claims of the '022 Patent, in this judicial District and elsewhere in the United States, by, among other things, practicing a method for reducing startup latency associated with a data transmission system having a first device configured to communicate

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with a second device over a communication channel, said method comprising the steps of: establishing a call between said first device and said second device; determining whether a characteristic of said communication channel is similar to a with corresponding characteristic associated previously a established communication channel; and initializing at least one of said first and second devices using a number of stored parameters associated with said previously established communication channel, said initializing step being performed if said determining step determines that said characteristic is similar to said corresponding Upon information and belief, LENOVO practices the claimed characteristic. method while testing and repairing the StarTech USB56KEM3 1Port USB 2.0 External Modem which operates according the International to Telecommunications Union ("ITU") V.92 (56Kbps) specification at its research center in Morrisville, North Carolina and at its authorized Warranty Service Providers in the United States. See http://www.lenovo.com/lenovo/us/en/ourhttp://support.lenovo.com/en US/product-service/servicecompany.shtml; provider/default.page?countryid=17.

28. LENOVO has had knowledge of the '022 patent since at least February 8, 2008 or shortly thereafter, when LENOVO received a letter regarding the '022 Patent from TTL, a former assignee of the '022 patent, and LENOVO has induced and is inducing its customers, users of the StarTech USB56KEM3 1Port **USB** 2.0 External Modem, which sold is by LENOVO http://shop.lenovo.com/us/en/itemdetails/USB56KEM3/460/947D38085A4646288 DD9B13EADB727E7, to practice a method for reducing startup latency associated with a data transmission system having a first device configured to communicate with a second device over a communication channel, said method comprising the steps of: establishing a call between said first device and said second device; determining whether a characteristic of said communication channel is similar to a corresponding with characteristic associated previously established

communication channel; and initializing at least one of said first and second devices using a number of stored parameters associated with said previously established communication channel, said initializing step being performed if said determining step determines that said characteristic is similar to said corresponding characteristic.

- 29. For example, LENOVO has instructed its customers, users of the StarTech USB56KEM3 1Port USB 2.0 External Modem, that, "[w]ith support for transfer rates up to 56 Kbps (data) and 14.4 Kbps (fax), and compatibility with the latest transmission standards (V.92, V.90, etc.), this versatile Fax Modem can keep you connected from virtually any USB-capable computer." In making these instructions available to its customers and touting the benefits of "compatibility with the latest transmission standards (V.92, V.90, etc.)", LENOVO specifically intended to encourage its customers to use the StarTech USB56KEM3 1Port USB 2.0 External Modem in an infringing manner, knowing that such use in accordance with its instructions constituted infringement of the '022 patent.
- 30. Thus, LENOVO has induced and is inducing its customers to infringe the '022 Patent literally and/or under the doctrine of equivalents. Upon information and belief, LENOVO acted with the specific intent to induce its customers to practice the method claimed by the '022 Patent by continuing the above-mentioned activities with knowledge of the '022 Patent.

- 31. By engaging in the conduct described herein, LENOVO has injured MTS and is thus liable for infringement of the '886 patent, '009 patent, '932 patent, and '022 patent pursuant to 35 U.S.C. § 271.
- 32. LENOVO has committed these acts of infringement without license or authorization.
- 33. As a result of LENOVO's infringement of the '886 patent, '009 patent, '932 patent, and '022 patent, MTS has suffered monetary damages and is

entitled to a money judgment in an amount adequate to compensate for LENOVO's infringement, but in no event less than a reasonable royalty for the use made of the invention by LENOVO, together with interest and costs as fixed by the Court.

- 34. MTS has also suffered and will continue to suffer severe and irreparable harm unless this Court issues a permanent injunction prohibiting LENOVO, its agents, servants, employees, representatives, and all others acting in active concert therewith from infringing the '886 patent, '009 patent, '932 patent, and '022 patent. In particular, LENOVO's disregard for MTS's property rights threatens MTS's relationships with the actual and potential licensees of this intellectual property, inasmuch as LENOVO will derive a competitive advantage over any of MTS's current or future licensees by using MTS's patented technology without paying compensation for such use. Accordingly, unless and until LENOVO's continued acts of infringement are enjoined, MTS will suffer further irreparable harm for which there is no adequate remedy at law.
- 35. LENOVO's infringement of the '886 patent, '009 patent, '932 patent, and '022 patent has been willful and deliberate, entitling MTS to increased damages under 35 U.S.C. § 284 and to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285. In particular, LENOVO was informed of the '886 patent, '009 patent, '932 patent, and '022 patent and allegations of infringement no later than February 8, 2008 or shortly thereafter, when LENOVO received a letter regarding same from TTL, a former assignee of the '886 patent, '009 patent, '932 patent, and '022 patent. Despite awareness of the '886 patent, '009 patent, '932 patent, and '022 patent and the infringing nature of its conduct, LENOVO has continued such conduct and thereby has willfully infringed the '886 patent, '009 patent, '932 patent, and '022 patent.

PRAYER FOR RELIEF

WHEREFORE, MTS prays that this Court grant it the following relief:

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A.	A judgment in favor of MTS that LENOVO has infringed the	e '886
patent, '009	patent, '932 patent, and '022 patent;	

- B. A permanent injunction enjoining LENOVO and its officers, directors, agents, servants, affiliates, employees, divisions, branches, subsidiaries, parents, and all others acting in active concert therewith from infringement of the '886 patent, '009 patent, '932 patent, and '022 patent, or such other equitable relief the Court determines is warranted;
- C. A judgment and order requiring LENOVO to pay MTS its damages, costs, expenses, and prejudgment and post-judgment interest for Defendant's infringement of the '886 patent, '009 patent, '932 patent, and '022 patent, as provided under 35 U.S.C. § 284;
- D. A judgment and order that LENOVO has willfully infringed the '886 patent, '009 patent, '932 patent, and '022 patent, and assessing increased damages up to three times the amount found or assessed pursuant to 35 U.S.C. § 284;
- E. A judgment and order finding that this is an exceptional case within the meaning of 35 U.S.C. § 285 and awarding to MTS its reasonable attorneys' fees against LENOVO;
- F. A judgment and order requiring LENOVO to provide an accounting and to pay supplemental damages to MTS, including without limitation, prejudgment and post-judgment interest; and
 - G. Any and all other relief to which MTS may be entitled.

DEMAND FOR JURY TRIAL

MTS, under Rule 38 of the Federal Rules of Civil Procedure, requests a trial by jury of any issues so triable by right.

DATED: March 31, 2015

RUSS, AUGUST & KABAT

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