IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

3G LICENSING, S.A., KONINKLIJKE KPN N.V., and ORANGE S.A.,	)	
Plaintiffs,	)	C.A. No. 17-cv-84-LPS-CJB
v.	)	
LENOVO GROUP LTD., LENOVO HOLDING CO., INC., LENOVO (UNITED STATES) INC., and MOTOROLA MOBILITY LLC,	)	**JURY TRIAL DEMANDED**
Defendants.	)	

SECOND AMENDED COMPLAINT FOR PATENT INFRINGEMENT

This is an action for patent infringement in which Plaintiffs 3G Licensing, S.A. (hereafter "3G Licensing"), Orange S.A. (hereafter "Orange"), and Koninklijke KPN N.V. (hereafter "KPN") (collectively "Plaintiffs") make the following allegations against Lenovo Group Ltd., Lenovo Holding Co., Inc., Lenovo (United States) Inc. (collectively "Lenovo"), and Motorola Mobility LLC ("Motorola"), which Plaintiffs refer to collectively herein as "Defendants":

BACKGROUND

1. 3G Licensing holds more than 400 patents and patent applications fundamental to a variety of core technologies involving consumer electronics and wireless telecommunication implementations. 3G Licensing's patents have been licensed by many of the world's leading mobile technology companies, including Defendants' competitors.

2. KPN's extensive research and development efforts likewise have led to hundreds of issued patents in the United States and across the world. These patents have been licensed in

turn by leading global telecommunications companies, including many of Lenovo's mobile technology competitors.

3. Plaintiffs have made their patents available for license on an individual basis through bilateral negotiations and, at the licensor's option, collectively through joint licensing or patent pool licensing arrangements.

4. Prior to filing suit in this action, Plaintiffs provided Defendants with notice of the patents at issue and engaged in lengthy negotiations with Defendants to try to resolve this dispute.

5. Despite these efforts, Defendants refused to license on mutually agreeable terms the patents described herein. Plaintiffs therefore file this suit against Defendants seeking the Court's protection of their valuable intellectual property rights.

PARTIES

6. Plaintiff 3G Licensing, S.A., is an intellectual property licensing corporation that has its headquarters at 6, Avenue Marie-Thérèse, L-2132 Luxembourg.

7. Plaintiff Orange S.A. (formerly France Télécom S.A.) is a multi-national telecommunications solution provider incorporated under the laws of France that has its headquarters at 78, rue Olivier de Serres, 75015 Paris, France. Orange joins this action as a nominal plaintiff only as to those patents identified herein as having been assigned to 3G Licensing.

8. Plaintiff Koninklijke KPN N.V. is a telecommunications (including fixed, mobile, television and internet) and ICT solution provider headquartered at Maanplein 55, NL-2516 CK, The Hague, The Netherlands.

9. Upon information and belief, Defendant Lenovo Group Ltd. is a corporation organized and existing under the laws of China, with its principal place of business located at Shangdi Information Industry Base, No. 6 Chuang Ye Road, Haidan District, 100085 Beijing, China. Defendant Lenovo Group Ltd. may be served in China by way of the Hague Service Convention.

10. Upon information and belief, Defendant Lenovo Holding Co., Inc. is a corporation organized and existing under the laws of the state of Delaware, with its principal place of business located at 1009 Think Place, Morrisville, North Carolina 27650. Defendant Lenovo Holding Co., Inc. may be served through its registered agent for service of process – The Corporation Trust Company, Corporation Trust Center, 1209 Orange St., Wilmington, DE 19801.

11. Upon information and belief, Defendant Lenovo (United States) Inc. is a corporation organized and existing under the laws of the state of Delaware, with its principal place of business located at 1009 Think Place, Morrisville, North Carolina 27650. Defendant Lenovo (United States) Inc. may be served through its registered agent for service of process – The Corporation Trust Company, Corporation Trust Center, 1209 Orange St., Wilmington, DE 19801.

12. Upon information and belief, Defendant Motorola Mobility LLC[1] is a corporation organized and existing under the laws of the state of Delaware, with its principal place of business located at 222 W. Merchandise Mart Plaza, Suite 1800 Chicago, Illinois 60654 USA. Defendant Motorola Mobility LLC may be served through its registered agent for service of

[1] The allegations herein regarding Motorola Mobility LLC are made only by Plaintiffs Orange S.A. and 3G Licensing, S.A. Plaintiff Koninklijke KPN N.V. makes no allegations with respect to Motorola Mobility LLC.

process – The Corporation Trust Company, Corporation Trust Center, 1209 Orange St., Wilmington, DE 19801. Upon information and belief, Motorola Mobility LLC is a wholly-owned subsidiary of Lenovo Group Limited, and acts under the direction and control of Lenovo Group Ltd.

JURISDICTION AND VENUE

13. This action arises under the patent laws of the United States, Title 35 of the United States Code.

14. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

15. This Court has personal jurisdiction over Defendants because, directly or through intermediaries, each has committed acts within Delaware giving rise to this action and/or has established minimum contacts with Delaware such that the exercise of jurisdiction would not offend traditional notions of fair play and substantial justice.

16. For example, Defendants have placed and are continuing to place infringing products into the stream of commerce via an established distribution channel with the knowledge and/or understanding that such products are being and will continue to be sold in the State of Delaware, including in this District.

17. Upon information and belief, Defendants also have derived substantial revenues from their infringing acts in the State of Delaware and this District, including from its sales of infringing devices in the United States.

18. In addition, Defendants have, and continue to, knowingly induce infringement by others within this District by advertising, marketing, offering for sale, and/or selling devices containing infringing functionality within this District to consumers, customers, manufacturers,

distributers, resellers, partners, and/or end users, and by providing instructions, user manuals, advertising, and/or marketing materials which facilitate, direct, or encourage the use of infringing functionality with knowledge thereof.

19. Venue is proper under 28 U.S.C. § 1391(b) and (c) and 28 U.S.C. § 1400.

THE ASSERTED PATENTS

20. This lawsuit asserts causes of action for infringement of United States Patent Nos. 6,212,662 ("'662 patent"); 9,014,667 ("'667 patent"); 7,933,564 ("'564 patent"); 7,995,091 ("'091 patent"); and 6,856,818 ("'818 patent") (collectively, the "Asserted Patents").

21. The '662 and '667 patents previously were the subject of litigation captioned *Koninklijke KPN N.V., v. Samsung Electronics Co., Ltd.*, Civil Action Nos. 2:14-cv-1165 and 2:15-cv-948 (E.D. Tex.). On September 21, 2016, the parties filed a "Joint Stipulation to Dismiss" that lawsuit.

22. On July 8, 2016, the United States Patent and Trademark Office, Patent Trial and Appeal Board ("PTAB") largely declined to institute *inter partes* review of the '662 patent—finding "no reasonable likelihood" that any of the invalidity contentions directed at claims 3 and 4 of the '662 patent had merit.

23. Defendants have been on notice of the asserted patents, have been invited to take a license to the asserted patents, and have declined to license the asserted patents.

24. On information and belief, Lenovo Group Ltd., Lenovo Holding Co., Inc., and Lenovo (United States) Inc. received notice of the '662 patent and their respective infringement of it at least by November 8, 2013, during a discussion between Koenraad Wuyts, KPN's Chief Intellectual Property Officer, and Kathryn Tsirigotis, Lenovo's Director of Licensing, related to Lenovo's Long-Term Evolution radio platform ("LTE," also commonly referred to as "4G"

and/or "4G LTE" and/or "LTE-Advanced") and UMTS (also commonly referred to as "3G" and/or "W-CDMA") devices. At the time, KPN understood that Ms. Tsirigotis was negotiating with KPN on behalf of each Lenovo Defendant. That same day, Mr. Wuyts informed Ms. Tsirigotis that the '662 patent had been recognized as essential to the 3GPP TS 36.212 standard for LTE communications. Further, in a subsequent email to Ms. Tsirigotis dated December 31, 2013, Mr. Wuyts provided Lenovo with claim charts demonstrating how Lenovo's devices infringed the '662 patent and again asked Lenovo to obtain a license to the '662 patent for its LTE and UMTS "end-user devices," including its "Handsets" (including "Tablets" and "[S]marphone[s]").

25. Each Lenovo Defendant subsequently was provided additional notice of the '662 patent and its infringement. For example, beginning in 2015, Sisvel UK Limited, the parent company of 3G Licensing, negotiated with Ms. Tsirigotis on behalf of KPN about the Lenovo Defendants obtaining a license to the '662 patent.

26. During the course of these negotiations, and at least by July 4, 2015, Sisvel made available on its public web site a "Patent List" identifying the '662 patent as essential to standards related to implementing LTE technology. In addition, at least by January 25, 2016, Sisvel's Patent Brochure stated that claim 1 of the '662 patent had been recognized as essential to various standards, including 3GPP TS 36.212 v9.3.0, Section 5, 5.1, 5.1.1, 5.1.2, 5.1.3, Table 5.1.3-1, 5.1.3.2, 5.1.3.2.1, Figure 5.1.3-2, 5.1.3.2.3, which govern the generation of data for error checking and must be complied with to be interoperable with standard LTE data networks.

27. On information and belief, Lenovo Group Ltd., Lenovo Holding Co., Inc., and Lenovo (United States) Inc. also received pre-suit notice of the '667 patent and their respective infringement of it. For example, Mr. Wuyts provided Ms. Tsirigotis with notice of the European

counterpart to the ’667 patent, EP2250835, at least by November 8, 2013, during discussions that took place that day between Mr. Wuyts and Ms. Tsirigotis. Further, in an email to Ms. Tsirigotis dated December 31, 2013, Mr. Wuyts had provided the Lenovo Defendants with claim charts demonstrating how Lenovo’s LTE and UMTS devices infringed EP2250835 and had reiterated that Lenovo needed to obtain a license for its LTE and UMTS “end-user devices,” including its “Handsets” (including “Tablets” and “[S]marphone[s]”).

28. On information and belief, each Lenovo Defendant subsequently received notice that the ’667 patent had issued. For example, at least by August 26, 2015, the Patent List Sisvel made available to the public on its web site identified the ’667 patent and stated that it was essential to standards related to implementing LTE technology. On information and belief, as a result of the negotiations already taking place between the parties, each Lenovo Defendant received notice of this list and its contents prior to October 15, 2015.

29. Further, at least by January 25, 2016, the Patent Brochure Sisvel made available to the public on its web site identified the ’667 patent as the United States counterpart to EP2250835 and explained that the ’667 patent likewise had been recognized as essential to various standards, including 3GPP TS 23.401 V10.5.0, Section 4.3; and 3GPP TS 24.008 V10.4.0, Sections 4.1.1.7, 4.7.3.1.4, 9.4.4, 9.4.4.2; Table 9.4.4, which govern the use of machine to machine communications utilizing back off timers in LTE data networks.

30. Further, Lenovo received notice of their respective infringement of the ’667 patent at least as of Plaintiffs’ filing of the original Complaint in this action on January 30, 2017.

31. On information and belief, Lenovo Group Ltd., Lenovo Holding Co., Inc., Lenovo (United States) Inc., and Motorola Mobility LLC also received notice of the ’818 and ’091 patents and their respective infringement of them at least upon receiving a letter from Sisvel UK

Limited dated May 20, 2015, which identified each patent and explained that each had been recognized as essential to standards governing LTE telecommunications devices. Further, representatives of Sisvel subsequently engaged in extended discussions with Ms. Tsirigotis, and Mr. Gary Cunningham, Senior Counsel at Motorola, beginning on September 16, 2015, to discuss obtaining a license to the ’818 and ’091 patents.

32. Further, at least by January 25, 2016, the Patent Brochure Sisvel made available to the public on its web site stated that claim 18 of the ’818 patent had been recognized as essential to various standards, including 3GPP TS 21.111 V7.1.0, Sections 1, 4, 5.1, 5.2, 6.1 and 11.2; 3GPP TS 31.102 V7.13.0, Sections 4.4.2, 4.7, 5.1.1.1, and 5.3.29; 3GPP TS 31.101 V7.0.1, Section 8.1; ETSI TS 102.221 V7.4.0, Sections 8.2.2.2, 8.4.1, 8.4.3, 11.1.1.1, 11.1.3.1, 11.1.5.1, 11.1.5.2, Annex K and K.2, Figure 8.2, 8.4, and K.1, and Table 8.1 and 11.11, which govern the use of selective access to data stored on subscriber identity modules. Further, by the same date, the Patent Brochure Sisvel made available to the public on its web site also stated that the ’091 patent had been recognized as essential to various standards, including 3GPP TS 24.173 V9.1.0, Sections 4.2 and 5.2; 3GPP TS 22.279 V7.1.0, Sections 1, 2, 3.1, 6, and 8; 3GPP TS 23.279 V7.7.0, Sections 8.1, Fig 8-1, 8.3.1, Fig 8.3-1, 8.3.2, and Fig 8.3-2.; 3GPP TS 23.228 V7.16.0, Sections 4.13.2 and 4.13.3; 3GPP TS 24.229 V7.28.0, Sections 5.1, 5.1.2A.1, 6.1.2, 6.1.3, 7.9.2, 7.2A.8.1, 7.2A.8.2, 7.2A.9.1, 7.2A.9.2, and 7.9.3; 3GPP TS 24.279 V7.7.0, Sections 6.3.1.8, 6.3.1.9, 7.3.1.3, 7.3.1.4, A.1, A.2, A.3, 7.3.1.8, and 7.3.1.9; and GSMA IR.84, Sections 2.6.1.1 and Table 2, which govern the making and discontinuing of mixed media telecommunications calls, including video calls.

33. Further, at least by April 6, 2016, the Patent List Sisvel made available to the public on its web site identified the ’564 patent and explained that it had been recognized as

essential to standards governing LTE telecommunications devices. Further, by at least May 11, 2016, the Patent Brochure Sisvel made available to the public on its web site stated that claim 1 of the ’564 patent also had been recognized as essential to various standards, including 3GPP TS 36.211 v8.7.0, Sections 6.3, 6.3.2, 6.3.3, 6.3.3.3, 6.3.4, 6.3.4.3-Figure 6.3-1, and Table 6.3.3.3-1, governing the use of multiple antennas to transmit or receive data, and that Lenovo’s and Motorola’s LTE-enabled products infringed this patent as well.

34. Further, Lenovo received notice of the ’818, ’091, and ’564 patents and its infringement of them through Plaintiffs’ filing of the original Complaint in this action on January 30, 2017.

COUNT 1
INFRINGEMENT OF U.S. PATENT NO. 6,212,662

35. Plaintiffs repeat and incorporate by reference each preceding paragraph as if fully set forth herein and further state:

36. On April 3, 2001, the U.S. Patent and Trademark Office duly and legally issued U.S. Patent No. 6,212,662, which is entitled, “Method and Devices for the Transmission of Data With the Transmission Error Checking.” A true and correct copy of the ’662 patent is attached as Exhibit A.

37. KPN is the owner by assignment of the ’662 patent and holds all rights, title and interest to the ’662 patent, including the sole right to sue and recover for any and all infringements.

38. The devices claimed in the ’662 patent have proved to be of great importance to the field of error detection and correction.

39. For example, in 2011, Sisvel International, which manages the LTE/LTE-A patent pool, recognized claims 1-3 of the ’662 patent to be essential to §§ 5, 5.1, 5.1.1, 5.1.2, 5.1.3,

5.1.3.2, 5.1.3.2.1, and 5.1.3.2.3, including Figure 5.1.3-2, Tables 5.1.3-1 and 5.1.3-3, of the 3GPP TS 36.212 LTE communications standard. Shortly thereafter, the International Patent Evaluation Committee recognized claims 1-4 of the '662 patent to be essential to §§ 1, 4.1, 4.2.2.2, 4.2.3, 4.2.3.2.1, 4.2.3.2.3, 4.2.3.2.3.1, and 4.2.3.2.3.2, including Figure 4 and Tables 1 and 2, of the 3GPP TS 25.212 standard for UMTS (W-CDMA) communications.

40. The '662 patent also has been treated as essential by both Sisvel International, which managed the cdma2000 patent pool, and Sipro Lab Telecom, Inc., which managed a pool of telecommunications patents essential to the W-CDMA 3GPP standard.

41. Consistent with this recognition of its importance to the field of error detection and correction, the '662 patent has been licensed extensively by many of Lenovo's mobile technology competitors.

42. The '662 patent also has been the subject of prior litigation, including in *Koninklijke KPN N.V. v. Samsung Electronics Co., Ltd.*, Civil Action No. 2:14-cv-1165 (E.D. Tex.), in which the Court construed terms expected to be at issue in this matter. Plaintiffs rely on those constructions herein in support of their allegations.

43. Further, in the course of that prior litigation, Samsung Electronics Co., Ltd., et al., ("Samsung") filed a request for *inter partes* review—arguing claims 1-4 of the '662 patent were anticipated and/or obvious in light of multiple prior art references. After thorough consideration, the Patent Trial and Appeals Board ("PTAB") declined to institute *inter partes* review as to claims 3 and 4 of the '662 patent on any ground—concluding on the lengthy record before it that no "reasonable likelihood" existed that claims 3 and 4 were invalid. Regarding claims 1 and 2, the PTAB concluded that no "reasonable likelihood" existed that the claims were anticipated.

44. Samsung filed a Petition for Rehearing of the PTAB's decision. The PTAB subsequently issued another lengthy decision denying the request.

45. Lenovo (United States) Inc. has directly infringed and continues to directly infringe the '662 patent in violation 35 U.S.C. § 271(a) by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, without authorization, products that practice claims 1-4 of the '662 patent literally or under the doctrine of equivalents (hereafter "'662 Accused Products"). At a minimum, such '662 Accused Products include all Lenovo smartphones and other mobile telecommunication devices configured to send or receive data over an LTE, UMTS, or cdma2000 data network making use of or incorporating error checking technology as described in Ex. A. This includes products like the IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems, which, on information and belief, are configured to transmit data on LTE, UMTS, and cdma2000 data networks.

46. For example, as detailed in paragraphs 47-51 below, on information and belief, are an LTE, UMTS, and cdma2000 compatible device that meets every element of claims 1-4 of the '662 patent literally or under the doctrine of equivalents.[2] Further, on information and belief, the identified components and functionality of the IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems are representative of the components and functionality present in all '662 Accused Products, including but not limited to the Lenovo IdeaTab A2107, Lenovo Phab 2 Pro Smartphone, Lenovo Phab 2 Smartphone, Lenovo IdeaTab A2107, Lenovo Phab 2 Pro Smartphone, Lenovo Phab 2 Smartphone, Lenovo

[2] This description of Lenovo's infringement of the '662 patent is illustrative and not intended to be an exhaustive or limiting explanation of every manner in which each '662 Accused Product infringes the '662 patent.

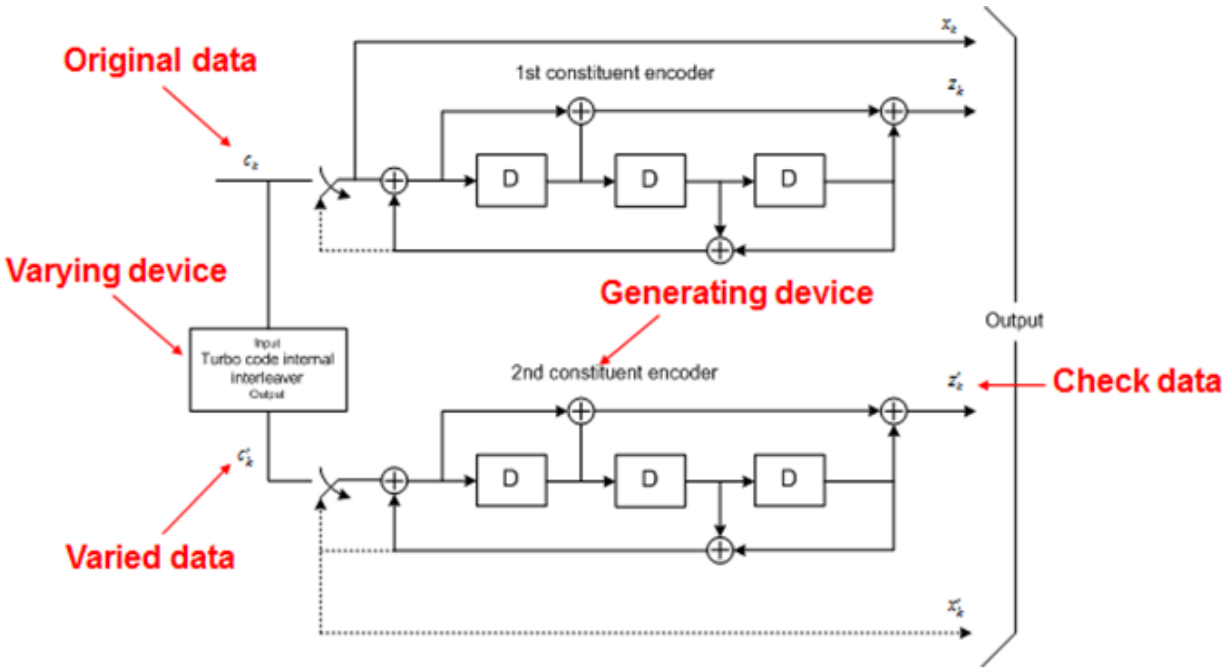
B4400, Lenovo B4450s, Lenovo B480, Lenovo B5400, Lenovo B580, Lenovo E49, Lenovo K2450, Lenovo K4450, Lenovo M4400s, Lenovo M490, Lenovo M490s, Lenovo M495, Lenovo M5400, Lenovo V4400u, Lenovo V480, Lenovo V480s, Lenovo V490u, Lenovo V580, ThinkPad 11e, ThinkPad 13, ThinkPad Edge 11, ThinkPad Edge 13, ThinkPad Edge 14, ThinkPad Edge 15, ThinkPad Edge E10, ThinkPad Edge E30, ThinkPad Edge E40, ThinkPad Edge E50, ThinkPad Edge E120, ThinkPad Edge E125, ThinkPad Edge E130, ThinkPad Edge E135, ThinkPad Edge E145, ThinkPad Edge E220s, ThinkPad Edge E320, ThinkPad Edge E325, ThinkPad Edge E330, ThinkPad Edge E335, ThinkPad Edge E420, ThinkPad Edge E420s, ThinkPad Edge E425, ThinkPad Edge E430, ThinkPad Edge E430c, ThinkPad Edge E431, ThinkPad Edge E435, ThinkPad Edge E440, ThinkPad Edge E445, ThinkPad Edge E450, ThinkPad Edge E455, ThinkPad Edge E460, ThinkPad Edge E465, ThinkPad Edge E520, ThinkPad Edge E525, ThinkPad Edge E530, ThinkPad Edge E530c, ThinkPad Edge E531, ThinkPad Edge E535, ThinkPad Edge E540, ThinkPad Edge E545, ThinkPad Edge E550, ThinkPad Edge E555, ThinkPad Edge E560, ThinkPad Edge E565, ThinkPad Edge S430, ThinkPad Helix, ThinkPad L410, ThinkPad L412, ThinkPad L420, ThinkPad L421, ThinkPad L430, ThinkPad L440, ThinkPad L450, ThinkPad L460, ThinkPad L540, ThinkPad L510, ThinkPad L512, ThinkPad L520, ThinkPad L530, ThinkPad L540, ThinkPad L560, ThinkPad P40 Yoga, ThinkPad P50, ThinkPad P50s, ThinkPad P70, ThinkPad R400, ThinkPad R500, ThinkPad S430, ThinkPad S531, ThinkPad S540, S1 Yoga, ThinkPad SL300, ThinkPad SL400, ThinkPad SL400c, ThinkPad SL410, ThinkPad SL500, ThinkPad SL500c, ThinkPad SL510, ThinkPad T400, ThinkPad T400s, ThinkPad T410, ThinkPad T410i, ThinkPad T410s, ThinkPad T410si, ThinkPad T420, ThinkPad T420i, ThinkPad T420s, ThinkPad T420si, ThinkPad T430, ThinkPad T430i, ThinkPad T430s, ThinkPad T430si, ThinkPad T431s, ThinkPad T440,

ThinkPad T440p, ThinkPad T440s, ThinkPad T450, ThinkPad T450s, ThinkPad T460, ThinkPad T460s, ThinkPad T500, ThinkPad T510, ThinkPad T510i, ThinkPad T520, ThinkPad T520i, ThinkPad T530, ThinkPad T530i, ThinkPad T540p, ThinkPad T550, ThinkPad T560, ThinkPad W500, ThinkPad W510, ThinkPad W520, ThinkPad W530, ThinkPad W540, ThinkPad W541, ThinkPad W550s, ThinkPad X1, X1 Hybrid, X1 Carbon (Type 20A7, 20A8, 20BS, 20BT, 20FB, 20FC), ThinkPad X100e, ThinkPad X120e, ThinkPad X121e, ThinkPad X130e, ThinkPad X131e, ThinkPad X140e, ThinkPad X200, ThinkPad X200s, X200 Tablet, ThinkPad X201, ThinkPad X201i, ThinkPad X201s, X201 Tablet, ThinkPad X220, ThinkPad X220i, X220 Tablet, X220i Tablet, ThinkPad X230, ThinkPad X230i, X230 Tablet, X230i Tablet, ThinkPad X230s, ThinkPad X240, ThinkPad X240s, ThinkPad X250, ThinkPad X260, ThinkPad X300, ThinkPad X301, ThinkPad Yoga, Yoga 11e, Yoga 14 (Type 20DM , 20DN), and Yoga 260.

47. Claim 1 of the ’662 patent is illustrative of the device claims of the ’662 patent. It claims a device configured to check for errors in data, including in transmitted data, from data provided in blocks comprised of plural bits received in a particular ordered sequence. The device further includes at least one varying device configured to vary this original data, including through its incorporation of an interleaver or other permutating device configured to reorder at least some of the bits of the original data input to it without reordering any of the blocks of original data it receives, prior to supplying it to at least one generating device. The device further includes at least one generating device configured to generate supplementary data (check data) from the data it receives from the at least one permutating device.

48. On information and belief, IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems are devices configured to send and receive data transmitted in the form of blocks comprised of plural bits in a particular ordered sequence

that can be used to generate data for error checking. On information and belief, the IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems also are devices configured to use such data to check for errors in such transmitted data. Further, on information and belief, the IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems include a varying device configured to vary the original data they receive, including through their incorporation of an interleaver configured to reorder the bit position of at least some of the bits of the original data provided to it without reordering any of the blocks of that original data, prior to supplying that now varied data to at least one generating device. Further, on information and belief, the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems further include at least one device configured to generate supplementary data for use in error checking (i.e., check data), including through their use of an encoder. Below is a representative depiction of such infringing components and functions as utilized in these products:



49. Further, on information and belief, the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems include at least one varying device, including, for example, an interleaver, configured to change from time to time the manner in which it reorders at least some of the data bits it receives as disclosed in claim 2 of the ’662 patent.

50. On information and belief, the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems further include at least one varying device, including, for example, an interleaver, configured to change the manner in which it reorders at least some of the bits it receives based on the characteristics of at least some of the bits it receives as disclosed in claim 3 of the ’662 patent.

51. On information and belief, the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems further include at least one permutating device, including, for example, an interleaver, that includes or makes use of data storage in which subsequent reorderings of the members of the given set are stored as disclosed in claim 4 of the ’662 patent.

52. On information and belief, Lenovo (United States) Inc. therefore has directly infringed, and continues to directly infringe, each element of claims 1-4 of the ’662 patent by selling and offering to sell in the United States, and by importing into the United States, without authorization, ’662 Accused Products like the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and Gobi 4000 modems.

53. On information and belief, Lenovo (United States) Inc. operates under the direction and control of Lenovo Group Ltd. and Lenovo Holding Co., Inc. On information and belief, Lenovo Group Ltd. and Lenovo Holding Co., Inc. also have directly infringed, and

continue to directly infringe, each element of claims 1-4 of the ’662 patent by making, selling and offering to sell in the United States, and by importing into the United States, without authorization, ’662 Accused Products like the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and Gobi 4000 modem.

54. In addition, Lenovo has indirectly infringed and continues to indirectly infringe the ’662 patent in violation 35 U.S.C. § 271(b) by taking active steps to encourage and facilitate direct infringement by third parties, including OEMs, partners, service providers, manufacturers, importers, resellers, customers, and/or end users, in this District and elsewhere in the United States, through the dissemination of the ’662 Accused Products and the creation and dissemination of promotional and marketing materials, supporting materials, instructions, product manuals, and/or technical information relating to such products with knowledge and the specific intent that its efforts will result in the direct infringement of the ’662 patent.

55. For example, Lenovo (United States) Inc. has taken active steps to encourage end users of the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems to use the product in the United States in a manner it knows will directly infringe each element of claims 1-4 of the ’662 patent as described above in paragraphs 47-51, including by encouraging users to utilize the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems to transmit data over LTE data networks despite knowing of the ’662 patent and the fact that such data transmissions will cause an end user to use the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems in a manner that infringes the ’662 patent.

56. Such active steps include, for example, advertising and marketing the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems as a smartphone capable of transmitting data on an LTE data network and instructing Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems users how to utilize the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems to transmit data on such data networks in the written manuals it has provided, and continues to provide, despite its knowledge of the ’662 patent and the fact that such data transmissions cause Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems users to directly infringe the ’662 patent. *See, e.g.*, https://download.lenovo.com/consumer/mobiles_pub/ideatab_a2107a_ug/data/EN/chapter04.html (instructing users how to connect a Lenovo IdeaTab A2107 to an LTE network and transmit data over such networks); http://www.phonearena.com/phones/Lenovo-Phab-2_id10110/manual (instructing users how to connect a Lenovo Phab 2 phone to an LTE network and transmit data over such networks); https://download.lenovo.com/ibmdl/pub/pc/pccbbs/options_iso/0a36086.pdf (instructing users at page 4 how to connect a Gobi 4000 modem to an LTE network and transmit data over such networks). In short, Lenovo (United States) Inc. has actively induced, and continues to actively induce the direct infringement of the ’662 patent by its end users by, among other things, publishing Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems manuals and promotional literature describing and instructing the configuration and operation by its customers of the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems in an infringing manner

and by offering support and technical assistance to its customers that encourage use of the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems in ways that directly infringe claims 1-4 of the ’662 patent.

57. Further, Lenovo (United States) Inc. undertook such active steps after receiving notice of the ’662 patent and having been provided claim charts showing how such use by end users would infringed the ’662 patent.

58. On information and belief, Lenovo (United States) Inc. operates under the direction and control of Lenovo Group Ltd. and Lenovo Holding Co., Inc. Thus, on information and belief, Lenovo Group Ltd. and Lenovo Holding Co., Inc. also have taken active steps to encourage end users of the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems to use the products in the United States in a manner each knows will directly infringe each element of claims 1-4 of the ’662 patent as described above in paragraphs 47-51, including by encouraging users to utilize the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems to transmit data over LTE data networks despite knowing that such data transmissions will cause an end user to use the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and Gobi 4000 modem in a manner that infringes the ’662 patent.

59. Such active steps include, for example, advertising and marketing the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems as a smartphone capable of transmitting data on an LTE data network and instructing Lenovo IdeaTab A2107, the Lenovo Phab family of products, and Gobi 4000 modems users how to utilize the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems to transmit data on such data networks in the written manuals it

has provided, and continues to provide, despite its knowledge of the ’662 patent and the fact that such data transmissions cause Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems users to directly infringe the ’662 patent. *See, e.g.*, https://download.lenovo.com/consumer/mobiles_pub/ideatab_a2107a_ug/data/EN/chapter04.html (instructing users how to connect a Lenovo IdeaTab A2107 to an LTE network and transmit data over such networks); http://www.phonearena.com/phones/Lenovo-Phab-2_id10110/manual (instructing users how to connect a Lenovo Phab 2 phone to an LTE network and transmit data over such networks); https://download.lenovo.com/ibmdl/pub/pc/pccbbs/options_iso/0a36086.pdf (instructing users at page 4 how to connect a Gobi 4000 modem to an LTE network and transmit data over such networks). In short, Lenovo Group Ltd. and Lenovo Holding Co., Inc. each has actively induced, and continues to actively induce the direct infringement of the ’662 patent by its end users by, among other things, publishing Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems manuals and promotional literature describing and instructing the configuration and operation by its customers of the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems in an infringing manner and by offering support and technical assistance to its customers that encourage use of the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems in ways that directly infringe claims 1-4 of the ’662 patent.

60. Further, Lenovo Group Ltd. and Lenovo Holding Co., Inc. participated in the undertaking of such active steps after receiving notice of the ’662 patent and having been provided claim charts showing how such use by end users would infringed the ’662 patent.

61. In addition, Lenovo has indirectly infringed and continues to indirectly infringe the ’662 patent in violation 35 U.S.C. § 271(c) by selling or offering to sell in the United States, or importing into the United States, the ’662 Accused Products with knowledge that they are especially designed or adapted to operate in a manner that infringes the ’662 patent and despite the fact that the infringing technology or aspects of each ’662 Accused Products are not a staple article of commerce suitable for substantial non-infringing use.

62. For example, Lenovo (United States) Inc., Lenovo Group Ltd., and Lenovo Holding Co., Inc. each knew by at least December 31, 2013, that the functionality included in the ’662 Accused Products that enabled each to perform error checking in accordance with the 3GPP TS 36.212 standard for LTE communications and the 3GPP TS 25.212 standard for UMTS (W-CDMA) communications infringes the ’662 patent. Further, on information and belief, Lenovo (United States) Inc., Lenovo Group Ltd., and Lenovo Holding Co., Inc. each knew that the ’662 Accused Products, including the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems, were designed to ensure that they would be interoperable with standard LTE and UMTS data networks, which KPN had shown required them to operate in a manner that would infringe the ’662 patent.

63. Further, on information and belief, the infringing aspects of the ’662 Accused Products can only be used in a manner that infringes the ’662 patent and thus have no substantial non-infringing uses. Again using the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems as examples, the products include

the devices described above at paragraphs 47-51 specifically so that they can generate check data in accordance with the invention claimed in the ’662 patent in order to be interoperable with standard LTE and UMTS data networks. The infringing aspects of the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems otherwise have no meaningful uses, let alone any meaningful non-infringing uses.

64. In addition, Lenovo’s infringement of the ’662 patent was willful. At least by December 31, 2013, Lenovo (United States) Inc., Lenovo Group Ltd., and Lenovo Holding Co., Inc. each had received not just notice of the ’662 patent, but detailed claim charts demonstrating how and why ’662 Accused Products infringe the ’662 patent. Nevertheless, without authorization, Lenovo (United States) Inc., Lenovo Group Ltd., and Lenovo Holding Co., Inc. each deliberately continued to infringe the ’662 patent in the manners described above, including by, on information and belief, selling and offering to sell in the United States, and importing into the United States, ’662 Accused Products like the Lenovo IdeaTab A2107, the Lenovo Phab family of products, and the Thinkpad EM7345 and Gobi 4000 modems, in order to market such products as capable of utilizing LTE, UMTS, and cdma2000 data networks in order to promote the sale of those products.

65. Lenovo’s acts of infringement have caused damage to KPN, and KPN is entitled to recover from Lenovo the damages it has sustained as a result of Lenovo’s wrongful acts in an amount subject to proof at trial.

COUNT 2
INFRINGEMENT OF U.S. PATENT NO. 9,014,667

66. Plaintiffs repeat and incorporate by reference each preceding paragraph as if fully set forth herein and further state:

67. On April 21, 2015, the U.S. Patent and Trademark Office duly and legally issued U.S. Patent No. 9,014,667 ("the '667 patent") which is entitled, "Telecommunications Network and Method for Time-Based Network Access." A true and correct copy of the '667 patent is attached as Exhibit B.

68. KPN is the owner by assignment of the '667 patent and holds all right, title and interest to the '667 patent, including the sole right to sue and recover for any and all infringements.

69. In September 2015, the International Patent Evaluation Committee found claims 31, 32, and 35 of the '667 patent to be essential to the following standards: 3GPP TS 22.368 §§ 3.1, 3.2, 4, 7.1.1, and Annex A; 3GPP TS 23.003 § 2.1; 3GPP TS 23.060 §§ 5.3.0, 5.3.1, 5.3.6.2.1, 5.3.6.2.2, 5.3.6.2.3, 5.3.6.2.4, 5.3.6.3, 5.3.6.4, 5.3.13.2, 5.6.3, 6.5.0, 6.8.2.2, 13.1, 13.2.1, 13.2.3,13.4, 14.1, and 14.2; and 3GPP TS 24.008 §§ 4.1.1.7, 4.7.3.1.4 and 6.1.3.11.

70. Consistent with the recognition of its importance to the field of machine-to-machine communications, the '667 patent has been licensed extensively by many of Lenovo's mobile technology competitors.

71. The '667 patent also has been the subject of prior litigation, including in *Koninklijke KPN N.V. v. Samsung Electronics Co., Ltd.*, Civil Action No. 2:14-cv-1165 (E.D. Tex.), in which the Court construed terms expected to be at issue in this matter. Plaintiffs rely on those constructions herein in support of their allegations.

72. Lenovo has infringed and continues to infringe the ’667 patent in violation 35 U.S.C. § 271(a) by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, without authorization, products that practice claim 35 of the ’667 patent literally or under the doctrine of equivalents (hereafter “’667 Accused Products”). At a minimum, such ’667 Accused Products include all Lenovo smartphones and other devices and technology configured to transmit data over an LTE network making use of or incorporating back-off timers and machine-to-machine communications as described in Ex. B. This includes products like the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems, which, on information and belief, are configured to transmit data on LTE data networks, and which utilizes back-off timers in connection with machine-to-machine communications.

73. For example, as detailed in paragraphs 74-75 below, on information and belief, the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems are LTE compatible devices that meets every element of claim 35 of the ’667 patent literally or under the doctrine of equivalents.[3] Further, on information and belief, the identified components and functionality of the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems are representative of the components and functionality present in all ’667 Accused Products, including but not limited to Lenovo IdeaTab A2107, Lenovo Phab 2 Pro Smartphone, Lenovo Phab 2 Smartphone, Lenovo B4400, Lenovo B4450s, Lenovo B480, Lenovo B5400, Lenovo B580, Lenovo E49, Lenovo K2450, Lenovo K4450, Lenovo M4400s, Lenovo M490, Lenovo M490s, Lenovo M495, Lenovo M5400, Lenovo V4400u, Lenovo V480, Lenovo V480s, Lenovo V490u, Lenovo V580, ThinkPad 11e, ThinkPad 13, ThinkPad Edge 11, ThinkPad Edge 13,

[3] This description of Lenovo’s infringement of the ’667 patent is illustrative and not intended to be an exhaustive or limiting explanation of every manner in which each ’667 Accused Product infringes the ’667 patent.

ThinkPad Edge 14, ThinkPad Edge 15, ThinkPad Edge E10, ThinkPad, Edge E30, ThinkPad Edge E40, ThinkPad Edge E50, ThinkPad Edge E120, ThinkPad Edge E125, ThinkPad Edge E130, ThinkPad Edge E135, ThinkPad Edge E145, ThinkPad Edge E220s, ThinkPad Edge E320, ThinkPad Edge E325, ThinkPad Edge E330, ThinkPad Edge E335, ThinkPad Edge E420, ThinkPad Edge E420s, ThinkPad Edge E425, ThinkPad Edge E430, ThinkPad Edge E430c, ThinkPad Edge E431, ThinkPad Edge E435, ThinkPad Edge E440, ThinkPad Edge E445, ThinkPad Edge E450, ThinkPad Edge E455, ThinkPad Edge E460, ThinkPad Edge E465, ThinkPad Edge E520, ThinkPad Edge E525, ThinkPad Edge E530, ThinkPad Edge E530c, ThinkPad Edge E531, ThinkPad Edge E535, ThinkPad Edge E540, ThinkPad Edge E545, ThinkPad Edge E550, ThinkPad Edge E555, ThinkPad Edge E560, ThinkPad Edge E565, ThinkPad Edge S430, ThinkPad Helix, ThinkPad L410, ThinkPad L412, ThinkPad L420, ThinkPad L421, ThinkPad L430, ThinkPad L440, ThinkPad L450, ThinkPad L460, ThinkPad L540, ThinkPad L510, ThinkPad L512, ThinkPad L520, ThinkPad L530, ThinkPad L540, ThinkPad L560, ThinkPad P40 Yoga, ThinkPad P50, ThinkPad P50s, ThinkPad P70, ThinkPad R400, ThinkPad R500, ThinkPad S430, ThinkPad S531, ThinkPad S540, S1 Yoga, ThinkPad SL300, ThinkPad SL400, ThinkPad SL400c, ThinkPad SL410, ThinkPad SL500, ThinkPad SL500c, ThinkPad SL510, ThinkPad T400, ThinkPad T400s, ThinkPad T410, ThinkPad T410i, ThinkPad T410s, ThinkPad T410si, ThinkPad T420, ThinkPad T420i, ThinkPad T420s, ThinkPad T420si, ThinkPad T430, ThinkPad T430i, ThinkPad T430s, ThinkPad T430si, ThinkPad T431s, ThinkPad T440, ThinkPad T440p, ThinkPad T440s, ThinkPad T450, ThinkPad T450s, ThinkPad T460, ThinkPad T460s, ThinkPad T500, ThinkPad T510, ThinkPad T510i, ThinkPad T520, ThinkPad T520i, ThinkPad T530, ThinkPad T530i, ThinkPad T540p, ThinkPad T550, ThinkPad T560, ThinkPad W500, ThinkPad W510, ThinkPad W520, ThinkPad W530,

ThinkPad W540, ThinkPad W541, ThinkPad W550s, ThinkPad X1, X1 Hybrid, X1 Carbon (Type 20A7, 20A8, 20BS, 20BT, 20FB, 20FC), ThinkPad X100e, ThinkPad X120e, ThinkPad X121e, ThinkPad X130e, ThinkPad X131e, ThinkPad X140e, ThinkPad X200, ThinkPad X200s, X200 Tablet, ThinkPad X201, ThinkPad X201i, ThinkPad X201s, X201 Tablet, ThinkPad X220, ThinkPad X220i, X220 Tablet, X220i Tablet, ThinkPad X230, ThinkPad X230i, X230 Tablet, X230i Tablet, ThinkPad X230s, ThinkPad X240, ThinkPad X240s, ThinkPad X250, ThinkPad X260, ThinkPad X300, ThinkPad X301, ThinkPad Yoga, Yoga 11e, Yoga 14 (Type 20DM , 20DN), and Yoga 260, as well as all Lenovo products that include the following modems: Qualcomm Gobi 1000 HS-USB Modem 9202, Qualcomm Gobi 2000 HS-USB Modem 9205, Qualcomm Gobi 3000 HS-USB Modem 9013, Sierra Wireless Gobi 4000 MC7750, Sierra Wireless Gobi 4000 MC7700 Sierra Wireless Gobi 5000 EM7355, Ericsson F3507g Mobile Broadband Modem, Ericsson F3607gw Mobile Broadband Modem, Ericsson F5521gw Mobile Broadband Modem, Ericsson H5321gw Mobile Broadband Modem, Ericsson N5321gw Mobile Broadband Modem, Sierra Wireless EM7345 4G LTE, and Sierra Wireless AirPrime EM7455 .

74. Claim 35 of the ’667 patent claims a terminal for use in a telecommunications network, wherein the telecommunications network is configured for providing access to a plurality of terminals, each terminal being associated with a unique identifier for accessing the telecommunications network. The terminal comprises a message receiver configured for receiving a message from the telecommunications network, the message comprising information relating to a deny access time interval, the deny access time interval being a time period during which telecommunications network access for the terminal is denied, wherein the time period is adapted by the telecommunications network depending on a monitored network load. The terminal further comprises one or more processors, and memory storing processor instructions

that, when executed by the one or more processors, cause the one or more processors to carry out operations including: an access request operation for transmitting an access request to the telecommunications network in accordance with the deny access time interval, wherein machine-ta-machine applications are executed in the telecommunications network, and wherein the terminal for the machine-to-machine applications are denied access to the telecommunications network during peak load time intervals, the time period being within peak load time intervals.

75. On information and belief, as recited in claim 35 of the ’667 patent, the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems provide access to a telecommunication network that is configured to provide access to multiple terminals/devices. On information and belief, each ThinkPad T450S, Phab family of products, and Gobi 4000 modems device is associated with a unique identifier when connected to an LTE network, at least through their compliance with the LTE standard. On information and belief, each ThinkPad T450S, Phab family of products, and Gobi 4000 modem has a Globally Unique Temporary UE Identify and Temporary Mobile Subscriber Identity whenever they are associated with an LTE network. On information and belief, the ThinkPad T450S, Phab family of products, and Gobi 4000 modem devices comprise a message receiver configured for receiving a message from the telecommunications network. For instance, the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems contain at least a cellular modem and/or one or more processors that receive messages from the telecommunication network that receives the message(s) from the telecommunications network. On information and belief, the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems receive a message comprising information relating to a time slot during which access to the telecommunications network is denied, the time slot during which access to the telecommunications network is

denied being a duration of time during which telecommunications network access for the terminal is denied. For instance, the ’667 Accused Products, in response to a request such as ATTACH, Location Registration Request, PDN Connectivity Request, Bearer Resource Modification Request, PDP Context Activation Request, PDP Context Modification Request, or the like, may receive a “reject” message from a telecommunication network when the network is congested. Such “reject” message received by the ’667 Accused Products includes a back-off timer (T3346 or T3396) value. This back-off timer value indicates the time value during which the telecommunications network may deny further network resource requests from the ’667 Accused Products. On information and belief, the duration of time of the back-off timer is adapted by the telecommunications network depending on the monitored network load. The network load of the telecommunication network is monitored. For example, the network load is monitored through the Mobility Management Entity (“MME”) congestion control in the telecommunications network. On information and belief, the ThinkPad T450S, Phab family of products, and Gobi 4000 modem devices include a processor that executes instructions stored in the memory to interact with the telecommunication network. On information and belief, the processor in the ThinkPad T450S, Phab family of products, and Gobi 4000 modem devices executes instructions to transmit a request to the telecommunications network to access its resources in accordance with the back-off timer’s time interval. For example, when the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems send a Request such as an ATTACH Request, Location Registration Request, PDN Connectivity Request, Bearer Resource Modification Request, PDP Context Activation Request, PDP Context Modification Request, or the like, to the network and subsequently receives from the network a “Reject” message with a rejection cause value “22” (congestion) or cause “26” (insufficient resources), the Lenovo

ThinkPad T450S, Phab family of products, and Gobi 4000 modems do not attempt to resend the resource request until the expiration the received back-off timer period. On information and belief, the ThinkPad T450S, Phab family of products, and Gobi 4000 modem devices execute machine-to-machine application in the telecommunication network. For example, the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems may request access for mail or application updates from the telecommunications network. Such machine-to-machine applications can be executed in the telecommunications network. The ThinkPad T450S, Phab family of products, 345 and Gobi 4000 modem devices are denied access by the telecommunications network during peak load time intervals and/or as the telecommunications network does not have sufficient resources. During such peak load time intervals, the ThinkPad T450S, Phab family of products, and Gobi 4000 modem devices will receive a "Reject" message response with a back-off timer value. The Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modem devices are denied the resource request during the time period within the back-off timer value.

76. On information and belief, Lenovo (United States) Inc. therefore has directly infringed, and continues to directly infringe, each element of claim 35 of the '667 patent by selling and offering to sell in the United States, and by importing into the United States, without authorization, '667 Accused Products like the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems.

77. On information and belief, Lenovo (United States) Inc. operates under the direction and control of Lenovo Group Ltd. and Lenovo Holding Co., Inc. Thus, on information and belief, Lenovo Group Ltd. and Lenovo Holding Co., Inc. also have directly infringed, and continue to directly infringe, each element of claim 35 of the '667 patent by selling and offering

to sell in the United States, and by importing into the United States, without authorization, ’667 Accused Products like the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems.

78. In addition, Lenovo (United States) Inc. has indirectly infringed and continues to indirectly infringe the ’667 patent in violation 35 U.S.C. § 271(b) by taking active steps to encourage and facilitate direct infringement by third parties, including OEMs, partners, service providers, manufacturers, importers, resellers, customers, and/or end users, in this District and elsewhere in the United States, through the dissemination of the ’667 Accused Products and the creation and dissemination of promotional and marketing materials, supporting materials, instructions, product manuals, and/or technical information relating to such products with knowledge and the specific intent that its efforts will result in the direct infringement of the ’667 patent.

79. For example, Lenovo (United States) Inc. has taken active steps to encourage end users of the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems to use the product in the United States in a manner it knows will directly infringe each element of claim 35 of the ’667 patent as described above in paragraphs 74-75, including by encouraging users to utilize the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems to make use of machine-to-machine communications over LTE data networks despite knowing of the ’667 patent and the fact that such data communications that may be subject to a back-off timer will cause an end user to use the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems in a manner that infringes the ’667 patent.

80. Such active steps include, for example, advertising and marketing the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems as a smartphone capable of

using machine-to-machine applications on an LTE data network and instructing Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems users how to utilize the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems to use such applications on such data networks in the written manuals it has provided, and continues to provide, despite its knowledge of the '667 patent and the fact that the use of such applications to make communications causes Lenovo ThinkPad T450S, Phab family of products, and the Gobi 4000 modems users to directly infringe the '667 patent. *See, e.g.*, https://download.lenovo.com/pccbbs/mobiles_pdf/t450s_ug_en.pdf (instructing ThinkPad T450S users at pages 15-16 on how to automatically download software updates, for example). In short, Lenovo (United States) Inc. has actively induced, and continues to actively induce the direct infringement of the '667 patent by its end users by, among other things, publishing Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems manuals and promotional literature describing and instructing the configuration and operation by its customers of the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems in an infringing manner and by offering support and technical assistance to its customers that encourage use of the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems in ways that directly infringe claim 35 of the '667 patent.

81. Further, Lenovo (United States) Inc. undertook such active steps after receiving notice of the '667 patent and having been provided claim charts showing how such use by end users would infringed the '667 patent.

82. On information and belief, Lenovo (United States) Inc. operates under the direction and control of Lenovo Group Ltd. and Lenovo Holding Co., Inc. On information and belief, Lenovo Group Ltd. and Lenovo Holding Co., Inc. also have taken active steps to

encourage end users of the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems to use the product in the United States in a manner it knows will directly infringe each element of claim 35 of the ’667 patent as described above in paragraphs 74-75, including by encouraging users to utilize the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems to make use of machine-to-machine communications over LTE data networks despite knowing of the ’667 patent and the fact that such data communications that may be subject to a back-off timer will cause an end user.

83. Such active steps include, for example, advertising and marketing the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems as a smartphone capable of using machine-to-machine applications on an LTE data network and instructing Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems users how to utilize the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems to use such applications on such data networks in the written manuals it has provided, and continues to provide, despite its knowledge of the ’667 patent and the fact that the use of such applications to make communications causes Lenovo ThinkPad T450S, Phab family of products, and the Gobi 4000 modems users to directly infringe the ’667 patent. *See, e.g.*, https://download.lenovo.com/pccbbs/mobiles_pdf/t450s_ug_en.pdf (instructing ThinkPad T450S users at pages 15-16 on how to automatically download software updates, for example). In short, Lenovo (United States) Inc. has actively induced, and continues to actively induce the direct infringement of the ’667 patent by its end users by, among other things, publishing Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems manuals and promotional literature describing and instructing the configuration and operation by its customers of the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems in an infringing

manner and by offering support and technical assistance to its customers that encourage use of the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems in ways that directly infringe claim 35 of the ’667 patent.

84. Further, Lenovo Group Ltd. and Lenovo Holding Co., Inc. participated in the undertaking of such active steps after receiving notice of the ’667 patent and having been provided claim charts showing how such use by end users would infringed the ’667 patent.

85. In addition, Lenovo has indirectly infringed and continues to indirectly infringe the ’667 patent in violation 35 U.S.C. § 271(c) by selling or offering to sell in the United States, or importing into the United States, the ’667 Accused Products with knowledge that they are especially designed or adapted to operate in a manner that infringes the ’667 patent and despite the fact that the infringing technology or aspects of each ’667 Accused Products are not a staple article of commerce suitable for substantial non-infringing use.

86. For example, Lenovo (United States) Inc., Lenovo Group Ltd., and Lenovo Holding Co., Inc. each knew at least by January 6, 2016, that the functionality included in the ’667 Accused Products that enabled each to comply with the standards for LTE communications regarding back-off timers and machine-to-machine communications infringes the ’667 patent. Further, on information and belief, Lenovo (United States) Inc., Lenovo Group Ltd., and Lenovo Holding Co., Inc. each knew that the ’667 Accused Products, including the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems, were designed to ensure that they would be interoperable with standard LTE data networks, including in the manner in which it utilized back-off timers to facilitate machine-to-machine communications.

87. Further, on information and belief, the infringing aspects of the ’667 Accused Products can only be used in a manner that infringes the ’667 patent and have no substantial non-

infringing uses. Again using the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems as an example, the product includes the components and functionality described above at paragraphs 74-75 specifically so that it can comply with back-off timers for machine-to-machine communications in accordance with the invention claimed in the ’667 patent in order to be interoperable with standard data networks. The infringing aspects of the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems otherwise have no meaningful use, let alone any meaningful non-infringing use.

88. In addition, Lenovo’s infringement of the ’667 patent was willful. At least by June 1, 2015, Lenovo (United States) Inc., Lenovo Group Ltd., and Lenovo Holding Co., Inc. each had received notice of the ’667 patent and notice that the ’667 Accused Products infringe the ’667 patent. Nevertheless, without authorization, Lenovo (United States) Inc., Lenovo Group Ltd., and Lenovo Holding Co., Inc. each continued to infringe the ’667 patent in the manners described above, including by, on information and belief, selling and offering to sell in the United States, and importing into the United States, ’667 Accused Products like the Lenovo ThinkPad T450S, Phab family of products, and Gobi 4000 modems, in order to market such products as capable of utilizing LTE data networks in order to promote the sale of those products.

89. Lenovo’s acts of infringement have caused damage to KPN, and KPN is entitled to recover from Lenovo the damages it has sustained as a result of Lenovo’s wrongful acts in an amount subject to proof at trial.

COUNT 3
INFRINGEMENT OF U.S. PATENT NO. 7,933,564

90. Plaintiffs repeat and incorporate by reference each preceding paragraph as if fully set forth herein and further state:

91. On April 26, 2011, the U.S. Patent and Trademark Office duly and legally issued U.S. Patent No. 7,933,564, which is entitled, "Method for the Multi-Antenna Transmission of a Linearly-Precoded Signal, Corresponding Devices, Signal and Reception Method." A true and correct copy of the '564 patent is attached as Exhibit C.

92. 3G Licensing is the owner by assignment from Orange of the '564 patent and holds the sole right to sue and recover for any and all infringements.

93. The devices claimed in the '564 patent have proved to be of great importance to the field of multi-antenna transmission and reception. For example, claims of the '564 Patent have been found essential to 3GPP TS 36.211 v8.7.0: Section 6.3. 6.3.2. 6.3.3. 6.3.3.3. 6.3.4, 6.3.4.3-Figure 6.3 -1; Table 6.3.3.3-1 (ISLD-201607-001).

94. Consistent with this recognition of its importance to the field of multiple input and multiple output transmission and reception, the '564 patent has been licensed extensively by many of Lenovo's mobile technology competitors.

95. Motorola and Lenovo have directly infringed and continues to directly infringe the '564 patent in violation 35 U.S.C. § 271(a) by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, without authorization, products that practice at least claim 13 and, when used, claim 1 of the '564 patent literally or under the doctrine of equivalents (hereafter "'564 Accused Products"). At a minimum, such '564 Accused Products include all Motorola and Lenovo smartphones and other devices and technology that utilize Multiple-Input-Multiple-Output (MIMO) antennas to receive or transmit information over an LTE network as described in Ex. C. This includes products like the Motorola Moto Z Droid (model number XT1650, hereafter "Motorola Moto Z Droid") and the Lenovo Phab 2 (model

number PB2-650Y hereafter "Phab 2"), which, on information and belief, include multiple antennas for transmission and reception on an LTE network.

96. For example, as detailed in paragraphs 97-102 below, on information and belief, the Motorola Moto Z Droid and Phab 2 are LTE compatible devices that meets every element of at least claim 13 and, when used, claim 1 of the '564 patent literally or under the doctrine of equivalents.[4] Further, on information and belief, the identified components and functionality of the Motorola Moto Z Droid and Phab 2 are representative of the components and functionality present in all '564 Accused Products.

97. Claim 1 of the '564 patent is illustrative of the method claims of the '564 patent. It recites a method for sending a signal formed by vectors, each vector comprising N source symbols to be sent, and implementing M transmit antennas where M is greater than or equal to 2, the method comprising linearly precoding said signal, implementing a matrix product of a source matrix, formed by said vectors organized in successive rows, by a linear precoding matrix, delivering a precoded matrix, and sending precoded vectors corresponding to columns of said precoded matrix successively, wherein each precoded vector has M symbols, which have undergone a precoding by a same column of the linear precoding matrix and are distributed over said M antennas.

98. On information and belief, any use of the Motorola Moto Z Droid to connect to an LTE data network causes the Motorola Moto Z Droid to perform the method disclosed by claim 1 of the '564 patent. On information and belief, the Motorola Moto Z Droid includes the Qualcomm MSM8996 Snapdragon 820 processor, which on connecting to an LTE data network

[4] This description of Lenovo's and Motorola's infringement of the '564 patent is illustrative and not intended to be an exhaustive or limiting explanation of every manner in which each '564 Accused Product infringes the '564 patent.

interacts with technology in the Motorola Moto Z Droid to implement Multiple-Input-Multiple-Output (MIMO) antennas to send a common reference signal that is formed from several different sources which is mapped into layers to form a signal that is transmitted through two or more antennas through the antenna ports. On information and belief, the Motorola Moto Z Droid precodes the signal, such as by implementing the product of a source matrix formed by vectors organized in successive rows. On information and belief, the Motorola Moto Z Droid sends precoded vectors corresponding to columns of the precoded matrix successively. Each precoded vector has M symbols. On information and belief, the Motorola Moto Z Droid precodes by the same column of the linear precoding matrix that are distributed over M antennas. For example, the Motorola Moto Z Droid uses open loop transmit diversity during uplink (transmit) distributed over 2 or more antenna ports.

99. On information and belief, any use of the Lenovo Phab 2 to connect to an LTE data network causes the Lenovo Phab 2 to perform the method disclosed by claim 1 of the ’564 patent. On information and belief, the Lenovo Phab 2 includes the MediaTek MT8735 processor, which upon connecting to an LTE data network interacts with technology in the Lenovo Phab 2 to implement Multiple-Input-Multiple-Output (MIMO) antennas to send a common reference signal that is formed from several different sources which is mapped into layers to form a signal that is transmitted through two or more antennas through the antenna ports. On information and belief, the Lenovo Phab 2 precodes the signal, such as by implementing the product of a source matrix formed by vectors organized in successive rows. On information and belief, the Lenovo Phab 2 sends precoded vectors corresponding to columns of the precoded matrix successively. Each precoded vector has M symbols. On information and belief, the Lenovo Phab 2 precodes by the same column of the linear precoding matrix that are distributed over M antennas. For

example, the Lenovo Phab 2 uses open loop transmit diversity during uplink (transmit) distributed over 2 or more antenna ports.

100. Claim 13 of the ’564 patent is illustrative of the device claims of the ’564 patent. It recites a device for receiving a signal sent on M transmit antennas, where M is greater than or equal to 2, said device comprising: P receiver antennas, where P is greater than or equal to 2, means of reception, on said P antennas, of reception vectors, and means of distribution by columns of said reception vectors in a reception matrix, wherein each reception vector comprises P received symbols distributed on said P receiver antennas and corresponding symbols having undergone a precoding by a same column of a linear precoding matrix at sending, and means of processing of said reception matrix, comprising means of multiplying by a linear de-precoding matrix representing the linear precoding matrix used at sending, so as to obtain a de-precoded matrix by which it is possible to extract an estimation of source symbols sent.

101. On information and belief, as claimed by claim 13 of the ’564 patent, the Motorola Moto Z Droid is a device that receives signals sent over an LTE communications network on at least two transmit antennas. On information and belief, the Motorola Moto Z Droid includes at least two receiver antennas and a Qualcomm MSM8996 Snapdragon 820 processor. On information and belief, the processor in the Motorola Moto Z Droid, combined with other hardware and software in the Motorola Moto Z Droid, distributes by columns the reception vectors in a reception matrix. On information and belief, the reception vector comprises two received symbols distributed on the at least two receiver antennas in the Motorola Moto Z Droid. On information and belief, the corresponding symbols having undergone a precoding by the same column of a linear precoding matrix when the vector was sent over the LTE communications network. On information and belief, the processor in the Motorola Moto Z

Droid, combined with other hardware and software in the Motorola Moto Z Droid, processes the reception matrix, comprising means of multiplying by a linear de-precoding matrix representing the linear precoding matrix used at sending, so as to obtain a de-precoded matrix by which it is possible to extract an estimation of the source symbols sent on the LTE communications network.

102. On information and belief, as claimed by claim 13 of the ’564 patent, the Lenovo Phab 2 is a device that receives signals sent over an LTE communications network on at least two transmit antennas. On information and belief, the Lenovo Phab 2 includes at least two receiver antennas and a MediaTek MT8735 processor. On information and belief, the processor in the Lenovo Phab 2, combined with other hardware and software in the Lenovo Phab 2, distributes by columns the reception vectors in a reception matrix. On information and belief, the reception vector comprises two received symbols distributed on the at least two receiver antennas in the Lenovo Phab 2. On information and belief, the corresponding symbols having undergone a precoding by the same column of a linear precoding matrix when the vector was sent over the LTE communications network. On information and belief, the processor in the Lenovo Phab 2, combined with other hardware and software in the Lenovo Phab 2, processes the reception matrix, comprising means of multiplying by a linear de-precoding matrix representing the linear precoding matrix used at sending, so as to obtain a de-precoded matrix by which it is possible to extract an estimation of the source symbols sent on the LTE communications network.

103. On information and belief, Motorola and Lenovo Group Ltd. therefore have directly infringed, and continue to directly infringe, each element of at least claim 1 of the ’564 patent by, through the actions of their respective agents and employees, using without

authorization, including by testing and demonstrating its operation in the United States, ’564 Accused Products like the Motorola Moto Z Droid.

104. On information and belief, Motorola and Lenovo Group Ltd. also have directly infringed, and continue to directly infringe, each element of at least claim 13 of the ’564 patent by selling, and offering to sell in the United States, and by importing into the United States, without authorization, ’564 Accused Products like the Motorola Moto Z Droid.

105. On information and belief, Lenovo (United States) Inc. also has directly infringed, and continues to directly infringe, each element of at least claim 1 of the ’564 patent by, through the actions of its agents and employees, including by testing and demonstrating its operation in the United States, using without authorization, ’564 Accused Products like the Lenovo Phab 2.

106. On information and belief, Lenovo (United States) Inc. also has directly infringed, and continues to directly infringe, each element of at least claim 13 of the ’564 patent by selling and offering to sell in the United States, and by importing into the United States, without authorization, ’564 Accused Products like the Lenovo Phab 2.

107. On information and belief, Lenovo (United States) Inc. operates under the direction and control of Lenovo Group Ltd. and Lenovo Holding Co., Inc. Thus, on information and belief, Lenovo Group Ltd. and Lenovo Holding Co., Inc. also have directly infringed, and continue to directly infringe, each element of at least claim 1 of the ’564 patent by, through the actions of its agents and employees, including by testing and demonstrating its operation in the United States, using without authorization ’564 Accused Products like the Lenovo Phab 2.

108. For similar reasons, on information and belief, Lenovo Group Ltd. and Lenovo Holding Co., Inc. also have directly infringed, and continues to directly infringe, each element of at least claim 13 of the ’564 patent by selling and offering to sell in the United States, and by

importing into the United States, without authorization, ’564 Accused Products like the Lenovo Phab 2.

109. In addition, Motorola and Lenovo have indirectly infringed and continue to indirectly infringe the ’564 patent in violation 35 U.S.C. § 271(b) by taking active steps to encourage and facilitate direct infringement by third parties, including OEMs, partners, service providers, manufacturers, importers, resellers, customers, and/or end users, in this District and elsewhere in the United States, through the dissemination of the ’564 Accused Products and the creation and dissemination of promotional and marketing materials, supporting materials, instructions, product manuals, and/or technical information relating to such products with knowledge and the specific intent that its efforts will result in the direct infringement of the ’564 patent.

110. For example, Motorola and Lenovo Group Ltd. have taken active steps to encourage end users of the Motorola Moto Z Droid to use the product in the United States in a manner it knows will directly infringe each element of at least claims 1 and 13 of the ’564 patent as described above in paragraphs 97-102, including by encouraging users to utilize the Motorola Moto Z Droid to transmit data over LTE data networks despite knowing of the ’564 patent and the fact that such data transmissions will cause an end user to use the Motorola Moto Z Droid in a manner that infringes the ’564 patent.

111. Such active steps include, for example, advertising and marketing the Motorola Moto Z Droid as a smartphone capable of transmitting data on an LTE data network and instructing Motorola Moto Z Droid users how to utilize the Motorola Moto Z Droid to transmit data on such data networks in the written manuals it has provided, and continues to provide, despite its knowledge of the ’564 patent and the fact that such data transmissions cause Motorola

Moto Z Droid users to directly infringe the ’564 patent. *See, e.g.*, https://motorola-global-portal.custhelp.com/ci/fattach/get/1856781/1477401677/redirect/1/session/L2F2LzEvdGltZS8xNDk0NjgxNDU2L3NpZC9mVXVkc2pXT1lZQ1FYcFJ1TlhJUFJZMU9kTlFwazIxMCU3RWcyaDBsWHVncFZ3RHVGNV9rSW9JRGllN0VJN1FHdUo3Y2NIU0NLSXd3c1N5bzFzemRuZkFMUjJucDNQcWFmTFBCWEd3R0lUcXRkYWljVFJGSDVEdkNjJTdFYXclMjElMjE=/filename/68018216001b.pdf (instructing Motorola Moto Z Droid users at pages 10-16 and 32-35 how to connect to an LTE network and transmit data over such networks). In short, Motorola and Lenovo Group Ltd. have actively induced, and continue to actively induce the direct infringement of the ’564 patent by its end users by, among other things, publishing Motorola Moto Z Droid manuals and promotional literature describing and instructing the configuration and operation by its customers of the Motorola Moto Z Droid in an infringing manner and by offering support and technical assistance to its customers that encourage use of the Motorola Moto Z Droid in ways that directly infringe at least claims 1 and 13 of the ’564 patent.

112. Further, Motorola and Lenovo Group Ltd. undertook such active steps after receiving notice of the ’564 patent and its infringement.

113. On information and belief, Lenovo (United States) Inc. also has taken active steps to encourage end users of the Lenovo Phab 2 to use the product in the United States in a manner it knows will directly infringe each element of at least claims 1 and 13 of the ’564 patent as described above in paragraphs 97-102, including by encouraging users to utilize the Lenovo Phab 2 to transmit data over LTE data networks despite knowing that such data transmissions will cause an end user to use the Lenovo Phab 2 in a manner that infringes the ’564 patent.

114. On information and belief, such active steps include, for example, advertising and marketing the Lenovo Phab 2 as a smartphone capable of transmitting data on an LTE data

network and instructing Lenovo Phab 2 users how to utilize the Lenovo Phab 2 to transmit data on such data networks in the written manuals it has provided, and continues to provide, despite its knowledge of the ’564 patent and the fact that such data transmissions cause Lenovo Phab 2 users to directly infringe the ’564 patent. *See, e.g.*, http://www.phonearena.com/phones/Lenovo-Phab-2_id10110/manual (instructing users at how to transmit data over networks). In short, Lenovo (United States) Inc. has actively induced, and continues to actively induce the direct infringement of the ’564 patent by its end users by, among other things, publishing Lenovo Phab 2 manuals and promotional literature describing and instructing the configuration and operation by its customers of the Lenovo Phab 2 in an infringing manner and by offering support and technical assistance to its customers that encourage use of the Lenovo Phab 2 in ways that directly infringe at least claims 1 and 13 of the ’564 patent.

115. Further, Lenovo (United States) Inc. participated in the undertaking of such active steps after receiving notice of the ’564 patent and its infringement.

116. On information and belief, Lenovo (United States) Inc. operates under the direction and control of Lenovo Group Ltd. and Lenovo Holding Co., Inc. Thus, on information and belief, Lenovo Group Ltd. and Lenovo Holding Co., Inc. also have taken active steps to encourage end users of the Lenovo Phab 2 to use the product in the United States in a manner they know will directly infringe each element of claims 1 and 13 of the ’564 patent as described above in paragraphs 97-102, including by encouraging users to utilize the Lenovo Phab 2 to transmit data over LTE data networks despite knowing that such data transmissions despite knowing of the ’564 patent and the fact that such use will cause an end user to use the Lenovo Phab 2 in a manner that infringes the ’564 patent.

117. On information and belief, such active steps include, for example, advertising and marketing the Lenovo Phab 2 as a smartphone capable of transmitting data on an LTE data network and instructing Lenovo Phab 2 users how to utilize the Lenovo Phab 2 to transmit data on such data networks in the written manuals it has provided, and continues to provide, despite their respective knowledge of the ’564 patent and the fact that such data transmissions cause Lenovo Phab 2 users to directly infringe the ’564 patent. *See, e.g.*, http://www.phonearena.com/phones/Lenovo-Phab-2_id10110/manual (instructing users at how to transmit data over networks). In short, Lenovo Group Ltd. and Lenovo Holding Co., Inc., have actively induced, and continues to actively induce the direct infringement of the ’564 patent by its end users by, among other things, publishing Lenovo Phab 2 manuals and promotional literature describing and instructing the configuration and operation by its customers of the Lenovo Phab 2 in an infringing manner and by offering support and technical assistance to its customers that encourage use of the Lenovo Phab 2 in ways that directly infringe at least claims 1 and 13 of the ’564 patent.

118. Further, Lenovo Group Ltd. and Lenovo Holding Co., Inc., participated in the undertaking of such active steps after being provided with notice of the ’564 patent and their respective infringement.

119. In addition, Motorola and Lenovo have indirectly infringed and continue to indirectly infringe the ’564 patent in violation 35 U.S.C. § 271(c) by each selling or offering to sell in the United States, or importing into the United States, the ’564 Accused Products with knowledge that they are especially designed or adapted to operate in a manner that infringes the ’564 patent and despite the fact that the infringing technology or aspects of each ’564 Accused Products are not a staple article of commerce suitable for substantial non-infringing use.

120. For example, both Lenovo and Motorola knew at least by June 15, 2016, that the functionality included in the ’564 Accused Products that enabled each to perform MIMO transmission and reception in accordance with the standard for LTE communications infringes the ’564 patent. Further, on information and belief, Motorola knew that the ’564 Accused Products, including the Motorola Moto Z Droid, were designed to ensure that they would be interoperable with standard LTE data networks, which infringe the ’564 patent. Further, on information and belief, Lenovo (United States) Inc., Lenovo Group Ltd., and Lenovo Holding Co., Inc. each knew that the ’564 Accused Products, including the Lenovo Phab 2, were designed to ensure that they would be interoperable with standard LTE data networks, which infringe the ’564 patent.

121. Further, on information and belief, the infringing aspects of the ’564 Accused Products can only be used in a manner that infringes the ’564 patent and thus have no substantial non-infringing uses. Again using the Motorola Moto Z Droid and Lenovo Phab 2 as examples, the products includes the components and functionality described above at paragraphs 97-102 specifically so that each can send and receive transmissions using multiple antennas in accordance with the invention claimed in the ’564 patent in order to be interoperable with standard LTE data networks. The infringing aspects of the Motorola Moto Z Droid and Lenovo Phab 2 otherwise have no meaningful use, let alone any meaningful non-infringing use.

122. In addition, Lenovo’s and Motorola’s infringement of the ’564 patent was willful. At least by June 15, 2016, Lenovo and Motorola had notice of the ’564 patent, and information regarding why the ’564 Accused Products infringe the ’564 patent, including being told that the ’564 patent had been recognized as essential to various standards governing the use of multiple antennas to transmit or receive data in an LTE network. Nevertheless, without authorization,

Lenovo and Motorola continued to infringe the ’564 patent in the manners described above, including by each, on information and belief, selling and offering to sell in the United States, and importing into the United States, ’564 Accused Products like the Lenovo Phab 2 and the Motorola Moto Z Droid, in order to market such products as capable of utilizing LTE data networks in order to promote the sale of those products.

123. Lenovo’s and Motorola’s acts of infringement have caused damage to 3G Licensing, and 3G Licensing is entitled to recover from Lenovo and Motorola the damages it has sustained as a result of Lenovo’s and Motorola’s wrongful acts in an amount subject to proof at trial.

COUNT 4
INFRINGEMENT OF U.S. PATENT NO. 7,995,091

124. Plaintiffs repeat and incorporate by reference each preceding paragraph as if fully set forth herein and further state:

125. On August 9, 2011, the U.S. Patent and Trademark Office duly and legally issued U.S. Patent No. 7,995,091, which is entitled, “Mixed Media Telecommunication Call Manager.” A true and correct copy of the ’091 patent is attached as Exhibit D.

126. 3G Licensing is the owner by assignment from Orange of the ’091 patent and holds the sole right to sue and recover for any and all infringements.

127. The inventions claimed in the ’091 patent have proved to be of great importance to the field of mixed media telecommunications, including the discontinuation of video calls. For example, claims of the ’091 patent have been declared essential to 3GPP TS 23.228 V8.12.0 Section 4.0, 4.16.1, 4.16.2, 5.4.4. Annex E, E.0, E.2.1a.1, E.2.1a.2, E.2.4.0, E.2.4.1, Figure E 3GPP TS 23.401 V8.17.0 Section 4.7.1, 4.7.2.2, and Figure 4.7.2.2-1. (ISLD-201308-0029 ISLD-201308-0030 ISLD-201308-0031).

128. Lenovo and Motorola have directly infringed and continue to directly infringe the ’091 patent in violation 35 U.S.C. § 271(a) by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, without authorization, products that practice at least claim 1 and, when used, claim 8 of the ’091 patent literally or under the doctrine of equivalents (hereafter “’091 Accused Products”). At a minimum, such ’091 Accused Products include all Lenovo and Motorola smartphones and other devices and technology configured to conduct and discontinue video calls in compliance with the LTE standard, as described in Ex. A. This includes products like the Lenovo Phab 2 and Motorola Moto Z Droid, which, on information and belief, are configured to perform video calls in compliance with the LTE standards.

129. For example, as detailed in paragraphs 130-135 below, on information and belief, the Lenovo Phab 2 and Motorola Moto Z Droid are LTE compatible devices that meet every element of at least at least claim 1 and, when used, claim 8 of the ’091 patent literally or under the doctrine of equivalents.[5] Further, on information and belief, the identified components and functionality of the Lenovo Phab 2 are representative of the components and functionality present in all ’091 Accused Products, including but not limited to the Lenovo Phab 2 Pro smartphone, Lenovo Phab 2 smartphone, and Motorola Moto Z Droid smartphone.

130. Claim 1 of the ’091 patent is illustrative of the device claims of the ’091 patent. It recites a videophone responsive to the discontinuation of an in progress mixed media telecommunications call, the videophone comprising: a radio frequency (RF) interface configured to communicate via a radio telecommunications network; a transmitter configured to

[5] This description of Lenovo’s and Motorola's infringement of the ’091 patent is illustrative and not intended to be an exhaustive or limiting explanation of every manner in which each ’091 Accused Product infringes the ’091 patent.

transmit data carrying at least a first and second media to a remote videophone during a first call; and a processor in communication with the RF interface configured to receive an indication, via the RF interface, that the transmission of data to the remote videophone in the first call is being discontinued, the processor further being configured to, in response to the indication, initiate a second call to the remote videophone, the second call not supporting the second media.

131. On information and belief, the Lenovo Phab 2 is a mobile phone that functions as a videophone and that interfaces with a radio frequency telecommunications network. On information and belief, the Lenovo Phab 2 is configured to transmit data carrying at least a first media, such as audio, and a second media, such as video, to a remote videophone during a first video call conversation. On information and belief, the Lenovo Phab 2 includes a processor, such as the MediaTek MT8735, that is in communication with the Lenovo Phab 2's RF interface. On information and belief, the processor in the Lenovo Phab 2 receives an indication from the RF interface that the transmission of data to the remote videophone in the first call is being discontinued. As a non-limiting example, the Lenovo Phab 2 receives a CS Service Notification from the network's Mobility Management Entity (MME), which indicates to the Lenovo Phab 2 that the current data transmission to the remote video is to be discontinued because the Lenovo Phab 2 is required to switch to another network connection, and which is followed in response by a second call to the remote videophone, such as by performing a circuit switch fallback or transition to the 3G communication network from the LTE network. On information and belief the processor in the Lenovo Phab 2 is further configured to, in response to the indication, initiate a second call to the remote videophone. On information and belief, the second call (i.e. the circuit switched voice call) does not support video or graphics.

132. On information and belief, the Motorola Moto Z Droid is a mobile phone that functions as a videophone and that interfaces with a radio frequency telecommunications network. On information and belief, the Motorola Moto Z Droid is configured to transmit data carrying at least a first media, such as audio, and a second media, such as video, to a remote videophone during a first video call conversation. On information and belief, the Motorola Moto Z Droid includes a processor, such as the Qualcomm MSM8996 Snapdragon 820, that is in communication with the Motorola Moto Z Droid's RF interface. On information and belief, the processor in the Motorola Moto Z Droid receives an indication from the RF interface that the transmission of data to the remote videophone in the first call is being discontinued. As a non-limiting example, the Motorola Moto Z Droid receives a CS Service Notification from the network's Mobility Management Entity (MME), which indicates to the Motorola Moto Z Droid that the current data transmission to the remote video is to be discontinued because the Motorola Moto Z Droid is required to switch to another network connection, and which is followed in response by a second call to the remote videophone, such as by performing a circuit switch fallback or transition to the 3G communication network from the LTE network. Upon information and belief the processor in the Motorola Moto Z Droid is further configured to, in response to the indication, initiate a second call to the remote videophone. Upon information and belief, the second call (i.e. the circuit switched voice call) does not support video or graphics.

133. Claim 8 of the '091 patent is illustrative of the method claims of the '091 patent. It recites a method of responding to the discontinuation of an in progress mixed media telecommunications call by a videophone having a radio frequency interface to a radio frequency telecommunications network, the method comprising: transmitting, via the radio frequency telecommunications network, data carrying at least a first and second media to a remote

videophone during a first call; receiving, via the radio frequency interface, an indication that the transmission of data to the remote videophone in the first call is being discontinued; and initiating a second call to the remote videophone, in response to the indication, the second call not supporting the second media.

134. On information and belief, use of the Lenovo Phab 2 to conduct a video call performs a method of responding to the discontinuation of an in-progress mixed media telecommunications call, at least by way of video calling applications on the Lenovo Phab 2, which interface with a radio frequency telecommunications network. On information and belief, the Lenovo Phab 2 transmits data using a radio frequency to the telecommunication network of the cellular service provider. On information and belief, the Lenovo Phab 2 carries at least a first media, such as audio, and a second media, such as video, during a first video call conversation. As a non-limiting example, the Lenovo Phab 2 uses the voice over internet protocol (VOIP) for communication of audio and video data with another smartphone during a video call. On information and belief, the Lenovo Phab 2 receives via the radio frequency interface an indication that the transmission of data to the remote videophone of the first call is being discontinued. As a non-limiting example, the Lenovo Phab 2 receives a CS Service Notification from the network's Mobility Management Entity (MME), which indicates to the Lenovo Phab 2 that the current data transmission to the remote video is to be discontinued because the Lenovo Phab 2 is required to switch to another network connection, and which is followed in response by a second call to the remote videophone, such as by performing a circuit switch fallback or transition to the 3G communication network from the LTE network. On information and belief, the second call (i.e. the circuit switched voice call) does not support video or graphics.

135. On information and belief, use of the Motorola Moto Z Droid to conduct a video call performs a method of responding to the discontinuation of an in-progress mixed media telecommunications call, at least by way of video calling applications on the Motorola Moto Z Droid, which interface with a radio frequency telecommunications network. On information and belief, the Motorola Moto Z Droid transmits data using a radio frequency to the telecommunication network of the cellular service provider. On information and belief, the Motorola Moto Z Droid carries at least a first media, such as audio, and a second media, such as video, during a first video call conversation. As a non-limiting example, the Motorola Moto Z Droid uses the voice over internet protocol (VOIP) for communication of audio and video data with another smartphone during a video call. On information and belief, the Motorola Moto Z Droid receives via the radio frequency interface an indication that the transmission of data to the remote videophone of the first call is being discontinued. As a non-limiting example, the Motorola Moto Z Droid receives a CS Service Notification from the network's Mobility Management Entity (MME), which indicates to the Motorola Moto Z Droid that the current data transmission to the remote video is to be discontinued because the Motorola Moto Z Droid is required to switch to another network connection, and which is followed in response by a second call to the remote videophone, such as by performing a circuit switch fallback or transition to the 3G communication network from the LTE network. On information and belief, the second call (i.e. the circuit switched voice call) does not support video or graphics.

136. On information and belief, Lenovo (United States) Inc. therefore has directly infringed, and continues to directly infringe, each element of at least claim 1 of the '091 patent by selling and offering to sell in the United States, and by importing into the United States, without authorization, '091 Accused Products like the Lenovo Phab 2.

137. On information and belief, Lenovo (United States) Inc. therefore also has directly infringed, and continues to directly infringe, each element of at least claim 8 of the ’091 patent by through the actions of its agents and employees, including by testing and demonstrating its operation in the United States, using, such as without authorization, ’091 Accused Products like the Lenovo Phab 2.

138. Further, on information and belief, Lenovo (United States) Inc. operates under the direction and control of Lenovo Group Ltd. and Lenovo Holding Co., Inc. Thus, on information and belief, Lenovo Group Ltd. and Lenovo Holding Co., Inc. also have directly infringed, and continues to directly infringe, each element of at least claim 1 of the ’091 patent by selling and offering to sell in the United States, and by importing into the United States, without authorization, ’091 Accused Products like the Lenovo Phab 2.

139. For similar reasons, on information and belief, Lenovo Group Ltd. and Lenovo Holding Co., Inc. also directly infringe each element of at least claim 8 of the ’091 patent by, through the actions of its agents and employees, including by testing and demonstrating its operation in the United States, using without authorization, ’091 Accused Products like the Lenovo Phab 2.

140. On information and belief, Motorola also has directly infringed, and continues to directly infringe, each element of at least claim 1 of the ’091 patent by selling and offering to sell in the United States, and by importing into the United States, without authorization, ’091 Accused Products like the Motorola Moto Z Droid.

141. On information and belief, Motorola and Lenovo Group Ltd. also have directly infringed, and continue to directly infringe, each element of at least claim 8 of the ’091 patent by, through the actions of their agents and employees, using without authorization, including by

testing and demonstrating its operation in the United States, ’091 Accused Products like the Motorola Moto Z Droid.

142. In addition, Lenovo and Motorola have indirectly infringed and continue to indirectly infringe the ’091 patent in violation 35 U.S.C. § 271(b) by taking active steps to encourage and facilitate direct infringement by third parties, including OEMs, partners, service providers, manufacturers, importers, resellers, customers, and/or end users, in this District and elsewhere in the United States, through the dissemination of the ’091 Accused Products and the creation and dissemination of promotional and marketing materials, supporting materials, instructions, product manuals, and/or technical information relating to such products with knowledge and the specific intent that its efforts will result in the direct infringement of the ’091 patent.

143. For example, Lenovo (United States) Inc. has taken active steps to encourage end users of the Lenovo Phab 2 to use the product in the United States in a manner it knows will directly infringe each element of at least claims 1 and 8 of the ’091 patent as described above in paragraphs 130-135, including by encouraging users to utilize the Lenovo Phab 2 to conduct video call communications over LTE data networks despite knowing of the ’091 patent and the fact that such communications will cause an end user to use the Lenovo Phab 2 in a manner that infringes the ’091 patent.

144. Such active steps include, for example, advertising and marketing the Lenovo Phab 2 as a smartphone capable of conducting and discontinuing video calls on an LTE data network and instructing Lenovo Phab 2 users how to utilize the Lenovo Phab 2 to conduct and discontinue video calls on such data networks in the written manuals it has provided, and continues to provide, despite its knowledge of the ’091 patent and the fact that such video calls

cause Lenovo Phab 2 users to directly infringe the ’091 patent. *See, e.g.*, http://www.phonearena.com/phones/Lenovo-Phab-2_id10110/manual. In short, Lenovo (United States) Inc. has actively induced, and continues to actively induce the direct infringement of the ’091 patent by its end users by, among other things, publishing Lenovo Phab 2 manuals and promotional literature describing and instructing the configuration and operation by its customers of the Lenovo Phab 2 in an infringing manner and by offering support and technical assistance to its customers that encourage use of the Lenovo Phab 2 in ways that directly infringe at least claims 1 and 8 of the ’091 patent.

145. Further, Lenovo (United States) Inc. undertook such active steps after receiving notice of the ’091 patent and its infringement.

146. Further, on information and belief, Lenovo (United States) Inc. operates under the direction and control of Lenovo Group Ltd. and Lenovo Holding Co., Inc. Thus, on information and belief, Lenovo Group Ltd. and Lenovo Holding Co., Inc. also have taken active steps to encourage end users of the Lenovo Phab 2 to use the product in the United States in a manner it knows will directly infringe each element of claims 1 and 8 of the ’091 patent as described above in paragraphs 130-135, including by encouraging users to utilize the Lenovo Phab 2 to conduct and discontinue video calls on such data networks in the written manuals they have provided, and continue to provide, despite their knowledge of the ’091 patent and the fact that such video calls cause Lenovo Phab 2 users to directly infringe the ’091 patent.

147. On information and belief, such active steps include, for example, advertising and marketing the Lenovo Phab 2 as a smartphone capable of conducting and discontinuing video calls on an LTE data network and instructing Lenovo Phab 2 users how to utilize the Lenovo Phab 2 to conduct and discontinue video calls on such data networks in the written manuals it

has provided, and continues to provide, despite its knowledge of the ’091 patent and the fact that such video calls cause Lenovo Phab 2 users to directly infringe the ’091 patent. *See, e.g.*, http://www.phonearena.com/phones/Lenovo-Phab-2_id10110/manual. In short, Lenovo has actively induced, and continues to actively induce the direct infringement of the ’091 patent by its end users by, among other things, publishing Lenovo Phab 2 manuals and promotional literature describing and instructing the configuration and operation by its customers of the Lenovo Phab 2 in an infringing manner and by offering support and technical assistance to its customers that encourage use of the Lenovo Phab 2 in ways that directly infringe at least claims 1 and 8 of the ’091 patent.

148. Further, Lenovo Group Ltd. and Lenovo Holding Co., Inc. participated in the undertaking of such active steps after receiving notice of the ’091 patent and their respective infringement .

149. In addition, Motorola and Lenovo Group Ltd. also have taken active steps to encourage end users of the Motorola Moto Z Droid to use the product in the United States in a manner it knows will directly infringe each element of at least claims 1 and 8 of the ’091 patent as described above in paragraphs 130-135, including by encouraging users to utilize the Motorola Moto Z Droid to conduct video calls over LTE data networks despite knowing that such video calls will cause an end user to use the Motorola Moto Z Droid in a manner that infringes the ’091 patent.

150. Such active steps include, for example, advertising and marketing the Motorola Moto Z Droid as a smartphone capable of conducting and discontinuing video calls on an LTE data network and instructing Motorola Moto Z Droid users how to utilize the Motorola Moto Z Droid to conduct and discontinue video calls on such data networks in the written manuals it has

provided, and continues to provide, despite its knowledge of the ’091 patent and the fact that such video calls cause Motorola Moto Z Droid users to directly infringe the ’091 patent. *See, e.g.*, https://motorola-global-portal.custhelp.com/ci/fattach/get/1856781/1477401677/redirect/1/session/L2F2LzEvdGltZS8xNDk0NjgxNDU2L3NpZC9mVXVkc2pXT1lZQ1FYcFJ1TlhJUFJZMU9kTlFwazIxMCU3RWcyaDBsWHVncFZ3RHVGNV9rSW9JRGIlN0VJN1FHdUo3Y2NIU0NLSXd3c1N5bzFzemRuZkFMUjJucDNQcWFmTFBCWEd3R0lUcXRkYWljVFJGSDVEdkNjJTdFYXclMjElMjE=/filename/68018216001b.pdf (instructing users at pages 8, 27, and 35 how to make a video call on an LTE network). In short, Motorola and Lenovo Group Ltd. have actively induced, and continue to actively induce the direct infringement of the ’091 patent by its end users by, among other things, publishing Motorola Moto Z Droid manuals and promotional literature describing and instructing the configuration and operation by its customers of the Motorola Moto Z Droid in an infringing manner and by offering support and technical assistance to its customers that encourage use of the Motorola Moto Z Droid in ways that directly infringe at least claims 1 and 8 of the ’091 patent.

151. Further, Motorola participated in the undertaking of such active steps after receiving notice of the ’091 patent and its infringement.

152. In addition, Motorola and Lenovo have indirectly infringed and continue to indirectly infringe the ’091 patent in violation 35 U.S.C. § 271(c) by selling or offering to sell in the United States, or importing into the United States, the ’091 Accused Products with knowledge that they are especially designed or adapted to operate in a manner that infringes the ’091 patent and despite the fact that the infringing technology or aspects of each ’091 Accused Products are not a staple article of commerce suitable for substantial non-infringing use.

153. For example, Motorola, Lenovo (United States) Inc., Lenovo Group Ltd., and Lenovo Holding Co., Inc. each knew that the functionality included in the ’091 Accused Products that enabled each to conduct and discontinue video calls in accordance with the standard for LTE communications infringes the ’091 patent. Further, on information and belief, Motorola, Lenovo (United States) Inc., Lenovo Group Ltd., and Lenovo Holding Co., Inc. knew that the ’091 Accused Products, including the Motorola Moto Z Droid and Lenovo Phab 2, were designed to ensure that they would be interoperable with standard LTE data networks in a manner that would infringe the ’091 patent.

154. Further, on information and belief, the infringing aspects of the ’091 Accused Products can only be used in a manner that infringes the ’091 patent and thus have no substantial non-infringing uses. Again using the Motorola Moto Z Droid and Lenovo Phab 2 as an example, the product includes the components and functionality described above at paragraphs 130-135 specifically so that each can conduct and discontinue video calls in accordance with the invention claimed in the ’091 patent in order to be interoperable with LTE data networks. The infringing aspects of the Motorola Moto Z Droid and Lenovo Phab 2 otherwise have no meaningful use, let alone any meaningful non-infringing use.

155. In addition, Lenovo’s and Motorola’s infringement of the ’091 patent was willful. Motorola, Lenovo (United States) Inc., Lenovo Group Ltd., and Lenovo Holding Co., Inc. each had received not just notice of the ’091 patent, but also information as to why the ’091 Accused Products infringe the ’091 patent, including that the ’091 patent had been recognized as essential to conducting and discontinuing video calls in an LTE network. Nevertheless, without authorization, each continued to infringe the ’091 patent in the manners described above, including by, on information and belief, selling and offering to sell in the United States, and

importing into the United States, ’091 Accused Products like the Lenovo Phab 2 and Motorola Moto Z Droid, in order to market such products as capable of conducting and discontinuing video calls on LTE data networks in order to promote the sale of those products.

156. Lenovo’s and Motorola’s acts of infringement have caused damage to 3G Licensing, and 3G Licensing is entitled to recover from Lenovo and Motorola the damages it has sustained as a result of Lenovo’s and Motorola’s wrongful acts in an amount subject to proof at trial.

COUNT 5
INFRINGEMENT OF U.S. PATENT NO. 6,856,818

157. Plaintiffs repeat and incorporate by reference each preceding paragraph as if fully set forth herein and further state:

158. On February 15, 2005, the U.S. Patent and Trademark Office duly and legally issued U.S. Patent No. 6,856,818, which is entitled, “Data store for mobile radio station.” A true and correct copy of the ’818 patent is attached as Exhibit E.

159. 3G Licensing is the owner by assignment from Orange of the ’818 patent and holds the sole right to sue and recover for any and all infringements.

160. The devices claimed in the ’818 patent have proved to be of great importance to the telecommunications field by allowing selective access to data stored on a subscriber identity module. For example, claims of the ’818 Patent have been found essential to 3GPP TS 21.111 V7.1.0 , Section 1, 4, 5.1, 5.2, 6.1 and 11.2 Document 3GPP TS 31.102 V7.13.0 , Section 4.4.2, 4.7, 5.1.1.1 and 5.3.29 ; Figure 4.2 3GPP TS 31.101 V7.0.1, Section 8.1 ETSI TS 102.221 V7.4.0 , Section 8.2.2.2, 8.4.1, 8.4.3, 11.1.1.1, 11.1.3.1, 11.1.5.1, 11.1.5.2, Annex K and K.2 ; Figure 8.2, 8.4 and K.1 ; Table 8.1 and 11.11 (ISLD-201011-001 ISLD-201011-002 ISLD-201011-003 ISLD-201011-004).

161. Lenovo and Motorola have directly infringed and continue to directly infringe the ’818 patent in violation 35 U.S.C. § 271(a) by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, without authorization, products that practice at least claim 18 of the ’818 patent literally or under the doctrine of equivalents (hereafter “’818 Accused Products”). At a minimum, such ’818 Accused Products include all Lenovo and Motorola smartphones and other devices and technology configured to select from multiple subscriber profiles, including but not limited to being compatible with a Universal Subscriber Identity Module (USIM) or a Universal Integrated Circuit Card (UICC), in accordance with the LTE, UMTS, or cdma2000 standards as described in Ex. E. This includes products like the Lenovo Phab 2 and Motorola Moto Z Droid, which, on information and belief, are configured to be compatible with USIM and/or UICC cards.

162. For example, as detailed in paragraphs 163-165 below, on information and belief, the Lenovo Phab 2 and Motorola Moto Z Droid comprise a modified subscriber data storage module that meets every element of claim 18 of the ’818 patent literally or under the doctrine of equivalents.[6] Further, on information and belief, the identified components and functionality of the Lenovo Phab 2 and Motorola Moto Z Droid are representative of the components and functionality present in all ’818 Accused Products, including but not limited to the following: Lenovo IdeaTab A2107, Lenovo Phab 2 Pro Smartphone, Lenovo Phab 2 Smartphone, Lenovo B4400, Lenovo B4450s, Lenovo B480, Lenovo B5400, Lenovo B580, Lenovo E49, Lenovo K2450, Lenovo K4450, Lenovo M4400s, Lenovo M490, Lenovo M490s, Lenovo M495, Lenovo M5400, Lenovo V4400u , Lenovo V480, Lenovo V480s, Lenovo V490u, Lenovo V580,

[6] This description of Lenovo’s and Motorola’s infringement of the ’818 patent is illustrative and not intended to be an exhaustive or limiting explanation of every manner in which each ’818 Accused Product infringes the ’818 patent.

ThinkPad 11e, ThinkPad 13, ThinkPad Edge 11, ThinkPad Edge 13, ThinkPad Edge 14, ThinkPad Edge 15, ThinkPad Edge E10, ThinkPad Edge E30, ThinkPad Edge E40, ThinkPad Edge E50, ThinkPad Edge E120, ThinkPad Edge E125, ThinkPad Edge E130, ThinkPad Edge E135, ThinkPad Edge E145, ThinkPad Edge E220s, ThinkPad Edge E320, ThinkPad Edge E325, ThinkPad Edge E330, ThinkPad Edge E335, ThinkPad Edge E420, ThinkPad Edge E420s, ThinkPad Edge E425, ThinkPad Edge E430, ThinkPad Edge E430c, ThinkPad Edge E431, ThinkPad Edge E435, ThinkPad Edge E440, ThinkPad Edge E445, ThinkPad Edge E450, ThinkPad Edge E455, ThinkPad Edge E460, ThinkPad Edge E465, ThinkPad Edge E520, ThinkPad Edge E525, ThinkPad Edge E530, ThinkPad Edge E530c, ThinkPad Edge E531, ThinkPad Edge E535, ThinkPad Edge E540, ThinkPad Edge E545, ThinkPad Edge E550, ThinkPad Edge E555, ThinkPad Edge E560, ThinkPad Edge E565, ThinkPad Edge S430, ThinkPad Helix (Type 3xxx), ThinkPad L410, ThinkPad L412, ThinkPad L420, ThinkPad L421, ThinkPad L430, ThinkPad L440, ThinkPad L450, ThinkPad L460, ThinkPad L540, ThinkPad L510, ThinkPad L512, ThinkPad L520, ThinkPad L530, ThinkPad L540, ThinkPad L560, ThinkPad P40 Yoga, ThinkPad P50, ThinkPad P50s, ThinkPad P70, ThinkPad R400, ThinkPad R500, ThinkPad S430, ThinkPad S531, ThinkPad S540, S1 Yoga, ThinkPad SL300, ThinkPad SL400, ThinkPad SL400c, ThinkPad SL410, ThinkPad SL500, ThinkPad SL500c, ThinkPad SL510, ThinkPad T400, ThinkPad T400s, ThinkPad T410, ThinkPad T410i, ThinkPad T410s, ThinkPad T410si, ThinkPad T420, ThinkPad T420i, ThinkPad T420s, ThinkPad T420si, ThinkPad T430, ThinkPad T430i, ThinkPad T430s, ThinkPad T430si, ThinkPad T431s, ThinkPad T440, ThinkPad T440p, ThinkPad T440s, ThinkPad T450, ThinkPad T450s, ThinkPad T460, ThinkPad T460s, ThinkPad T500, ThinkPad T510, ThinkPad T510i, ThinkPad T520, ThinkPad T520i, ThinkPad T530, ThinkPad T530i, ThinkPad T540p, ThinkPad T550, ThinkPad

T560, ThinkPad W500, ThinkPad W510, ThinkPad W520, ThinkPad W530, ThinkPad W540, ThinkPad W541, ThinkPad W550s, ThinkPad X1, X1 Hybrid, X1 Carbon (Type 20A7, 20A8, 20BS, 20BT, 20FB, 20FC), ThinkPad X100e, ThinkPad X120e, ThinkPad X121e, ThinkPad X130e, ThinkPad X131e, ThinkPad X140e, ThinkPad X200, ThinkPad X200s, X200 Tablet, ThinkPad X201, ThinkPad X201i, ThinkPad X201s, X201 Tablet, ThinkPad X220, ThinkPad X220i, X220 Tablet, X220i Tablet, ThinkPad X230, ThinkPad X230i, X230 Tablet, X230i Tablet, ThinkPad X230s, ThinkPad X240, ThinkPad X240s, ThinkPad X250, ThinkPad X260, ThinkPad X300, ThinkPad X301, ThinkPad Yoga, Yoga 11e, Yoga 14 (Type 20DM , 20DN), Yoga 260, as well as Lenovo products that include the following modems: Qualcomm Gobi 1000 HS-USB Modem 9202, Qualcomm Gobi 2000 HS-USB Modem 9205, Qualcomm Gobi 3000 HS-USB Modem 9013, Sierra Wireless Gobi 4000 MC7750, Sierra Wireless Gobi 4000 MC7700 Sierra Wireless Gobi 5000 EM7355, Ericsson F3507g Mobile Broadband Modem, Ericsson F3607gw Mobile Broadband Modem, Ericsson F5521gw Mobile Broadband Modem, Ericsson H5321gw Mobile Broadband Modem, Ericsson N5321gw Mobile Broadband Modem, Sierra Wireless EM7345 4G LTE, Sierra Wireless AirPrime EM745.

163. Claim 18 of the ’818 patent is illustrative of the device claims of the ’818 patent. It recites a mobile station for use in a mobile communications system, the mobile station complying with a predetermined standard and being adapted, in accordance with the standard, to transmit a first memory access message, identifying a specific data record, in order to access the specific data record on a standard subscriber data storage module complying with the predetermined standard, the mobile station comprising: a modified subscriber data storage module which includes a processor for performing operations and memory having data records for storing data, the modified module being responsive to the first memory access message,

identifying the specific data record, wherein the memory holds a plurality of data records corresponding to the specific data record and the processor is arranged to select one data record, from the plurality of data records, to access in response to the first memory access message, the selection being performed on the basis of data identifying a current operational condition of the mobile station and independently of the content of the first memory access message, the identifying data being held in a further data record in the memory means.

164. On information and belief, the Lenovo Phab 2 is a mobile station for use in a mobile communications system. On information and belief, the Lenovo Phab 2 complies with predetermined standards, including the LTE, UMTS, and cdma2000 standards (including but not limited to 3GPP TS 31.101, TS 31.102, TS 102.221). On information and belief, the Lenovo Phab 2 accesses a memory record and transmits the memory access message by identifying a specific data record access, at least by way of its compliance with TS 102.221. On information and belief, the Lenovo Phab 2 accesses data from the Universal Subscriber Identity Module (USIM and/or UICC), at least by way of its compliance with TS 102.221. On information and belief, the Lenovo Phab 2 contains a modified subscriber data storage module, such as a USIM and/or UICC card, which includes a processor for performing operations and memory having data records for storing data, at least through its compliance with TS 102.221. On information and belief, the Lenovo Phab 2 includes a modified module responsive to the first memory access message, such as a USIM and/or UICC card, identifying the specific data record read the record from the UICC, at least by way of its compliance with TS 102.221. On information and belief, the Lenovo Phab 2 has memory, such as on a USIM and/or UICC card, to hold a plurality of data records corresponding to the specific data records, for example at least through its compliance with TS 121.111 and TS 102.221. On information and belief, the Lenovo Phab 2 has a processor,

such as a USIM and/or UICC card, arranged to select one data record, from the plurality of data records, to access in response to the first memory access message, at least through its compliance with TS 102.221. On information and belief, the Lenovo Phab 2 performs selection on the basis of data identifying a current operational condition of the mobile station independent of the content of the first memory access message, at least because the identifying data is held in the data records of the UICC. For example, the Lenovo Phab 2 selects the Application Data File (ADF) at the initialization phase and stored in UICC as specified in TS 131.102 and whereby the previously selected USIM and/or UICC application is automatically selected by default operating conditions. Moreover, the Lenovo Phab 2 complies with standards such as TS 102.221.

165. On information and belief, the Motorola Moto Z Droid is a mobile station for use in a mobile communications system. On information and belief, the Motorola Moto Z Droid complies with predetermined standards, including the LTE, UMTS, and cdma2000, standards (including but not limited to 3GPP TS 31.101, TS 31.102, TS 102.221). On information and belief, the Motorola Moto Z Droid accesses a memory record and transmits the memory access message by identifying a specific data record access, at least by way of its compliance with TS 102.221. On information and belief, the Motorola Moto Z Droid accesses data from the Universal Subscriber Identity Module (USIM and/or UICC), at least by way of its compliance with TS 102.221. On information and belief, the Motorola Moto Z Droid contains a modified subscriber data storage module, such as a USIM and/or UICC card, which includes a processor for performing operations and memory having data records for storing data, at least through its compliance with TS 102.221. On information and belief, the Motorola Moto Z Droid includes a modified module responsive to the first memory access message, such as a USIM and/or UICC card, identifying the specific data record read the record from the UICC, at least by way of its

compliance with TS 102.221. On information and belief, the Motorola Moto Z Droid has memory, such as on a USIM and/or UICC card, to hold a plurality of data records corresponding to the specific data records, for example at least through its compliance with TS 121.111 and TS 102.221. On information and belief, the Motorola Moto Z Droid has a processor, such as a USIM and/or UICC card, arranged to select one data record, from the plurality of data records, to access in response to the first memory access message, at least through its compliance with TS 102.221. On information and belief, the Motorola Moto Z Droid performs selection on the basis of data identifying a current operational condition of the mobile station independent of the content of the first memory access message, at least because the identifying data is held in the data records of the UICC. For example, the Motorola Moto Z Droid selects the Application Data File (ADF) at the initialization phase and stored in UICC as specified in TS 131.102 and whereby the previously selected USIM and/or UICC application is automatically selected by default operating conditions. Moreover, the Motorola Moto Z Droid complies with standards such as TS 102.221.

166. On information and belief, Lenovo (United States) Inc. therefore has directly infringed, and continues to directly infringe, each element of at least claim 18 of the ’818 patent by selling and offering to sell in the United States, and by importing into the United States, without authorization, ’818 Accused Products like the Lenovo Phab 2.

167. Further, on information and belief, Lenovo (United States) Inc. operates under the direction and control of Lenovo Group Ltd. and Lenovo Holding Co., Inc. Thus, on information and belief, Lenovo Group Ltd. and Lenovo Holding Co., Inc. also have directly infringed, and continue to directly infringe, each element of at least claim 18 of the ’818 patent by selling and offering to sell in the United States, and by importing into the United States, without authorization, ’818 Accused Products like the Lenovo Phab 2.

168. On information and belief, Motorola and Lenovo Group Ltd. also have directly infringed, and continue to directly infringe, each element of at least claim 18 of the ’818 patent by selling and offering to sell in the United States, and by importing into the United States, without authorization, ’818 Accused Products like the Motorola Moto Z Droid.

169. In addition, Lenovo and Motorola have indirectly infringed and continues to indirectly infringe the ’818 patent in violation 35 U.S.C. § 271(b) by taking active steps to encourage and facilitate direct infringement by third parties, including OEMs, partners, service providers, manufacturers, importers, resellers, customers, and/or end users, in this District and elsewhere in the United States, through the dissemination of the ’818 Accused Products and the creation and dissemination of promotional and marketing materials, supporting materials, instructions, product manuals, and/or technical information relating to such products with knowledge and the specific intent that its efforts will result in the direct infringement of the ’818 patent.

170. For example, Lenovo (United States) Inc. has taken active steps to encourage end users of the Lenovo Phab 2 to use the product in the United States in a manner it knows will directly infringe each element of at least claim 18 of the ’818 patent as described above in paragraphs 163-165, including by encouraging users to operate the Lenovo Phab 2 in conjunction with a USIM or UICC card in order to access a specific data record from the USIM or UICC in compliance with the standard LTE, UMTS, and/or cdma2000 data networks despite knowing of the ’818 patent and the fact that such usage of USIM and/or UICC cards will cause an end user to use the Lenovo Phab 2 in a manner that infringes the ’818 patent.

171. Such active steps include, for example, advertising and marketing the Lenovo Phab 2 as a smartphone configured to select from multiple subscriber profiles, including but not

limited to being compatible with a Universal Subscriber Identity Module card and instructing Lenovo Phab 2 users how to use USIM and/or UICC cards with the Lenovo Phab 2 in the written manuals it has provided, and continues to provide, despite its knowledge of the ’818 patent and the fact that such data transmissions cause Lenovo Phab 2 users to directly infringe the ’818 patent. *See, e.g.,* http://www.phonearena.com/phones/Lenovo-Phab-2_id10110/manual (instructing users how to insert a SIM card into the device). In short, Lenovo (United States) Inc. has actively induced, and continues to actively induce the direct infringement of the ’818 patent by its end users by, among other things, publishing Lenovo Phab 2 manuals and promotional literature describing and instructing the configuration and operation by its customers of the Lenovo Phab 2 in an infringing manner and by offering support and technical assistance to its customers that encourage use of the Lenovo Phab 2 in ways that directly infringe at least claim 18 of the ’818 patent.

172. Further, Lenovo (United States) Inc. undertook such active steps after receiving notice of the ’818 patent and its infringement.

173. Further, on information and belief, Lenovo (United States) Inc. operates under the direction and control of Lenovo Group Ltd. and Lenovo Holding Co., Inc. Thus, on information and belief, Lenovo Group Ltd. and Lenovo Holding Co., Inc. also have taken active steps to encourage end users of the Lenovo Phab 2 to use the product in the United States in a manner each knows will directly infringe each element of at least claim 18 of the ’818 patent as described above in paragraphs 163-165, including by encouraging users to operate the Lenovo Phab 2 in conjunction with a USIM or UICC card in order to access a specific data record despite knowing of the ’818 patent and the fact that such usage will cause an end user to use the Lenovo Phab 2 in a manner that infringes the ’818 patent.

174. On information and belief, such active steps include, for example, advertising and marketing the Lenovo Phab 2 as a smartphone configured to select from multiple subscriber profiles, including but not limited to being compatible with a Universal Subscriber Identity Module card and instructing Lenovo Phab 2 users how to use USIM and/or UICC cards with the Lenovo Phab 2 in the written manuals it has provided, and continues to provide, despite its knowledge of the ’818 patent and the fact that such data transmissions cause Lenovo Phab 2 users to directly infringe the ’818 patent. *See, e.g.*, http://www.phonearena.com/phones/Lenovo-Phab-2_id10110/manual (instructing users how to insert a SIM card into the device). In short, Lenovo Group Ltd. and Lenovo Holding Co., Inc. each has actively induced, and continues to actively induce the direct infringement of the ’818 patent by its end users by, among other things, publishing Lenovo Phab 2 manuals and promotional literature describing and instructing the configuration and operation by its customers of the Lenovo Phab 2 in an infringing manner and by offering support and technical assistance to its customers that encourage use of the Lenovo Phab 2 in ways that directly infringe at least claim 18 of the ’818 patent.

175. Further, Lenovo Group Ltd. and Lenovo Holding Co., Inc. participated in the undertaking of such active steps after receiving notice of the ’818 patent and its infringement.

176. In addition, Motorola and Lenovo Group Ltd. also have taken active steps to encourage end users of the Motorola Moto Z Droid to use the product in the United States in a manner it knows will directly infringe each element of at least claim 18 of the ’818 patent as described above in paragraphs 163-165, including by encouraging to users to operate the Motorola Moto Z Droid in conjunction with a USIM or UICC card in order to access a specific data record from the USIM or UICC despite knowing that such usage will cause an end user to use the Motorola Moto Z Droid in a manner that infringes the ’818 patent.

177. On information and belief, such active steps include, for example, advertising and marketing the Motorola Moto Z Droid as a smartphone configured to select from multiple subscriber profiles, including but not limited to being compatible with a Universal Subscriber Identity Module card and instructing Motorola Moto Z Droid users how to operate the Motorola Moto Z Droid in conjunction with a USIM or UICC card in order to access a specific data record from the USIM or UICC in the written manuals it has provided, and continues to provide, despite its knowledge of the ’818 patent and the fact that such data transmissions cause Motorola Moto Z Droid users to directly infringe the ’818 patent. *See, e.g.*, https://motorola-global-portal.custhelp.com/ci/fattach/get/1856781/1477401677/redirect/1/session/L2F2LzEvdGltZS8xNDk0NjgxNDU2L3NpZC9mVXVkc2pXT1lZQ1FYcFJ1TlhJUFJZMU9kTlFwazIxMCU3RWcyaDBsWHVncFZ3RHVGNV9rSW9JRGIlN0VJN1FHdUo3Y2NIU0NLSXd3c1N5bzFzemRuZkFMUjJucDNQcWFmTFBCWEd3R0lUcXRkYWljVFJGSDVEdkNjJTdFYXclMjElMjE=/filename/68018216001b.pdf (instructing users at page 4 how to insert a SIM card into the device; instructing users at page 58 how to change the wireless service plan with a SIM card). In short, Motorola and Lenovo Group Ltd. have actively induced, and continue to actively induce the direct infringement of the ’818 patent by its end users by, among other things, publishing Motorola Moto Z Droid manuals and promotional literature describing and instructing the configuration and operation by its customers of the Motorola Moto Z Droid in an infringing manner and by offering support and technical assistance to its customers that encourage use of the Motorola Moto Z Droid in ways that directly infringe at least claim 18 of the ’818 patent.

178. Further, Motorola participated in the undertaking of such active steps after receiving notice of the ’818 patent and its infringement.

179. In addition, Lenovo and Motorola have indirectly infringed and continue to indirectly infringe the ’818 patent in violation 35 U.S.C. § 271(c) by selling or offering to sell in the United States, or importing into the United States, the ’818 Accused Products with knowledge that they are especially designed or adapted to operate in a manner that infringes the ’818 patent and despite the fact that the infringing technology or aspects of each ’818 Accused Products are not a staple article of commerce suitable for substantial non-infringing use.

180. For example, Motorola, Lenovo (United States) Inc., Lenovo Group Ltd., and Lenovo Holding Co., Inc. each knew at least by May 20, 2015, that the functionality included in the ’818 Accused Products that enabled each to be configured to select from multiple subscriber profiles, including but not limited to being compatible with a Universal Subscriber Identity Module card infringes the ’818 patent. Further, on information and belief, Lenovo and Motorola knew that the ’818 Accused Products, including the Lenovo Phab 2 and Motorola Moto Z Droid, were designed to be configured to select from multiple subscriber profiles. In particular, they were designed with specific hardware and software to enable the devices to read multiple subscriber information stored on a Universal Subscriber Identity Module card in a manner that would infringe the ’818 patent.

181. Further, on information and belief, the infringing aspects of the ’818 Accused Products can only be used in a manner that infringes the ’818 patent and thus have no substantial non-infringing uses. Again using the Lenovo Phab 2 and Motorola Moto Z Droid as examples, the product includes the components and functionality described above at paragraphs 163-165 specifically so that it can select from multiple subscriber profiles, including so that it can be compatible with a Universal Subscriber Identity Module card, in accordance with the invention claimed in the ’818 patent in order to be interoperable with LTE, UMTS, and/or cdma2000 data

networks. The infringing aspects of the Lenovo Phab 2 and Motorola Moto Z Droid otherwise have no meaningful uses, let alone any meaningful non-infringing uses.

182. In addition, Lenovo's and Motorola's infringement of the '818 patent was willful. Both Lenovo and Motorola received not just notice of the '818 patent, but information regarding why '818 Accused Products infringe the '818 patent, including that they had been recognized by others as essential to the use of selecting multiple subscriber identities on devices in an LTE network. Nevertheless, without authorization, both Lenovo and Motorola continued to infringe the '818 patent in the manners described above, including by, on information and belief, selling and offering to sell in the United States, and importing into the United States, '818 Accused Products like the Lenovo Phab 2 and Motorola Moto Z Droid, in order to market such products as capable of utilizing USIM and/or UICC cards in order to promote the sale of those products

183. Lenovo's and Motorola's acts of infringement have caused damage to 3G Licensing, and 3G Licensing is entitled to recover from Lenovo and Motorola the damages it has sustained as a result of Lenovo's and Motorola's wrongful acts in an amount subject to proof at trial.

DEMAND FOR JURY TRIAL

184. Plaintiffs hereby demand a jury trial for all issues so triable.

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs pray for judgment as follows:

A. Declaring that Motorola, Lenovo (United States) Inc., Lenovo Group Ltd., and Lenovo Holding Co., Inc. have infringed the Asserted Patents, contributed to infringement of the Asserted Patents, and/or induced infringement of the Asserted Patents as alleged;

B. Awarding damages to Plaintiffs arising out of this infringement of the Asserted

Patents, including enhanced damages pursuant to 35 U.S.C. § 284 and prejudgment and post-judgment interest, in an amount according to proof;

C. Awarding attorneys' fees to Plaintiffs pursuant to 35 U.S.C. § 285 or as otherwise permitted by law;

D. Awarding such other costs and further relief as the Court may deem just and proper.

Dated: May 30, 2017

Respectfully submitted,

FARNAN LLP

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