IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS

USTA TECHNOLOGY, LLC, *Plaintiff,* v. LENOVO GROUP LIMITED, LENOVO (UNITED STATES), INC., and LENOVO GLOBAL TECHNOLOGY (UNITED STATES) INC., *Defendants.*	Civil Action No. 4:24-cv-515 JURY TRIAL DEMANDED

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff USTA Technology, LLC ("USTA" or "Plaintiff"), for its Complaint against Defendant Lenovo Group Limited, ("Lenovo Group" or "Defendant"), Lenovo (United States) Inc. ("Lenovo US"), and Lenovo Global Technology (United States) Inc. ("Lenovo Tech.") (individually each a "Defendant" and collectively "Lenovo" or "Defendants"), alleges the following:

NATURE OF THE ACTION

1. This is an action for patent infringement arising under the Patent Laws of the United States, 35 U.S.C. § 1 *et seq*.

THE PARTIES

2. Plaintiff USTA is a limited liability company organized under the laws of the State of Delaware with a place of business at 211 W Tyler St., Ste. C, Longview, TX 75601.

3. Defendant Lenovo Group is a Hong Kong corporation with a physical address at 23/F, Lincoln House, Taikoo Place, 979 King's Road, Quarry Bay, Hong Kong. Upon information and belief, Lenovo Group sells, offers to sell, and/or uses products and services

throughout the United States, including in this judicial district, and introduces infringing products and services into the stream of commerce knowing that they would be sold and/or used in this judicial district and elsewhere in the United States.

4. Lenovo maintains a corporate presence in the United States via at least its wholly owned subsidiaries, including Lenovo (United States) Inc. ("Lenovo US") and Lenovo Global Technology (United States) Inc. ("Lenovo Tech.").

5. Upon information and belief, Lenovo US is a corporation organized and existing under the laws of Delaware, with a place of business at 111 Sylvan Ave, Englewood Cliffs, NJ 07632, and can be served through its registered agent, Corporation Trust Company, 1209 Orange Street, Wilmington DE 19801.

6. Lenovo Tech. is a corporation organized and existing under the laws of Delaware, with a corporate headquarters located at 1009 Think Place, Morrisville, NC 27560. Lenovo Tech. is registered to do business in the State of Texas and may be served through Corporation Trust Company, 1209 Orange Street, Wilmington DE 19801.

7. Lenovo, alone and through its U.S.-based subsidiaries (such as Lenovo US and Lenovo Tech.), places such infringing products into the stream of commerce via established distribution channels knowing or understanding that such products would be sold and used in the United States, including in the Eastern District of Texas. For example, Lenovo sells and offers to sell the Accused Instrumentalities through its website, Lenovo.com, which may be accessed throughout the United States, the State of Texas, and this District.

8. This Court has personal jurisdiction over Lenovo at least because Lenovo regularly conducts and transacts business, including infringing acts described herein, in this District. Defendants conduct business in Texas, directly or through intermediaries and offers

products or services, including those accused herein of infringement, to customers, and potential customers located in Texas, including in the Eastern District of Texas.

JURISDICTION AND VENUE

9. This is an action for patent infringement arising under the Patent Laws of the United States, Title 35 of the United States Code.

10. This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

11. Venue is proper in this judicial district under 28 U.S.C. §§ 1391 and 1400(b). Lenovo is a foreign corporation organized under the laws of China and suits against foreign entities are proper in any judicial district.

12. This Court has personal jurisdiction over Lenovo under the laws of the State of Texas, due at least to its substantial business in Texas and in this judicial district, directly or through intermediaries, including: (i) at least a portion of the infringements alleged herein; and (ii) regularly doing or soliciting business, engaging in other persistent courses of conduct and/or deriving substantial revenue from goods and services provided to individuals in the State of Texas and in this District.

BACKGROUND

13. Jerry D. Burchfiel is the inventor of U.S. Patent No. RE47,720 ("the '720 patent"). A true and correct copy of the '720 patent is attached as Exhibit 1.

14. The '720 patent resulted from the pioneering efforts of Mr. Burchfiel (hereinafter "the Inventor") in the area of spectrum management in wireless networking systems. These efforts resulted in the development of a method and apparatus for increasing the available spectrum in a wireless network by sharing existing allocated (and in-use) portions of the RF spectrum in a manner that will minimize the probability of interfering with existing legacy users in 2002. At the time of these pioneering efforts, there was increasing demand for spectrum-

based services and devices to address decreasing wireless communications network bandwidth. Moreover, managing interference levels was made particularly difficult by the greater density, mobility and variability of "next generation" (XG) radio frequency emitters. (*See* '720 patent at 1:19-34.)

15. While the then-existing solutions for spectrum management to address increasing demand for spectrum-based services and devices sought to assign locally unoccupied portions of the RF spectrum to XG users, the FCC Spectrum Management Policy Task Force recommended that secondary users of a band are required to accept interference from primary users, and must cause no "harmful" interference to the primary users. The Task Force policy permitted secondary (e.g., unlicensed) users to radiate only enough power in an area of interest to raise the interference temperature in the band to a specified threshold T_0 for the band, service, and locality, and would create an opportunity to "underlay" existing primary applications with low-power, low-impact opportunistic applications that operate below the threshold. (*See* '720 patent at 1:35-53.)

16. However, the Spectrum Policy Task Force Report did not address how to build and configure networks and devices that comply with the proposed rules. Accordingly, the Inventor conceived of the inventions claimed in the '720 patent as a way to describe tools, devices and applications XG users can build, configure and deploy in order to take advantage of the proposed spectrum policies. (*See* '720 patent at 1:54-62.)

17. For example, the Inventor conceived of a node of a network communications system that could be configured to:

(a) Continuously carry out real-time sensing and characterization of the local spectrum usage by (potentially interfering) narrowband and-wideband emitters;

(b) Dynamically and autonomously adapt (on a time scale of milliseconds) to the local spectrum environment by selecting and controlling the waveforms (power spectral density (PSD) and Media Access Control (MAC) protocols) that its network neighbors use when transmitting to this node;

(c) Automatically carry out a closed loop power control aLenovoorithm with each neighbor to throttle back on unnecessarily high power levels, thereby enhancing Low Probability of Detection (LPD);

(d) Apply transmission security ("TRANSEC") parameters to the spread spectrum modulation process in order to enhance Low Probability of Intercept (LPI); and/or

(e) Carry out packet forwarding (routing) in a way that balances aggregate network throughput against average end-to-end delay. (This results in real time traffic, e.g., voice, being sent with higher power, minimizing latency due to channel access delays at multiple hops, and bulk traffic being sent with lower power, minimizing network self-interference, maximizing spatial reuse of frequencies and enhancing LPI/LPD).

(*See* '720 patent at 2:12-38.)

18. The inventions of the '720 patent also provide a way to underlay new services on then-existing bandwidth allocations with minimal or no interference to, and from, existing legacy

users, by underlaying spectrum-efficient megabit rate networking onto bands allocated for other purposes, while providing up to 30 times greater throughput than then-current spectrum management systems. (*See* '720 patent at 2:7-11.) For example, military networking could underlay any narrowband-channelized spectrum where individual channels have less than 100% duty cycle, such as in commercial cellular, without interfering with existing legacy users of these bands. At the same time, the flexible hardware and software made possible by the inventions of the '720 patent will also operate in other frequencies without hardware modification when necessary, such as in overseas locations and in wartime. (*See id.* at 2:49-64.)

19. The inventions of the '720 patent address individual spectrum management devices and provide an integrated system concept for dynamic, adaptive, radio frequency spectrum assignment and use. The result is far greater spectrum efficiency, providing megabit/sec rate communications networks that can extend far beyond the capabilities of then-existing wireless networking systems and devices. (*See* '720 patent at 1:66-2:7.)

20. Moreover, the design of the highly advanced networking communications architecture described and claimed by the '720 patent combines dynamic spectrum management techniques with matching adaptive networking and full exploitation of multiple transceivers per communications node. The inventions of the '720 patent thus provide increased flexibility and scalability, and may be easily adapted for use with other forward-looking wireless communications systems and technologies. (*See* '720 patent at 2:39-48.)

21. The claims of the '720 patent do not merely recite the performance of some well-known business practice from the pre-Internet world along with the requirement to perform it on the Internet. Instead, the claims of the '720 patent recite inventive concepts that are deeply rooted in engineering technology, and overcome problems specifically arising out of how to

design and develop tools, devices and applications that take advantage of the spectrum management policies proposed by the FCC Spectrum Management Policy Task Force. (*See* '720 patent at 1:54-62.)

22. In addition, as set forth, the claims of the '720 patent recite inventive concepts that improve the functioning spectrum management in wireless local area networking systems. The inventive concepts recited by the claims of the '720 patent are not merely routine or conventional use of wireless networking technology. Instead, the patented inventions disclosed and claimed in the '720 patent provide a new and novel solution to specific problems related to improving spectrum management in wireless networks in light of the rapidly increasing number and complexity of "next generation" (XG) radio frequency emitters in or around 2002. (*See* '720 patent at 1:19-34.)

23. And finally, the patented inventions disclosed and claimed in the '720 patent do not preempt all the ways of improving spectrum management in wireless networks, nor does the '720 patent preempt any other well-known or prior art technology.

24. Accordingly, the claims in the '720 patent recite a combination of elements sufficient to ensure that the claim in substance and in practice amounts to significantly more than a patent-ineligible abstract idea.

25. The Institute of Electrical and Electronics Engineers (IEEE) is a leading standards-development organization for the development of industrial standards (having developed over 900 active industry technical standards) in a broad range of disciplines, including electric power and energy, telecommunications, consumer electronics, biomedical technology and healthcare-information technology, information assurance, transportation, aerospace, and nanotechnology.

26. Today, IEEE is the world's largest association of technical professionals with more than 420,000 members in over 160 countries around the world. Its objectives are the educational and technical advancement of electrical and electronic engineering, telecommunications, computer engineering, and allied disciplines.

27. The IEEE 802.11 standards, created by the IEEE, are a set of media access control (MAC) and physical layer (PHY) specifications for implementing wireless local area network (WLAN) computer communication in the 900 MHz and 2.4, 3.6, 5, and 60 GHz frequency bands.

28. The IEEE 802.11 standards are created and maintained by the IEEE LAN/MAN Standards Committee (IEEE 802). The base version of IEEE 802.11 was released in 1997 and has had subsequent amendments. The standard and amendments provide the basis for wireless network products using the Wi-Fi brand.

29. IEEE Std. 802.11-2016, commonly shortened to 802.11-2016, is a revision based on the IEEE 802.11-2012 wireless-networking standard, and further incorporates five amendments, including 802.11ac-2013 (commonly shortened to 802.11ac).

30. 802.11ac is an amendment to IEEE 802.11, published in December 2013, and builds on 802.11n. The goal of 802.11n was to improve network throughput over the two previous standards—802.11a and 802.11g—with a significant increase in the maximum net data rate from 54 Mbit/s to 600 Mbit/s (slightly higher gross bit rate, including, for example, error-correction codes, and slightly lower maximum throughput) with the use of four spatial streams at a channel width of 40 MHz.

31. Changes in 802.11ac compared to 802.11n include wider channels (80 or 160 MHz versus 40 MHz) in the 5 GHz band, more spatial streams (up to eight versus four), higher-

order modulation (up to 256-QAM vs. 64-QAM), and the addition of Multi-user MIMO (MU-MIMO). While initial implementations supported 80 MHz channels, three spatial streams, and 256-QAM, in 80 MHz channels in the 5 GHz band, more recent devices support 160 MHz channels, four spatial streams, and MU-MIMO.

32. The 802.11ac standard has enabled increased efficiency, as evidenced by the fact that most high-end, Wi-Fi-enabled consumer electronics on the market are 802.11ac compliant. The majority of products adopting this technological advance are advertised as being compliant with the standard, and companies regularly list their product as compliant with this particular standard on trade group web sites (such as the Wi-Fi Alliance website).

COUNT I – INFRINGEMENT OF U.S. PATENT NO. RE47,720

33. The allegations set forth in the foregoing paragraphs 1 through 28 are incorporated into this First Claim for Relief.

34. On November 5, 2019, the ’720 patent was duly and legally issued by the United States Patent and Trademark Office under the title “Spectrum-Adaptive Networking.”

35. USTA is the assignee and owner of the right, title and interest in and to the ’720 patent, including the right to assert all causes of action arising under said patent and the right to any remedies for infringement of it.

36. The inventions claimed in the ’720 patent relate to technologies for radio frequency spectrum management in a wireless local area network system. Such technologies are a required part of the very-high throughput (“VHT”) beamforming protocols of the 802.11ac standard, subsequently incorporated into 802.11-2016. Accordingly, devices supporting the 802.11ac standard necessarily meet the claim limitations of the ’720 patent.

37. Upon information and belief, Defendants have and continue to directly infringe one or more claims of the ’720 patent by selling, offering to sell, making, using, and/or providing and causing to be used 802.11ac-compliant products (the “Accused Instrumentalities”).

38. For example, Defendants make and sell at least the following products that qualify as Accused Instrumentalities: the ThinkPad Stack Wireless Router, Lenovo Tab P12/P12 Pro, IdeaPad Y700, IdeaPad 5G, K12 Pro, and associated hardware and/or software. (*See, e.g.*, https://download.lenovo.com/pccbbs/options/tpstack_wireless_router_1tb_hd_kit_4xh0h34184.pdf; https://www.lenovo.com/us/en/p/tablets/android-tablets/lenovo-tab-series/lenovo-tab-p12/len103l0018#tech_specs; https://www.lenovo.com/us/en/p/laptops/ideapad/ideapad-y700/ideapad-y700-(15)/88ipy700618#models; https://psref.lenovo.com/syspool/Sys/PDF/Lenovo_Laptops/ideapad_Y700_15/ideapad_Y700_15_Spec.PDF; https://psref.lenovo.com/syspool/Sys/PDF/IdeaPad/IdeaPad_5G_14Q8X05/IdeaPad_5G_14Q8X05_Spec.pdf; https://www.gsmarena.com/lenovo_k12_pro-10605.php.)

39. The Accused Instrumentalities include any and all products that Defendants have or continue to make, use, sell, import and/or provide and cause to be used that incorporate the wideband channel access features of the 802.11ac standard, whether certified for 802.11ac or other versions of the 802.11 standard, including via backwards compatibility with 802.11ac.

40. Upon information and belief, the Accused Instrumentalities perform a method for managing interference in a radio communications network, comprising the steps of: receiving at a first node in the radio communications network an instruction transmitted from a second node in the radio communications network to avoid using a plurality of frequencies to transmit to the second node; filtering a transmission signal to remove power from the transmission signal at

each frequency in the plurality of frequencies to be avoided; transmitting the filtered transmission signal to the second node; receiving a compressed first feedback from the second node that characterizes receipt of a first signal sent from the first node to the second node; receiving a compressed second feedback from a third node that characterizes receipt of a second signal sent from the first node to the third node; decompressing the compressed first feedback resulting in a decompressed first feedback; and decompressing the compressed second feedback resulting in a decompressed second feedback; wherein the filtered transmission signal is a filtered first transmission signal that is transmitted to the second node using an 802.11-based orthogonal frequency-division multiplexing (OFDM) protocol via at least one antenna of a plurality of antennas, using a first power that is based on the decompressed first feedback; and further comprising: transmitting, using the 802.11-based OFDM protocol, a filtered second transmission signal, simultaneously with the filtered first transmission signal, to the third node using a second power that is based on the decompressed second feedback.

41. Exemplary infringement analysis showing infringement of claim 53 of the ’720 patent is set forth in Exhibit 2. This infringement analysis is necessarily preliminary, as it is provided in advance of any discovery provided by Defendants with respect to the ’720 patent. USTA reserves all rights to amend, supplement and modify this preliminary infringement analysis. Nothing in the attached chart should be construed as any express or implied contention or admission regarding the construction of any term or phrase of the claims of the ’720 patent.

42. The Accused Instrumentalities infringed and continue to infringe claim 53 of the ’720 patent during the pendency of the ’720 patent.

43. On information and belief, the Accused Instrumentalities are used, marketed, provided to, and/or used by or for each of Defendants' partners, clients, customers, and end users across the country and in this District.

44. USTA has been harmed by Defendants' infringing activities.

JURY DEMAND

Pursuant to Rule 38 of the Federal Rules of Civil Procedure, USTA demands a trial by jury on all issues triable as such.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff USTA demands judgment for itself and against Defendants as follows:

A. An adjudication that Defendants have infringed the '720 patent;

B. An award of damages to be paid by Lenovo adequate to compensate USTA for Defendants' past infringement of the '720 patent, and any continuing or future infringement through the date such judgment is entered, including interest, costs, expenses and an accounting of all infringing acts including, but not limited to, those acts not presented at trial;

C. A declaration that this case is exceptional under 35 U.S.C. § 285, and an award of USTA's reasonable attorneys' fees; and

D. An award to USTA of such further relief at law or in equity as the Court deems just and proper.

Dated: June 7, 2024

DEVLIN LAW FIRM LLC

/s/ Timothy Devlin _____

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