

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

COLLISION COMMUNICATIONS, INC.,

Plaintiff,

v.

LENOVO GROUP LIMITED,

Defendant.

Case No. 2:23-cv-00594

JURY TRIAL DEMANDED

**PLAINTIFF COLLISION COMMUNICATIONS, INC.'S
COMPLAINT FOR PATENT INFRINGEMENT**

Collision Communications, Inc. brings this action for patent infringement under 35 U.S.C. § 271 against Defendant Lenovo Group Limited (“Lenovo” or “Defendant”) and alleges as follows:

PARTIES

1. Plaintiff Collision Communications, Inc. (“Collision” or “Plaintiff”) is a Delaware corporation with its principal place of business at 20 Depot St., Suite 2A, Peterborough, NH 03458. Collision was formed in 2011 and is a telecommunications research and development company that creates and implements proprietary methods for reducing signal interference in networks.

2. On information and belief, Defendant Lenovo is a corporation organized and existing under the laws of the People’s Republic of China, with an address at 23rd Floor, Lincoln House, Taikoo Place, 979 King’s Road, Quarry Bay, Hong Kong.

3. Lenovo may be served at least by process under the Hague Convention.

JURISDICTION AND VENUE

4. This action arises under the Patent Act, 35 U.S.C. § 1 *et seq.*

5. Subject matter jurisdiction is proper in this Court under 28 U.S.C. §§ 1331 and 1338(a).

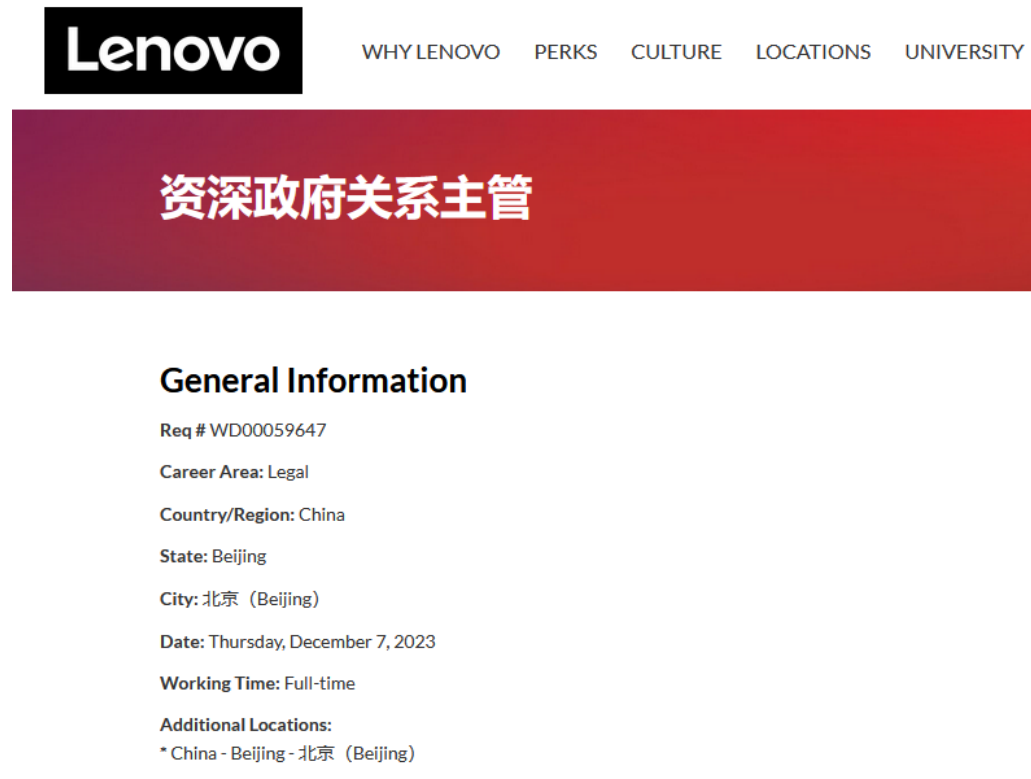
6. This Court has personal jurisdiction over Lenovo. Lenovo, directly and/or through the control or direction of its subsidiaries, has sufficient minimum contacts with the forum as a result of business conducted within the State of Texas and within the Eastern District of Texas. Personal jurisdiction also exists over Lenovo because it, directly or through subsidiaries and affiliates, makes, uses, sells, offers for sale, imports, advertises, makes available, and/or markets products within the State of Texas and the Eastern District of Texas that infringe one or more claims Asserted Patents. Further, on information and belief, Defendant has placed or contributed to placing infringing products into the stream of commerce knowing or understanding that such products would be sold and used in the United States, including in this District.

7. Lenovo offers for sale and sells products or services within the State of Texas and within the Eastern District of Texas that directly or indirectly infringe the Asserted Patents (described below). Lenovo purposefully and voluntarily places its infringing products into the stream of commerce with both the expectation and the knowledge that those products will be purchased and used by consumers in the Eastern District of Texas.

8. For example, while Lenovo is a Chinese entity, on information and belief, it is involved in the operation of a United-States directed website (<https://www.lenovo.com/us/en/>), including website pages that advertise the Accused Products. *See, e.g.*, <https://www.lenovo.com/us/en/pc/>, <https://www.lenovo.com/us/en/laptops>, <https://www.lenovo.com/us/en/tablets>.

9. On information and belief, Lenovo provides its United-States directed website on behalf of Lenovo Group Ltd. *See* <https://www.lenovo.com/us/en/privacy/> (defining “Lenovo” as

“Lenovo Group Ltd. and its affiliated group companies”); <https://www.lenovo.com/us/en/pc/> (including copyright to “Lenovo”). That same website markets the Accused Products to customers throughout the United States, touting direct-to-consumer sales and provisioning warranties. *See, e.g.,* <https://www.lenovo.com/us/en/deals/computers-near-me/?sortBy=Recommended>, https://download.lenovo.com/pccbbs/thinkcentre_pdf/1505-0010-03_en_update.pdf. Indeed, said website dictates certain parameters regarding sales by Lenovo to U.S.-based customers. *See* <https://www.lenovo.com/us/en/terms-and-conditions/>. Lenovo advertises as its CEO on this United-States directed website Yuanqing Yang, who on information and belief is the CEO of Lenovo Group Limited. *See* <https://www.lenovo.com/us/en/about/leaders/>. On the Lenovo website, customers in the United States and in Texas can purchase Lenovo products, receive technical support, <https://support.lenovo.com/us/en>, and even apply for jobs all over the world, including in China:



The screenshot shows the Lenovo corporate website. At the top left is the Lenovo logo. To its right are navigation links: WHY LENOVO, PERKS, CULTURE, LOCATIONS, and UNIVERSITY. Below this is a large red banner with the Chinese text '资深政府关系主管' (Senior Government Relations Manager) in white. Underneath the banner, the job listing details are displayed:

General Information
Req # WD00059647
Career Area: Legal
Country/Region: China
State: Beijing
City: 北京 (Beijing)
Date: Thursday, December 7, 2023
Working Time: Full-time
Additional Locations:
* China - Beijing - 北京 (Beijing)

https://jobs.lenovo.com/en_US/careers/JobDetail/53967.

10. On information and belief, Lenovo knows and intends that its products will reach customers throughout the United States, including in this District, or that Lenovo at least reasonably could have foreseen that a termination point of its distribution channel is Texas. For example, on information and belief, Lenovo permits resale of its products through Authorized Resellers and has developed those relationships to sell its products within the State of Texas and within this District. For example, it lists Pegasus Technology Solutions, LLC as one such partner:



<https://support.lenovo.com/us/en/lenovo-service-provider>; see also <https://www.pegasustechsolutions.com/about-us/partner-network>

11. On information and belief, Lenovo sells the Accused Products through distribution channels in the United States, which includes third-party distributors such as cellular carriers, including Verizon, see <https://www.verizon.com/about/news/verizon-introduces-lenovo-thinkpad-x13s-built-5g-ultra-wideband>, <https://news.lenovo.com/pressroom/press-releases/lenovo-delivers-on-5g-computing-with-leading-global-network-operators/> (statement copyrighted in 2020 on behalf of “Lenovo Group Limited”), with knowledge that the Accused Products will be sold nationwide, including in Texas. Lenovo also reasonably could have foreseen that a termination point

of its distribution channels are in Texas.

12. Lenovo is vicariously liable for the actions of its subsidiaries, affiliates, and other entities involved in infringing Collision's patents, at least because it directs or controls those entities, conditions receipt of a benefit to those entities on infringing actions and establishes the manner and timing of those actions, is engaged in a joint enterprise with those entities, and/or other similar activities. Contacts of those entities with the forum state can be imputed to Lenovo.

13. Venue in this District is proper under 28 U.S.C. § 1391(c)(3). A defendant not resident in the United States may be sued in any judicial district. *Id.*

THE ASSERTED PATENTS

14. Collision is the sole owner of, and possesses all rights, interests, and title of U.S. Patents 7,463,703 (the '703 patent), 7,920,651 (the '651 patent), 8,089,946 (the '946 patent), 7,593,492 (the '492 patent), 9,814,071 (the '071 patent), and 6,947,505 (the '505 patent) (collectively, the "Asserted Patents"). These patents are attached to as **Exhibits A–F**, respectively. Each patent is valid and enforceable.

15. Collision began as a product company. The patents-in-suit stem from work at BAE Systems ("BAE"). BAE is a multinational defense, security, and aerospace company, which develops solutions for the British and U.S. Armed Forces. At the time of the inventions at issue in this case, BAE was working on multi-user detection techniques to solve a wide variety of problems in then-existing communications technology. Military communications use cases generally prefer ad hoc and other decentralized communication networks: in the battlefield, a single point of failure is unacceptable. But such networks have their own challenges compared to then-existing traditional communication networks such as increased interference and noise. In a telecommunications network, "noise" is where a device receives interfering signals, such as signals transmitted from base stations as noise. Noise decreases network quality and bandwidth efficiency. The Asserted

Patents address how to address this interference to improve overall network efficiency.

16. Collision itself was created and acquired the Asserted Patents with the goal of developing products and software to implement the Asserted Patents' technology commercially.

17. One potential commercial partner was Lenovo. On information and belief, Lenovo engaged in discussions with Collision beginning around 2011 regarding Collision's patented technology. On information and belief, Lenovo received actual notice of the Asserted Patents through those discussions and/or obtained information sufficient that it should have known of or was willfully blinding itself to its current infringement.

18. Additionally, Collision's patents and related patents have been cited during prosecution of patent applications filed by Lenovo/Motorola. And Collision's patents are readily available from public sources such as the U.S. Patent Office and Google Patents.

19. In a telecommunications network, a mobile device receives interfering signals, such as signals transmitted from base stations, as noise. Noise decreases network quality and bandwidth efficiency. The Asserted Patents address how to address interference to improve overall network efficiency.

20. The '703 patent is titled "Joint Symbol, Amplitude, and Rate Estimator." The claims are drawn to apparatuses for processing digital data streams from multiple users which follow this general scheme: (1) an initial amplitude estimation unit processes the data stream and producing initial amplitude estimates on a first iteration; (2) a joint amplitude estimator produces updated amplitude estimates; (3) a symbol estimator also produces symbol estimates; and (4) a bank of decoders produces a plurality of symbol likelihood estimates for each user, where those estimates are iteratively fed back to the symbol and joint amplitude estimator. *See generally* '703 patent, claim 1.

21. The '703 patent describes advancements in communications technology and signal processing to provide high quality, real-time processing for multiple access and overloaded systems. Specifically, as communication networks and the wireless sector grew, many users would transmit energy on the same communications channel, making it difficult for receivers to detect information associated with a particular user. *Id.* 1:49–61. The signal of interest could not be received or the quality of its reception would be significantly degraded. *Id.* 1:59–1. Attempts to solve these problems were unsatisfactory: One of the primary disadvantages of prior art implementations was their inability to handle overloaded conditions. *Id.* 5:50–53. Multiuser detection systems emerged, which are able to take full advantage of all information available at the receiver, by making use of any “knowledge” that the receiver has about the interfering signals, to cancel interference. *Id.* 5:58–66. But multiuser detection, too, had challenges: the computations could be complex and time-consuming, making real-time operation impossible. *Id.* 6:45–49; 8:28–35. The inventors thus proposed a system that provided an efficient means for jointly estimating symbols, channel amplitude, and data rate transmitted in a super saturated communications channel. *Id.* 8:42–51. The invention’s approach—where likelihood estimates are iteratively fed back into the symbol and joint amplitude estimator—dramatically reduces the number of computations needed, such that reliable operation can be achieved in a real-time implementation. *Id.* 25:42–54. And the claim limitations themselves are unconventional, considered both individually and as an ordered combination.

22. The '651 patent, a divisional in the same family as the '703 patent, is also titled “Joint Symbol, Amplitude, and Rate Estimator.” Drawn to the same problem in the art, the '651 patent offers a different solution. The invention claimed therein is a joint amplitude estimator that, like the apparatus claimed in the '703 patent, iteratively processes a data stream. But the '651

patent computes a filter that is used to compute individual amplitude estimates. *See generally* '651 patent, claim 1. An analogous method is also claimed. *See id.* at claim 6. As with the '703 patent, the '651 claim limitations themselves are unconventional, considered both individually and as an ordered combination.

23. The '946 patent is titled “Bandwidth Efficient Wireless Network Modem.” It is drawn to a modem that provides efficient use of wireless network bandwidth in multi-user interference environments. In the art, multiuser receivers had been attempted but had general deficiencies—in some cases distorting the residual signal and sometimes rendering the signal of interest unrecoverable. '946 patent 3:48–3:3. The '946 patent describes creating a bandwidth-efficient wireless network model that could exploit the channel densities possible with multiuser receivers. *Id.* 3:4–9. Here, too, the claim limitations are unconventional, considered both individually and as an ordered combination.

24. The '492 patent, titled “Combinational Hybrid Turbo-MUD” is generally directed to addressing problems associated with multi-user detection within a multiuser wireless network where noise is present. Existing systems were not able to keep up with real-time transmissions or had poor quality output when there were many users or too much interference. *See, e.g.*, '492 at 4:48–5:4, 6:43–63 (high complexity MUDs might “require too many computations to keep up with real time transmissions,” while faster, lower- complexity MUDs could have “poor quality output when there are many or strongly correlated interferers or users.”). The inventions of the '492 patent improve telecommunications technology by using a decision unit to select, for a given situation based on a set of decision criteria, particular MUDs as appropriate. The '492 claim limitations are also unconventional, considered both individually and as an ordered combination.

25. The '071 patent is titled “Media Access Control Protocol for Multiuser Detection

Enabled Ad-Hoc Wireless Communications.” Shared, multiuser networks allow a plurality of users—or a “node”—to share a common communication medium, reducing costs and improving scalability. But if more than one node tries to transmit at the same time, a “collision” occurs, rendering the transmitted information unintelligible and requiring it to be sent again. ’071 patent 1:37–48. Collisions could be mitigated by managing a shared network, where a central controller or access point manages the use of the shared communication medium, or on an ad hoc basis, where the nodes must negotiate with one another to avoid collisions. *Id.* 1:49–58. But, even with collision mitigation strategies, *id.* 1:65–3:3, these systems are generally limited both because only one node can transmit at a given time and because of the added overhead of the various protocols that can be used to avoid and recover from packet collisions, *id.* 3:4–13. The inventors thus proposed a method that uses multiuser detection technology to let a “plurality of nodes transmit simultaneously over a shared communication channel in a wireless ad hoc digital network.” *Id.* 3:18–21. “The communication capacity of the wireless ad hoc network is thereby increased by up to an order of magnitude or more.” *Id.* 3:21–23. The claims are generally drawn to systems that permit multiple simultaneous transmissions to be decoded by a receiving node simultaneously by separating out parameter-detecting signals into separate unshared channels while allowing data signals to be carried in shared channels. *See generally id.* at claim 1. And the claim limitations of the ’071 patent are unconventional, considered both individually and as an ordered combination.

26. The ’505 patent is titled “System For Parameter Estimation and Tracking of Interfering Digitally Modulated Signals.” The ’505 specification explains that parameter estimation units are able to “derive channel parameters which uniquely distinguish the characteristics of each individual signal regardless of the fact that the signals exist in the same communications bandwidth and at the same instant in time.” ’505 patent 1:19–25. In reality, however, accurate parameter

estimation is difficult in a multiuser environment because of the co-channel multiuser interference and because the received power and phase of a signal vary from burst to burst, making parameter estimation difficult. *Id.* 1:32–41. Conventional parameter estimation also requires a serial approach, creating blanks and blackout periods where simultaneously occurring signals are being ignored and not tracked. *Id.* 1:46–57. To address these issues, the inventors devised a system that could simultaneously track all of the interfering signals in real time by providing ultra-fast parameter estimation:

In order to be able to accommodate multiple interfering signals on the same communication channel in which the signals are purposely allowed to interfere with one another to be able to make maximum utilization of a traffic channel, in the subject invention, initial estimates are made of various parameters utilizing the interference-free received signal on the acquisition channel and the usual traffic channel training sequences which are transmitted to identify each mobile user and to set up timing for the burst transmission from the mobile phone. Thereafter, when a first user or corner exists and is assigned a particular traffic channel, initial parameter values from the acquisition channel are utilized in the tracking of the channel transfer function, including power, multipath structure, timing offset and frequency of this first corner or first signal in the traffic channel.

Thereafter, when a second interfering signal exists on the traffic channel, the system recreates the training sequence portion of every signal on the traffic channel prior to the last signal entering, and subtracts this from the training signal portion of the received signal to provide an interference-free signal from which to calculate estimates of the parameters for a newcomer to the channel. The above utilizes the training signal portions of the received signals. What this does in essence is to single out the signal of the newcomer.

Having estimates of the various parameters of the newcomer to the channel and assuming that there are two or more interfering signals on the channel, parallel processing is then utilized to isolate each of the signals assigned to the same channel by utilizing the previously described method of recreating then subtracting training sequence portions of the signals. A slightly modified version of the parallel processing portion which utilizes cascaded processing steps is also offered in the event parallel processing is not desirable.

The result is that the system can simultaneously track all of the interfering signals in realtime by providing ultra-fast parameter estimation, with these estimated values utilized by the signal separation algorithm.

Id. 2:8–46. The limitations recited in the claims are also unconventional when considered alone or in an ordered combination.

ALLEGATIONS OF PATENT INFRINGEMENT

A. The Accused Products

27. On information and belief, Lenovo makes, uses, sells, offers for sale, and/or imports, in/into the United States, products that implement and practice Collision’s proprietary wireless technologies. On information and belief, Lenovo products that provide 4G, 5G and Wi-Fi connectivity infringe at least one claim of the Asserted Patents and comprise the “Accused Products” in this case.¹

28. Exemplary Accused Products with 4G capabilities include, but are not limited to (in all configurations and colors):

- Moto Z products, including but not limited to Moto Z (2016), Moto Z Play (2016), Moto Z Force (2016), Moto Z2 Play, Moto Z2 Force Edition (2017), Moto Z3 (2018), Moto Z3 Play (2018), Moto Z4 (2019),
- Moto X products, including but not limited to Moto X (1st generation), Moto X (2nd generation), Moto X Play (2015), Moto X Style (2015), Moto X4 (2017), Moto X40 (2023),
- Moto C and C Plus,

¹ The Accused Products include all configuration, colors, sizes, and variations.

- Motorola One, including but not limited to Motorola One (2018), Motorola One Power (2018), Motorola One Vision (2019), Motorola One Action (2019), Motorola One Zoom (2019), Motorola One Macro (2019), Motorola One Hyper (2019), Motorola One Fusion+ (2020), Motorola One Fusion (2020), Motorola One 5G Ace (2021)
- Motorola Razr, including but not limited to Motorola Razr (2010), Razr 2019, Motorola Razr 5G Sept. 2020, Motorola Razr (2022), Motorola Razr 40, Motorola Razr 40 Ultra, Motorola Razr Plus
- Motorola Edge and Edge +, including but not limited to Motorola Edge (2020), Motorola Edge+ (2020), Motorola Edge S (2021), Motorola Edge 20 Lite (2021), Motorola Edge 20 Fusion (2021), Motorola Edge 20 (2021), Motorola Edge 20 Pro/Edge S Pro (2021), Motorola Edge (2021), Motorola Edge S30 (2022), Motorola Edge X30 (2022), Motorola Edge+ (2022), Motorola Edge 30 (2022), Motorola Edge 30 Pro (2022), Motorola Edge 40 Pro (2023)(Euro), Motorola Edge+ (2023) (US), Motorola Edge 40 (2023)
- Moto G, including but not limited to Moto G (1st generation, 2nd generation, 3rd generation), Moto G4 (2016), Moto G4 Play (2016), Moto G4 Plus (2016), Moto G5 (2017), Moto G5 Plus (2017), Moto G5S (2017), Moto G5S Plus (2017), Moto G6 (2018), Moto G6 Play (2018), Moto G6 Plus (2018), Moto G7 (2019), Moto G7 Play (2019), Moto G7 Power (2019), Moto G7 Plus (2019), Moto G8 Play (2019), Moto G8 Plus

(2019), Moto G8 (2020), Moto G8 Power (2020), Moto G8 Power Lite (2020),

- Moto G 2020, including but not limited to Moto G Fast (2020), Moto G Power (2020), Moto G Stylus/G Pro (2020), Moto G 5G Plus (2020), Moto G9 Play (2020), Moto G9 Plus (2020), Moto G9 Power (2020)
- Moto G 2021 line, including but not limited to Moto G 5G (2021), Moto G Pure (2021), Moto G Play (2021), Moto G Power (2021), Moto G Stylus (2021), Moto G Stylus 5G (2021), Moto G10 (2021), Moto G10 Power (2021), Moto G20 (2021), Moto G30 (2021), Moto G40 Fusion (2021), Moto G50 (2021), Moto G50 5G (2021), Moto G60 (2021), Moto G60S (2021), Moto G100 (2021); and
- Moto G 2022 line, including but not limited to Moto G Power 5G (2022), Moto G 5G (2022), Moto G Stylus (2022), Moto G Stylus 5G (2022), Moto G31 (2022), Moto G41 (2022), Moto G51 5G (2022), Moto G71 5G (2022), Moto G200 5G (2022), Moto G22 (2022), Moto G52 (2022), Moto G82 (2022), Moto G62 (2022), Moto G32 (2022), Moto G72 (2022), Moto G Play (2023)
- ThinkPhone,
- Watches, including but not limited to Motoactv, Moto 360
- Tablets, including but not limited to Lenovo Tab 4 Plus, Lenovo Tab M10 Plus
- Thinkpads, IdeaPad Duet 3i
- Connector Cards:

- Fibocom L860-GL-16 CAT16 4G WWAN for P16
- ThinkPad Fibocom L850-GL 4G LTE CAT9 III
- ThinkPad Fibocom L850-GL CAT9 M.2 WWAN
- ThinkPad Fibocom L860 CAT16 4G LTE WWAN Module for ThinkPad X1 Nano Gen 2 & X1 Yoga Gen 7
- ThinkPad Fibocom L860-GL-16 CAT16 4G LTE WWAN Module for ThinkPad T14 Gen 3
- ThinkPad Fibocom L860-GL-16 CAT16 4G LTE WWAN Module for ThinkPad T16 Gen 1
- ThinkPad Fibocom L860-GL-16 CAT16 4G LTE WWAN Module for ThinkPad X1 Carbon Gen 10
- ThinkPad Quectel SDX24 EM120R-GL 4G LTE CAT12 PCIE WWAN module
- ThinkPad Quectel SDX24 EM120R-GL 4G LTE CAT12 PCIE WWAN module II
- ThinkPad Fibocom L860-GL-16 4G LTE CAT16 M.2 WWAN Module for T14/P14s Gen 4
- ThinkPad Fibocom FM350-GL 5G Sub-6 GHz M.2 WWAN Module
- ThinkPad Fibocom L850-GL CAT9 WWAN Module II
- ThinkPad SDX55 5G sub6 M.2 WWAN Module
- and other Lenovo devices with 4G capabilities made, used, offered for sale, or sold by Lenovo during the damages period.

29. Exemplary Accused Products with 5G capabilities include, but are not limited to

(in all configurations and colors):

- Motorola razr+ 2023 in all configurations and colors;
- Motorola razr 5g in all configurations and colors;
- Motorola razr 40 ultra in all configurations and colors;
- Motorola razr 40 in all configurations and colors;
- moto g stylus 5G 2023 in all configurations and colors;
- moto g 5G in all configurations and colors;
- moto g 5G plus in all configurations and colors;
- moto g 5G 2022 in all configurations and colors;
- moto g power 5G – 2023 in all configurations and colors;
- moto g51 5G in all configurations and colors;
- moto g53 5G in all configurations and colors;
- moto g54 5G in all configurations and colors;
- moto g62 5G in all configurations and colors;
- moto g71 5G in all configurations and colors;
- moto g73 5G in all configurations and colors;
- moto g82 5G in all configurations and colors;
- moto g84 5g in all configurations and colors;
- moto g100 in all configurations and colors;
- moto g50 in all configurations and colors;
- Motorola edge in all configurations and colors;
- Motorola edge+ in all configurations and colors;
- Motorola edge 30 fusion 2022 in all configurations and colors;

- Motorola edge 40 in all configurations and colors;
- Motorola edge 40 neo in all configurations and colors;
- Motorola edge 30 neo in all configurations and colors;
- Motorola edge 30 in all configurations and colors;
- Motorola edge 30 pro in all configurations and colors;
- Motorola edge 20 in all configurations and colors;
- Motorola edge 20 lite in all configurations and colors;
- Motorola edge 20 pro in all configurations and colors;
- thinkphone by Motorola in all configuration and colors;
- Motorola edge 2022 in all configurations and colors;
- Moto Z3;
- Moto Mods,
- and other Lenovo and Motorola devices with 5G capabilities made, used, offered for sale, or sold by Lenovo or Motorola during the damages period.

30. On information and belief, all Lenovo Accused Products with Accused 5G Instrumentalities also have Accused 4G Instrumentalities.

31. Exemplary Wi-Fi Accused Products include, but are not limited to (in all configurations and colors):

- Phones
 - Moto G 5G
 - Moto G Play (2023)
 - Moto G Pure

- Moto G Stylus
- Moto G Stylus 5G
- Moto Edge 2022
- Moto Edge+ (2022)
- Motorola G Power
- Moto G Power 5G (2023)
- ThinkPhone by Motorola
- Motorola Razr+
- Motorola Edge+ (2023)
- Moto G Stylus (2023)
- Tablets:
 - Chromebook Duet 3
 - Chromebook Duet 5
 - Smart Tab M8
 - Smart Tab M8 Gen
 - Smart Tab M8 Gen 3
 - Smart Tab M10 FHD (Gen 2)
 - Tab K10 ("available soon")
 - Tab M10 HD (2nd Gen)
 - Tab M10 Plus
 - Tab M10 Plus (Gen 3)
 - Tab M7 Gen 3
 - Tab M8 Gen 3

- Tab M8 Gen 4
- Tab M8 HD LTE
- Tab M9
- Tab P11
- Tab P11 Gen 2
- Tab P11 Plus
- Tab P11 Pro Gen 2
- Tab P12
- Yoga Tab 11
- Laptops
 - 100e Gen 2 (11.6")
 - 14w Gen 2 AMD (14")
 - 300e Gen 2 (11.6")
 - 300e Chromebook Gen 3 AMD (11")
 - Chromebook Duet 3 (11")
 - Chromebook Duet 3[iv]
 - Chromebook Duet 5 (13")
 - Chromebook Flex 3i (11")
 - IdeaPad 1 (15" AMD)
 - IdeaPad 1i (14" Intel)
 - IdeaPad 3 (15" Intel)
 - IdeaPad 3i Intel (15")
 - IdeaPad Flex 3i Chromebook (15" Intel)

- IdeaPad Flex 5 (14" AMD)
- IdeaPad Flex 5 (16" AMD)
- IdeaPad Flex 5i (14" Intel)
- IdeaPad Flex 5i (16" Intel)
- IdeaPad Gaming 3 AMD (15")
- IdeaPad Pro 5i (16" Intel)
- IdeaPad Slim 3 Chromebook (14" MediaTek)
- IdeaPad Slim 3 (15" AMD)
- IdeaPad Slim 3i Chromebook Plus (14" Intel)
- IdeaPad Slim 3i (15" Intel)
- IdeaPad Slim 5i (16" Intel)
- IdeaPad Slim 9i Laptop
- IdeaPad Windows Duet 5i
- Legion 5 Gen 7 AMD (15") with RTX 3070 Ti
- Legion 5 Gen 7 AMD (15") with up to RTX 3050Ti
- Legion 5 Pro Gen 7 AMD (16") with RTX 3070
- Legion 5 Pro Gen 7 AMD (16") with RTX 3070 Ti
- Legion 5 Pro Gen 7 Gaming Laptop
- Legion 5i Gen 7 Intel (15") with RTX 3070 Ti
- Legion 7 Gen 7 AMD (16") with Radeon RX 6700M
- Legion 9i Gen 8 (16" Intel) Gaming Laptop
- Legion Pro 5 Gen 8 AMD (16") with RTX™ 4050
- Legion Pro 5i Gen 8 Intel (16") with RTX™ 4050

- Legion Pro 5i Gen 8 Intel (16") with RTX™ 4060
- Legion Pro 5i Gen 8 Intel (16") with up to RTX 4070
- Legion Pro 7i Gen 8 Intel (16") with up to RTX 4090
- Legion Slim 5 Gen 8 AMD (16") - RTX 4050
- Legion Slim 5 Gen 8 AMD (16") - up to RTX 4060
- Legion Slim 5i Gen 8 Intel (16") with RTX 4050
- Legion Slim 7 Gen 7 AMD (16") with Radeon™ RX 6600S
- Legion Slim 7 Gen 7 AMD (16") with Radeon™ RX 6800S
- Legion Slim 7 Gen 8 AMD (16") with RTX 4060
- Legion Slim 7i Gaming Laptop
- Legion Slim 7i Gen 7 Intel (16") with RTX 3060
- Legion Slim 7i Gen 8 Intel (16") - RTX 4060
- Legion Slim 7i Gen 8 Intel (16") - RTX 4070
- Lenovo 3i Chromebook (15" Intel)
- Lenovo 500e Chromebook Gen 3 Intel (11")
- Lenovo K14 Intel (14")
- Lenovo Slim 7 Pro X Laptop
- Lenovo Slim 7i (14" Intel)
- Lenovo Slim 7i (16" Intel)
- Lenovo Slim 7i Carbon Laptop
- Lenovo Slim 7i Laptop
- Lenovo Slim 7i Pro X Laptop
- Lenovo Slim 9i (14" Intel)

- Lenovo Slim 9i Laptop
- Lenovo Slim Pro 7 (14" AMD)
- LOQ (15" AMD) with RTX 4050
- LOQ (15" AMD) with up to RTX 4060
- LOQ (15" Intel) with RTX 3050
- LOQ (15" Intel) with RTX 4050
- LOQ (15" Intel) with up to RTX 4060
- LOQ (16" AMD) with RTX 4050
- LOQ (16" AMD) with up to RTX 4060
- LOQ (16" Intel) with RTX 4050
- ThinkBook 13s Gen 3 AMD (13")
- ThinkBook 13s Gen 4 AMD (13")
- ThinkBook 13s Gen 4 Intel (13")
- ThinkBook 13x Gen 2 Intel (13")
- ThinkBook 14 Gen 4 AMD (14")
- ThinkBook 14 Gen 4 Intel (14")
- ThinkBook 14 Gen 6 AMD (14")
- ThinkBook 14 Gen 6 Intel (14")
- ThinkBook 16 Gen 6 AMD (16")
- ThinkBook 16 Gen 6 Intel (16")
- ThinkBook Plus Gen 2
- ThinkBook Plus Gen 2 Intel
- ThinkBook Plus Gen 4 Intel

- ThinkPad E14 Gen 4 AMD (14")
- ThinkPad E14 Gen 4 Intel (14")
- ThinkPad E14 Gen 5 AMD (14")
- ThinkPad E14 Gen 5 Intel (14")
- ThinkPad E15 Gen 4 AMD (15")
- ThinkPad E16 Gen 1 AMD (16")
- ThinkPad E16 Gen 1 Intel (16")
- ThinkPad L13 Gen 3 AMD (13")
- ThinkPad L13 Gen 3 Intel (13")
- ThinkPad L13 Yoga Gen 2 AMD (13")
- ThinkPad L13 Yoga Gen 3 Intel (13")
- ThinkPad L13 Yoga Gen 3 AMD (13")
- ThinkPad L14 Gen 3 AMD
- ThinkPad L14 Gen 3 Intel (14")
- ThinkPad L14 Gen 4 AMD (14")
- ThinkPad P1 Gen 6 Intel (16") Mobile Workstation
- ThinkPad P14s Gen 4 AMD Mobile Workstation
- ThinkPad P14s Gen 4 Intel (14") Mobile Workstation
- ThinkPad P16 Gen 2 Intel (16") Mobile Workstation
- ThinkPad P16 Intel (16") Mobile Workstation
- ThinkPad P16 Gen 2 Intel (16") Mobile Workstation
- ThinkPad P16s Gen 2 AMD (16") Mobile Workstation
- ThinkPad P16s Gen 2 Intel (16") Mobile Workstation

- ThinkPad P16v Gen 1 AMD (16") - Mobile Workstation
- ThinkPad P16v Intel (16") Mobile Workstation
- ThinkPad P17 Mobile Workstation
- ThinkPad T14 Gen 2 Intel (14")
- ThinkPad T14 Gen 3 AMD (14")
- ThinkPad T14 Gen 3 Intel (14")
- ThinkPad T14 Gen 3 Intel (14") with Linux
- ThinkPad T14 Gen 4 AMD (14")
- ThinkPad T14 Gen 4 Intel (14")
- ThinkPad T14s Gen 2 Intel (14")
- ThinkPad T14s Gen 2 Intel (14")
- ThinkPad T14s Gen 3 AMD (14")
- ThinkPad T14s Gen 3 Intel (14")
- ThinkPad T14s Gen 4 AMD (14")
- ThinkPad T14s Gen 4 Intel (14")
- ThinkPad T15p Gen 3 Intel (15")
- ThinkPad T16 AMD (16")
- ThinkPad T16 Gen 2 AMD (16")
- ThinkPad T16 Gen 2 Intel (16")
- ThinkPad T16 Intel (16")
- ThinkPad T16 Intel (16") with Linux
- ThinkPad X1 Carbon Gen 10 Intel (14")
- ThinkPad X1 Carbon Gen 10 Intel (14") with Linux

- ThinkPad X1 Carbon Gen 11 Intel (14")
- ThinkPad X1 Carbon Gen 11 Intel (14") with Linux
- ThinkPad X1 Carbon Gen 9 Intel (14") -
- ThinkPad X1 Extreme Gen 5 Intel (16")
- ThinkPad X1 Nano Gen 2 Intel (13")
- ThinkPad X1 Nano Gen 3 Intel (13")
- ThinkPad X1 Titanium Yoga Intel
- ThinkPad X1 Titanium Yoga Intel (13")
- ThinkPad X1 Yoga Gen 6 Intel (14")
- ThinkPad X1 Yoga Gen 7 Intel (14") with Linux
- ThinkPad X1 Yoga Gen 7 Intel (14")
- ThinkPad X1 Yoga Gen 8 Intel (14")
- ThinkPad X13 Gen 2 Intel (13")
- ThinkPad X13 Gen 3 AMD (13")
- ThinkPad X13 Gen 3 Intel (13")
- ThinkPad X13 Gen 4 Intel (13")
- ThinkPad X13 Gen 4 AMD (13")
- ThinkPad X13 Yoga Gen 3 Intel (13")
- ThinkPad X13 Yoga Gen 4 Intel (13")
- ThinkPad X13s Snapdragon (13")
- ThinkPad Yoga 11e Gen 5
- ThinkPad Yoga 11e Gen 5 (11")
- ThinkPad Z13 AMD (13")

- ThinkPad Z16 AMD (16")
- Yoga 6 (13" AMD)
- Yoga 7 (16" AMD)
- Yoga 7i (14" Intel)
- Yoga 7i (14" Intel)
- Yoga 7i (15" Intel)
- Yoga 7i (16" Intel)
- Yoga 9i (14" Intel)
- Connector Cards:
 - ThinkStation Quectel CAT16 WWAN Module (w/MIMO)
 - ThinkStation Intel Wi-Fi AX210 WLAN Module
- and other Lenovo devices with Wi-Fi capabilities made, used, offered for sale, or sold by Lenovo during the damages period.

32. On information and belief, Lenovo 4G and 5G products also have infringing Wi-Fi capabilities.

33. On information and belief, Lenovo makes, uses, sells, offers for sale, and/or imports, in/into the United States, routers that implement and practice Collision's wireless technologies, (the "Accused Routers"). Such products include but are not limited to (in all configurations and colors):

- TP-Link AC1750 Wireless Dual Band Gigabit Ceiling/Wall Mount Access Point
- TP-Link Archer A54 AC1200 10/100 Mbps Dual Band WiFi Router, Guest WiFi, AP/RE Mode

- TP-Link Archer A6 V3 AC1200 Dual Band Gigabit WiFi Router, MU-MIMO, OneMesh, AP mode
- TP-Link Archer A7 AC1750 Dual Band Gigabit WiFi Router, Work w/ Alexa, OneMesh, QoS
- TP-Link Archer A8 AC1900 Dual Band Gigabit WiFi Router, MU-MIMO, Guest WiFi, OneMesh
- TP-Link Archer AX10 AX1500 Smart Dual Band Wi-Fi 6 Router, Beamforming, OFDMA, MU-MIMO
- TP-Link Archer AX10000 Tri-Band Wi-Fi 6 Gaming Router, OFDMA, MU-MIMO, WPA3, 2.5G WAN
- TP-Link Archer AX6000 WiFi 6 Gaming Router, 8-Stream, 2.5G WAN, MU-MIMO, OneMesh, OFDMA
- TP-Link Archer AX73 AX5400 Dual Band Wi-Fi 6 Router, MU-MIMO, OFDMA, HomeShield, HE160
- TP-Link Archer GX90 AX6600 Tri Band Wi-Fi 6 Gaming Router, 1 × 2.5G Port, OneMesh
- TP-Link Archer T2U Nano AC600 Dual Band USB WiFi Network Adapter, Mini Size WiFi Dongle
- TP-Link Archer T3U Plus AC1300 Dual Band USB WiFi Network Adapter, High Gain, MU-MIMO
- TP-Link Archer T4U Plus AC1300 Dual Band USB WiFi Network Adapter w/1m Cable, High Gain
- TP-Link Archer T5E AC1200 Dual Band PCIe WiFi Card for PC, Low Profile,

Bluetooth 4.2

- TP-Link AX1800 High Gain Dual Band Wi-Fi 6 USB Adapter
- TP-Link AX1800 Indoor/Outdoor Dual-Band Wi-Fi 6 Access Point
- TP-Link AX1800 Wi-Fi 6 Range Extender
- TP-Link AX3000 Ceiling Mount Dual-Band Wi-Fi 6 Access Point
- TP-Link AX3000 Dual Band Wi-Fi 6 Bluetooth PCI Express Adapter
- TP-Link AX3000 Whole Home Mesh Wi-Fi 6 Unit
- TP-Link AX3000 Wi-Fi 6 Range Extender
- TP-Link AX5400 Ceiling Mount Dual-Band Wi-Fi 6 Access Point
- TP-Link AX5400 Tri-Band Wi-Fi 6 Router
- TP-Link AXE5400 Tri-Band Wi-Fi 6E Bluetooth PCI Express Adapter
- TP-Link CPE210 2.4GHz N300 9dBi Long Range Outdoor CPE, PtP & PtMP
LR Connection, 5km+
- TP-Link Deco M5 1-Pack AC1300 Whole Home Mesh WiFi, HomeCare,
Router/Extender Replacement
- TP-Link Deco S4 1-Pack Whole Home Mesh WiFi, Parental Controls,
Router/RE Replacement
- TP-Link Deco X55 3-Pack AX3000 WiFi 6 Whole Home Mesh System,
OFDMA, Router/RE Replacement
- TP-Link EAP225 Omada SDN AC1350 Gigabit Wireless Access Point, Mesh,
Seamless Roaming
- TP-Link EAP225-Outdoor Omada SDN AC1200 Outdoor WiFi Access Point,
Mesh, Seamless Roaming

- TP-Link EAP610 Omada SDN AX1800 WiFi 6 Access Point, Mesh, OFDMA, Seamless Roaming
- TP-Link EAP615-Wall Omada SDN AX1800 WiFi 6 in-Wall Access Point, OFDMA & MU-MIMO
- TP-Link RE105 N300 WiFi Range Extender, Internet Signal Booster, Wall Plug, AP Mode
- TP-Link RE220 AC750 Dual Band WiFi Range Extender, WPS, 3 Internal Antenna, Wall Plug
- TP-Link RE315 AC1200 Dual Band WiFi Range Extender, OneMesh, WPS, 2 External Antennas
- TP-Link RE500X AX1500 Dual Band Gigabit WiFi Range Extender, WPS, OFDMA, OneMesh, AP Mode
- TP-Link RE650 AC2600 Dual Band Gigabit WiFi Range Extender, AP Mode, 4×4 MU-MIMO, WPS
- TP-Link TL-WN725N N150 USB WiFi Network Adapter for PC, Desktop, Nano Size WiFi Dongle
- TP-Link TL-WPA7517KIT AV1000 Powerline Gigabit Ethernet Adapter w/ AC750 WiFi Extender
- TP-Link TL-WR802N N300 Wireless Portable Nano Travel Router, Bridge/RE/AP/Client Modes

34. The exemplary products listed in this complaint are nonexhaustive and nonlimiting. Collision's allegations include all Lenovo products with the Accused Instrumentalities that infringed spanning the entire damages period of this case.

B. Acts of Patent Infringement

35. Collision incorporates by reference the preceding paragraphs as if fully set forth herein.

36. As set forth below, Lenovo's Accused Products incorporate, without any license from Collision, 4G, 5G, and Wi-Fi technology protected by Collision's Asserted Patents.

37. Lenovo, directly or by controlling the activities of its subsidiaries and affiliates, has directly infringed, and continues to directly infringe, the Asserted Patents under 35 U.S.C. § 271(a) by making, using, selling and/or offering to sell, in this District and elsewhere in the United States, and/or importing into this District and elsewhere in the United States, one or more of its Accused Products.

38. For example, Lenovo sells, and offers for sale infringing devices to its customers, subsidiaries, distributors, retailers, partners, cell-service providers, and/or end users in the United States.

39. On information and belief, Lenovo, directly or by controlling the activities of its subsidiaries and affiliates, engages in the designing, developing, and manufacturing of the Accused Products sold, used, and offered for sale in the United States. On information and belief, Lenovo, directly or by controlling the activities of its subsidiaries and affiliates, is involved in sales of the Accused Products, as well as the after sales and corporate functions pertaining to the Accused Products.

40. Lenovo has indirectly infringed the Asserted Patents under 35 U.S.C. § 271(b) by actively inducing infringement by others, such as its subsidiaries, distributors, retailers, partners, cell-service providers, and end-user customers, by, for example, implementing the infringing features in its cellular and Wi-Fi products, encouraging its users to take advantage of those features

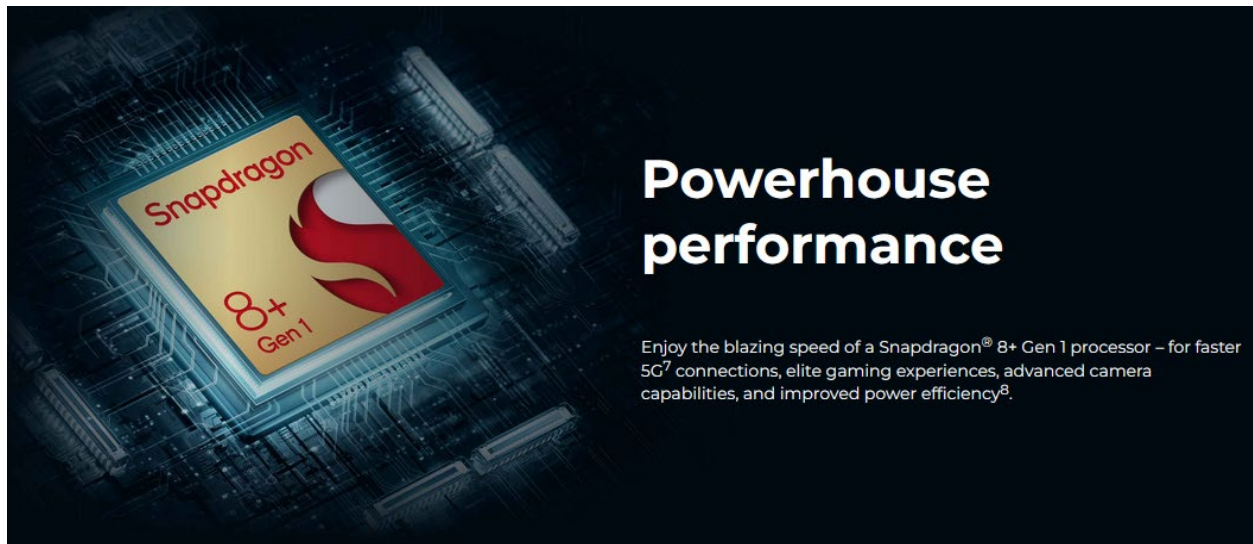
within the United States. Because Lenovo performed these acts with full knowledge of the Asserted Patents and their infringement thereof, it has specifically intended others, including its subsidiaries, distributors, retailers, partners, cell-service providers, and end-user customers to infringe the Asserted Patents knowing its subsidiaries, distributors, retailers, partners, cell-service providers, and end-user customers' acts constitute infringement.

41. For example, Lenovo's advertising, sales, and/or technical materials related to the Accused Products contained and continue to contain instructions, directions, suggestions, and/or invitations that invite, entice, lead on, influence, encourage, prevail on, move by persuasion, and/or cause its subsidiaries, distributors, retailers, partners, cell-service providers, and end-user customers to directly infringe at least one claim of each of the Asserted Patents, either literally or under the doctrine of equivalents. Lenovo activities also encourage Lenovo's subsidiaries (including Motorola Mobility LLC), distributors, retailers, partners, cell-service providers, and end-user customers to use features that infringe Collision's Asserted Patents. By way of example, Motorola's website expressly highlights the Wi-Fi functionality within its ThinkPad X1 Accused Products:

Connectivity

- WLAN: WiFi 6E** AX211 802.11AX (2x2)

[https://www.lenovo.com/us/en/p/laptops/thinkpad/thinkpadx1/thinkpad-x1-carbon-gen-10-\(14-inch-intel\)/len101t0009#tech_specs](https://www.lenovo.com/us/en/p/laptops/thinkpad/thinkpadx1/thinkpad-x1-carbon-gen-10-(14-inch-intel)/len101t0009#tech_specs). By way of another example, Motorola also expressly highlights its "faster 5G connections" in its razr+ Accused Product:



<https://www.motorola.com/us/smartphones-razr-plus/p?skuId=1027>.

42. On information and belief, Lenovo has provided technical documentation and training materials to its subsidiaries, distributors, retailers, partners, cell-service providers, and end-user customers, and the public that cause end users of the Accused Products to utilize the products in a manner that directly infringe on one or more claims of the Asserted Patents, and engaged in such inducement to promote the sales of the Accused Products (i.e. through user manuals, product support, marketing materials, technical materials, and training materials) to actively induce the end users of the Accused Products to infringe the Asserted Patents.

43. Further, Lenovo has made, used, sold, offered to sell, imported and/or encouraged the making, using, selling, offering to sell, or importing of the Accused Products despite knowing of an objectively high likelihood that its actions constituted infringement of the Asserted Patents at all times relevant to this suit.

44. For the reasons described above, Lenovo's continued infringement of the Asserted Patents is willful and egregious.

45. Lenovo's acts of infringement have caused damage to Collision, and Collision is entitled to recover damages incurred as a result of Lenovo's wrongful acts.

46. Lenovo is also vicariously liable for any infringement by its affiliates, subsidiaries, distributors, retailers, partners, cell-service providers, and other related companies.

COUNT I: INFRINGEMENT OF THE '703 PATENT

47. Plaintiff incorporates the allegations of all of the foregoing paragraphs as if fully restated herein.

48. Defendant was aware of this Asserted Patent and of its infringement at least as early as their communications with Collision on or around 2011. Defendant has and currently continues to willfully infringe the '703 patent.

49. Defendant has directly infringed, and continue to directly infringe, the '703 patent by making, using, selling, offering for sale, or importing into the United States products that infringe the '703 Patent including, but not limited to 4G UE devices and 5G UE devices, which are equipped with interference cancellation technology (“Accused 4G and 5G UE Instrumentalities”), and Wi-Fi devices, which are equipped with interference cancellation technology (“Accused WiFi Instrumentalities”) as described in the chart attached as **Exhibit G**. As shown in **Exhibit G**, for example, the Accused Instrumentalities and materially similar instrumentalities infringe at least claim one of the '703 patent. Plaintiff reserves the right to identify any other claims of the '703 patent in the disclosure of infringement contentions in this action.

50. Further discovery may reveal additional infringing products.

51. Defendant also indirectly infringes the '703 Patent by inducing infringement by others, such as end-user customers, by, for example, encouraging its users to take advantage of the 4G, 5G, and Wi-Fi capabilities of the Accused Products.

52. Defendant’s continued infringement of the '703 patent has damaged and will continue to damage Plaintiff.

53. Plaintiff is entitled to recover damages adequate to compensate it for Defendant’s

infringement or at minimum a reasonable royalty. Plaintiff is also entitled to equitable and injunctive relief (with injunctive relief limited to the patent term). Due to the willful nature of Lenovo's infringement, Collision is also entitled to enhanced damages.

54. To the extent applicable, Collision has complied with the marking requirements set forth in 35 U.S.C. § 287.

COUNT II: INFRINGEMENT OF THE '651 PATENT.

55. Plaintiff incorporates the allegations of all of the foregoing paragraphs as if fully restated herein.

56. Defendant was aware of this Asserted Patent and of its infringement at least as early as their communications with Collision on or around 2011. Defendant has and currently continues to willfully infringe the '651 patent.

57. Defendant has directly infringed, and continue to directly infringe, the '651 patent by making, using, selling, offering for sale, or importing into the United States products that infringe the '651 Patent including, but not limited to 4G UE devices and 5G UE devices, which are equipped with interference cancellation technology ("Accused 4G and 5G UE Instrumentalities"), and Wi-Fi devices, which are equipped with interference cancellation technology ("Accused WiFi Instrumentalities") as described in the chart attached as **Exhibit H**. As shown in **Exhibit H**, for example, the Accused Instrumentalities and materially similar instrumentalities infringe at least claim one of the '651 patent. Plaintiff reserves the right to identify any other claims of the '651 patent in the disclosure of infringement contentions in this action.

58. Further discovery may reveal additional infringing products.

59. Defendant also indirectly infringes the '651 Patent by inducing infringement by others, such as end-user customers, by, for example, encouraging its users to take advantage of the 4G, 5G, and Wi-Fi capabilities of the Accused Products.

60. Defendant's continued infringement of the '651 patent has damaged and will continue to damage Plaintiff.

61. Plaintiff is entitled to recover damages adequate to compensate it for Defendant's infringement or at minimum a reasonable royalty. Plaintiff is also entitled to equitable and injunctive relief (with injunctive relief limited to the patent term). Due to the willful nature of Lenovo's infringement, Collision is also entitled to enhanced damages.

62. To the extent applicable, Collision has complied with the marking requirements set forth in 35 U.S.C. § 287.

COUNT III: INFRINGEMENT OF THE '946 PATENT.

63. Plaintiff incorporates the allegations of all of the foregoing paragraphs as if fully restated herein.

64. Defendant was aware of this Asserted Patent and of its infringement at least as early as their communications with Collision on or around 2011. Defendant has and currently continues to willfully infringe the '946 patent.

65. Defendant has directly infringed, and continue to directly infringe, the '946 patent by making, using, selling, offering for sale, or importing into the United States products that infringe the '946 Patent including, but not limited to 4G UE devices and 5G UE devices, which are equipped with hot spot functionality and interference cancellation technology ("Accused '946 Instrumentalities") as described in the chart attached as **Exhibit I**. As shown in **Exhibit I**, for example, the Accused '946 Instrumentalities and materially similar instrumentalities infringe at least claim one of the '946 patent. Plaintiff reserves the right to identify any other claims of the '946 patent in the disclosure of infringement contentions in this action.

66. Further discovery may reveal additional infringing products.

67. Defendant also indirectly infringes the '946 Patent by inducing infringement by

others, such as end-user customers, by, for example, encouraging its users to take advantage of the 4G, 5G, and Wi-Fi capabilities of the Accused Products.

68. Defendant's continued infringement of the '946 patent has damaged and will continue to damage Plaintiff.

69. Plaintiff is entitled to recover damages adequate to compensate it for Defendant's infringement or at minimum a reasonable royalty. Plaintiff is also entitled to equitable and injunctive relief (with injunctive relief limited to the patent term). Due to the willful nature of Lenovo's infringement, Collision is also entitled to enhanced damages.

70. To the extent applicable, Collision has complied with the marking requirements set forth in 35 U.S.C. § 287.

COUNT IV: INFRINGEMENT OF THE '492 PATENT.

71. Plaintiff incorporates the allegations of all of the foregoing paragraphs as if fully restated herein.

72. Defendant was aware of this Asserted Patent and of its infringement at least as early as their communications with Collision on or around 2011. Defendant has and currently continues to willfully infringe the '492 patent.

73. Defendant has directly infringed, and continue to directly infringe, the '492 patent by making, using, selling, offering for sale, or importing into the United States products that infringe the '492 Patent including, but not limited to 4G UE and 5G UE devices, which are equipped with interference cancellation technology ("Accused '492 Instrumentalities") as described in the chart attached as **Exhibit J**. As shown in **Exhibit J**, for example, the Accused '492 Instrumentalities and materially similar instrumentalities infringe at least claim one of the '492 patent. Plaintiff reserves the right to identify any other claims of the '492 patent in the disclosure of infringement contentions in this action.

74. Further discovery may reveal additional infringing products.

75. Defendant also indirectly infringes the '492 patent by inducing infringement by others, such as end-user customers, by, for example, encouraging its users to take advantage of the 4G, 5G, and Wi-Fi capabilities of the Accused Products.

76. Further discovery may reveal additional infringing products.

77. Defendant also indirectly infringes the '492 patent by inducing infringement by others, such as end-user customers, by, for example, encouraging its users to take advantage of the 4G and 5G capabilities of the Accused 4G and 5G products.

78. Defendant's continued infringement of the '492 patent has damaged and will continue to damage Plaintiff.

79. Plaintiff is entitled to recover damages adequate to compensate it for Defendant's infringement or at minimum a reasonable royalty. Plaintiff is also entitled to equitable and injunctive relief (with injunctive relief limited to the patent term). Due to the willful nature of Lenovo's infringement, Collision is also entitled to enhanced damages.

80. To the extent applicable, Collision has complied with the marking requirements set forth in 35 U.S.C. § 287.

COUNT V: INFRINGEMENT OF THE '071 PATENT.

81. Plaintiff incorporates the allegations of all of the foregoing paragraphs as if fully restated herein.

82. Defendant was aware of this Asserted Patent and of its infringement at least as early as their communications with Collision on or around 2011. Defendant has and currently continues to willfully infringe the '071 patent.

83. Defendant has directly infringed, and continue to directly infringe, the '071 patent

by making, using, selling, offering for sale, or importing into the United States products that infringe the '071 Patent including, but not limited to WiFi routers (“Accused WiFi Router Instrumentalities”) as described in the chart attached as **Exhibit K**. As shown in **Exhibit K**, for example, the Accused WiFi Router Instrumentalities and materially similar instrumentalities infringe at least claim one of the '071 patent. Plaintiff reserves the right to identify any other claims of the '071 patent in the disclosure of infringement contentions in this action.

84. Further discovery may reveal additional infringing products.

85. Defendant also indirectly infringes the '071 Patent by inducing infringement by others, such as end-user customers, by, for example, encouraging its users to take advantage of the Wi-Fi capabilities of the Accused Routers.

86. Defendant’s continued infringement of the '071 patent has damaged and will continue to damage Plaintiff.

87. Plaintiff is entitled to recover damages adequate to compensate it for Defendant’s infringement or at minimum a reasonable royalty. Plaintiff is also entitled to equitable and injunctive relief (with injunctive relief limited to the patent term). Due to the willful nature of Lenovo’s infringement, Collision is also entitled to enhanced damages.

88. To the extent applicable, Collision has complied with the marking requirements set forth in 35 U.S.C. § 287.

COUNT VI: INFRINGEMENT OF THE '505 PATENT.

89. Plaintiff incorporates the allegations of all of the foregoing paragraphs as if fully restated herein.

90. Defendant was aware of this Asserted Patent and of its infringement at least as early as their communications with Collision on or around 2011. Defendant has and currently continues to willfully infringe the '505 patent.

91. Defendant has directly infringed, and continue to directly infringe, the '505 patent by making, using, selling, offering for sale, or importing into the United States products that infringe the '505 Patent including, but not limited to 4G UE devices and 5G UE devices, which are equipped with interference cancellation technology (“Accused 4G and 5G UE Instrumentalities”) as described in the chart attached as **Exhibit L**. As shown in **Exhibit L**, for example, the Accused Instrumentalities and materially similar instrumentalities infringe at least claim one of the '505 patent. Plaintiff reserves the right to identify any other claims of the '505 patent in the disclosure of infringement contentions in this action.

92. Further discovery may reveal additional infringing products.

93. Defendant also indirectly infringes the '505 Patent by inducing infringement by others, such as end-user customers, by, for example, encouraging its users to take advantage of the 4G, 5G, and Wi-Fi capabilities of the Accused Products.

94. Plaintiff is entitled to recover damages adequate to compensate it for Defendant's infringement or at minimum a reasonable royalty. Plaintiff is also entitled to equitable and injunctive relief (with injunctive relief limited to the patent term). Due to the willful nature of Lenovo's infringement, Collision is also entitled to enhanced damages.

95. Plaintiff is entitled to recover damages adequate to compensate it for Defendant's infringement or at minimum a reasonable royalty. Plaintiff is also entitled to equitable and injunctive relief (with injunctive relief limited to the patent term). Due to the willful nature of Lenovo's infringement, Collision is also entitled to enhanced damages.

96. To the extent applicable, Collision has complied with the marking requirements set forth in 35 U.S.C. § 287.

PRAYER FOR RELIEF

97. WHEREFORE, Plaintiff respectfully requests the following relief:

- a. a judgment in favor of Plaintiff that Defendant has infringed, either literally and/or under the doctrine of equivalents, at least one claim of each of the Asserted Patents;
- b. a judgment that Defendant's infringement has been and is willful;
- c. a judgment and order requiring Defendant to pay Plaintiff its damages, costs, expenses, and any enhanced damages to which Plaintiff is entitled for Defendant's infringement;
- d. a judgment and order requiring Defendant to provide an accounting and to pay supplemental damages to Plaintiff, including without limitation, pre-judgment and post-judgment interest;
- e. a judgment and order requiring Defendant to pay ongoing royalties;
- f. a judgment pursuant to 35 U.S.C. § 283 permanently enjoining Defendant and any of its officers, directors, agents, servants, subsidiaries, affiliates, divisions, branches, parents, and/or those in association with them from further infringing the Asserted Patents during the duration of their patent term;
- g. a judgment and order finding that this is an exceptional case within the meaning of 35 U.S.C. § 285 and awarding Plaintiff its reasonable attorney fees against Defendant; and
- h. any and all other relief as the Court may deem appropriate and just under the circumstances.

DEMAND FOR JURY TRIAL

98. Pursuant to Fed. R. Civ. P. 38, Plaintiff hereby demands trial by jury on all claims and issues so triable.

DATED: December 12, 2023

Respectfully submitted,

/s/ Bradley W. Caldwell

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