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

TURBOCODE LLC,

   Plaintiff,

    v.

AT&T MOBILITY LLC,

   Defendant.

Case No. 2:23-cv-00375-JRG

JURY TRIAL DEMANDED

FIRST AMENDED COMPLAINT

Plaintiff TurboCode LLC ("Plaintiff" or "TurboCode") files this First Amended Complaint for patent infringement against Defendant AT&T Mobility LLC ("Defendant" or "AT&T"). TurboCode respectfully alleges as follows:

I. 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. §§ 271, *et seq.*, to enjoin and obtain damages resulting from Defendant's unauthorized use, sale, and offer to sell in the United States of products, methods, processes, services and/or systems that infringe TurboCode's United States patent, as described herein.

2. AT&T manufactures, provides, uses, sells, offers for sale, imports, and/or distributes infringing products and services; and encourages others to use its products and services in an infringing manner, including their customers, as set forth herein.

3. TurboCode seeks past and future damages and prejudgment and post-judgment interest for AT&T's past infringement of the Patent-in-Suit, as defined below.

II. THE PARTIES

4. Plaintiff TurboCode LLC is a limited liability company organized under the laws of Texas with a place of business at 1903 Toro Canyon, Austin, Texas 78746.

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5.   On information and belief, Defendant AT&T Mobility LLC is a limited liability company organized and existing under the laws of Delaware, with its principal place of business at 1025 Lenox Park Boulevard NE, Atlanta, Georgia 30319. AT&T is doing business, either directly or through its agents, on an ongoing basis in this judicial district and elsewhere in the United States and has a regular and established place of business in this judicial district. AT&T may be served through its registered agent C T Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201.

III. JURISDICTION AND VENUE

6.   The Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a) because this action arises under the patent laws of the United States, 35 U.S.C. §§ 1 *et seq.*

7.   Upon information and belief, Defendant transacts substantial business in the State of Texas and the Eastern District of Texas. Defendant, directly and through subsidiaries or intermediaries (including distributors, retailers, resellers and others), has purposefully and voluntarily placed one or more of their infringing products, as described below, into the stream of commerce with the expectation that these infringing products will be purchased and used by customers in the district.

8.   This Court has personal jurisdiction over AT&T because, inter alia, AT&T has minimum contacts within Texas and this district such that this venue is a fair and reasonable one. AT&T conducts substantial business in this forum, including (i) engaging in the infringing conduct 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 Texas and in this district.

9.   Venue in the Eastern District of Texas is proper under 28 U.S.C. §§ 1391(b) and (c) and 1400(b).

10.   Upon information and belief, AT&T has committed infringing acts in this judicial district by making, using, offering for sale, selling, or importing products or services that infringe the Patent-in-Suit (as defined herein), or by inducing others to infringe the Patent-in-Suit. On information and belief, AT&T maintains a "regular and established" place of business in this district, including by (a) maintaining or controlling retail stores in this district, (b) maintaining and operating infringing base stations in this district, including on cellular towers and other installation sites owned or leased by them, and (c) maintaining and operating other places of business in this district, including those where research, development, or sales are conducted, where customer service is provided, or where repairs are made.

11.   Upon information and belief, AT&T has a regular and established physical presence in the district, including but not limited to, ownership of or control over property, inventory, or infrastructure. For example, AT&T's website (http://www.att.com/stores/) displays information for retail stores located at 4757 South Broadway Avenue, Tyler, Texas 75703; 2028 Southeast Loop #323, Tyler, Texas 75701; and 8922 South Broadway Avenue, Tyler, Texas 75703 (among others), all of which lie within this federal judicial district.

12.   AT&T is registered to do business in Texas. Its registered mailing address is 1010 N Saint Mary's Street Room 9-Y01, San Antonio, Texas 78215-2109, and its registered agent is Agent C T Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201.

13.   AT&T also has what it refers to as AT&T Foundry in Plano, Texas, which it uses to design, test, use and sell telecommunications services, including services that infringe the Patent-in-Suit.

14.   In other recent actions, AT&T has either admitted or not contested that this federal judicial district is a proper venue for patent infringement actions against it. *See, e.g.*, Answer to

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Am. Compl. ¶¶ 14, 17, *Sol IP v. AT&T Mobility LLC*, No. 2:18-cv-526 (E.D. Tex. Apr. 4, 2019), ECF No. 113; Answer ¶¶ 12–13 & Counterclaims ¶ 2*, IPCom, Gmbh & Co. KG v. AT&T Inc., et al.,* No. 2:20-cv-322 (E.D. Tex. Dec. 18, 2020), ECF No. 21. AT&T has also admitted or failed to contest that it has transacted business in this district. *See, e.g.*, Sol IP, Answer to Am. Compl. ¶¶ 15–17; IPCom, Answer ¶ 11–13.

15.   AT&T derives benefits from its presence in this federal judicial district, including, but not limited to, sales revenue and serving customers using its mobile network in this district. For example, AT&T receives revenue from its corporate stores in this district, by selling network access, phones/products, and services, and by receiving payment for network access, phones/products, and services.

16.   This court has personal jurisdiction over Defendant because, in addition to the allegations in the above paragraphs, on information and belief, Defendant purposefully directed activities at residents of Texas, the claims herein arise out of and relate to those activities, and assertion of personal jurisdiction over Defendant would be fair.

IV. TECHNICAL BACKGROUND

17.   This case generally relates to decoder architectures and processes for receiving and decoding data in communications devices.

18.   Most cellular devices made and sold in the United States over the past decade have 3G and/or 4G/LTE capabilities that comply with the 3G and/or 4G/LTE standards as disclosed in the 3rd Generation Partnership Project ("3GPP") Standard Specifications governing cellular wireless communications (e.g., TS 26.071-26.999).

19.   On November 2, 2004, the USPTO duly and legally issued U.S. Patent No. 6,813,742 ("the '742 Patent" or "Patent-in-Suit"), entitled "High speed turbo codes decoder for 3G

using pipelined SISO log-map decoders architecture." A true and correct copy of the '742 Patent

is attached hereto as **Exhibit 1**.

20.   TurboCode owns all substantial rights, title, and interest in the '742 Patent, and

holds the right to sue and recover damages for infringement thereof, including past infringement.

21.   TurboCode has successfully enforced its intellectual property rights against third

party infringers and its enforcement of the Patent-in-Suit is ongoing.

V. DEFENDANT'S ACTS

22.   On information and belief, Defendant designs, develops, makes, uses, sells, offers

to sell, and imports into the United States various telecommunications handsets and other devices

operating on mobile networks.

23.   On information and belief, the telecommunications handsets designed, developed,

made, used, sold, offered to sell, and/or imported into the United States from 2016 to 2021 (the

"Infringement Period") include, but are not limited to, models Kyocera DuraForce PRO, Kyocera

DuraForce PRO 2, Sonim XP3, Sonim XP5, Sonim XP8, Blackberry KEYone, Google Pixel 4,

and Google Pixel 4 XL (the "Exemplary Accused Products"). All the Exemplary Accused Products

have 3G and/or 4G/LTE capabilities that comply with the 3G and/or 4G/LTE standards as

disclosed in the 3rd Generation Partnership Project ("3GPP") Standard Specifications governing

cellular wireless communications (e.g., TS 26.071-26.999).

24.   The Kyocera DuraForce PRO and DuraForce PRO 2 were sold and supported by

AT&T during the Infringement Period. For example, AT&T's DuraForce PRO 2 supported 3G

and/or 4G/LTE standards, as set forth below.

Wireless technology

4G-LTE	Bands 1, 2, 3, 4, 5, 7, 12, 14, 29, 30, and 66
4G	HSPA+ with enhanced backhaul
3G – UMTS	850/1900/2100MHz
GSM/GPRS/EDGE	850/900/1800/1900MHz
World phone	Quad-band
HD Voice capable	✓
Wi-Fi Calling capable	✓

https://www.att.com/buy/phones/kyocera-duraforce-pro-2-64gb-black.html

25.   The Sonim XP3, XP5 and XP8 were sold and supported by AT&T during the Infringement Period. For example, AT&T's XP8 supported 3G and/or 4G/LTE standards, as set forth below.

Wireless technology

4G-LTE	1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 20, 25, 26, 28, 29, 30, 38, 40, 41, and 66
4G	HSPA+ with enhanced backhaul
3G - UMTS	850/900/1900/2100MHz
GSM/GPRS/EDGE	850/900/1800/1900MHz
World phone	Quad-band
HD Voice capable	✓
Wi-Fi connectivity	802.11a/b/g/n/ac/i/r/k

https://www.att.com/buy/phones/sonim-xp8.html

26.   The Blackberry KEYone was sold and supported by AT&T during the Infringement Period. AT&T's Blackberry KEYone supported 3G and/or 4G/LTE standards, as set forth below.

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Wireless technology

4G-LTE	Bands 1, 2, 3, 4, 5, 7, 8, 12, 13, 19, 20, 28, 29, 30, 38, 39, 40, and 41
4G	HSPA+ with enhanced backhaul
3G ꟷ UMTS	850/900/1900/2100MHz
GSM/GPRS/EDGE	850/900/1800/1900MHz
World phone	Quad-band
HD Voice capable	✓
Wi-Fi connectivity	802.11a/b/g/n/ac

https://www.att.com/buy/phones/blackberry-keyone-32gb-space-black.html

27.   The Google Pixel 4 and Pixel 4 XL were sold and supported by AT&T during the Infringement Period. AT&T's Google Pixel 4 and Pixel 4 XL supported 3G and/or 4G/LTE standards, as set forth below.

Wireless technology

4G LTE	4G LTE: Bands 1, 2, 3, 4, 5, 7, 8, 12, 14, 20, 29, 30, 38, 39, 40, 41, 46, 48, 66, & 71
4G	HSPA+ with enhanced backhaul
3G - UMTS	850/900/1900/2100MHz
GSM/GPRS/EDGE	850/900/1800/1900MHz
World phone	Quad-band
HD Voice capable	Yes
Wi-Fi Calling capable	Yes
Wi-Fi connectivity	802.11a/b/g/n/ac/i/r/k

https://www.att.com/buy/phones/google-pixel-4-64gb-just-black.html

28.   Upon information and belief, Defendant manufactures Exemplary Accused Products and other 3G and 4G products. Alternatively, it causes them to be manufactured.

29.   The Exemplary Accused Products were available for purchase in Texas through AT&T retail locations.

30.   Upon information and belief, the Exemplary Accused Products and other of Defendant's products, devices, systems, and components of systems that comply with the 3G and/or 4G/LTE standards as disclosed in the 3rd Generation Partnership Project ("3GPP") Standard Specifications governing cellular wireless communication, process data utilizing a sliding window having a predetermined block size in order to improve memory and energy efficiency by being able to process larger amounts of data in smaller batches.

31.   The Exemplary Accused Products provided or performed a method of iteratively decoding a plurality of sequences of received baseband signals in accordance with the 3G and/or 4G/LTE standards disclosed in the 3GPP Standard Specifications, as indicated further herein.
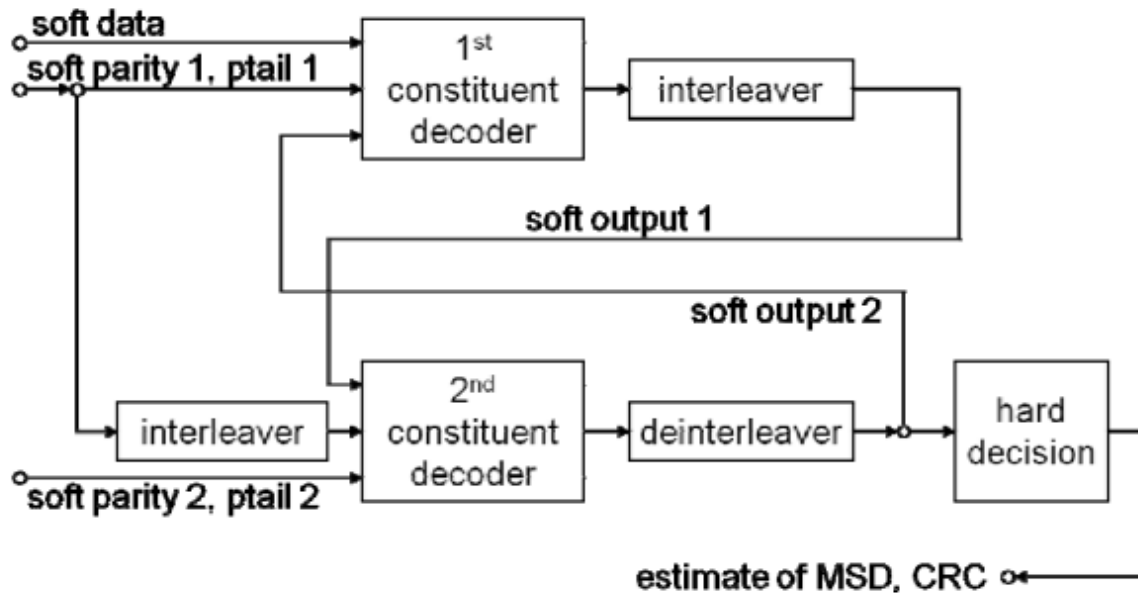

Figure 18: Turbo decoder

See 3GPP TS 26.267 at 25 (v. 11), 24 (v. 8).

32.   For example, each of the Exemplary Accused Products performed iterative decoding using at least the BCJR algorithm. *See* 3GPP TS 26.268 at 21 (v. 11), 17 (v. 8). *See* Mansour et al., "VLSI Architectures for SISO-APP Decoders," IEEE Transactions On Very Large Scale Integration ("VLSI") Systems, Vol. 11, No. 4 (Aug. 2003), at 627, *available at* http://shanbhag.ece.illinois.edu/publications/mansr-tvlsi-2003-2.pdf

33.   "The BCJR algorithm was generalized in [8] into a soft-input soft-output a posteriori probability (SISO- APP) algorithm to be used as a building block for iterative decoding in code networks with generic topologies…" *See also Cheng et. al.* "A 0.077 to 0.168 nj/bit/iteration Scalable 3GPP LTE Turbo Decoder with an Adaptive Sub-Block Parallel Scheme and an Embedded DVFS Engine," 2010 IEEE Custom Integrated Circuits Conference (CICC) (19-22   Sept.   2010),   at   3,   *available   at* https://dspace.mit.edu/bitstream/handle/1721.1/72198/Chandrakasan-a%200.077%20to%200.168.pdf?sequence=1&isAllowed=y:

34.   "Figure 3 shows the system architecture. The blocks in the dashed box handle the turbo decoding operations, and those outside the dashed box belong to the DVFS scheme. Turbo decoding is an iterative process with several turbo iterations. Each turbo iteration comprises two soft-in, soft-out (SISO) decoding processes using BCJR algorithm [8] with the first one performed on the input code block in the original order and the second one in an order generated by the interleaver block." *See also* "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); eCall data transfer; In-band modem solution; ANSI-C reference code (3GPP TS 26.268 version 11.0.0 Release 11)," at 14, *available at* https://www.etsi.org/deliver/etsi_ts/126200_126299/126268/11.00.00_60/ts_126268v110000p.pdf; "Digital   cellular   telecommunications   system   (Phase   2+);   Universal   Mobile

Telecommunications System (UMTS); eCall data transfer; In-band modem solution; ANSI-C reference code (3GPP TS 26.268 version 8.0.0 Release 8)," at 17, *available at* https://www.etsi.org/deliver/etsi_ts/126200_126299/126268/08.00.00_60/ts_126268v080000p.pdf (hereinafter "3GPP TS 26.268" v. 11 and v. 8, respectively):

VI. NOTICE TO AT&T

35. On October 18, 2021, Plaintiff provided formal notice of infringement to AT&T Mobility LLC. Attached as **Exhibit 2** is a true and correct copy of that notice of infringement.

VII. CLAIMS FOR RELIEF

INFRINGEMENT OF U.S. PATENT NO. 6,813,742

36. TurboCode repeats and realleges paragraphs the preceding paragraphs as if fully stated herein.

37. Defendant has infringed one or more method claims of the '742 patent, including but not limited to claim 6 and its dependent claims, pursuant to 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at least by using and/or providing without authority mobile telephones, tablet computers, and/or other devices with 3G and/or 4G/LTE capabilities and that comply with the 3G and/or 4G/LTE standards as disclosed in the 3rd Generation Partnership Project ("3GPP") Standard Specifications governing cellular wireless communications (e.g., TS 26.071-26.999), and similar systems, products, and/or devices including the Exemplary Accused Products. To the extent one or more steps are performed by end users of the Exemplary Accused Products, they were done so using AT&T's equipment in a manner specified by AT&T. As such, AT&T controlled the manner and timing of performance and conditioned the benefit of use on performance of the claimed steps.

38. On information and belief, at least since the provision of notice of infringement, Defendant, without authorization or license, has been indirectly infringing at least one claim of the

'742 patent, either literally or equivalently, including actively and knowingly inducing infringement of the '742 Patent under 35 U.S.C. § 271(b). Such inducements include without limitation, with specific intent to encourage the infringement, knowingly inducing consumers to use infringing articles and methods that Defendant knew or should have known infringed one or more claims of the '742 patent. Defendant instructed and encouraged customers to make and use the patented inventions of the '742 patent by operating Defendant's products in accordance with Defendant's instructions and specifications. Defendant specifically intended its customers to infringe by implementing and using the Exemplary Infringing Products as specified.

39.   On information and belief, at least since the provision of notice of infringement, Defendant, without authorization or license from Plaintiff, has been indirectly infringing at least one claim of the '742 patent, including contributory infringement of the '742 Patent under 35 U.S.C. § 271(c) and/or § 271(f), either literally and/or under the doctrine of equivalents. Defendant's contributory infringement includes without limitation, Defendant's offer to sell, a component of a product or apparatus for use in a process, that (i) is material to practicing the invention claimed in the '742 patent, (ii) is not a staple article or commodity of commerce suitable for substantial non-infringing use, and (iii) Defendant was aware or knew to be especially made or especially adapted for use in infringement of the '742 patent. Defendant specifically intends its customers to infringe the '742 patent by operating Defendant's products in accordance with Defendant's instructions and specifications. Defendant specifically intended its customers to infringe by implementing and/or using the Exemplary Infringing Products as specified.

40.   As a result of Defendant's infringement of the '742 patent, Plaintiff has suffered monetary damages, and is entitled to an award of damages adequate to compensate it for such infringement under 35 U.S.C. § 284, but in no event, less than a reasonable royalty.

41.   Discovery is expected to uncover the full extent of Defendant's infringement of the '742 patent beyond the Exemplary Accused Products already identified herein.

42.   AT&T has sold, used and supported devices (that were made, used, sold, offered for sale, and/or imported by or on behalf of AT&T) with 3G and/or 4G/LTE capabilities and that comply with the 3G and/or 4G/LTE standards as disclosed in the 3rd Generation Partnership Project ("3GPP") Standard Specifications governing cellular wireless communications (e.g., TS 26.071-26.999), directly infringed, or have directly infringed, independent claim 6 of the '742 patent. Each of the elements of Claim 6 is practiced in the Exemplary Accused Products, each having 3G and/or 4G/LTE capabilities and that comply with the 3G and/or 4G/LTE standards as disclosed in the 3rd Generation Partnership Project ("3GPP") Standard Specifications governing cellular wireless communications (e.g., TS 26.071-26.999). Defendant has directly infringed, literally infringed, and/or infringed the '742 patent under the doctrine of equivalents. Defendant is thus liable for infringement of the '742 patent pursuant to 35 U.S.C. § 271.

VIII. DEMAND FOR JURY TRIAL

43.   Pursuant to Fed. R. Civ. P. 38(b), Plaintiff TurboCode hereby demands a trial by jury on all issues triable in this action.

IX. PRAYER FOR RELIEF

WHEREFORE, Plaintiff TurboCode requests entry of judgment in its favor and against Defendant as follows:

a) Declaring that Defendant has infringed U.S. Patent No. 6,813,742 as described herein;

b) Awarding all damages arising out of Defendant's infringement of the Patent-in-Suit available to TurboCode under the Unites States patent laws, together with pre-judgment and post-judgment interest, in an amount demonstrated at trial of this action;

c) Awarding enhanced damages for Defendant's willful infringement under 35 U.S.C.

§ 284;

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

and

e) Awarding costs incurred and such other and further relief as the Court may deem just

and proper.

Dated: September 1, 2023   Respectfully submitted,

By: /s/ *Andrew G. DiNovo*
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CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing document was filed electronically in compliance with Local Rule CV-5(a). As such, this document was served on all counsel of record who have consented to electronic service on September 1, 2023.

/s/ Andrew G. DiNovo
Andrew G. DiNovo

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