

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

TURBOCODE LLC,

Plaintiff,

v.

T-MOBILE USA, INC.,

Defendant.

Case No. 2:23-cv-00376-JRG

JURY TRIAL DEMANDED

FIRST AMENDED COMPLAINT

Plaintiff TurboCode LLC (“Plaintiff” or “TurboCode”) files this First Amended Complaint for patent infringement against Defendant T-Mobile USA, Inc. (“Defendant” or “T-Mobile”). 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. T-Mobile 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 T-Mobile’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.

5. On information and belief, Defendant T-Mobile USA, Inc. is a limited liability company organized and existing under the laws of Delaware, with its principal place of business at 12920 S.E. 38th Street, Bellevue, Washington 98006. T-Mobile is registered to do business in the State of Texas and may be served through its registered agent Corporation Service Company, 211 E. 7th Street, Suite 620, Austin, Texas 78701.

6. Defendant T-Mobile USA, Inc. provides communications, technology, and information products and services to consumers, businesses, and government entities throughout the State of Texas, including the Eastern District of Texas, including operating and selling access to a wireless communications network in the Eastern District of Texas.

III. JURISDICTION AND VENUE

7. 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.*

8. 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.

9. This Court has personal jurisdiction over T-Mobile because, *inter alia*, T-Mobile has minimum contacts within Texas and this district such that this venue is a fair and reasonable one. T-Mobile 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.

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

11. Upon information and belief, T-Mobile 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, T-Mobile 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.

12. Upon information and belief, T-Mobile has a regular and established physical presence in the district, including at 116 E Loop Ste 101, Longview, Texas 75605; 1806 E End Blvd N Ste 100, Marshall, Texas 75670; and 5800 Legacy Dr Suite C-9, Plano, Texas 75024. For example, T-Mobile maintains or has authorized retail locations in this district, including at the addresses listed above. *See, e.g.*, T-Mobile’s Answer and Counterclaims filed on February 24, 2023 (Dkt. No. 22), *Cobblestone Wireless, LLC v. T-Mobile USA, Inc.*, T-Mobile US Inc. Case No. 2:22-cv-00477-JRG-RSP (Lead Case) (E.D. Texas), at ¶¶ 12-13 (“T-Mobile admits that T-Mobile USA, Inc. has retail stores in the Eastern District of Texas...”).

13. T-Mobile advertises its wireless networks as available in Texas, including within the Eastern District of Texas. Furthermore, T-Mobile also owns, leases, maintains and/or operates cellular base stations in this district that provide data services to T-Mobile customers in this district, including numerous cell tower locations in Tyler, Texas, Longview, Texas, and Marshall, Texas.

14. In other recent actions, T-Mobile has either admitted or not contested that this federal judicial district is a proper venue for patent infringement actions against it. *See, e.g.*, T-Mobile’s Answer and Counterclaims filed on February 24, 2023 (Dkt. No. 22), *Cobblestone Wireless, LLC v. T-Mobile USA, Inc., T-Mobile US Inc.*, Case No. 2:22-cv-00477-JRG-RSP (Lead Case) (E.D. Texas), at ¶¶ 11 (“T-Mobile does not contest that, for purposes of this action only, venue is proper in this District...”).

15. T-Mobile operates and sells access to a mobile network that provides telecommunication, Internet service, and other services to customers via cellular base stations located in this district and throughout the United States, in infringement of the Patent-in-Suit. T-Mobile’s 3G and 4G LTE coverage extended and extends to cities in this district, including within the Marshall division, according to T-Mobile’s website. *See, e.g.*, T-Mobile’s Answer and Counterclaims filed on February 24, 2023 (Dkt. No. 22), *Cobblestone Wireless, LLC v. T-Mobile USA, Inc., T-Mobile US Inc.*, Case No. 2:22-cv-00477-JRG-RSP (Lead Case) (E.D. Texas), at ¶¶ 14-15 (“T-Mobile admits that T-Mobile USA, Inc. operates a wireless telecommunications network that provides services to customers within the Eastern District of Texas...”)

16. T-Mobile 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, T-Mobile 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.

17. 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

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

19. 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).

20. 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**.

21. 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.

22. 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

23. 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.

24. 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 T-Mobile REVVL2, T-Mobile

REVVL3, T-Mobile REVVL4, T-Mobile OnePlus 6T, Alcatel GO FLIP (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).

25. The T-Mobile REVVL 2, 3 and 4 were developed, sold and supported by T-Mobile during the Infringement Period. T-Mobile’s REVVL 2, 3 and 4 supported 3G and/or 4G/LTE standards, as set forth below.

Here’s a look at the full specs:

REVVL 2

- **Camera:** 13MP RFC/8MP FFC
- **Battery:** 3,000 mAh
- **Color:** Mirror Black
- **OS:** Android O
- **Screen:** 5.5” HD (1440x720) 18:9 display
- **RAM:** 2GB
- **ROM:** 32GB and expandable to 128GB
- **Bands:** LTE CAT 4, LTE Bands 2, 4, 5, 7, 12, 66 & 71
- **Security:** Face recognition & fingerprint sensor
- **Water/Dust Resistance:** IP52
- **Impact/Shock Resistance:** IK02
- **Dimensions:** 147.1 x 68.8 x 8.5 mm
- **Chipset:** MediaTek MT6739
- **Processor:** 1.5 GHz Quad-Core

<https://www.t-mobile.com/news/press/new-t-mobile-revv12>

26. The OnePlus 6T was sold and supported by T-Mobile during the Infringement Period. T-Mobile’s OnePlus 6T supported 3G and/or 4G/LTE standards, as set forth below.



Specifications

Applications	∨
Connectivity	∨
General	∨
Networks	∧
3G (UMTS/WCDMA):	✓
3G bands (MHz):	850 / 900 / 1900 / 2100
4G (LTE):	✓
4G bands (MHz):	850 / 900 / 1800 / 1900 / 2100 / 2300 / 600
EDGE:	✓
GPRS:	✓
GSM bands (2G networks):	850 / 900 / 1800 / 1900

<https://www.t-mobile.com/support/tutorials/device/oneplus/6t/specifications>

27. The Alcatel GO FLIP was sold and supported by T-Mobile during the Infringement Period. T-Mobile’s Alcatel GO FLIP supported 3G and/or 4G/LTE standards, as set forth below.



Specifications

Applications	∨
Connectivity	∨
General	∨
Networks	∧
3G (UMTS/WCDMA):	✓
3G bands (MHz):	850 / 900 / 1800 / 1900
4G (LTE):	✓
GSM bands (2G networks):	850 / 1900

<https://www.t-mobile.com/support/tutorials/device/alcatel/go-flip/specifications>

28. Upon information and belief, Defendant manufactures certain of the 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 T-Mobile 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.

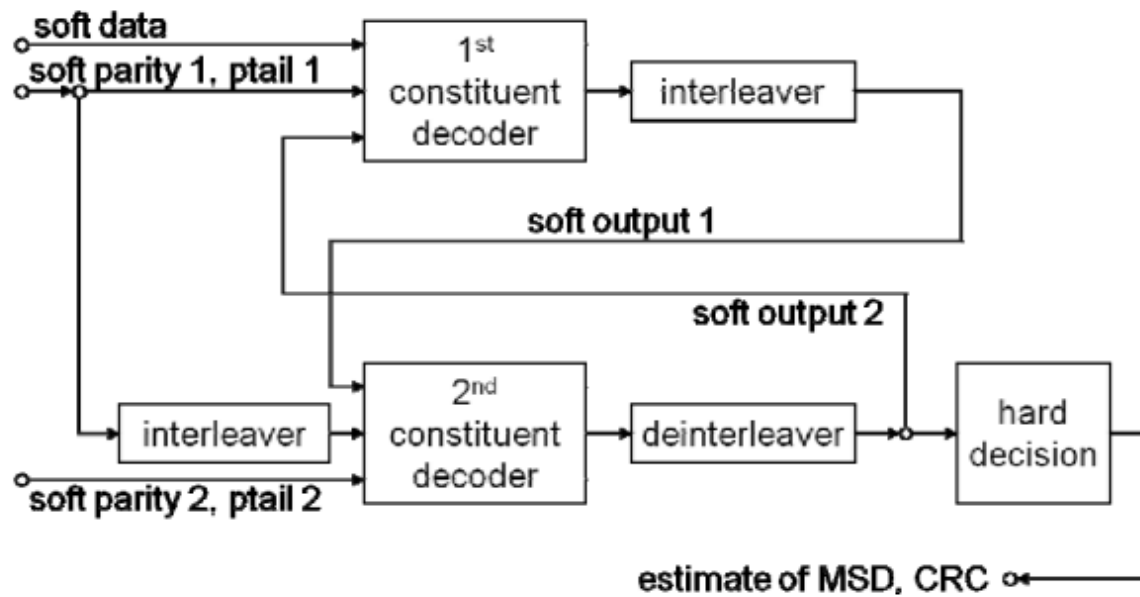


Figure 18: Turbo decoder

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 T-MOBILE

35. On October 18, 2021, Plaintiff provided formal notice of infringement to T-Mobile USA, Inc. 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 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 T-Mobile’s equipment in a manner specified by T-Mobile. As such, T-Mobile 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. T-Mobile has sold, used and supported devices (that were made, used, sold, offered for sale, and/or imported by or on behalf of T-Mobile) 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 United 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
Andrew G. DiNovo
Texas State Bar No. 00790594
Christopher V. Goodpastor
Texas State Bar No. 00791991
Michael D. French
Texas State Bar No. 24116392
DINOVO PRICE LLP
7000 N. MoPac Expressway, Suite 350
Austin, Texas 78731
Telephone: (512) 539-2626
Facsimile: (512) 539-2627
adinovo@dinovoprice.com
cgoodpastor@dinovoprice.com
mfrench@dinovoprice.com

**ATTORNEYS FOR PLAINTIFF
TURBOCODE LLC**

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