

**UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF TEXAS  
AUSTIN DIVISION**

TURBOCODE LLC,  
*Plaintiff,*

v.

ZYXEL COMMUNICATIONS  
CORPORATION,  
*Defendant.*

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CASE NO. 1:22-cv-01162-LY

JURY TRIAL DEMANDED

**FIRST AMENDED COMPLAINT**

Plaintiff TurboCode LLC (“Plaintiff” or “TurboCode”) files this First Amended Complaint for patent infringement against Defendant Zyxel Communications Corporation (“Defendant” or “Zyxel”). 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. Zyxel 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 Zyxel’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 Zyxel Communications Corporation is a corporation organized and existing under the laws of Taiwan, having its principal place of business located at No. 2, Gongye East 9<sup>th</sup> Road, East District, Hsinchu City 30076, Taiwan (Republic of China). Zyxel may be served with process by serving the Texas Secretary of State, 1019 Brazos Street, Austin, Texas 78701, as its agent for service because it engages in business in Texas but has not designated or maintained a resident agent for service of process in Texas as required by statute. This action arises out of that business.

### 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 Western 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 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.

9. Venue is proper for Defendant in this District because venue in a patent infringement action against a foreign defendant is proper in any judicial district pursuant to 28 U.S.C. § 1400(b), 28 U.S.C. § 1391(c), and *Brunette Mach. Works, Ltd. V. Kockum Indus., Inc.*,

406 U.S. 706 (1972) (cited by *TC Heartland LLC v. Kraft Foods Grp. Brands LLC*, 137 S. Ct. 1514, 1520 n.2 (2017)). There is no clearly more convenient venue.

#### IV. TECHNICAL BACKGROUND

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

11. Most cellular devices made and sold in the United States over that 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).

12. 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**.

13. 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.

14. 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

15. 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.

16. 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 include, but are not limited to, models LTE5388-S905 4G LTE-A CBRS EUD Indoor Router, LTE7485-

S905 4G LTE-A CBRS CBSD Category B Outdoor Router, LTE7480-S905 4G LTE-A CBRS EUD Outdoor Router, LTE7461-M602 4G LTE-A Outdoor Router and LTE5388-M804 4G LTE-A Indoor IAD (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).

17. The LTE5388-S905 is described by Zyxel as follows:

### **Hardware specifications**

#### **LTE interface**

- Standard-compliant: 3GPP UE Category 16
- Supports LTE band 48 (CBRS) (LTE TDD 3550-3700 MHz)
- Supports DL TM1/2/3/4/6/7/8/9
- LTE antennas: 4 embedded omni-directional antennas of up to 5 dBi per element (4x4 MIMO)

LTE5388-S905 4G LTE-A Indoor Router Datasheet at 2.

18. By applying 4G LTE processing in the LTE5388-S905, the manufacture, use, sale, offer for sale and/or importation of the LTE5388-S905 has infringed the Asserted Patent.

19. As another example, for the LTE5388-M804, Zyxel specifies the following connectivity:

## Hardware specifications

### LTE Air interface

- Standard-compliant: 3GPP Release 12 Cat. 12
- Support LTE band:
  - LTE FDD: B1/B3/B5/B7/B8/B20/B28
  - LTE TDD: B38/40/41
- Support up to 3x DL Intra/Inter band CA
- Support 2x UL intra band CA (for more detail information please contact local sales)
- Peak data rate:
  - 600 Mbps DL within 60 MHz bandwidth (CA)
  - 100 Mbps UL within 40 MHz bandwidth

LTE5388-M804 4G LTE-A Indoor Router Specification Sheet at 2.

20. Zyxel states its 4G LTE solutions have the following advantages:

Compared with previous mobile network technologies, 4G LTE offers much higher bandwidth (speed of data transfer), lower latency (after response times from the network), and improved spectrum efficiency (increasing overall network capacity). This allows:

- More applications to be used on mobile devices, out of the home or office
- Faster or real-time sharing of large files and streaming media
- Near-immediate delivery of time-sensitive data, such as for real-time interaction or transactions

LTE will deliver improvements in the performance of many existing applications and make feasible new applications that depend on reliable high speed or responsive data transfer. Examples include innovative telemedicine applications, remote monitoring, fully-mobile virtual desktops, and high definition mobile videoconferencing. The improved user experience and practicality of LTE will also hasten the uptake of those existing applications that already work on mobile devices - but just not very well. Finally, LTE's high bandwidth can support the rapid set-up

of temporary workplaces, as an alternative or backup to fixed broadband connections.

<https://service-provider.zyxel.com/na/en/4g-lte-solutions>.

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

22. Upon information and belief, Defendant applies for necessary U.S. certifications from the FCC for the Exemplary Accused Products and other 3G and 4G products.

23. On or about April 24, 2020, Defendant engaged Bureau Veritas to submit a CBSD Test Report (Report No. RF181220E07A-1) to the FCC in connection with LTE7485-S905. The Applicant is identified as Zyxel Communications Corporation, with address No. 2 Industry East RD. IX, Hsinchu Science Park, Hsinchu 30075, Taiwan.

24. On or about May 11, 2020, Defendant engaged Bureau Veritas to submit a CBSD Test Report (Report No. RF200505E03) to the FCC in connection with LTE7485-S905. The Applicant is identified as Zyxel Communications Corporation, with address No. 2 Industry East RD. IX, Hsinchu Science Park, Hsinchu 30075, Taiwan.

25. Defendant files or causes to be filed declarations to the FCC, including with respect to the Exemplary Accused Products, relating to the circuitry and electrical, mechanical and physical construction of the Exemplary Accused Products.

26. Upon information and belief, Defendant is responsible for product selection, testing and quality control with respect to the Exemplary Accused Products and other 3G and 4G products.

27. Also upon information and belief, Defendant ships the Exemplary Accused Products and other 3G and 4G products to the United States. D-Link directs or controls the making, shipment, and sale of the Exemplary Accused Products in the United States, including in Texas, through its distribution channels, including its United States-based affiliates.

28. The Exemplary Accused Products are available for purchase in Texas through national retailers.

29. Defendant applied for and holds the trademark ZYXEL, Reg. No. 5362834, in the United States Patent & Trademark Office. The last listed owner is identified by the USPTO as “ZyXEL Communications Corp. CORPORATION [sic] TAIWAN 11F., #223, SEC. 3, BEIXIN RD., XINDIAN DIST New Taipei City TAIWAN 23143.” Goods and services include “wireless and network routers” and “portable telephones.”

30. On information and belief, Defendant holds the U.S. copyrights in the Exemplary Accused Products’ packaging and documentation.

31. Defendant’s case studies tout its connections to the United States and the State of Texas, including with respect to Kehr Technologies, Inc.

32. Defendant’s Annual Report reflects that Defendant monitors, reports and promotes U.S. sales efforts.

33. 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 3<sup>rd</sup> 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 efficient by being able to process larger amounts of data in smaller batches.

## VI. NOTICE TO ZYXEL

34. On October 18, 2021, Plaintiff provided formal notice of infringement to Zyxel. 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

35. TurboCode repeats and realleges paragraphs 1–34, as if the same were fully stated herein.

36. 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 Zyxel’s equipment in a manner specified by Zyxel. As such, Zyxel controlled the manner and timing of performance, and conditioned the benefit of use on performance of the claimed steps.

37. 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.

38. 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.

39. 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.

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

41. Attached hereto as **Exhibit 3**, and incorporated by reference herein, is a claim chart detailing how devices (that were made, used, sold, offered for sale, and/or imported by or on behalf of Zyxel) 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) as shown in **Exhibit 3**. 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.

42. TurboCode reserves the right to modify its infringement theories as discovery progresses in this case. TurboCode shall not be estopped for purposes of its infringement contentions or its claim constructions by the claim charts that it provides with this Amended Complaint. TurboCode intends the claim chart (Exhibit 3) for the '742 patent to satisfy the notice requirements of Rule 8(a)(2) of the Federal Rule of Civil Procedure. The claim chart is not TurboCode's preliminary or final infringement contentions or preliminary or final claim construction positions.

#### **VIII. DEMAND FOR JURY TRIAL**

43. Pursuant to Fed. R. Civ. P. 38(b), Plaintiff TurboCode Technologies, LLC 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: April 26, 2023

Respectfully submitted,

By: /s/ Andrew G. DiNovo  
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**ATTORNEYS FOR PLAINTIFF**

**CERTIFICATE OF SERVICE**

I hereby certify that on April 26, 2023, all counsel of record who are deemed to have consented to electronic service are being served with a copy of the foregoing document *via* the Court's CM/ECF system.

/s/ Andrew G. DiNovo  
Andrew G. DiNovo