UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF TEXAS
WACO DIVISION

PARKERVISION, INC., Plaintiff, **v.** **MEDIATEK INC. and** **MEDIATEK USA INC.** Defendants.	**Case No. 6:22-cv-01163** **JURY TRIAL DEMANDED**

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff ParkerVision, Inc. ("ParkerVision"), by and through its undersigned counsel, files this Complaint against Defendants MediaTek Inc. and MediaTek USA Inc. (collectively, "MediaTek" or "Defendants") for patent infringement of United States Patent Nos. 6,049,706; 6,266,518; 7,292,835; and 8,660,513 (the "patents-in-suit") and alleges as follows:

NATURE OF THE ACTION

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

PARTIES

2. Plaintiff ParkerVision is a Florida corporation with its principal place of business at 4446-1A Hendricks Avenue, Suite 354, Jacksonville, Florida 32207.

3. On information and belief, MediaTek Inc. is a foreign corporation organized and existing under the laws of Taiwan with a principal place of business located at No. 1, Dusing Road 1, Hsinchu Science Park, Hsinchu City 30078, Taiwan.

4. On information and belief, Defendant MediaTek USA Inc. is a corporation organized and existing under the laws of the state of Delaware with a place of business in the Western District of Texas, including at 5914 West Courtyard Drive, Suite 400, Austin, TX 78730. https://corp.mediatek.com/about/office-locations/mediatek-usa-offices. On information and belief, MediaTek USA Inc. is a subsidiary of MediaTek Inc.

5. MediaTek designs, develops, manufactures, and sells integrated circuits/wireless chips.

> **V. Business Activities**
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> **1. Business Scope**
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> 1.1. Business Scope
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> **1.1.1 The Main Business Activities of the Company**
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> A. Design, develop, produce, manufacture and market the following products:
> a. Multimedia Integrated Circuits (IC);
> b. Computer peripheral ICs;
> c. High-end digital consumer ICs;
> d. Other application specific ICs;
> e. Patent and circuit-layout licensing and services of the above-mentioned products
> B. Provide the above-mentioned products with software and hardware application design, test, maintenance, and technological consultation services
> C. Import and export of the above-mentioned products

https://cdn-www.mediatek.com/posts/2021-English-Annual-Report_Final.pdf at page 64.

JURISDICTION AND VENUE

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

7. MediaTek is subject to this Court's personal jurisdiction in accordance with due process and/or the Texas Long-Arm Statute. *See* Tex. Civ. Prac. & Rem. Code §§ 17.041 *et seq*.

8. This Court has personal jurisdiction over MediaTek because MediaTek has sufficient minimum contacts with this forum as a result of business conducted within the State of Texas and this judicial district. In particular, this Court has personal jurisdiction over MediaTek because, *inter alia*, MediaTek, on information and belief, has substantial, continuous, and systematic business contacts in this judicial district, and derives substantial revenue from goods provided to individuals in this judicial district.

9. MediaTek has purposefully availed itself of the privileges of conducting business within this judicial district, has established sufficient minimum contacts with this judicial district such that it should reasonably and fairly anticipate being hauled into court in this judicial district, has purposefully directed activities at residents of this judicial district, and at least a portion of the patent infringement claims alleged in this Complaint arise out of or are related to one or more of the foregoing activities.

10. This Court has personal jurisdiction over MediaTek because MediaTek (directly and/or through its subsidiaries, affiliates, or intermediaries) has committed and continues to commit acts of infringement in this judicial district in violation of at least 35 U.S.C. § 271(a). In particular, on information and belief, MediaTek (or those acting on its behalf) uses, sells, offers for sale, imports, advertises, and/or otherwise promotes infringing products (receiver, transmitter, and/or transceiver integrated circuits (e.g., chips for use in wireless devices)) in the United States, the State of Texas, and this judicial district. The infringing products include, without limitation, the MediaTek MT7612UN ("MediaTek Chips").

11. On information and belief, MediaTek has a regular and established place of business within the Western District of Texas, including 5914 West Courtyard Drive, Suite 400, Austin, TX 78730. On information and belief, MediaTek has physical facilities and employees in

this judicial district. On information and belief, MediaTek maintains additional offices and employees in Texas including at 825 Watters Creek Blvd, Suite 265, Allen, TX 75103.

12. This case is related to at least the following cases before this Court and involves common patents and products: *ParkerVision, Inc. v. Hisense Co., Ltd. et al.*, 6-20-CV-00870 (W.D. Tex.) and *ParkerVision, Inc. v. LG Electronics, Inc.*, 6:21-CV-00520 (W.D. Tex.).

13. Venue is proper in this judicial district under 28 U.S.C. §§ 1391(b)-(d) and/or 1400(b) at least because MediaTek Inc. is a foreign corporation subject to personal jurisdiction in this judicial district and has committed acts of infringement within this judicial district giving rise to this action.

PARKERVISION

14. In 1989, Jeff Parker and David Sorrells started ParkerVision in Jacksonville, Florida. Through the mid-1990s, ParkerVision focused on developing commercial video cameras, e.g., for television broadcasts. The cameras used radio frequency (RF) technology to automatically track the camera's subject.

15. When developing consumer video cameras, however, ParkerVision, encountered a problem – the power and battery requirements for RF communications made a cost effective, consumer-sized product impractical. So, Mr. Sorrels and ParkerVision's engineering team began researching ways to solve this problem.

16. At the time, a decade's-old RF technology called super-heterodyne dominated the consumer products industry. But this technology was not without its own problems – the circuity was large and required significant power.

17. From 1995 through 1998, ParkerVision engineers developed an innovative method of RF direct conversion by a process of sampling a RF carrier signal and transferring energy to create a down-converted baseband signal.

18. After creating prototype chips and conducting tests, ParkerVision soon realized that its technology led to improved RF receiver performance, lower power consumption, reduced size and integration benefits. In other words, RF receivers could be built smaller, cheaper and with greater improved performance.

19. ParkerVision's innovations did not stop there. ParkerVision went on to develop additional RF down-conversion technologies, RF up-conversion technologies and other related direct-conversion technologies. ParkerVision also developed complementary wireless communications technologies that involved interactions, processes, and controls between the baseband processor and the transceiver, which improved and enhanced the operation of transceivers that incorporate ParkerVision's down-converter and up-converter technologies. To date, ParkerVision has been granted over 200 patents related to its innovations, including the patents-in-suit.

20. ParkerVision's technology helped make today's wireless devices, such as televisions, a reality by enabling RF chips used in these devices to be smaller, cheaper, and more efficient, and with higher performance.

THE ASSERTED PATENTS

United States Patent No. 6,049,706

21. On April 11, 2000, the United States Patent and Trademark Office duly and legally issued United States Patent No. 6,049,706 ("the '706 patent") entitled "Integrated Frequency Translation and Selectivity" to inventor Robert W. Cook et al.

22. The '706 patent is presumed valid under 35 U.S.C. § 282.

23. ParkerVision owns all rights, title, and interest in the ’706 patent.

United States Patent No. 6,266,518

24. On July 24, 2001, the United States Patent and Trademark Office duly and legally issued United States Patent No. 6,266,518 (“the ’518 patent”) entitled “Method and System for Down-Converting Electromagnetic Signals by Sampling and Integrating Over Apertures” to inventor David F. Sorrells et al.

25. The ’518 patent is presumed valid under 35 U.S.C. § 282.

26. ParkerVision owns all rights, title, and interest in the ’518 patent.

United States Patent No. 7,292,835

27. On November 6, 2007, the United States Patent and Trademark Office duly and legally issued United States Patent No. 7,292,835 (“the ’835 patent”) entitled “Wireless and Wired Cable Modem Applications of Universal Frequency Translation Technology” to inventor David F. Sorrells et al.

28. The ’835 patent is presumed valid under 35 U.S.C. § 282.

29. ParkerVision owns all rights, title, and interest in the ’835 patent.

United States Patent No. 8,660,513

30. On February 25, 2014, the United States Patent and Trademark Office duly and legally issued United States Patent No. 8,660,513 (“the ’513 patent”) entitled “Method and System for Down-Converting an Electromagnetic Signal, and Transforms for Same, and Aperture Relationships” to inventor David F. Sorrells et al.

31. The ’513 patent is presumed valid under 35 U.S.C. § 282.

32. ParkerVision owns all rights, title, and interest in the ’513 patent.

CLAIMS FOR RELIEF

COUNT I - Infringement of United States Patent No. 6,049,706

33. The allegations set forth above are re-alleged and incorporated by reference as if they were set forth fully here.

34. MediaTek directly infringes (literally and/or under the doctrine of equivalents) the ’706 patent by using, selling, offering for sale, and/or importing in/into the United States products covered by at least claim 19 of the ’706 patent. MediaTek infringes each step of claim 19 because the MediaTek Chips automatically, and without user modification, performed each of the claimed steps.

35. On information and belief, MediaTek products that infringe by at least claim 19 of the ’706 patent include, but are not limited to, the MediaTek Chips and any other MediaTek device that is capable of filtering and down-converting an input signal as claimed in the ’706 patent. On information and belief, MediaTek uses the MediaTek Chips at least by testing the MediaTek Chips in the United States.

36. On information and belief, each MediaTek Chip performs a method of filtering and down-converting an input signal (e.g., a radio frequency (RF) signal at a transmission frequency). The method is performed on the receiver side of each MediaTek Chip.

37. On information and belief, each MediaTek Chip filters and down-converts an input signal in an integrated manner using a switch (e.g., one or more transistors), capacitor(s), and low impedance load (e.g., one or more resistors). On information and belief, a down-converted signal (e.g., a baseband signal) is formed from energy from a transistor(s) when the transistor(s) is ON and energy from a capacitor(s) when the transistor(s) is OFF.

38. On information and belief, each MediaTek Chip tunes at least one of the filtering operation and down-converting operation (e.g., the MediaTek Chip selects components/adjusts component values).

39. On information and belief, a transistor(s) in each MediaTek Chip under-samples (e.g., at a sample rate below the Nyquist rate) the input signal according to a control signal (e.g., local oscillator (LO) signal). The frequency of the control signal is equal to a frequency of the input signal plus or minus a frequency of a down-converted image, divided by n, where n represents a harmonic or sub-harmonic of the input signal.

40. ParkerVision has been damaged by the direct infringement of MediaTek and is suffering and will continue to suffer irreparable harm and damages as a result of this infringement.

COUNT II – Infringement of United States Patent No. 6,266,518

41. The allegations set forth above are re-alleged and incorporated by reference as if they were set forth fully here.

42. MediaTek directly infringes (literally and/or under the doctrine of equivalents) the ’518 patent by using, selling, offering for sale, and/or importing in/into the United States products covered by at least claim 27 of the ’518 patent. MediaTek infringes each step of claim 27 because the MediaTek Chips automatically, and without user modification, performed each of the claimed steps.

43. On information and belief, MediaTek products that infringe at least claim 27 of the ’518 patent include, but are not limited to, the MediaTek Chips, and any other MediaTek device that is capable of down-converting a carrier signal to a baseband signal as claimed in the

’518 patent. On information and belief, MediaTek uses the MediaTek Chips at least by testing the MediaTek Chips in the United States.

44. On information and belief, each MediaTek Chip performs a method of down-converting a carrier signal (e.g., an RF signal at a transmission frequency) to a baseband signal. The method is performed on the receiver side of each MediaTek Chip.

45. On information and belief, each MediaTek Chip receives a carrier signal that includes at least one of amplitude variations, phase variations, or frequency variations at a frequency lower than a carrier frequency of the carrier signal (e.g., a modulated carrier signal, such as a quadrature amplitude modulation (QAM) signal). The carrier signal includes a baseband signal that has been imparted on the carrier signal.

46. On information and belief, each MediaTek Chip samples the carrier signal by a transistor(s) turning ON and OFF. The sampling occurs over aperture periods (e.g., periods of time when the transistor(s) is ON/receives an LO signal) to transfer energy from the carrier signal at an aliasing rate, which is determined according to a frequency of the carrier signal divided by N, wherein N indicates a harmonic or sub-harmonic of the carrier signal.

47. On information and belief, a capacitor(s) in each MediaTek Chip integrates energy from a transistor(s) over the aperture periods (e.g., when the transistor(s) is ON).

48. On information and belief, each MediaTek Chip generates a baseband signal including from the integrated energy that comes from a capacitor(s) when the transistor is OFF.

49. On information and belief, a capacitor(s) in each MediaTek Chip transfers energy to a load (e.g., one or more resistors) during an off-time (e.g., when the transistor(s) is OFF).

50. ParkerVision has been damaged by the direct infringement of MediaTek and is suffering and will continue to suffer irreparable harm and damages as a result of this infringement.

COUNT III - Infringement of United States Patent No. 7,292,835

51. The allegations set forth above are re-alleged and incorporated by reference as if they were set forth fully here.

52. MediaTek directly infringes (literally and/or under the doctrine of equivalents) the ’835 patent by using, selling, offering for sale, and/or importing in/into the United States products covered by at least claims 1 and 17 of the ’835 patent.

53. On information and belief, MediaTek products that infringe one or more claims of the ’835 patent include, but are not limited to, the MediaTek Chips and any other MediaTek device used e.g., in televisions (“MediaTek TV Chips”) that is capable of down-converting a higher-frequency signal to a lower-frequency signal as claimed in the ’835 patent. On information and belief, MediaTek uses the MediaTek TV Chips at least by testing the MediaTek TV Chips in the United States.

54. The MediaTek TV Chips used in televisions enable users to watch live TV and on demand programming from their cable service providers over a wireless network. For example, some of the MediaTek TV Chips provide wireless connectivity for televisions, such as Hisense and LG televisions.[1] The MediaTek TV Chips are configured to function/capable of functioning

[1] *See, e.g.,* https://fccid.io/BEJLGSWFAC71/Users-Manual/User-Manual-3136306; https://fccid.io/BEJLGSWFAC71/Internal-Photos/Internal-Photos-3136304.pdf; https://fccid.io/W9HLCDF0098; https://fccid.io/W9HLCDF0098/Internal-Photos/TempConfidential-W9HLCDF0098-Internal-Photos-3264487.pdf.

as wireless cable modems. For example, the MediaTek TV Chips provide a wireless connection to cable services.

55. On information and belief, each MediaTek TV Chip is/includes a cable modem (e.g., wireless modem for communicating with a cable television network) for down-converting an electromagnetic signal (e.g., a high frequency RF signal), having complex modulations (e.g., QAM), to a lower frequency signal. The electromagnetic signal is transmitted by a wireless method to the cable modem.

56. Each MediaTek TV Chip has (a) an oscillator (e.g., LO) to generate an in-phase oscillating signal (e.g., in-phase LO signal), (b) a phase shifter (e.g., a flip-flop) to receive the in-phase oscillating signal and to create a quadrature-phase oscillating signal (e.g., quadrature-phase LO signal), (c) a first frequency down-conversion module (e.g., a first module that includes at least one switch and at least one capacitor) to receive the electromagnetic signal and the in-phase oscillating signal and (d) a second frequency down-conversion module (e.g., a second module that includes at least one switch and at least one capacitor) to receive the electromagnetic signal and the quadrature-phase oscillating signal.

57. On information and belief, the first frequency down-conversion module includes a first frequency translation module (e.g., a module having one or more switches) and a first storage module (e.g., a module having one or more capacitors). The first frequency translation module samples the electromagnetic signal at a rate (e.g., LO rate with a 25% duty cycle) that is a function of the in-phase oscillating signal, thereby creating a first sampled signal.

58. The second frequency down-conversion module includes a second frequency translation module (e.g., a module having one or more switches) and a second storage module (e.g., a module having one or more capacitors). The second frequency translation module

samples the electromagnetic signal at a rate (e.g., LO rate with a 25% duty cycle) that is a function of the quadrature-phase oscillating signal, thereby creating a second sampled signal.

59. ParkerVision has been damaged by the direct infringement of MediaTek and is suffering and will continue to suffer irreparable harm and damages as a result of this infringement.

COUNT IV - Infringement of United States Patent No. 8,660,513

60. The allegations set forth above are re-alleged and incorporated by reference as if they were set forth fully here.

61. MediaTek directly infringes (literally and/or under the doctrine of equivalents) the ’513 patent by using, selling, offering for sale, and/or importing in/into the United States products covered by at least claim 19 of the ’513 patent.

62. On information and belief, MediaTek products that infringe one or more claims of the ’513 patent include, but are not limited to, the MediaTek Chips, and any other MediaTek device that is capable of down-converting a higher-frequency signal to a lower-frequency signal as claimed in the ’513 patent. On information and belief, MediaTek uses the MediaTek Chips at least by testing the MediaTek Chips in the United States.

63. On information and belief, each MediaTek Chip is/includes a system for frequency down-converting a modulated carrier signal (e.g., high frequency RF signal) to a lower frequency signal. Each MediaTek Chip has (a) a first switch (e.g., one or more transistors), (b) a first control signal (e.g., LO signal) which comprises a sampling aperture (e.g., 25% duty cycle) with a specified frequency, and (c) a first energy storage element (e.g., one or more capacitors) that down-converts the modulated carrier signal according to the first control signal and outputs a down-converted in-phase signal portion of the modulated carrier signal.

64. On information and belief, each MediaTek Chip has (a) a second switch (e.g., one or more transistors), (b) a second control signal (e.g., LO signal) which comprises a sampling aperture (e.g., 25% duty cycle) with a specified frequency, and (c) a second energy storage element (e.g., one or more capacitors) that down-converts the modulated carrier signal (e.g., high frequency RF signal) according to the second control signal and outputs a down-converted inverted in-phase signal portion of the modulated carrier signal.

65. On information and belief, each MediaTek Chip has a first differential amplifier circuit that combines the down-converted in-phase signal portion with the inverted in-phase signal portion and outputs a first channel down-converted differential in-phase signal.

66. On information and belief, each MediaTek Chip has (a) a third switch (e.g., one or more transistors), (b) a third control signal (e.g., LO signal) which comprises a sampling aperture (e.g., 25% duty cycle) with a specified frequency, and (c) a third energy storage element (e.g., one or more capacitors) that down-converts the modulated carrier signal (e.g., high frequency RF signal) according to the third control signal and outputs a down-converted quadrature-phase signal portion of the modulated carrier signal.

67. On information and belief, each MediaTek Chip has (a) a fourth switch (e.g., one or more transistors), (b) a fourth aperture signal (e.g., LO signal), and (c) a fourth energy storage element (e.g., one or more capacitors) that down-converts the modulated carrier signal (e.g., high frequency RF signal) according to the fourth control signal and outputs a down-converted inverted quadrature-phase signal portion of the modulated carrier signal.

68. On information and belief, each MediaTek Chip has a second differential amplifier circuit that combines the down-converted quadrature-phase signal portion with the

inverted quadrature-phase signal portion and outputs a second channel down-converted differential quadrature-phase signal.

69. ParkerVision has been damaged by the direct infringement of MediaTek and is suffering and will continue to suffer irreparable harm and damages as a result of this infringement.

JURY DEMANDED

Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, ParkerVision hereby requests a trial by jury on all issues so triable.

PRAYER FOR RELIEF

WHEREFORE, ParkerVision respectfully requests that the Court enter judgment in its favor and against MediaTek as follows:

a. finding that MediaTek directly infringes one or more claims of each of the patents-in-suit;

b. awarding ParkerVision damages under 35 U.S.C. § 284, or otherwise permitted by law, including supplemental damages for any continued post-verdict infringement;

c. awarding ParkerVision pre-judgment and post-judgment interest on the damages award and costs;

d. awarding cost of this action (including all disbursements) and attorney fees pursuant to 35 U.S.C. § 285, or as otherwise permitted by the law; and

e. awarding such other costs and further relief that the Court determines to be just and equitable.

Dated: November 9, 2022

THE MORT LAW FIRM, PLLC

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#Not admitted in Virginia
**Pro hac vice to be filed*