

**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF TEXAS
WACO DIVISION**

PARKERVISION, INC.,

Plaintiff,

vs.

INTEL CORPORATION,

Defendant.

Civil Action No. 6:20-cv-00108-ADA

JURY TRIAL DEMANDED

**INTEL CORPORATION'S COUNTERCLAIMS TO FIRST AMENDED
COMPLAINT FOR PATENT INFRINGEMENT**

Counterclaim Plaintiff Intel Corporation ("Intel") alleges the following Counterclaims in response to Counterclaim Defendant ParkerVision, Inc.'s ("ParkerVision") First Amended Complaint (Dkt. No. 14) for patent infringement.

THE PARTIES

1. Counterclaim Plaintiff Intel is a corporation organized and existing under the laws of the State of Delaware, with a place of business at 2200 Mission College Boulevard, Santa Clara, California 95054.

2. Counterclaim Defendant ParkerVision alleges in its First Amended Complaint that it is a Florida corporation with its principal place of business at 9446 Philips Highway, Jacksonville, Florida 32256.

JURISDICTION AND VENUE

3. These Counterclaims arise under Title 35 of the United States Code. The Court has subject matter jurisdiction over these Counterclaims pursuant to 28 U.S.C. §§ 1331, 1338(a), 2201, and 2202.

4. ParkerVision is subject to personal jurisdiction in this District because ParkerVision filed its Complaint and First Amended Complaint in this District.

5. Venue is proper in this District because ParkerVision filed its Complaint and First Amended Complaint in this District.

FACTUAL BACKGROUND

6. In this First Amended Complaint, ParkerVision alleges that it is the owner of U.S. Patent Nos. 6,266,518 (“’518 patent”); 6,580,902 (“’902 patent”); 7,110,444 (“’444 patent”); 7,539,474 (“’474 patent”); 8,588,725 (“’725 patent”); 8,660,513 (“’513 patent”); 9,118,528 (“’528 patent”); 9,246,736 (“’736 patent”); and 9,444,673 (“’673 patent”).¹

7. In its First Amended Complaint, ParkerVision alleges that Intel’s PMB 5750, PMB 5757, and PMB 5762 (collectively, the “RF Transceiver Chips”) infringe the ’518, ’902, ’444, ’474, ’725, ’513, ’528, ’736, and ’673 patents.

8. Intel denies each and every such infringement allegation.

9. As a result of ParkerVision’s actions and statements, including the filing of the First Amended Complaint, an actual and justiciable controversy exists between ParkerVision and Intel with regard to the validity and infringement of the ’518, ’902, ’444, ’474, ’725, ’513, ’528, ’736, and ’673 patents.

10. A judicial determination is necessary and appropriate at this time given ParkerVision’s allegations against Intel and in order for Intel to ascertain its rights and duties with respect to the ’518, ’902, ’444, ’474, ’725, ’513, ’528, ’736, and ’673 patents.

¹ Count I of ParkerVision’s First Amended Complaint alleged infringement of U.S. Patent No. 6,049,706 (“’706 patent”). See Dkt. No. 14 at Count I. ParkerVision dismissed Count I on June 24, 2020, and therefore the ’706 patent is no longer asserted in this action. See Dkt. No. 20.

FIRST COUNTERCLAIM

(Declaratory Judgement of Non-Infringement of U.S. Patent No. 6,266,518)

11. Intel repeats and re-alleges each and every allegation set forth in the foregoing Paragraphs as if fully set forth herein.

12. Intel counterclaims against ParkerVision pursuant to the patent laws of the United States, Title 35 of the United States Code, and the Declaratory Judgments Act, 28 U.S.C. §§ 2201 and 2202.

13. In its First Amended Complaint, ParkerVision alleges that Intel is directly infringing, literally and/or under the doctrine of equivalents, the '518 patent, and that the '518 patent is valid and enforceable.

14. An actual controversy exists between ParkerVision and Intel by virtue of the allegations in ParkerVision's First Amended Complaint and Intel's Answer as to the validity and infringement of the '518 patent.

15. The RF Transceiver Chips, including the accused Intel PMB 5750, PMB 5757, and PMB 5762, do not meet all of the elements of any of the claims of the '518 patent, and therefore Intel does not infringe the claims of the '518 patent.

16. For example, Intel does not infringe at least Claim 67 of the '518 patent because the RF Transceiver Chips, including the accused Intel PMB 5750, PMB 5757, and PMB 5762, do not use, include, and/or incorporate an apparatus for down-converting a carrier signal to a lower frequency signal comprising at least one or more of the following limitations: (i) a universal frequency down-converter (UFD), including a switch, an integrator coupled to said switch, and a pulse generator coupled to said switch; (ii) a reactive structure coupled to said UFD; (iii) wherein said pulse generator outputs pulses to said switch at an aliasing rate that is determined according

to (a frequency of the carrier signal \pm a frequency of the lower frequency signal) divided by N; (iv) wherein said pulses have apertures and cause said switch to close and sample said carrier signal; (v) wherein energy is transferred from said carrier signal and integrated using said integrator during apertures of said pulses; (vi) wherein said lower frequency signal is generated from the transferred energy; and (vii) wherein energy is transferred to a load during an off-time.

17. Moreover, the PMB 5750 chip that ParkerVision accuses of infringement in its First Amended Complaint was already found not to infringe European Patent No. 1 135 853 (“EP ’853”) in a proceeding in Germany at least because “there is no sampling means according to the patent.” *See* Munich Regional Court, Apr. 25, 2019, 7 O 2141/17, Final Judgment (trans.) (Ger.) at 19. The EP ’853 patent claims priority to U.S. Patent No. 6,061,551 (“’551 patent”) and the ’518 patent is a direct continuation of the ’551 patent. In addition, the EP ’853 patent, like Claim 67 of the ’518 patent, includes claims that require “sampling.” *See id.* at 4 (“a sampling means for sampling the input signal at a sampling frequency . . .”).

18. Intel does not infringe the ’518 patent because Intel does not make, use, test, sell, offer for sale, or import into the United States, and has not made, used, tested, sold, offered for sale, or imported into the United States, any products or methods that infringe any valid claim of the ’518 patent, either directly or indirectly, literally or through the doctrine of equivalents, or otherwise.

19. Intel is entitled to a declaratory judgment that it has not infringed, and is not infringing, directly or indirectly (either literally, under the doctrine of equivalents, or otherwise) any valid, patent-eligible claim of the ’518 patent.

SECOND COUNTERCLAIM

(Declaratory Judgment of Invalidity of U.S. Patent No. 6,266,518)

20. Intel repeats and re-alleges each and every allegation set forth in the foregoing Paragraphs as if fully set forth herein.

21. Intel counterclaims against ParkerVision pursuant to the patent laws of the United States, Title 35 of the United States Code, and the Declaratory Judgments Act, 28 U.S.C. §§ 2201 and 2202.

22. In its First Amended Complaint, ParkerVision alleges that Intel is directly infringing, literally and/or under the doctrine of equivalents, the '518 patent, and that the '518 patent is valid and enforceable.

23. An actual controversy exists between ParkerVision and Intel by virtue of the allegations in ParkerVision's First Amended Complaint and Intel's Answer as to the validity and infringement of the '518 patent.

24. Intel contests the validity and enforceability of the '518 patent, and does not infringe the '518 patent at least because the claims of the '518 patent are invalid under 35 U.S.C. §§ 102, 103, 112, and/or 116.

25. For example, U.S. Patent No. 6,230,000 ("Taylor") in combination with U.S. Patent No. 5,345,471 ("McEwan") renders obvious, including at least under ParkerVision's alleged infringement theory, at least Claim 67 of the '518 patent under 35 U.S.C. § 103. At least under ParkerVision's apparent infringement theory, Taylor discloses and/or renders obvious every element of Claim 67. To the extent ParkerVision contends that Taylor does not disclose energy transferred to a load during an off-time, that element is disclosed and/or rendered obvious by at

least McEwan. Intel will provide final invalidity contentions consistent with the schedule ordered by the Court and following ParkerVision's final infringement contentions.

26. In addition, the German Federal Patent Court found that all elements of ParkerVision's related EP '853 patent are disclosed in the prior art article *A 900-MHz RF Front-End with Integrated Discrete-Time Filtering*, IEEE J. OF SOLID-STATE CIRCUITS, Band 31, Nr. 12 (Dec. 1996) by Shen, D. H., et al., ("Shen"), and rejected ParkerVision's argument that it invented a "fundamentally different approach to energy transmission down-conversion." See Bundespatentgericht [BPatG] [Federal Patent Court], Dec. 16 2019, 5 Ni 19/17 (EP), Decision on Costs and Determination of the Value in Dispute (Ger.) (trans.) at 10. The EP '853 patent claims priority to U.S. Patent No. 6,061,551 ("551 patent") and the '518 patent is a direct continuation of the '551 patent. In addition, the EP '853 patent, like Claim 67 of the '518 patent, includes claims that require "sampling." See Munich Regional Court, Apr. 25, 2019, 7 O 2141/17, Final Judgment (trans.) (Ger.) at 4. Shen likewise discloses and/or renders obvious the elements of at least Claim 67 of the '518 patent, and therefore invalidates that claim. Intel will provide final invalidity contentions consistent with the schedule ordered by the Court and following ParkerVision's final infringement contentions.

27. Similarly, the Federal Circuit found that Claims 82, 90, and 91 of the '518 patent were anticipated by "Subharmonic Sampling of Microwave Signal Processing Requirements," Microwave Journal Editorial Board (May 1992) by ("Weisskopf"). See *ParkerVision, Inc. v. Qualcomm Inc.*, 621 F. App'x 1009, 1022 (Fed. Cir. 2015). Those claims, like Claim 67 of the '518 patent, require "sampling." On information and belief, Weisskopf likewise discloses and/or anticipates the elements of at least Claim 67 of the '518 patent, and therefore invalidates that

claim. Intel will provide final invalidity contentions consistent with the schedule ordered by the Court and following ParkerVision's final infringement contentions.

28. Intel is entitled to a declaratory judgment that the claims of the '518 patent are invalid, including, without limitation, under 35 U.S.C. §§ 102, 103, 112, and/or 116.

THIRD COUNTERCLAIM

(Declaratory Judgment of Non-Infringement of U.S. Patent No. 6,580,902)

29. Intel repeats and re-alleges each and every allegation set forth in the foregoing Paragraphs as if fully set forth herein.

30. Intel counterclaims against ParkerVision pursuant to the patent laws of the United States, Title 35 of the United States Code, and the Declaratory Judgments Act, 28 U.S.C. §§ 2201 and 2202.

31. In its First Amended Complaint, ParkerVision alleges that Intel is directly infringing, literally and/or under the doctrine of equivalents, the '902 patent, and that the '902 patent is valid and enforceable.

32. An actual controversy exists between ParkerVision and Intel by virtue of the allegations in ParkerVision's First Amended Complaint and Intel's Answer as to the validity and infringement of the '902 patent.

33. The RF Transceiver Chips, including the accused Intel PMB 5750, PMB 5757, and PMB 5762, do not meet all of the elements of any of the claims of the '902 patent, and therefore Intel does not infringe the claims of the '902 patent.

34. For example, Intel does not infringe at least Claim 1 of the '902 patent because the RF Transceiver Chips, including the accused Intel PMB 5750, PMB 5757, and PMB 5762, do not use, include, and/or incorporate a circuit for down-converting an electromagnetic signal,

comprising at least one or more of the following limitations: (i) an energy transfer module having a switch having a switch module and an energy storage module, said energy transfer module sampling the electromagnetic signal at an energy transfer rate, according to an energy transfer signal, to obtain sampled energy, said sampled energy being stored by said energy storage module, a down-converted signal being generated from said sampled energy, wherein (ii) said energy transfer module further comprises: (iii) transistors coupled together, said transistors having a common first port, a common second port, and a common control port, wherein the electromagnetic signal is accepted at said common first port and said sampled energy is present at said common second port, and further wherein said common control port accepts said energy transfer signal, said energy transfer signal having a control frequency that is substantially equal to said energy transfer rate, and (iv) wherein each of said transistors has a drain, a source, and a gate, and said common first port couples together drains of said transistors, said common second port couples together sources of said transistors, and said common control port couples together gates of said transistors.

35. Moreover, the PMB 5750 chip that ParkerVision accuses of infringement in its First Amended Complaint was already found not to infringe European Patent No. 1 135 853 (“EP ’853”) in a proceeding in Germany at least because “there is no sampling means according to the patent.” *See* Munich Regional Court, Apr. 25, 2019, 7 O 2141/17, Final Judgment (trans.) (Ger.) at 19. The EP ’853 patent claims priority to U.S. Application No. 09/293095 that led to the ’902 patent, and, like Claim 1 of the ’902 patent, includes claims that require “sampling.” *See id.* at 4 (“a sampling means for sampling the input signal at a sampling frequency . . .”).

36. Intel does not infringe the ’902 patent because Intel does not make, use, test, sell, offer for sale, or import into the United States, and has not made, used, tested, sold, offered for

sale, or imported into the United States, any products or methods that infringe any valid claim of the '902 patent, either directly or indirectly, literally or through the doctrine of equivalents, or otherwise.

37. Intel is entitled to a declaratory judgment that it has not infringed, and is not infringing, directly or indirectly (either literally, under the doctrine of equivalents, or otherwise) any valid, patent-eligible claim of the '902 patent.

FOURTH COUNTERCLAIM

(Declaratory Judgment of Invalidity of U.S. Patent No. 6,580,902)

38. Intel repeats and re-alleges each and every allegation set forth in the foregoing Paragraphs as if fully set forth herein.

39. Intel counterclaims against ParkerVision pursuant to the patent laws of the United States, Title 35 of the United States Code, and the Declaratory Judgments Act, 28 U.S.C. §§ 2201 and 2202.

40. In its First Amended Complaint, ParkerVision alleges that Intel is directly infringing, literally and/or under the doctrine of equivalents, the '902 patent, and that the '902 patent is valid and enforceable.

41. An actual controversy exists between ParkerVision and Intel by virtue of the allegations in ParkerVision's First Amended Complaint and Intel's Answer as to the validity and infringement of the '902 patent.

42. Intel contests the validity and enforceability of the '902 patent, and does not infringe the '902 patent at least because the claims of the '902 patent are invalid under 35 U.S.C. §§ 102, 103, 112, and/or 116.

43. For example, U.S. Patent No. 6,230,000 (“Tayloe”) in combination with “Practical RF Design Manual” (1982) by Doug DeMaw (“DeMaw”) renders obvious, including at least under ParkerVision’s alleged infringement theory, at least Claim 1 of the ’902 patent under 35 U.S.C. § 103. At least under ParkerVision’s apparent infringement theory, Tayloe discloses and/or renders obvious every element of Claim 1. To the extent ParkerVision contends that Tayloe does not disclose transistors coupled together with common drain, source, and gate ports, wherein the common drain ports receive an input signal and common source ports output a down-converted signal and common control gates receive a control signal, those elements are disclosed and/or rendered obvious by at least DeMaw. Intel will provide final invalidity contentions consistent with the schedule ordered by the Court and following ParkerVision’s final infringement contentions.

44. Similarly, the German Federal Patent Court found that all elements of ParkerVision’s related EP ’853 patent are disclosed in the prior art article *A 900-MHz RF Front-End with Integrated Discrete-Time Filtering*, IEEE J. OF SOLID-STATE CIRCUITS, Band 31, Nr. 12 (Dec. 1996) by Shen, D. H., et al., (“Shen”), and rejected ParkerVision’s argument that it invented a “fundamentally different approach to energy transmission down-conversion.” *See Bundespatentgericht [BPatG] [Federal Patent Court], Dec. 16 2019, 5 Ni 19/17 (EP), Decision on Costs and Determination of the Value in Dispute (Ger.) (trans.) at 10.* The EP ’853 patent claims priority to U.S. Application No. 09/293095 that led to the ’902 patent, and, like the ’902 patent, also claims priority to the U.S. Application No. 09/176,022. Further, like Claim 1 of the ’902 patent, the EP ’853 patent includes claims that require “sampling.” *See Munich Regional Court, Apr. 25, 2019, 7 O 2141/17, Final Judgment (trans.) (Ger.) at 4.* Shen likewise discloses and/or renders obvious the elements of at least Claim 1 of the ’902 patent, and therefore invalidates that

claim. Intel will provide final invalidity contentions consistent with the schedule ordered by the Court and following ParkerVision's final infringement contentions.

45. Intel is entitled to a declaratory judgment that the claims of the '902 patent are invalid, including, without limitation, under 35 U.S.C. §§ 102, 103, 112, and/or 116.

FIFTH COUNTERCLAIM

(Declaratory Judgment of Non-Infringement of U.S. Patent No. 7,110,444)

46. Intel repeats and re-alleges each and every allegation set forth in the foregoing Paragraphs as if fully set forth herein.

47. Intel counterclaims against ParkerVision pursuant to the patent laws of the United States, Title 35 of the United States Code, and the Declaratory Judgments Act, 28 U.S.C. §§ 2201 and 2202.

48. In its First Amended Complaint, ParkerVision alleges that Intel is directly infringing, literally and/or under the doctrine of equivalents, the '444 patent, and that the '444 patent is valid and enforceable.

49. An actual controversy exists between ParkerVision and Intel by virtue of the allegations in ParkerVision's First Amended Complaint and Intel's Answer as to the validity and infringement of the '444 patent.

50. The RF Transceiver Chips, including the accused Intel PMB 5750, PMB 5757, and PMB 5762, do not meet all of the elements of any of the claims of the '444 patent, and therefore Intel does not infringe the claims of the '444 patent.

51. For example, Intel does not infringe at least Claim 2 of the '444 patent because the RF Transceiver Chips, including the accused Intel PMB 5750, PMB 5757, and PMB 5762, do not use, include, and/or incorporate a wireless modem apparatus, comprising at least one or more of

the following limitations: (i) a receiver for frequency down-converting an input signal including, (ii) a first frequency down-conversion module to down-convert the input signal, wherein said first frequency down-conversion module down-converts said input signal according to a first control signal and outputs a first down-converted signal; (iii) a second frequency down-conversion module to down-convert said input signal, wherein said second frequency down-conversion module down-converts said input signal according to a second control signal and outputs a second down-converted signal; and (iv) a subtractor module that subtracts said second down-converted signal from said first down-converted signal and outputs a down-converted signal; (v) wherein said first frequency down-conversion module under-samples said input signal according to said first control signal, and said second frequency down-conversion module under-samples said input signal according to said second control signal.

52. Moreover, the PMB 5750 chip that ParkerVision accuses of infringement in its First Amended Complaint was already found not to infringe European Patent No. 1 135 853 (“EP ’853”) in a proceeding in Germany at least because “there is no sampling means according to the patent.” *See* Munich Regional Court, Apr. 25, 2019, 7 O 2141/17, Final Judgment (trans.) (Ger.) at 19. The EP ’853 patent claims priority to U.S. Patent No. 6,061,551 (“’551 patent”), and the ’444 patent expressly incorporates by reference the ’551 patent. In addition, the EP ’853 patent, like Claim 2 of the ’444 patent, includes claims that require “sampling.” *See id.* at 4 (“a sampling means for sampling the input signal at a sampling frequency . . .”).

53. Intel does not infringe the ’444 patent because Intel does not make, use, test, sell, offer for sale, or import into the United States, and has not made, used, tested, sold, offered for sale, or imported into the United States, any products or methods that infringe any valid claim of

the '444 patent, either directly or indirectly, literally or through the doctrine of equivalents, or otherwise.

54. Intel is entitled to a declaratory judgment that it has not infringed, and is not infringing, directly or indirectly (either literally, under the doctrine of equivalents, or otherwise) any valid, patent-eligible claim of the '444 patent.

SIXTH COUNTERCLAIM

(Declaratory Judgment of Invalidity of U.S. Patent No. 7,110,444)

55. Intel repeats and re-alleges each and every allegation set forth in the foregoing Paragraphs as if fully set forth herein.

56. Intel counterclaims against ParkerVision pursuant to the patent laws of the United States, Title 35 of the United States Code, and the Declaratory Judgments Act, 28 U.S.C. §§ 2201 and 2202.

57. In its First Amended Complaint, ParkerVision alleges that Intel is directly infringing, literally and/or under the doctrine of equivalents, the '444 patent, and that the '444 patent is valid and enforceable.

58. An actual controversy exists between ParkerVision and Intel by virtue of the allegations in ParkerVision's First Amended Complaint and Intel's Answer as to the validity and infringement of the '444 patent.

59. Intel contests the validity and enforceability of the '444 patent, and does not infringe the '444 patent at least because the claims of the '444 patent are invalid under 35 U.S.C. §§ 102, 103, 112, and/or 116.

60. For example, U.S. Patent No. 6,230,000 ("Tayloe") in combination with Peter Weisskopf, "Subharmonic Sampling of Microwave Signal Processing Requirements," Microwave

Journal Editorial Board (May 1992) (“Weisskopf”) renders obvious, including at least under ParkerVision’s alleged infringement theory, at least Claim 2 of the ’444 patent under 35 U.S.C. § 103. At least under ParkerVision’s apparent infringement theory, Tayloe discloses and/or renders obvious every element of Claim 2. To the extent ParkerVision contends that Tayloe does not disclose under-sampling, that element is disclosed and/or rendered obvious by at least Weisskopf. Intel will provide final invalidity contentions consistent with the schedule ordered by the Court and following ParkerVision’s final infringement contentions.

61. Similarly, the German Federal Patent Court found that all elements of ParkerVision’s related EP ’853 patent are disclosed in the prior art article *A 900-MHz RF Front-End with Integrated Discrete-Time Filtering*, IEEE J. OF SOLID-STATE CIRCUITS, Band 31, Nr. 12 (Dec. 1996) by Shen, D. H., et al., (“Shen”), and rejected ParkerVision’s argument that it invented a “fundamentally different approach to energy transmission down-conversion.” See Bundespatentgericht [BPatG] [Federal Patent Court], Dec. 16 2019, 5 Ni 19/17 (EP), Decision on Costs and Determination of the Value in Dispute (Ger.) (trans.) at 10. The EP ’853 patent claims priority to U.S. Patent No. 6,061,551 (“’551 patent”), and the ’444 patent expressly incorporates by reference the ’551 patent. In addition, the EP ’853 patent, like Claim 2 of the ’444 patent, includes claims that require “sampling.” See Munich Regional Court, Apr. 25, 2019, 7 O 2141/17, Final Judgment (trans.) (Ger.) at 4. Shen likewise discloses and/or renders obvious the elements in at least asserted Claim 2 of the ’444 patent, and therefore invalidates that claim. Intel will provide final invalidity contentions consistent with the schedule ordered by the Court and following ParkerVision’s final infringement contentions.

62. Intel is entitled to a declaratory judgment that the claims of the ’444 patent are invalid, including, without limitation, under 35 U.S.C. §§ 102, 103, 112, and/or 116.

SEVENTH COUNTERCLAIM

(Declaratory Judgment of Non-Infringement of U.S. Patent No. 7,539,474)

63. Intel repeats and re-alleges each and every allegation set forth in the foregoing Paragraphs as if fully set forth herein.

64. Intel counterclaims against ParkerVision pursuant to the patent laws of the United States, Title 35 of the United States Code, and the Declaratory Judgments Act, 28 U.S.C. §§ 2201 and 2202.

65. In its First Amended Complaint, ParkerVision alleges that Intel is directly infringing, literally and/or under the doctrine of equivalents, the '474 patent, and that the '474 patent is valid and enforceable.

66. An actual controversy exists between ParkerVision and Intel by virtue of the allegations in ParkerVision's First Amended Complaint and Intel's Answer as to the validity and infringement of the '474 patent.

67. The RF Transceiver Chips, including the accused Intel PMB 5750, PMB 5757, and PMB 5762, do not meet all of the elements of any of the claims of the '474 patent, and therefore Intel does not infringe the claims of the '474 patent.

68. For example, Intel does not infringe at least Claim 1 of the '474 patent because the RF Transceiver Chips, including the accused Intel PMB 5750, PMB 5757, and PMB 5762, do not use, include, and/or incorporate an apparatus for down-converting an input signal, comprising at least one or more of the following limitations: (i) a first frequency down-conversion module that receives an input signal, wherein the first frequency down-conversion module down-converts the input signal according to a first control signal and outputs a first down-converted signal; (ii) a

second frequency down-conversion module that receives the input signal, wherein the second frequency down-conversion module down-converts the input signal according to a second control signal and outputs a second down-converted signal; and (iii) a combining module that combines the second down-converted signal with the first down-converted signal and outputs a single channel down-converted signal; (iv) wherein the first frequency down-conversion module comprises a first switch and a first storage element, wherein the first switch is coupled to the first storage element at a first node and coupled to a first reference potential; and (v) wherein the second frequency down-conversion module comprises a second switch and a second storage element, wherein the second switch is coupled to the second storage element at a second node and coupled to a second reference potential.

69. Moreover, the PMB 5750 chip that ParkerVision accuses of infringement in its First Amended Complaint was already found not to infringe European Patent No. 1 135 853 (“EP ’853”) in a proceeding in Germany at least because “there is no sampling means according to the patent.” *See* Munich Regional Court, Apr. 25, 2019, 7 O 2141/17, Final Judgment (trans.) (Ger.) at 19. The EP ’853 patent claims priority to U.S. Patent No. 6,061,551 (“’551 patent”), and the ’474 patent expressly incorporates by reference the ’551 patent. Accordingly, Intel does not infringe the claims of the ’474 patent for at least the same reasons that PMB 5750 was found not to infringe the EP ’853 patent.

70. Intel does not infringe the ’474 patent because Intel does not make, use, test, sell, offer for sale, or import into the United States, and has not made, used, tested, sold, offered for sale, or imported into the United States, any products or methods that infringe any valid claim of the ’474 patent, either directly or indirectly, literally or through the doctrine of equivalents, or otherwise.

71. Intel is entitled to a declaratory judgment that it has not infringed, and is not infringing, directly or indirectly (either literally, under the doctrine of equivalents, or otherwise) any valid, patent-eligible claim of the '474 patent.

EIGHTH COUNTERCLAIM

(Declaratory Judgment of Invalidity of U.S. Patent No. 7,539,474)

72. Intel repeats and re-alleges each and every allegation set forth in the foregoing Paragraphs as if fully set forth herein.

73. Intel counterclaims against ParkerVision pursuant to the patent laws of the United States, Title 35 of the United States Code, and the Declaratory Judgments Act, 28 U.S.C. §§ 2201 and 2202.

74. In its First Amended Complaint, ParkerVision alleges that Intel is directly infringing, literally and/or under the doctrine of equivalents, the '474 patent, and that the '474 patent is valid and enforceable.

75. An actual controversy exists between ParkerVision and Intel by virtue of the allegations in ParkerVision's First Amended Complaint and Intel's Answer as to the validity and infringement of the '474 patent.

76. Intel contests the validity and enforceability of the '474 patent, and does not infringe the '474 patent at least because the claims of the '474 patent are invalid under 35 U.S.C. §§ 102, 103, 112, and/or 116.

77. For example, "RF and Microwave Circuit Design For Wireless Communications" (1997) by Lawrence E. Larson ("Larson") discloses every element of at least Claim 1 of the '474 patent and therefore anticipates and/or renders obvious, including at least under ParkerVision's apparent infringement theory, at least Claim 1 of the '474 patent under 35 U.S.C. §§ 102, 103.

Intel will provide final invalidity contentions consistent with the schedule ordered by the Court and following ParkerVision's final infringement contentions.

78. Similarly, the German Federal Patent Court found that all elements of ParkerVision's related EP '853 patent are disclosed in the prior art article *A 900-MHz RF Front-End with Integrated Discrete-Time Filtering*, IEEE J. OF SOLID-STATE CIRCUITS, Band 31, Nr. 12 (Dec. 1996) by Shen, D. H., et al., ("Shen"), and rejected ParkerVision's argument that it invented a "fundamentally different approach to energy transmission down-conversion." *See Bundespatentgericht [BPatG] [Federal Patent Court], Dec. 16 2019, 5 Ni 19/17 (EP), Decision on Costs and Determination of the Value in Dispute (Ger.) (trans.) at 10.* The EP '853 patent claims priority to U.S. Patent No. 6,061,551 ("551 patent"), and the '474 patent expressly incorporates by reference the '551 patent. Shen likewise discloses and/or renders obvious the elements of at least Claim 1 of the '474 patent, and therefore invalidates that claim. Intel will provide final invalidity contentions consistent with the schedule ordered by the Court and following ParkerVision's final infringement contentions.

79. Intel is entitled to a declaratory judgment that the claims of the '474 patent are invalid, including, without limitation, under 35 U.S.C. §§ 102, 103, 112, and/or 116.

NINTH COUNTERCLAIM

(Declaratory Judgment of Non-Infringement of U.S. Patent No. 8,588,725)

80. Intel repeats and re-alleges each and every allegation set forth in the foregoing Paragraphs as if fully set forth herein.

81. Intel counterclaims against ParkerVision pursuant to the patent laws of the United States, Title 35 of the United States Code, and the Declaratory Judgments Act, 28 U.S.C. §§ 2201 and 2202.

82. In its First Amended Complaint, ParkerVision alleges that Intel is directly infringing, literally and/or under the doctrine of equivalents, the '725 patent, and that the '725 patent is valid and enforceable.

83. An actual controversy exists between ParkerVision and Intel by virtue of the allegations in ParkerVision's First Amended Complaint and Intel's Answer as to the validity and infringement of the '725 patent.

84. The RF Transceiver Chips, including the accused Intel PMB 5750, PMB 5757, and PMB 5762, do not meet all of the elements of any of the claims of the '725 patent, and therefore Intel does not infringe the claims of the '725 patent.

85. For example, Intel does not infringe at least Claim 1 of the '725 patent because the RF Transceiver Chips, including the accused Intel PMB 5750, PMB 5757, and PMB 5762, do not use, include, and/or incorporate an apparatus for down-converting an electromagnetic signal, comprising at least one or more of the following limitations: (i) an aliasing module comprising a switching device and a storage module, the aliasing module receiving as an input an RF information signal, and the aliasing module providing as an output a down-converted signal; (ii) the switching device of the aliasing module receiving as an input a control signal that controls a charging and discharging cycle of the storage module by controlling the switching device so that a portion of energy is transferred from the RF information signal to the storage module during a charging part of the cycle and a portion of the transferred energy is discharged during a discharging part of the cycle, wherein said control signal operates at an aliasing rate selected so that energy of the RF information signal is sampled and applied to the storage module at a frequency that is equal to or less than twice the frequency of the RF information signal; and (iii) wherein the storage

module generates said down-converted signal from the alternate charging and discharging applied to the storage module using said control signal.

86. Moreover, the PMB 5750 chip that ParkerVision accuses of infringement in its First Amended Complaint was already found not to infringe European Patent No. 1 135 853 (“EP ’853”) in a proceeding in Germany at least because “there is no sampling means according to the patent.” *See* Munich Regional Court, Apr. 25, 2019, 7 O 2141/17, Final Judgment (trans.) (Ger.) at 19. The EP ’853 patent claims priority to U.S. Patent No. 6,061,551 (“’551 patent”), and the ’725 patent expressly incorporates by reference the ’551 patent. In addition, the EP ’853 patent, like Claim 1 of the ’725 patent, includes claims that require “sampling.” *See id.* at 4 (“a sampling means for sampling the input signal at a sampling frequency . . .”).

87. Intel does not infringe the ’725 patent because Intel does not make, use, test, sell, offer for sale, or import into the United States, and has not made, used, tested, sold, offered for sale, or imported into the United States, any products or methods that infringe any valid claim of the ’725 patent, either directly or indirectly, literally or through the doctrine of equivalents, or otherwise.

88. Intel is entitled to a declaratory judgment that it has not infringed, and is not infringing, directly or indirectly (either literally, under the doctrine of equivalents, or otherwise) any valid, patent-eligible claim of the ’725 patent.

TENTH COUNTERCLAIM

(Declaratory Judgment of Invalidity of U.S. Patent No. 8,588,725)

89. Intel repeats and re-alleges each and every allegation set forth in the foregoing Paragraphs as if fully set forth herein.

90. Intel counterclaims against ParkerVision pursuant to the patent laws of the United States, Title 35 of the United States Code, and the Declaratory Judgments Act, 28 U.S.C. §§ 2201 and 2202.

91. In its First Amended Complaint, ParkerVision alleges that Intel is directly infringing, literally and/or under the doctrine of equivalents, the '725 patent, and that the '725 patent is valid and enforceable.

92. An actual controversy exists between ParkerVision and Intel by virtue of the allegations in ParkerVision's First Amended Complaint and Intel's Answer as to the validity and infringement of the '725 patent.

93. Intel contests the validity and enforceability of the '725 patent, and does not infringe the '725 patent at least because the claims of the '725 patent are invalid under 35 U.S.C. §§ 102, 103, 112, and/or 116.

94. For example, U.S. Patent No. 6,230,000 ("Tayloe") discloses every element of at least Claim 1 of the '725 patent and therefore anticipates and/or renders obvious, including at least under ParkerVision's apparent infringement theory, at least Claim 1 of the '725 patent under 35 U.S.C. §§ 102, 103. Intel will provide final invalidity contentions consistent with the schedule ordered by the Court and following ParkerVision's final infringement contentions.

95. Similarly, the German Federal Patent Court found that all elements of ParkerVision's related EP '853 patent are disclosed in the prior art article *A 900-MHz RF Front-End with Integrated Discrete-Time Filtering*, IEEE J. OF SOLID-STATE CIRCUITS, Band 31, Nr. 12 (Dec. 1996) by Shen, D. H., et al., ("Shen"), and rejected ParkerVision's argument that it invented a "fundamentally different approach to energy transmission down-conversion." *See Bundespatentgericht [BPatG] [Federal Patent Court], Dec. 16 2019, 5 Ni 19/17 (EP), Decision on*

Costs and Determination of the Value in Dispute (Ger.) (trans.) at 10. The EP '853 patent claims priority to U.S. Patent No. 6,061,551 (“’551 patent”), and the ’725 patent expressly incorporates by reference the ’551 patent. In addition, like Claim 1 of the ’725 patent, the EP ’853 patent includes claims that require “sampling.” *See* Munich Regional Court, Apr. 25, 2019, 7 O 2141/17, Final Judgment (trans.) (Ger.) at 4. Shen likewise discloses and/or renders obvious the elements of at least Claim 1 of the ’725 patent, and therefore invalidates that claim. Intel will provide final invalidity contentions consistent with the schedule ordered by the Court and following ParkerVision’s final infringement contentions.

96. Intel is entitled to a declaratory judgment that the claims of the ’725 patent are invalid, including, without limitation, under 35 U.S.C. §§ 102, 103, 112, and/or 116.

ELEVENTH COUNTERCLAIM

(Declaratory Judgment of Non-Infringement of U.S. Patent No. 8,660,513)

97. Intel repeats and re-alleges each and every allegation set forth in the foregoing Paragraphs as if fully set forth herein.

98. Intel counterclaims against ParkerVision pursuant to the patent laws of the United States, Title 35 of the United States Code, and the Declaratory Judgments Act, 28 U.S.C. §§ 2201 and 2202.

99. In its First Amended Complaint, ParkerVision alleges that Intel is directly infringing, literally and/or under the doctrine of equivalents, the ’513 patent, and that the ’513 patent is valid and enforceable.

100. An actual controversy exists between ParkerVision and Intel by virtue of the allegations in ParkerVision’s First Amended Complaint and Intel’s Answer as to the validity and infringement of the ’513 patent.

101. The RF Transceiver Chips, including the accused Intel PMB 5750, PMB 5757, and PMB 5762, do not meet all of the elements of any of the claims of the '513 patent, and therefore Intel does not infringe the claims of the '513 patent.

102. For example, Intel does not infringe at least Claim 19 of the '513 patent because the RF Transceiver Chips, including the accused Intel PMB 5750, PMB 5757, and PMB 5762, do not use, include, and/or incorporate a system for frequency down-converting a modulated carrier signal, comprising at least one or more of the following limitations: (i) a first switch, a first control signal which comprises a sampling aperture with a specified frequency, and a first energy storage element that down-converts said modulated carrier signal according to said first control signal and outputs a down-converted in-phase signal portion of said modulated carrier signal; (ii) a second switch, a second control signal which comprises a sampling aperture with a specified frequency, and a second energy storage element that down-converts said modulated carrier signal according to said second control signal and outputs a down-converted inverted in-phase signal portion of said modulated carrier signal; (iii) a first differential amplifier circuit that combines said down-converted in-phase signal portion with said inverted in-phase signal portion and outputs a first channel down-converted differential in-phase signal; (iv) a third switch, a third control signal which comprises a sampling aperture with a specified frequency, and a third energy storage element that down-converts said modulated carrier signal according to said third control signal and outputs a down-converted quadrature-phase signal portion of said modulated carrier signal; (v) a fourth switch, a fourth aperture signal, and a fourth energy storage element that down-converts said modulated carrier signal according to said fourth control signal and outputs a down-converted inverted quadrature-phase signal portion of said modulated carrier signal; and (vi) a second differential amplifier circuit that combines said down-converted quadrature-phase signal portion

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

103. Moreover, the PMB 5750 chip that ParkerVision accuses of infringement in its First Amended Complaint was already found not to infringe European Patent No. 1 135 853 (“EP ’853”) in a proceeding in Germany at least because “there is no sampling means according to the patent.” *See* Munich Regional Court, Apr. 25, 2019, 7 O 2141/17, Final Judgment (trans.) (Ger.) at 19. The EP ’853 patent and the ’513 patent both claim priority to U.S. Application No. 09/176,022, and the EP ’853 patent, like Claim 19 of the ’513 patent, includes claims that require “sampling.” *See id.* at 4 (“a sampling means for sampling the input signal at a sampling frequency . . .”).

104. Intel does not infringe the ’513 patent because Intel does not make, use, test, sell, offer for sale, or import into the United States, and has not made, used, tested, sold, offered for sale, or imported into the United States, any products or methods that infringe any valid claim of the ’513 patent, either directly or indirectly, literally or through the doctrine of equivalents, or otherwise.

105. Intel is entitled to a declaratory judgment that it has not infringed, and is not infringing, directly or indirectly (either literally, under the doctrine of equivalents, or otherwise) any valid, patent-eligible claim of the ’513 patent.

TWELFTH COUNTERCLAIM

(Declaratory Judgment of Invalidity of U.S. Patent No. 8,660,513)

106. Intel repeats and re-alleges each and every allegation set forth in the foregoing Paragraphs as if fully set forth herein.

107. Intel counterclaims against ParkerVision pursuant to the patent laws of the United States, Title 35 of the United States Code, and the Declaratory Judgments Act, 28 U.S.C. §§ 2201 and 2202.

108. In its First Amended Complaint, ParkerVision alleges that Intel is directly infringing, literally and/or under the doctrine of equivalents, the '513 patent, and that the '513 patent is valid and enforceable.

109. An actual controversy exists between ParkerVision and Intel by virtue of the allegations in ParkerVision's First Amended Complaint and Intel's Answer as to the validity and infringement of the '513 patent.

110. Intel contests the validity and enforceability of the '513 patent, and does not infringe the '513 patent at least because the claims of the '513 patent are invalid under 35 U.S.C. §§ 102, 103, 112, and/or 116.

111. For example, U.S. Patent No. 6,230,000 ("Tayloe") discloses every element of at least Claim 19 of the '513 patent and therefore anticipates and/or renders obvious, including at least under ParkerVision's apparent infringement theory, at least Claim 19 of the '513 patent under 35 U.S.C. §§ 102, 103. Intel will provide final invalidity contentions consistent with the schedule ordered by the Court and following ParkerVision's final infringement contentions.

112. Similarly, the German Federal Patent Court found that all elements of ParkerVision's related EP '853 patent are disclosed in the prior art article *A 900-MHz RF Front-End with Integrated Discrete-Time Filtering*, IEEE J. OF SOLID-STATE CIRCUITS, Band 31, Nr. 12 (Dec. 1996) by Shen, D. H., et al., ("Shen"), and rejected ParkerVision's argument that it invented a "fundamentally different approach to energy transmission down-conversion." *See Bundespatentgericht [BPatG] [Federal Patent Court], Dec. 16 2019, 5 Ni 19/17 (EP), Decision on*

Costs and Determination of the Value in Dispute (Ger.) (trans.)) at 10. The EP '853 patent, like the '513 patent, claims priority to the U.S. Application No. 09/176,022. Further, like Claim 19 of the '513 patent, the EP '853 patent includes claims that require "sampling." See Munich Regional Court, Apr. 25, 2019, 7 O 2141/17, Final Judgment (trans.) (Ger.) at 4. Shen likewise discloses and/or renders obvious the elements of at least Claim 19 of the '513 patent, and therefore invalidates that claim. Intel will provide final invalidity contentions consistent with the schedule ordered by the Court and following ParkerVision's final infringement contentions.

113. Intel is entitled to a declaratory judgment that the claims of the '513 patent are invalid, including, without limitation, under 35 U.S.C. §§ 102, 103, 112, and/or 116.

THIRTEENTH COUNTERCLAIM

(Declaratory Judgment of Non-Infringement of U.S. Patent No. 9,118,528)

114. Intel repeats and re-alleges each and every allegation set forth in the foregoing Paragraphs as if fully set forth herein.

115. Intel counterclaims against ParkerVision pursuant to the patent laws of the United States, Title 35 of the United States Code, and the Declaratory Judgments Act, 28 U.S.C. §§ 2201 and 2202.

116. In its First Amended Complaint, ParkerVision alleges that Intel is directly infringing, literally and/or under the doctrine of equivalents, the '528 patent, and that the '528 patent is valid and enforceable.

117. An actual controversy exists between ParkerVision and Intel by virtue of the allegations in ParkerVision's First Amended Complaint and Intel's Answer as to the validity and infringement of the '528 patent.

118. The RF Transceiver Chips, including the accused Intel PMB 5750, PMB 5757, and PMB 5762, do not meet all of the elements of any of the claims of the '528 patent, and therefore Intel does not infringe the claims of the '528 patent.

119. For example, Intel does not infringe at least Claim 1 of the '528 patent because the RF Transceiver Chips, including the accused Intel PMB 5750, PMB 5757, and PMB 5762, do not use, include, and/or incorporate a system for frequency down-converting a modulated carrier signal to a baseband signal comprising at least one or more of the following limitations: (i) a first switch coupled to a first control signal which comprises a sampling aperture with a specified frequency, wherein the first switch is on and a portion of energy that is distinguishable from noise is transferred from the modulated carrier signal as an output of said first switch during the sampling aperture of the first control signal; (ii) a first energy storage element that stores the transferred energy from the modulated carrier signal and outputs a down-converted in-phase baseband signal portion of said modulated carrier signal; (iii) a second switch coupled to a second control signal which comprises a sampling aperture with a specified frequency, wherein the second switch is on and a portion of energy that is distinguishable from noise is transferred from the modulated carrier signal as an output of said second switch during the sampling aperture of the second control signal; (iv) a second energy storage element that stores the transferred energy from the modulated carrier signal and outputs a down-converted inverted in-phase baseband signal portion of said modulated carrier signal; (v) wherein the portions of transferred energy from each of the first and second switch are integrated over time to accumulate said portions of transferred energy from which said down-converted in-phase baseband signal portion and said down-converted inverted in-phase baseband signal portion are derived; and (vi) a first differential amplifier circuit that combines said down-converted in-phase baseband signal portion with said down-converted inverted in-phase

baseband signal portion and outputs a first channel down-converted differential in-phase baseband signal.

120. Moreover, the PMB 5750 chip that ParkerVision accuses of infringement in its First Amended Complaint was already found not to infringe European Patent No. 1 135 853 (“EP ’853”) in a proceeding in Germany at least because “there is no sampling means according to the patent.” *See* Munich Regional Court, Apr. 25, 2019, 7 O 2141/17, Final Judgment (trans.) (Ger.) at 19. The EP ’853 patent claims priority to U.S. Patent No. 6,061,551 (“’551 patent”), and the ’528 patent expressly incorporates by reference the ’551 patent. In addition, like Claim 1 of the ’528 patent, the EP ’853 patent includes claims that require “sampling.” *See id.* at 4 (“a sampling means for sampling the input signal at a sampling frequency . . .”).

121. Intel does not infringe the ’528 patent because Intel does not make, use, test, sell, offer for sale, or import into the United States, and has not made, used, tested, sold, offered for sale, or imported into the United States, any products or methods that infringe any valid claim of the ’528 patent, either directly or indirectly, literally or through the doctrine of equivalents, or otherwise.

122. Intel is entitled to a declaratory judgment that it has not infringed, and is not infringing, directly or indirectly (either literally, under the doctrine of equivalents, or otherwise) any valid, patent-eligible claim of the ’528 patent.

FOURTEENTH COUNTERCLAIM

(Declaratory Judgment of Invalidity of U.S. Patent No. 9,118,528)

123. Intel repeats and re-alleges each and every allegation set forth in the foregoing Paragraphs as if fully set forth herein.

124. Intel counterclaims against ParkerVision pursuant to the patent laws of the United States, Title 35 of the United States Code, and the Declaratory Judgments Act, 28 U.S.C. §§ 2201 and 2202.

125. In its First Amended Complaint, ParkerVision alleges that Intel is directly infringing, literally and/or under the doctrine of equivalents, the '528 patent, and that the '528 patent is valid and enforceable.

126. An actual controversy exists between ParkerVision and Intel by virtue of the allegations in ParkerVision's First Amended Complaint and Intel's Answer as to the validity and infringement of the '528 patent.

127. Intel contests the validity and enforceability of the '528 patent, and does not infringe the '528 patent at least because the claims of the '528 patent are invalid under 35 U.S.C. §§ 102, 103, 112, and/or 116.

128. For example, U.S. Patent No. 6,230,000 ("Tayloe") discloses every element of at least Claim 1 of the '528 patent and therefore anticipates and/or renders obvious, including at least under ParkerVision's apparent infringement theory, at least Claim 1 of the '528 patent under 35 U.S.C. §§ 102, 103. Intel will provide final invalidity contentions consistent with the schedule ordered by the Court and following ParkerVision's final infringement contentions.

129. Similarly, the German Federal Patent Court found that all elements of ParkerVision's related EP '853 patent are disclosed in the prior art article *A 900-MHz RF Front-End with Integrated Discrete-Time Filtering*, IEEE J. OF SOLID-STATE CIRCUITS, Band 31, Nr. 12 (Dec. 1996) by Shen, D. H., et al., ("Shen"), and rejected ParkerVision's argument that it invented a "fundamentally different approach to energy transmission down-conversion." See Bundespatentgericht [BPatG] [Federal Patent Court], Dec. 16 2019, 5 Ni 19/17 (EP), Decision on

Costs and Determination of the Value in Dispute (Ger.) (trans.) at 10. The EP '853 patent claims priority to U.S. Patent No. 6,061,551 (“’551 patent”), and the ’528 patent expressly incorporates by reference the ’551 patent. In addition, like Claim 1 of the ’528 patent, the EP ’853 patent includes claims that require “sampling.” *See* Munich Regional Court, Apr. 25, 2019, 7 O 2141/17, Final Judgment (trans.) (Ger.) at 4. Shen likewise discloses and/or renders obvious the elements of at least Claim 1 of the ’528 patent, and therefore invalidates that claim. Intel will provide final invalidity contentions consistent with the schedule ordered by the Court and following ParkerVision’s final infringement contentions.

130. Intel is entitled to a declaratory judgment that the claims of the ’528 patent are invalid, including, without limitation, under 35 U.S.C. §§ 102, 103, 112, and/or 116.

FIFTEENTH COUNTERCLAIM

(Declaratory Judgment of Non-Infringement of U.S. Patent No. 9,246,736)

131. Intel repeats and re-alleges each and every allegation set forth in the foregoing Paragraphs as if fully set forth herein.

132. Intel counterclaims against ParkerVision pursuant to the patent laws of the United States, Title 35 of the United States Code, and the Declaratory Judgments Act, 28 U.S.C. §§ 2201 and 2202.

133. In its First Amended Complaint, ParkerVision alleges that Intel is directly infringing, literally and/or under the doctrine of equivalents, the ’736 patent, and that the ’736 patent is valid and enforceable.

134. An actual controversy exists between ParkerVision and Intel by virtue of the allegations in ParkerVision’s First Amended Complaint and Intel’s Answer as to the validity and infringement of the ’736 patent.

135. The RF Transceiver Chips, including the accused Intel PMB 5750, PMB 5757, and PMB 5762, do not meet all of the elements of any of the claims of the '736 patent, and therefore Intel does not infringe the claims of the '736 patent.

136. For example, Intel does not infringe at least Claim 1 of the '736 patent because the RF Transceiver Chips, including the accused Intel PMB 5750, PMB 5757, and PMB 5762, do not use, include, and/or incorporate a system for frequency down-converting a modulated carrier signal to a demodulated baseband signal, comprising at least one or more of the following limitations: (i) a first switch coupled to a first control signal which comprises a first sampling aperture with a specified frequency, wherein the first switch is on during the first sampling aperture and wherein the first switch is off outside the first sampling aperture; (ii) a first energy storage element, coupled to said first switch, that outputs a down-converted in-phase baseband signal portion of said modulated carrier signal; (iii) a second switch coupled to a second control signal which comprises a second sampling aperture with a specified frequency, wherein the second switch is on during the second sampling aperture and wherein the first switch is off outside the second sampling aperture; (iv) a second energy storage element, coupled to said second switch, that outputs a down-converted inverted in-phase baseband signal portion of said modulated carrier signal; (v) wherein the first and second control signals each control a charging and discharging cycle of their respective energy storage element so that for each switch a portion of energy from the modulated carrier signal is transferred to the respective energy storage element when the respective switch is on during the charging cycle, and a portion of previously transferred energy is discharged during the discharging cycle for each respective switch when the respective switch is off.

137. Further, Intel does not infringe at least Claim 1 of the '736 patent because the RF Transceiver Chips, including the accused Intel PMB 5750, PMB 5757, and PMB 5762, do not use, include, and/or incorporate a system for frequency down-converting a modulated carrier signal to a demodulated baseband signal comprising at least one or more of the following limitations (vi) wherein for each respective energy storage element, the energy discharged during any given discharge cycle is not completely discharged, with the remaining undischarged energy from the given discharge cycle becoming an initial condition for a next charging cycle that begins immediately following the given discharge cycle; (vii) wherein said down-converted in-phase baseband signal portion is derived from energy accumulated at said first energy storage element during both the charging and the discharging cycles for the first energy storage element; (viii) wherein said down-converted inverted in-phase baseband signal portion is derived from energy accumulated at said second energy storage element during both the charging and the discharging cycles for the second energy storage element; and (ix) a first differential amplifier circuit that combines said down-converted in-phase baseband signal portion with said down-converted inverted in-phase baseband signal portion and outputs a first channel down-converted differential in-phase baseband signal.

138. Moreover, the PMB 5750 chip that ParkerVision accuses of infringement in its First Amended Complaint was already found not to infringe European Patent No. 1 135 853 ("EP '853") in a proceeding in Germany at least because "there is no sampling means according to the patent." *See* Munich Regional Court, Apr. 25, 2019, 7 O 2141/17, Final Judgment (trans.) (Ger.) at 19. The EP '853 patent and the '736 patent both claim priority to U.S. Application No. 09/176,022, and the EP '853 patent, like Claim 1 of the '736 patent, includes claims that require "sampling." *See id.* at 4 ("a sampling means for sampling the input signal at a sampling frequency . . .").

139. Intel does not infringe the '736 patent because Intel does not make, use, test, sell, offer for sale, or import into the United States, and has not made, used, tested, sold, offered for sale, or imported into the United States, any products or methods that infringe any valid claim of the '736 patent, either directly or indirectly, literally or through the doctrine of equivalents, or otherwise.

140. Intel is entitled to a declaratory judgment that it has not infringed, and is not infringing, directly or indirectly (either literally, under the doctrine of equivalents, or otherwise) any valid, patent-eligible claim of the '736 patent.

SIXTEENTH COUNTERCLAIM

(Declaratory Judgment of Invalidity of U.S. Patent No. 9,246,736)

141. Intel repeats and re-alleges each and every allegation set forth in the foregoing Paragraphs as if fully set forth herein.

142. Intel counterclaims against ParkerVision pursuant to the patent laws of the United States, Title 35 of the United States Code, and the Declaratory Judgments Act, 28 U.S.C. §§ 2201 and 2202.

143. In its First Amended Complaint, ParkerVision alleges that Intel is directly infringing, literally and/or under the doctrine of equivalents, the '736 patent, and that the '736 patent is valid and enforceable.

144. An actual controversy exists between ParkerVision and Intel by virtue of the allegations in ParkerVision's First Amended Complaint and Intel's Answer as to the validity and infringement of the '736 patent.

145. Intel contests the validity and enforceability of the '736 patent, and does not infringe the '736 patent at least because the claims of the '736 patent are invalid under 35 U.S.C. §§ 102, 103, 112, and/or 116.

146. For example, U.S. Patent No. 6,230,000 (“Tayloe”) in combination with *A 900-MHz RF Front-End with Integrated Discrete-Time Filtering*, IEEE J. OF SOLID-STATE CIRCUITS, Band 31, Nr. 12 (Dec. 1996) by Shen, D. H., et al., (“Shen”) renders obvious, including at least under ParkerVision’s alleged infringement theory, at least Claim 1 of the '736 patent under 35 U.S.C. § 103. At least under ParkerVision’s apparent infringement theory, Tayloe discloses and/or renders obvious every element of Claim 1. To the extent ParkerVision contends Tayloe does not disclose a second switch and a second control signal, those elements are disclosed and/or rendered obvious by at least Shen. Intel will provide final invalidity contentions consistent with the schedule ordered by the Court and following ParkerVision’s final infringement contentions.

147. Similarly, the German Federal Patent Court found that all elements of ParkerVision’s related EP '853 patent are disclosed in Shen, and rejected ParkerVision’s argument that it invented a “fundamentally different approach to energy transmission down-conversion.” *See Bundespatentgericht [BPatG] [Federal Patent Court], Dec. 16 2019, 5 Ni 19/17 (EP), Decision on Costs and Determination of the Value in Dispute (Ger.) (trans.) at 10.* The EP '853 patent, like the '736 patent, claims priority to the U.S. Application No. 09/176,022. Further, like Claim 1 of the '736 patent, the EP '853 patent includes claims that require “sampling.” *See Munich Regional Court, Apr. 25, 2019, 7 O 2141/17, Final Judgment (trans.) (Ger.) at 4.* Shen likewise discloses and/or renders obvious the elements of at least Claim 1 of the '736 patent, and therefore invalidates

that claim. Intel will provide final invalidity contentions consistent with the schedule ordered by the Court and following ParkerVision's final infringement contentions.

148. Intel is entitled to a declaratory judgment that the claims of the '736 patent are invalid, including, without limitation, under 35 U.S.C. §§ 102, 103, 112, and/or 116.

SEVENTEENTH COUNTERCLAIM

(Declaratory Judgment of Non-Infringement of U.S. Patent No. 9,444,673)

149. Intel repeats and re-alleges each and every allegation set forth in the foregoing Paragraphs as if fully set forth herein.

150. Intel counterclaims against ParkerVision pursuant to the patent laws of the United States, Title 35 of the United States Code, and the Declaratory Judgments Act, 28 U.S.C. §§ 2201 and 2202.

151. In its First Amended Complaint, ParkerVision alleges that Intel is directly infringing, literally and/or under the doctrine of equivalents, the '673 patent, and that the '673 patent is valid and enforceable.

152. An actual controversy exists between ParkerVision and Intel by virtue of the allegations in ParkerVision's First Amended Complaint and Intel's Answer as to the validity and infringement of the '673 patent.

153. The RF Transceiver Chips, including the accused Intel PMB 5750, PMB 5757, and PMB 5762, do not meet all of the elements of any of the claims of the '673 patent, and therefore Intel does not infringe the claims of the '673 patent.

154. For example, Intel does not infringe at least Claim 1 of the '673 patent because the RF Transceiver Chips, including the accused Intel PMB 5750, PMB 5757, and PMB 5762, do not use, include, and/or incorporate an apparatus for down-converting an input modulated carrier

signal to a demodulated baseband signal, wherein the modulated carrier signal has an amplitude variation, a phase variation, a frequency variation, or a combination thereof, the apparatus comprising at least one or more of the following limitations: (i) a frequency down-conversion module comprising: a switch, a capacitor coupled to said switch, and a pulse generator coupled to said switch; (ii) said pulse generator outputting pulses to said switch at a rate that is a function of a frequency of the modulated carrier signal and a frequency of the demodulated baseband signal determined according to: (the frequency of the modulated carrier signal \pm a frequency of the demodulated baseband signal) divided by N, where N is any integer including 1; (iii) wherein said pulses have apertures and said pulses cause said switch to open outside of said apertures and cause said switch to close and sample the modulated carrier signal during said apertures by transferring energy from the modulated carrier signal and accumulating the transferred energy in said capacitor each time said switch is closed; and (iv) wherein some of the previously accumulated energy is discharged from said capacitor into load circuitry each time said switch is open; and (v) wherein the demodulated baseband signal is generated from (i) the accumulating of the energy transferred to the capacitor each time the switch is closed and (ii) the discharging of said some of the previously accumulated energy into the load circuitry each time the switch is opened.

155. Moreover, the PMB 5750 chip that ParkerVision accuses of infringement in its First Amended Complaint was already found not to infringe European Patent No. 1 135 853 (“EP ’853”) in a proceeding in Germany at least because “there is no sampling means according to the patent.” *See* Munich Regional Court, Apr. 25, 2019, 7 O 2141/17, Final Judgment (trans.) (Ger.) at 19. The EP ’853 patent and the ’673 patent both claim priority to U.S. Application No. 09/176,022, and the EP ’853 patent, like Claim 1 of the ’673 patent, includes claims that require “sampling.” *See id.* at 4 (“a sampling means for sampling the input signal at a sampling frequency . . .”).

156. Intel does not infringe the '673 patent because Intel does not make, use, test, sell, offer for sale, or import into the United States, and has not made, used, tested, sold, offered for sale, or imported into the United States, any products or methods that infringe any valid claim of the '673 patent, either directly or indirectly, literally or through the doctrine of equivalents, or otherwise.

157. Intel is entitled to a declaratory judgment that it has not infringed, and is not infringing, directly or indirectly (either literally, under the doctrine of equivalents, or otherwise) any valid, patent-eligible claim of the '673 patent.

EIGHTEENTH COUNTERCLAIM

(Declaratory Judgment of Invalidity of U.S. Patent No. 9,444,673)

158. Intel repeats and re-alleges each and every allegation set forth in the foregoing Paragraphs as if fully set forth herein.

159. Intel counterclaims against ParkerVision pursuant to the patent laws of the United States, Title 35 of the United States Code, and the Declaratory Judgments Act, 28 U.S.C. §§ 2201 and 2202.

160. In its First Amended Complaint, ParkerVision alleges that Intel is directly infringing, literally and/or under the doctrine of equivalents, the '673 patent, and that the '673 patent is valid and enforceable.

161. An actual controversy exists between ParkerVision and Intel by virtue of the allegations in ParkerVision's First Amended Complaint and Intel's Answer as to the validity and infringement of the '673 patent.

162. Intel contests the validity and enforceability of the '673 patent, and does not infringe the '673 patent at least because the claims of the '673 patent are invalid under 35 U.S.C. §§ 102, 103, 112, and/or 116.

163. For example, U.S. Patent No. 6,230,000 ("Taylor") in combination with U.S. Patent No. 5,345,471 ("McEwan") renders obvious, including at least under ParkerVision's alleged infringement theory, at least Claim 1 of the '673 patent under 35 U.S.C. § 103. At least under ParkerVision's apparent infringement theory, Taylor discloses and/or renders obvious every element of Claim 1. To the extent ParkerVision contends that Taylor does not disclose energy transferred to a load during an off-time, that element is disclosed and/or rendered obvious by at least McEwan. Intel will provide final invalidity contentions consistent with the schedule ordered by the Court and following ParkerVision's final infringement contentions.

164. Similarly, the German Federal Patent Court found that all elements of ParkerVision's related EP '853 patent are disclosed in the prior art article *A 900-MHz RF Front-End with Integrated Discrete-Time Filtering*, IEEE J. OF SOLID-STATE CIRCUITS, Band 31, Nr. 12 (Dec. 1996) by Shen, D. H., et al., ("Shen"), and rejected ParkerVision's argument that it invented a "fundamentally different approach to energy transmission down-conversion." See Bundespatentgericht [BPatG] [Federal Patent Court], Dec. 16 2019, 5 Ni 19/17 (EP), Decision on Costs and Determination of the Value in Dispute (Ger.) (trans.) at 10. The EP '853 patent, like the '673 patent, claims priority to the U.S. Application No. 09/176,022. Further, like Claim 1 of the '673 patent, the EP '853 patent includes claims that require "sampling." See Munich Regional Court, Apr. 25, 2019, 7 O 2141/17, Final Judgment (trans.) (Ger.) at 4. Shen likewise discloses and/or renders obvious the elements of at least Claim 1 of the '673 patent, and therefore invalidates

that claim. Intel will provide final invalidity contentions consistent with the schedule ordered by the Court and following ParkerVision's final infringement contentions.

165. Intel is entitled to a declaratory judgment that the claims of the '673 patent are invalid, including, without limitation, under 35 U.S.C. §§ 102, 103, 112, and/or 116.

DEMAND FOR JURY TRIAL

Intel demands a trial by jury on all issues triable of right by a jury raised in ParkerVision's First Amended Complaint, Intel's Answer, and Intel's Counterclaims pursuant to Federal Rule of Civil Procedure.

PRAYER FOR RELIEF

WHEREFORE, Intel denies that ParkerVision is entitled to any relief, including, without limitation, as described in the "Prayer for Relief" section of ParkerVision's First Amended Complaint.

Intel prays for:

- A. A judgment in favor of Intel dismissing with prejudice ParkerVision's First Amended Complaint in its entirety and denying the relief requested therein;
- B. A declaration that the '518, '902, '444, '474, '725, '513, '528, '736, and '673 patents are not infringed by Intel;
- C. A declaration that the claims of the '518, '902, '444, '474, '725, '513, '528, '736, and '673 patents are invalid;
- D. A finding that this is an exceptional case under 35 U.S.C. § 285, including an award to Intel of attorneys' fees, costs, and disbursements incurred in defending this action; and
- E. Such other and further relief as the Court deems just and proper.

Dated: April 16, 2021

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that 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 on April 16, 2021.

/s/ J. Stephen Ravel
J. Stephen Ravel