IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

AMERICAN GNC CORPORATION, Plaintiff, v. ONEPLUS TECHNOLOGY (SHENZHEN) CO., LTD, STMICROELECTRONICS NV, and STMICROELECTRONICS, S.R.L Defendants.	Civil Action No. 6:20-cv-171 COMPLAINT FOR PATENT INFRINGEMENT AND JURY TRIAL DEMANDED

COMPLAINT

Plaintiff American GNC Corporation files this Complaint for patent infringement under the patent laws of the United States, Title 35 of the United States Code against Defendants OnePlus Technology (Shenzhen) Co., Ltd ("OnePlus") and STMicroelectronics NV and STMicroelectronics S.R.L. (collectively "STMicro") and alleges as follows:

PARTIES

1. Plaintiff American GNC Corporation ("AGNC") is a California corporation with its principal place of business at 888 Easy Street, Simi Valley, California 93065 that specializes in inventing and applying advanced and innovative technologies to contemporary problems within the fields of Guidance, Navigation, Control and Communications (GNCC), Inertial Sensors, Health Monitoring, Intelligent Processing, and Autonomous Robotics.

2. Defendant OnePlus Technology (Shenzhen) Co., Ltd. is a corporation duly organized and existing under the laws of China, with its principal place of business at 18F, Tairan Building, Block C, Tairan 8th Road, Chegongmiao, Futian District Shenzhen, Guangdong,

518040, China. On information and belief, OnePlus Technology (Shenzhen) Co., Ltd. can be served with process at that address.

3. STMicroelectronics NV is a corporation duly organized and existing under the laws of Switzerland, with its principal place of business at 39, Chemin du Champ des Filles, 1228 Plan-Les-Ouates Geneva, Switzerland. On information and belief, STMicroelectronics NV can be served with process at that address.

4. STMicroelectronics S.R.L is a corporation duly organized and existing under the laws of Italy, with a place of business located at Via Camillo Olivetti 2, Agrate Brianza MB, 20864, Italy. On information and belief, STMicroelectronics, S.R.L. can be served with process at that address.

5. STMicro is ranked as one of the world's largest semiconductor companies.

6. OnePlus is ranked by independent industry analysts as a top-five phone manufacturer in the United States.

JURISDICTION AND VENUE

7. This is a civil action for patent infringement arising under the Patent Laws of the United States, 35 U.S.C. § 1, *et seq*., and more particularly 35 U.S.C. § 271.

8. This Court has jurisdiction over the subject matter of this action under 28 U.S.C. §§ 1331 and 1338(a).

9. Defendant OnePlus is subject to this Court's general personal jurisdiction due at least to its substantial business conducted in this District, including: its place of business (national repair center) at 3918 Range Rd Ste B, Temple, Texas 76504. In addition, OnePlus has solicited business in the State of Texas, transacted business within the State of Texas and attempted to derive financial benefit from residents of the State of Texas in this District, including benefits

directly related to the instant patent infringement causes of action set forth herein; (ii) having placed its products and services into the stream of commerce throughout the United States and having been actively engaged in transacting business in Texas and in this District, and (iii) having committed the complained of tortious acts in Texas and in this District.

10. OnePlus, directly and/or through subsidiaries and agents (including distributors, retailers, and others), makes, imports, ships, distributes, offers for sale, sells, uses, and advertises (including offering products and services through its website, https://www.oneplus.com, as well as other retailers) its products and/or services in the United States, the State of Texas, and the Western District of Texas.

11. OnePlus, directly and/or through its subsidiaries and agents (including distributors, retailers, and others), has purposefully and voluntarily placed one or more of its infringing products and/or services, as described below, into the stream of commerce with the expectation that they will be purchased and used by consumers in the Western District of Texas. These infringing products and/or services have been and continue to be purchased and used by consumers in the Western District of Texas. OnePlus has committed acts of patent infringement within the State of Texas and, more particularly, within the Western District of Texas.

12. Each STMicro Defendant is subject to this Court's general personal jurisdiction pursuant to due process and/or the Texas Long Arm Statute, Tex. Civ. Prac. & Rem. Code § 17.042, due at least to its substantial business conducted in this District, including: (i) having solicited business in the State of Texas, transacted business within the State of Texas and attempted to derive financial benefit from residents of the State of Texas in this District, including benefits directly related to the instant patent infringement causes of action set forth herein; (ii) having placed its products and services into the stream of commerce throughout the United States and

having been actively engaged in transacting business in Texas and in this District, and (iii) having committed the complained of tortious acts in Texas and in this District.

13. STMicro, directly and/or through subsidiaries and agents (including distributors, retailers, and others), makes, imports, ships, distributes, offers for sale, sells, uses, and advertises (including offering products and services through its website, https://www.st.com, as well as other retailers) its products and/or services in the United States, the State of Texas, and the Western District of Texas.

14. STMicro, directly and/or through its subsidiaries and agents (including distributors, retailers, and others), has purposefully and voluntarily placed one or more of its infringing products and/or services, as described below, into the stream of commerce with the expectation that they will be purchased and used by consumers in the Western District of Texas. These infringing products and/or services have been and continue to be purchased and used by consumers in the Western District of Texas. STMicro has committed acts of patent infringement within the State of Texas and, more particularly, within the Western District of Texas. This Court's exercise of personal jurisdiction over STMicro is consistent with the Texas long-arm statute, Tex. Civ. Prac. & Rem. Code § 17.042, and traditional notions of fair play and substantial justice.

15. Personal jurisdiction over OnePlus and STMicro is also proper under Fed. R. Civ. P. 4(k)(2).

16. Venue is proper in this District under 28 U.S.C. §§ 1391 (b) and (c) and 1400(b). Defendants are subject to personal jurisdiction in this District, have transacted business in this District, and have committed acts of patent infringement in this District.

17. Venue is proper as to OnePlus, which is organized under the laws of China, under 28 U.S.C. § 1391(c)(3), which provides that "a defendant not resident in the United States may be

sued in any judicial district, and the joinder of such a defendant shall be disregarded in determining where the action may be brought with respect to other defendants."

18. Venue is proper as to STMicroelectronics NV, which is organized under the laws of Switzerland, under 28 U.S.C. § 1391(c)(3), which provides that "a defendant not resident in the United States may be sued in any judicial district, and the joinder of such a defendant shall be disregarded in determining where the action may be brought with respect to other defendants."

19. Venue is proper as to STMicroelectronics S.R.L., which is organized under the laws of Italy, under 28 U.S.C. § 1391(c)(3), which provides that "a defendant not resident in the United States may be sued in any judicial district, and the joinder of such a defendant shall be disregarded in determining where the action may be brought with respect to other defendants."

BACKGROUND

20. AGNC was founded by Ching-Fang Lin, Ph.D. in 1986 as a California corporation. AGNC's headquarters are at 888 Easy Street, Simi Valley, California 93065. AGNC is the owner of record and assignee of 79 issued United States patents, including the Patents-in-Suit.

21. Dr. Lin previously received his doctorate in Computer, Information, and Control Engineering from the University of Michigan in Ann Arbor.

22. Dr. Lin authored over 400 technical publications and was responsible for over 100 patent application filings at AGNC, including as an inventor on each of the Patents-in-Suit.

23. Dr. Lin was responsible for over 1,000 government contract reports and led the effort to introduce over 30 Guidance, Navigation, Control and Communications (GNCC) products.

24. Dr. Lin's achievements and awards include: SBA Small Business Person of the Year 2002, NASA Space Act Award Recognition for Inventions and Scientific and Technical Exceptional Contributions, Multiple Multiyear NASA Innovative Invention Award, Donald P.

Eckman Award Nominee for Outstanding Control Engineer, Nominee for the Mechanics and Control of Flight Award, among many others.

25. AGNC is an operating high technology company that specializes in inventing and applying advanced and innovative technologies to contemporary problems within the fields of Guidance, Navigation, Control and Communications (GNCC), Inertial Sensors, Health Monitoring, Intelligent Processing, and Autonomous Robotics.

26. Since its establishment in 1986, AGNC has been actively involved in pioneering efforts related to inertial sensors, interruption-free positioning, INS/GNSS fusion technologies, navigation, and collision avoidance systems that AGNC has invented, which are disclosed in its extensive patent portfolio. AGNC made the world's first MEMS rate integrating gyroscope in 1999, setting the stage for development of its coremicro® IMU product series.

27. AGNC is also among the very first companies to patent micro-electromechanical (MEMS) Inertial Measurement Unit ("IMU") technology, which is commonly found in most handheld consumer electronics such as tablets and smartphones.

28. AGNC analyzed positioning and navigation technologies and led breakthrough efforts during the late 1990's and early 2000's for the advancement of inertial sensors and navigation and collision avoidance systems.

29. AGNC's patented solutions are now found in consumer products, including smartphones and automobiles, for applications such as motion sensing, context awareness, image stabilization, navigation, and electronic stability control.

30. More information about Plaintiff and its products can be found at AGNC's website, www.americangnc.com.

31. As of the date of this complaint, AGNC has licensed its patents to six companies.

32. Despite extensive awareness of the patents, neither OnePlus nor STMicro have not agreed to enter into a license agreement with AGNC.

THE PATENTS-IN-SUIT AND CLAIMS-IN-SUIT

33. AGNC is the owner of record and assignee of each of U.S. Patent Nos. 6,311,555; 6,508,122; 6,671,648 and 6,697,758 (the "Patents-in-Suit").

34. AGNC had and has the exclusive right to sue and recover damages for infringement of the Patents-in-Suit during all relevant time periods.

35. On November 6, 2001, U.S. Patent No. 6,311,555 (the "'555 Patent") entitled "Angular Rate Producer with Microelectromechanical System Technology" was duly and legally issued by the United States Patent and Trademark Office ("USPTO").

36. The '555 Patent claims comprise elements and/or combinations of elements that constitute an inventive concept and/or were unconventional, not routine, and not well-understood by a skilled artisan at the time of the invention in order to overcome the obstacles in producing angular rate microelectromechanical systems, for example.

37. The '555 Patent claims' elements and/or combinations of elements overcame, at the time of invention, the problems with using microelectromechanical system (MEMS) technology to produce accurate angular rate signals.

38. On January 21, 2003, U.S. Patent No. 6,508,122 (the "'122 Patent") entitled "Microelectromechanical System for Measuring Angular Rate" was duly and legally issued by the USPTO.

39. The '122 Patent claims comprise elements and/or combinations of elements that constitute an inventive concept and/or were unconventional, not routine, and not well-understood

by a skilled artisan at the time of the invention in order to overcome the obstacles in producing angular rate microelectromechanical systems, for example.

40. The ’122 Patent claims’ elements and/or combinations of elements overcame, at the time of invention, the problems with using microelectromechanical system (MEMS) technology to produce accurate angular rate signals.

41. On December 30, 2003, U.S. Patent No. 6,671,648 (the “’648 Patent”) entitled “Micro Inertial Measurement Unit” was duly and legally issued by the USPTO.

42. The ’648 Patent claims comprise elements and/or combinations of elements that constitute an inventive concept and/or were unconventional, not routine, and not well-understood by a skilled artisan at the time of the invention in order to overcome the obstacles in producing highly accurate motion measurements with an inertial measurement unit under dynamic environments, for example.

43. The ’648 Patent claims’ elements and/or combinations of elements overcame, at the time of invention, the problems with an inertial measurement unit under dynamic environments producing highly accurate motion measurements. By utilizing the ’648 Patent claims’ elements and/or combinations of elements, a device is able to determine its digital angular increments and digital velocity increments relative to its movement and surroundings.

44. On February 24, 2004, U.S. Patent No. 6,697,758 (the “’758 Patent”) entitled “Processing Method for Motion Measurement” was duly and legally issued by the USPTO.

45. The ’758 Patent claims comprise elements and/or combinations of elements that constitute an inventive concept and/or were unconventional, not routine, and not well-understood by a skilled artisan at the time of the invention in order to overcome the obstacles in processing motion measurements in an inertial measurement unit under dynamic environments, for example.

46. The ’758 Patent claims’ elements and/or combinations of elements overcame, at the time of invention, the problems with processing motion measurements in an inertial measurement unit to obtain highly accurate attitude and heading measurements under dynamic environments. By utilizing the ’758 Patent claims’ elements and/or combinations of elements, a device is able to calculate its attitude and heading relative to its movement and surroundings.

47. AGNC asserts that OnePlus has infringed, directly and by inducement, at least the following claims of the Patents-in-Suit in this District and elsewhere in the United States:

- ‘555 Patent – claim 49;
- ’122 Patent – claim 1;
- ’648 Patent – claim 1; and
- ’758 Patent – claim 1.

48. AGNC asserts that STMicro has infringed, directly and by inducement, at least the following claims of the Patents-in-Suit in this District and elsewhere in the United States:

- ’555 Patent - claim 49; and
- ’758 Patent – claim 1.

INFRINGING PRODUCTS

49. OnePlus has directly infringed claims of the Patents-in-Suit under 35 U.S.C. § 271(a) by making, using, offering for sale, selling, and/or importing the below accused smartphones in this District and elsewhere in the United States that include the systems claimed in the Patents-in-Suit and/or by using the methods claimed in the Patents-in-Suit, including, for example, OnePlus’ use of said methods during set-up, testing, and demonstration of its smartphones.

50. OnePlus has induced the direct infringement of method claims of the Patents-in-Suit pursuant to U.S.C. § 271(b) at least by one or more of making, using, offering for sale, selling and/or importing the below accused smartphones in this District and elsewhere in the United States that were designed and intended to use and/or practice the methods and processes covered by the Patents-in-Suit.

51. Despite OnePlus' awareness of the Patents-in-Suit, OnePlus has continued these acts of inducement with specific intent to cause and encourage direct infringement of the Patents-in-Suit with willful blindness that such activities occurred, are still occurring, and constitute direct infringement of the Patents-in-Suit.

52. OnePlus products that infringe the system claimed in the '122 Patent ("Accused OnePlus Gyroscope Products") include, but are not limited to, at least the following OnePlus products that comprise a gyroscope: the OnePlus 1, 2, X, 3, 3T, 6T, and 7 Pro.

53. OnePlus products that practice the methods claimed in the '555 and '758 Patents during normal operation and infringe the systems claimed in the '648 Patent ("Accused OnePlus IMU Products") include, but are not limited to, at least the following OnePlus products that comprise an inertial measurement unit comprising a three-axis gyroscope and a three-axis accelerometer: the OnePlus 1, 2, X, 3, 3T, 6T, and 7 Pro.

54. STMicro has directly infringed claims of the Patents-in-Suit under 35 U.S.C. § 271(a) by using the methods claimed in the Patents-in-Suit, including, for example, STMicro's use of said methods during set-up, testing, and demonstration of its gyroscopes and inertial measurement units.

55. STMicro has induced the direct infringement of method claims of the Patents-in-Suit pursuant to U.S.C. § 271(b) at least by one or more of making, using, offering for sale, selling

and/or importing the below accused gyroscopes and inertial measurement units in this District and elsewhere in the United States that were designed and intended to use and/or practice the methods and processes covered by the Patents-in-Suit.

56. Despite STMicro's awareness of the Patents-in-Suit, STMicro has continued these acts of inducement with specific intent to cause and encourage direct infringement of the Patents-in-Suit with willful blindness that such activities occurred, are still occurring, and constitute direct infringement of the Patents-in-Suit.

57. STMicro products that practice the method claimed in the '555 Patent ("Accused STMicro Gyroscope Products") include, but are not limited to, at least the following STMicro products that comprise a gyroscope: the STMicro L3GD20, L20G20IS, L2G2IS, I3G4250D, A3G4250D, and LSM6DS3, LSM6DS3US, LSM6DS3TR-C, LSM6DS33, LSM6DSL, ISM330DLC, ASM330LHH, ISM330LHH, ISM330DHCX, LSM6DS3H, LSM6DSM, LSM6DSO, LSM6DSR, LSM6DSRX, LSM6DSOX, and LSM9DS1.

58. STMicro products that practice the method claimed in the '758 Patent during normal operation ("Accused STMicro IMU Products") include, but are not limited to, at least the following STMicro products that comprise an inertial measurement unit comprising a three-axis gyroscope and a three-axis accelerometer: the STMicro LSM6DS3, LSM6DS3US, LSM6DS3TR-C, LSM6DS33, LSM6DSL, ISM330DLC, ASM330LHH, ISM330LHH, ISM330DHCX, LSM6DS3H, LSM6DSM, LSM6DSO, LSM6DSR, LSM6DSRX, LSM6DSOX, and LSM9DS1, as well as the combination of the STMicro L3GD20 and LIS3DSH.

ONEPLUS' AND STMICRO'S KNOWLEDGE OF THE PATENTS-IN-SUIT, HOW THEY ARE INFRINGED, AND CONTINUED INFRINGEMENT DESPITE THAT KNOWLEDGE

59. STMicro became aware of at least some of AGNC's patents during its own patent prosecution activities.

60. For example, STMicro has been aware of the '648 Patent at least as early as March 11, 2003 when US20020065626A1, the publication of the application that issued as the '648 Patent, was cited during the prosecution of Defendant STMicroelectronics S.R.L.'s EP1411461 application.

61. OnePlus has been aware of the AGNC patents no later than April 22, 2015, when a letter dated April 13, 2015 was emailed to Mr. Pete Lau, CEO, OnePlus from Global IP Law Group, LLC, on behalf of AGNC.

62. The April 13, 2015 letter identified the '648 Patent and the OnePlus products and methods that AGNC contends infringes them.

63. On April 28, 3015, Global IP Law Group, LLC, on behalf of AGNC, again emailed the April 13, 2015 letter to OnePlus, this time to the attention of Bingo Hu, Legal Director.

64. On March 2, 2016, Global IP Law Group, LLC, on behalf of AGNC, emailed claim charts for the '648 and '758 Patents demonstrating how OnePlus' smartphones infringe those patents to OnePlus' representative, White Huang of DingZhi.

65. The March 2, 2016 email also identified the '122 Patent and informed OnePlus that its products likely infringe those patents as well.

66. One March 22, 2016, Global IP Law Group, LLC, on behalf of AGNC, emailed OnePlus' representative a letter that again proclaimed that OnePlus is infringing the '122 Patent.

67. The March 22, 2016 email also provided OnePlus with a list of AGNC patents with the Patents-in-Suit highlighted as patents AGNC believes OnePlus is infringing.

68. On April 16, 2016, AGNC, through Global IP Law Group, LLC, again sent OnePlus' representative claim charts for the '648 and '758 patents.

69. On April 18, 2016, AGNC, through Global IP Law Group, LLC, conveyed a licensing offer to OnePlus on a conference call.

70. On April 19, 2016, AGNC, through Global IP Law Group, LLC, sent OnePlus' representative a draft license agreement.

71. On April 28, 2016, OnePlus, through DingZhi, via email asked for AGNC's consent for OnePlus to share the claim charts for the '648 and '758 Patents with STMicro.

72. The April 28, 2016 email also indicated that OnePlus would provide STMicro's response to AGNC.

73. On May 27, 2016, AGNC had an in-person meeting with OnePlus' representative, DingZhi, during which AGNC provided the basis for its licensing offer.

74. On June 7, 2016, OnePlus' representative, DingZhi, sent AGNC a letter indicating that it provided materials regarding AGNC's claims to STMicro and was awaiting a response.

75. On June 10, 2016, AGNC, through Global IP Law Group, LLC, emailed OnePlus a letter that identified additional OnePlus smartphones that infringe the AGNC patents.

76. The June 10, 2016 email also attached a draft license agreement for OnePlus' consideration.

77. On July 5, 2016, OnePlus, through DingZhi, sent an email to AGNC promising that OnePlus would provide a counter-offer to AGNC's licensing offer in six months.

78. OnePlus never provided AGNC with any counter-offer or other licensing proposal.

79. On December 12, 2016, Global IP Law Group LLC, on behalf of AGNC, emailed OnePlus informing it that Global IP would be in Asia from January 9-27, 2017 and would be available for an in-person meeting should OnePlus wish to discuss the resolution and settlement of AGNC's patent infringement claims.

80. OnePlus never responded to the December 12, 2016 email.

81. On February 12, 2017, Global IP Law Group LLC, on behalf of AGNC, via email provided OnePlus with copies of complaints filed against two OnePlus competitors, ZTE and LG.

82. The February 12, 2017 email again invited OnePlus to an in-person meeting in Shenzhen to discuss the resolution and settlement of AGNC's patent infringement claims either on March 7 or 8, 2017.

83. OnePlus never responded to the February 12, 2017 email.

84. On February 15, 2017, Global IP Law Group LLC, on behalf of AGNC, emailed OnePlus a claim chart for the '122 Patent setting forth AGNC's contention of infringement.

85. OnePlus never responded to the February 15, 2017 email.

86. OnePlus never provided AGNC with any response that OnePlus may have received from STMicro.

87. No one from or on behalf of STMicro contacted Global IP Law Group with regard to AGNC's assertions against OnePlus.

88. On information and belief, STMicro also learned about AGNC's patent infringement assertions from other customers of STMicro that were contacted by AGNC.

89. STMicro also learned of AGNC's patent infringement assertions when on September 29, 2017, AGNC, through Global IP Law Group, LLC, emailed subpoenas to STMicroelectronics, Inc. ("STMI") in the *Am. GNC Corp. v. ZTE Corp., et al.*, 4:17-cv-00620-

ALM-KPJ (E.D. TEX.) and *Am. GNC Corp. v. LE Electronics Inc., et al.*, 3:17-cv-01090-BAS-BLM (S.D. Cal.) cases.

90. On September 28, 2017, AGNC served subpoenas in the ZTE and LG cases on STMicroelectronics, Inc. On December 18, 2017, AGNC served subpoenas in the ZTE and LG cases on STMicroelectronics, Inc. The subpoenas identified four of the patents in this case: the ’555, ’122, ’648, and ’758 Patents.

91. Between December 2017 and May 2018, AGNC and STMicroelectronics exchanged emails pertaining to the subpoenas and AGNC’s patents.

92. On February 15, 2018, AGNC emailed three individuals at OnePlus and included claim charts for the ‘122 and ‘555 patents.

93. On February 12, 2018, AGNC filed motions to compel related to the subpoenas. In Civil Action No. 3:18-mc-00016-D in the Northern District of Texas, counsel appeared for STMicroelectronics, Inc. and opposed AGNC’s motion to compel.

94. In response to the subpoenas, STMicroelectronics never provided any discovery to AGNC other than on February 7, 2018, when STMicroelectronics produced about 500 pages of documents, but every page was a re-print of information from the website www.st.com. STMicro did not produce any documents from its internal records.

95. As a part of AGNC’s efforts to obtain information from STMicroelectronics through these subpoenas, AGNC corresponded with STMicroelectronics’s then Senior Legal Counsel, Sarah Decker. On Linkedin, she described her role from 2013-2018 at “STMicroelectronics” as “Senior in-house counsel for a multinational Fortune 500 technology company in all contested matters worldwide, including before courts, alternative dispute resolution forums (both domestic and international arbitrations and mediations), the Patent Trial and Appeal

Board (PTAB), the International Trade Commission (ITC) and other governmental regulatory and adjudicative bodies. Expertise directing major litigation, claims and other disputes from inception to resolution, including patent and copyright infringement litigation, . . . as well as managing internal investigations and all pre-litigation matters involving potential claims or disputes."

96. During the course of these emails, on December 11, 2017, Ms. Decker asked AGNC "will you please confirm for me that no ST product is an accused instrumentality in the litigation in which the subpoenas issued and that your client has no plans to assert the patents in suit against ST?" On December 12, 2017, Ms. Decker asked AGNC a second time: "With regard to my question, what I am trying to understand is whether any ST apparatus, product, device, process, method, act, or other instrumentality (within the meaning of E.D. Texas Patent Rule 3-1 and analogous rules) is accused, or may in the future be accused, by your client with regard to the patents in suit, including in the litigations in which the subpoenas issued. Please confirm." On December 14, 2017, Ms. Decker asked a third time, writing: "We are asking whether or not any ST apparatus, product, device, process, method, act, or other instrumentality (within the meaning of E.D. Texas Patent Rule 3-1 and analogous rules) is accused, or may in the future be accused, by American GNC with regard to the patents in suit, including in the litigations in which the subpoenas issued. ST needs an answer to that question."

97. STMicroelectronics' outside counsel, Steve Malin, also emailed AGNC on May 18, 2018 and asked the question a fourth time: "Is AGNC representing to the Court that AGNC has no intentions to and will not sue ST-Inc. or another ST entity directly for infringement of AGNC's patents?"

98. AGNC declined to ever make any such representation in light of STMicro's ongoing infringement of AGNC's patents.

99. OnePlus has not agreed to enter into a licensing agreement with AGNC.

100. OnePlus has not provided AGNC any licensing proposal.

101. OnePlus has never communicated to AGNC any argument that the Asserted Claims of the Patents-in-Suit are invalid for any reason.

102. STMicro has not agreed to enter into a licensing agreement with AGNC.

103. STMicro has not provided AGNC any licensing proposal.

104. STMicro has never communicated to AGNC any argument that it does not infringe the Asserted Claims of the Patents-in-Suit.

105. STMicro has never communicated to AGNC any argument that the Asserted Claims of the Patents-in-Suit are invalid for any reason.

106. Despite knowledge of the Patents-in-Suit and knowledge of the manner in which the Patents-in-Suit are infringed as demonstrated in the provided claim charts, OnePlus and STMicro have continued to infringe and induce the infringement of the Patents-in-Suit.

COUNT I: INFRINGEMENT OF PAT. 6,311,555 CLAIM 49

107. AGNC reasserts and realleges paragraphs 1 through 106 of this Complaint as though set forth fully here.

108. Claim 49 of the ’555 Patent provides:

Preamble to Claim 1	An angular rate producing process for measuring a vehicle angular rate, comprising the steps of:
Element A	receiving dither drive signal to maintain an oscillation of at least one set of inertial elements in an angular rate detecting unit with constant momentum, and producing angular motion-induced signals with respect to said vehicle angular rate and inertial element dither motion signals;
Element B	converting said angular motion-induced signals from said angular rate detecting unit in an interfacing circuitry into consistent and repeatable angular rate signals that are proportional to said vehicle angular rate, and converting said inertial element dither motion signals from said angular rate detecting unit in said interfacing circuitry into digital element displacement signals with predetermined phase; and
Element C	inputting said digital element displacement signals into a digital processing system and producing said dither drive signal for locking high-quality factor frequency and amplitude of said oscillating inertial elements in said angular rate detecting unit.

109. OnePlus has made, used, sold, imported, and/or offered for sale products that include a gyroscope, the Accused OnePlus Gyroscope Products, that practice each and every element of claim 49 of the '555 patent when used in a vehicle.

110. The Accused OnePlus Gyroscope Products include, but are not limited to, for example, the OnePlus 1, 2, X, 3, 3T, 6T, and 7 Pro.

111. The Accused OnePlus Gyroscope Products comprise an Accused STMicro Gyroscope Product.

112. For example, the OnePlus 3, 3T, and 6T comprise the STMicro LSM6DS3 and the OnePlus 7 Pro comprises the STMicro LSM6DSL.

113. STMicro has made, used, sold, imported, and/or offered for sale products that include a gyroscope, the Accused STMicro Gyroscope Products, the use of which meets each and every element of claim 49 of the '555 Patent.

114. The Accused STMicro Gyroscope Products include, but are not limited to, for example, the L3GD20, L20G20IS, L2G2IS, I3G4250D, A3G4250D, and LSM6DS3, LSM6DS3US, LSM6DS3TR-C, LSM6DS33, LSM6DSL, ISM330DLC, ASM330LHH, ISM330LHH, ISM330DHCX, LSM6DS3H, LSM6DSM, LSM6DSO, LSM6DSR, LSM6DSRX, LSM6DSOX, and LSM9DS1.

115. For example, the STMicro LSM6DS3 comprises a three-axis MEMS gyroscope.

116. A gyroscope measures angular rate.

117. The Accused STMicro Gyroscope Products have an angular rate detecting unit (e.g., driving structure, driving masses, and sensing masses).

118. The Accused STMicro Gyroscope Products contain a driving structure that uses a drive signal (e.g., dither drive signal) to oscillate a set of moveable masses (e.g., the driving structure's masses, inertial elements).

119. The Accused STMicro Gyroscope Products have a drive-loop that oscillates (e.g., vibrates) the driving structure (e.g., vibration at resonance), a feedback sensing signal that monitors the motion of the masses, and a sense signal that is picked up by the sensing structure and related to the Coriolis force detected by the sensor.

120. The Accused STMicro Gyroscope Products' drive-loop comprises circuitry (e.g., a Phase Locked Loop circuit) to oscillate the masses at a single driving frequency to maintain constant momentum (e.g., constant vibration frequency) (e.g., the moveable masses are in oscillation with constant momentum).

121. The Accused STMicro Gyroscope Products' drive-loop also has circuitry (e.g., controller) that receives at input a reference voltage that indicates the desired reference oscillation

amplitude to maintain the constant momentum (e.g., constant amplitude) (e.g., the moveable masses are in oscillation with constant momentum).

122. The Accused STMicro Gyroscope Products' inertial elements (e.g., moveable masses) are driven (e.g., by dither drive signals) to resonate by driving terminals while also providing amplitude control (e.g., control of the displacement, or amplitude/magnitude) that is used to constantly drive the momentum.

123. In the Accused STMicro Gyroscope Products, the driving terminals excite the driving structure's masses to oscillate at a particular frequency.

124. The Accused STMicro Gyroscope Products have drive signals that drive the driving structure's masses/inertial elements at a resonant frequency (e.g., resonant vibration) to maintain constant momentum.

125. The Accused STMicro Gyroscope Products' angular rate detecting unit produces angular-motion induced signals with respect to the angular rate experienced by the Accused STMicro Gyroscope Products.

126. The movement of the driving structure's masses due to rotation causes a capacitance change that is picked up by the sensing structure's (e.g., Coriolis sensor) sensor and is converted into a voltage signal.

127. The voltage signal is proportional to the applied angular rate, e.g., the voltage signal produced is an angular motion-induced signal with respect to the vehicle angular rate of the vehicle comprising the Accused STMicro Gyroscope Products.

128. The Accused STMicro Gyroscope Products' angular rate detecting unit produces feedback signals that monitor the motion of the driving structure's masses (e.g., inertial element dither motion signals).

129. The Accused STMicro Gyroscope Products have interfacing circuitry that converts the voltage signal proportional to the applied angular rate (e.g., angular motion-induced signals) into consistent and repeatable angular rate signals that are proportional to the vehicle angular rate.

130. In the Accused STMicro Gyroscope Products, the voltage signal produced is converted to a digital signal and filtered to produce a voltage signal that is proportional to the angular rate.

131. Therefore, the angular rate signal is extracted from the angular motion-induced signals.

132. The Accused STMicro Gyroscope Products convert the angular motion-induced signals from the angular detecting unit in an interfacing circuitry into consistent and repeatable angular rate signals (e.g., the Accused STMicro Gyroscope Products provide very high resolution and stability for angular rate signals).

133. The consistent and repeatable angular rate signals are proportional to the vehicle angular rate.

134. That is, there is a linear (and therefore, proportional) relationship between the angular rate experienced by the Accused STMicro Gyroscope Products and the output voltage of the angular rate signal for the sensitivity range of the Accused STMicro Gyroscope Products.

135. Within that sensitivity range, a given angular rate will yield the same output voltage.

136. For example, the Accused STMicro Gyroscope Products include a sense path that detects the motion caused by Coriolis acceleration, an Analog to Digital Converter, a Low Pass Filter, and a Digital High Pass Filter that recover the rotation signal and provide the angular rate output.

137. The feedback signals (e.g., inertial element dither motion signals) are also fed into interfacing circuitry.

138. The Accused STMicro Gyroscope Products convert the inertial element dither motion signals from the angular rate detecting unit in interfacing circuitry into digital element displacement signals.

139. The digital element displacement signals are further processed to have a predetermined phase.

140. For example, in the Accused STMicro Gyroscope Products architecture, the drive-loop comprises a charge amplifier that receives differential charge packets and converts those packets into feedback voltages that indicate the position of the driving masses and a phase locked loop to oscillate the MEMS structure at resonance.

141. The Accused STMicro Gyroscope Products' architecture also includes amplitude control circuitry (e.g., a controller) that effectively controls the displacement of the inertial elements.

142. The Accused STMicro Gyroscope Products input the digital element displacement signals into a digital processing system and produce the dither drive signal.

143. The dither drive signal locks the high-quality factor frequency of the oscillating inertial elements (e.g., driving structure's masses) in the angular rate detecting unit.

144. The dither drive signal locks the amplitude/magnitude of the oscillating inertial elements (e.g., driving structure's masses) in the angular rate detecting unit.

145. The digital element displacement signals are input to a phase locked loop to lock a high-quality factor frequency.

146. The phase locked loop elements feed into a controller that controls the oscillation of the inertial elements.

147. For example, the Accused STMicro Gyroscope Products' drive loop includes a phase lock loop that outputs an in-phase signal (which is in phase with the drive signal) and a controller circuit to generate a drive signal.

148. The drive signal is then provided to the drive terminal that generates the force to vibrate the driving structure's mass.

149. The Accused STMicro Gyroscope Products utilize a Phase-Lock Loop ("PLL") in the digital processing system to control the phase and a controller circuit to control the amplitude/magnitude.

150. Direct infringement of claim 49 of the '555 Patent occurred whenever the Accused STMicro Gyroscope Products and/or Accused OnePlus Gyroscope Products were active while the Accused STMicro Gyroscope Products and/or Accused OnePlus Gyroscope Products were used in/on a vehicle.

151. STMicro directly infringed claim 49 of the '555 Patent by making, selling, and importing the Accused STMicro Gyroscope Products which, by design, practice the claimed process.

152. In addition, STMicro directly infringed claim 49 of the '555 Patent under 35 U.S.C. § 271(a) by using the Accused STMicro Gyroscope Products, including in relation to product demonstration and testing.

153. In the alternative, to the extent that any steps of the methods covered by claim 49 of the '555 patent were performed by third-parties, such as STMicro's customers (e.g., automotive manufacturers) or users of the Accused STMicro Gyroscope Products (e.g., customers who

purchased a vehicle with an Accused STMicro Gyroscope Product), STMicro induces infringement of claim 49 of the ’555 Patent including by distributing the Accused STMicro Gyroscope Products that practice the claimed process in ordinary use. STMicro’s technical design of its gyroscopes dictated that they be used to infringe the claim. The Accused STMicro Gyroscope Products’ gyroscope infringed when customers operated the Accused STMicro Gyroscope Products. STMicro actively induced customers and end-users to directly infringe each and every claim limitation of at least claim 49 of the ’555 Patent under 35 U.S.C. § 271(b).

154. In the alternative, STMicro induced infringement of claim 49 of the ’555 Patent by end users including by distributing the Accused STMicro Gyroscope Products that practice the claimed process in ordinary use.

155. The Accused STMicro Gyroscope Products’ gyroscope was active, at least some of the time, whenever STMicro or its customers operated the Accused STMicro Gyroscope Products.

156. STMicro has had actual knowledge of the ’555 Patent since at least September 29, 2017.

157. STMicro has knowingly induced its customers and/or end users to directly infringe at least claim 49 of the ’555 Patent with the specific intent to encourage such infringement, and knowing that the acts induced constitute patent infringement. STMicro’s inducement includes, for example, encouraging consumers to purchase the Accused STMicro Gyroscope Products, and by providing, for example, technical guides, owner manuals, product data sheets, demonstrations, and other forms of support to customers that induce them and their customers and/or end users to directly infringe claim 49 of the ’555 Patent by using the Accused STMicro Gyroscope Products’ gyroscope.

158. OnePlus directly infringed claim 49 of the ’555 Patent by making, selling, and importing the Accused OnePlus Gyroscope Products which, by design, practice the claimed process whenever used in/on a vehicle.

159. In addition, OnePlus directly infringed claim 49 of the ’555 Patent under 35 U.S.C. § 271(a) by using the Accused OnePlus Gyroscope Products, including in relation to product demonstration and testing when used in/on a vehicle.

COUNT II: INFRINGEMENT OF PAT. 6,508,122 CLAIM 1

160. AGNC reasserts and realleges paragraphs 1 through 159 of this Complaint as though set forth fully here.

161. Claim 1 of the ’122 Patent provides:

Preamble to Claim 1	A microelectromechanical system (MEMS) for measuring angular rate of a carrier, comprising:
Element A	an angular rate sensor unit receiving dither driver signals, capacitive pickoff excitation signals and a displacement restoring signal and outputting angle rate signals in response to motion of said carrier and dither motion signals;
Element B	a central circuitry receiving said angle rate signals in response to said motion of said carrier and said dither motion signals and outputting angular rate signals and digital low frequency inertial element displacement signals; and
Element C	a digital signal processing system analyzing said digital low frequency inertial element displacement signals and feeding back said dither driver signals to said angular rate sensor unit.

162. OnePlus made, used, sold, offered for sale, and/or imported smartphones that include a MEMS gyroscope, the Accused OnePlus Gyroscope Products, that meet each and every element of claim 1 of the ’122 Patent.

163. The Accused OnePlus Gyroscope Products include, but are not limited to, for example, the OnePlus 1, 2, X, 3, 3T, 6T, and 7 Pro.

164. The Accused OnePlus Gyroscope Products include STMicro gyroscope products. For example, the OnePlus 3, 3T, and 6T comprise the STMicro LSM6DS3 and the OnePlus 7 Pro comprises the STMicro LSM6DSL.

165. Thes STMicro gyroscope products comprise microelectromechanical systems ("MEMS") for measuring angular rate.

166. For example, the STMicro LSM6DS3 comprises a three-axis MEMS gyroscope.

167. A gyroscope measures angular rate.

168. The STMicro gyroscope products included within the Accused OnePlus Gyroscope Products comprise an angular rate sensor unit (e.g., driving structure, driving masses, and sensing masses).

169. The angular rate sensor unit receives drive signals (e.g., dither driver signals).

170. The angular rate sensor unit's drive terminals receive drive signals (e.g., dither driver signals).

171. The angular rate sensor unit receives capacitive pickoff excitation signals.

172. For example, the angular rate sensor unit's sensing element (Coriolis sensor) senses the movement of the proof mass(es) via capacitive pickoffs. The presence of a charge amplifier in the sensing interface indicates a voltage input, hence excitation signal, (e.g., capacitive pickoff excitation signals) into the sensing element capacitor(s).

173. The angular rate sensor unit receives a displacement restoring signal (e.g., displacement compensating signal).

174. For example, the displacement of the angular rate sensor unit's driving structure's proof mass(es) are controlled by a displacement compensation signal (e.g., displacement restoring signal).

175. The displacement compensating signal compensates for the displacement of the proof mass due to the Coriolis force with a feedback force to restore the proof mass into a rest position.

176. The STMicro gyroscope products within the Accused OnePlus Gyroscope Products contain a driving structure that uses drive signals (e.g., dither driver signal) to oscillate moveable masses (e.g., proof masses, inertial elements).

177. The STMicro gyroscope products within the Accused OnePlus Gyroscope Products have a drive-loop that oscillates (e.g., vibrates) the driving structure, a feedback loop that monitors the motion of the driving structure's masses, and a sense path that recovers the angular rotation signal.

178. The STMicro gyroscope products within the Accused OnePlus Gyroscope Products have controller circuitry to maintain the vibration magnitude (e.g., amplitude).

179. The STMicro gyroscope products within the Accused OnePlus Gyroscope Products have proof mass(es) that is/are driven (e.g., by dither driver signals) to resonate by driving terminals, while also providing amplitude control (e.g., control of the displacement, or magnitude/amplitude) that is used to maintain momentum.

180. The oscillating mass(es), when subjected to rotation, cause/causes a capacitance change.

181. The capacitance change is received by the angular sensor unit (e.g., the angular sensor unit's sensing element) by capacitor structures (e.g., capacitive pickoffs).

182. When STMicro gyroscope products within the Accused OnePlus Gyroscope Products are rotated, the Coriolis effect causes a displacement that is detected by a capacitive pickoff.

183. The capacitance change that is picked up by the angular rate sensor is used to produce angle rate signals in response to the capacitance change that is a result of the motion of the gyroscope.

184. For example, STMicro gyroscope products within the Accused OnePlus Gyroscope Products have digital-output X-, Y-, and Z-axis angular rate sensors for outputting the angle rate signals in response to the motion of the carrier.

185. In the STMicro gyroscope products within the Accused OnePlus Gyroscope Products, the resulting signal is converted into a digital signal and filtered to produce a voltage that is proportional to the angular rate.

186. The STMicro gyroscope products within the Accused OnePlus Gyroscope Products have an angular rate sensor unit produces feedback signals that monitor the motion of the driving structure's masses (e.g., dither motion signals).

187. The dither motion signals are fed into central circuitry.

188. The STMicro gyroscope products within the Accused OnePlus Gyroscope Products have central circuitry that receives the angle rate signals from the angular rate sensor unit.

189. The central circuitry outputs angular rate signals (e.g., X-, Y-, and Z-axis angular rate signals).

190. The central circuitry receives the dither motion signals from the angular rate sensor unit.

191. The central circuitry outputs digital low frequency inertial element displacement signals.

192. The STMicro gyroscope products within the Accused OnePlus Gyroscope Products include a drive-loop that comprises a charge amplifier that receives differential charge packets and converts those packets into feedback voltages that indicate the position of the driving masses and a phase locked loop to oscillate the MEMS structure at resonance.

193. The central circuitry also includes a low pass filter that processes the inertial element displacement signals into low frequency inertial element displacement signals.

194. The STMicro gyroscope products within the Accused OnePlus Gyroscope Products also include amplitude control circuitry (e.g., a controller) that effectively controls the displacement of the inertial elements.

195. The STMicro gyroscope products within the Accused OnePlus Gyroscope Products contain circuitry that recovers, e.g., receives, the angle rate signals that are in response to the motion of the STMicro gyroscope products and receives the motion of the proof masses (e.g., dither motion signals).

196. The STMicro gyroscope products within the Accused OnePlus Gyroscope Products process the angle rate signals into angular rate signals via a sense path with an Analog to Digital Converter, a Low Pass Filter, and a Digital High Pass Filter.

197. The STMicro gyroscope products within the Accused OnePlus Gyroscope Products have a digital processing system that analyzes the digital low frequency inertial element displacement signals.

198. The digital processing system feeds the dither driver signals to the angular rate sensor unit.

199. The digital low frequency inertial element displacement signals feed into a control loop that controls the oscillation of the inertial elements/proof masses.

200. For example, the STMicro gyroscope products' drive loop includes a phase lock loop that outputs an in-phase signal (which is in phase with the drive signal) and a controller circuit that controls the oscillation of the inertial elements to generate a drive signal.

201. The drive signal is processed by a digital to analog converter and provided to the drive terminal that generates the force to vibrate the proof mass(es).

202. The STMicro gyroscope products utilize a Phase-Lock Loop ("PLL") in the digital processing system to control the phase and a controller circuit, or similar component, to control the amplitude/magnitude.

203. Direct infringement of claim 1 occurred when OnePlus made, imported, used, sold and/or offered for sale the Accused OnePlus Gyroscope Products that meet claim 1 of the ’122 Patent.

204. OnePlus has had knowledge of the ’122 Patent and AGNC’s allegations that the Accused OnePlus Gyroscope Products infringe claim 1 of the ’122 Patent since at least March 2, 2016.

205. OnePlus has made, used, offered to sell, sold, and/or imported the Accused OnePlus Gyroscope Products knowing that the Accused OnePlus Gyroscope Products infringe claim 1 of the ’122 Patent.

COUNT III: INFRINGEMENT OF PAT. 6,671,648 CLAIM 1

206. AGNC reasserts and realleges paragraphs 1 through 205 of this Complaint as though set forth fully here.

207. Claim 1 of the ’648 Patent provides:

Preamble of Claim 1	A micro inertial measurement unit, comprising:
Element A	an angular rate producer comprising a X axis angular rate detecting unit which produces a X axis angular rate electrical signal, a Y axis angular rate detecting unit which produces a Y axis angular rate electrical signal, and a Z axis angular rate detecting unit which produces a Z axis angular rate electrical signal;
Element B	an acceleration producer comprising a X axis accelerometer which produces a X axis acceleration electrical signal, a Y axis accelerometer which produces a Y axis acceleration electrical signal, and a Z axis accelerometer which produces a Z axis acceleration electrical signal; and
Element C	an angular increment and velocity increment producer, which is electrically connected with said X axis, Y axis and Z axis angular rate detecting units and said X axis, Y axis and Z axis accelerometers, receiving said X axis, Y axis and Z axis angular rate electrical signals and said X axis, Y axis and Z axis acceleration electrical signals from said angular rate producer and said acceleration producer respectively, wherein said X axis, Y axis and Z axis angular rate electrical signals and said X axis, Y axis and Z axis acceleration electrical signals are converted into are digital angular increments and digital velocity increments respectively.

208. OnePlus has manufactured, used, sold, imported, and/or offered for sale the Accused OnePlus IMU Products that meet each and every element of claim 1 of the ’648 Patent.

209. The Accused OnePlus IMU Products include, but are not limited to, for example, the OnePlus 1, 2, X, 3, 3T, 6T, and 7 Pro.

210. The Accused OnePlus IMU Products comprise an STMicro IMU product.

211. For example, the OnePlus 3, 3T, and 6T comprise the STMicro LSM6DS3 and the OnePlus 7 Pro comprises the STMicro LSM6DSL.

212. The STMicro IMU Products include a MEMS gyroscope.

213. The STMicro IMU Products include a MEMS accelerometer.

214. The STMicro IMU Products include a micro IMU comprised of a gyroscope and accelerometer.

215. For example, the STMicro LSM6DS3 includes a three-axis MEMS gyroscope.

216. For example, the STMicro LSM6DS3 includes a three-axis MEMS accelerometer.

217. The STMicro IMU products’ gyroscope senses angular rotation about three axes.

218. The STMicro IMU Products within the Accused OnePlus IMU Products have a gyroscope is an angular rate producer that produces angular rate signals for three axes.

219. The STMicro IMU Products within the Accused OnePlus IMU Products have accelerometers that sense acceleration about three axes.

220. The STMicro IMU products’ accelerometer is an acceleration producer that produces acceleration signals for three axes.

221. The STMicro IMU products have an angular increment and velocity increment producer that is electrically connected with the gyroscope and accelerometer.

222. The angular increment and velocity increment producer receives the angular rate and acceleration electrical signals.

223. The angular increment and velocity increment producer converts the angular rate electrical signals into digital angular increments.

224. The angular increment and velocity increment producer converts acceleration electrical signals into digital velocity increments.

225. For example, the STMicro LSM6DS3 has a microprocessor that runs a sensor fusion algorithm so that the IMU measures and reports velocity and orientation using a combination of sensors.

226. For example, the STMicro LSM6DS3 acquires data from accelerometers and gyroscopes and processes the data.

227. For example, the STMicro LSM6DS3 has an iNEMO engine that acquires data and performs sensor fusion to "deliver accurate and reliable motion-sensing information that is easy to integrate into smart consumer devices."[1]

228. Velocity is obtained by a single integration of the accelerometer signal.

229. Angle is obtained by a single integration of the gyroscope signal.

230. The STMicro IMU products' inertial measurement unit utilizes sensor fusion algorithms.

231. STMicro's sensor fusion provides, for example, quaternion, linear acceleration, rotation, and heading.

232. In order for STMicro's sensor fusion to provide orientation, it must use angular increments.

233. STMicro's sensor fusion algorithms integrate the gyroscope signal to obtain angle from angular rate.

234. The determination of angle from the angular rate necessarily requires the conversion to an angular increment.

235. Angular increments are obtained during the process by which angle is obtained from angular rate.

---

[1] STMicro iNEMO Engine Pro Sensor Fusion Algorithm Data Brief, available at https://html.alldatasheet.vn/html-pdf/480956/STMICROELECTRONICS/INEMOENGINE_PW8/1952/1/INEMOENGINE_PW8.html.

236. STMicro's sensor fusion algorithms integrate the accelerometer signal to obtain velocity.

237. The determination of velocity from the acceleration necessarily requires the conversion to a velocity increment.

238. Velocity increments are obtained during the process by which velocity is obtained from acceleration.

239. Direct infringement of claim 1 of the '648 Patent occurred when OnePlus made, imported, used, sold, and/or offered for sale the Accused OnePlus IMU Products that meet claim 1 of the '648 Patent.

240. OnePlus has had knowledge of the '648 Patent since April 13, 2015 and AGNC's allegations of how the Accused OnePlus IMU Products infringe claim 1 of the '648 Patent since at least March 2, 2016.

241. OnePlus made, imported, used, sold, and/or offered for sale the Accused OnePlus IMU Products knowing that these products infringe claim 1 of the '648 Patent.

COUNT IV: INFRINGEMENT OF PAT. 6,697,758 CLAIM 1

242. AGNC reasserts and realleges paragraphs 1 through 241 of this Complaint as though set forth fully here.

243. Claim 1 of the '758 Patent provides:

Preamble of Claim 1	A processing method for motion measurement, comprising the steps of:
Element A	(a) producing three-axis angular rate signals by an angular rate producer and three-axis acceleration signals by an acceleration producer;
Element B	(b) converting said three-axis angular rate signals into digital angular increments and converting said three-axis acceleration signals into digital velocity increments in an angular increment and velocity increment producer; and
Element C	(c) computing attitude and heading angle measurements using said three-axis digital angular increments and said three-axis velocity increments in an attitude and heading processor.

244. OnePlus has manufactured, used, sold, imported, and/or offered for sale the Accused OnePlus IMU Products, the use of which meets each and every element of claim 1 of the ’758 Patent.

245. The Accused OnePlus IMU Products include, but are not limited to, for example, the OnePlus 1, 2, X, 3, 3T, 6T, and 7 Pro.

246. STMicro has manufactured, used, sold, imported, and/or offered for sale the Accused STMicro IMU Products, the use of which meets each and every element of claim 1 of the ’758 Patent.

247. The Accused OnePlus IMU Products comprise an Accused STMicro IMU Product.

248. For example, the OnePlus 3, 3T, and 6T comprise the STMicro LSM6DS3 and the OnePlus 7 Pro comprises the STMicro LSM6DSL.

249. The Accused STMicro IMU Products comprise a gyroscope.

250. The Accused STMicro IMU Products comprise an accelerometer.

251. The Accused STMicro IMU Products include an IMU that comprises a gyroscope and accelerometer.

252. For example, the STMicro LSM6DS3 includes a three-axis MEMS gyroscope.

253. For example, the STMicro LSM6DS3 includes a three-axis MEMS accelerometer.

254. The Accused STMicro IMU Products’ gyroscope senses angular rotation about three axes.

255. The Accused STMicro IMU Products’ gyroscope is an angular rate producer that produces angular rate signals for three axes.

256. The Accused STMicro IMU Products’ accelerometer senses acceleration about three axes.

257. The Accused STMicro IMU Products’ accelerometer is an acceleration producer that produces acceleration signals for three axes.

258. The Accused STMicro IMU Products have an angular increment and velocity increment producer.

259. The angular increment and velocity increment producer receives the angular rate and acceleration signals.

260. The angular increment and velocity increment producer converts the angular rate signals into digital angular increments.

261. The angular increment and velocity increment producer converts acceleration signals into digital velocity increments.

262. For example, the STMicro LSM6DS3 has a microprocessor that runs a sensor fusion algorithm so that the IMU measures and reports velocity and orientation using a combination of sensors.

263. For example, the STMicro LSM6DS3 acquires data from accelerometers and gyroscopes and processes the data.

264. For example, the STMicro LSM6DS3 has an iNEMO engine that acquires data and performs sensor fusion to "deliver accurate and reliable motion-sensing information that is easy to integrate into smart consumer devices."[2]

265. Velocity is obtained by a single integration of the accelerometer signal.

266. Angle is obtained by a single integration of the gyroscope signal.

267. The Accused STMicro IMU Products' inertial measurement unit utilizes sensor fusion algorithms.

268. STMicro's sensor fusion provides, for example, quaternion, linear acceleration, rotation, and heading.

269. In order for STMicro's sensor fusion to provide orientation, it must use angular increments.

---

[2] STMicro iNEMO Engine Pro Sensor Fusion Algorithm Data Brief, available at https://html.alldatasheet.vn/html-pdf/480956/STMICROELECTRONICS/INEMOENGINE_PW8/1952/1/INEMOENGINE_PW8.html.

270. STMicro's sensor fusion algorithms integrate the gyroscope signal to obtain angle from angular rate.

271. The determination of angle from the angular rate necessarily requires the conversion to an angular increment.

272. Angular increments are obtained during the process by which angle is obtained from angular rate.

273. STMicro's sensor fusion algorithms integrate the accelerometer signal to obtain velocity.

274. The determination of velocity from the acceleration necessarily requires the conversion to a velocity increment.

275. Velocity increments are obtained during the process by which velocity is obtained from acceleration.

276. The Accused STMicro IMU Products comprise an attitude and heading processor.

277. For example, the STMicro LSM6DS3 processes sensor fusion algorithms.

278. STMicro's sensor fusion provides, for example, quaternion, linear acceleration, rotation, and heading.

279. The Accused STMicro IMU Products' sensor fusion algorithm (using data from the sensors such as the gyroscope) computes attitude (that is, orientation using e.g., rotation matrix or quaternion representation).

280. The Accused STMicro IMU Products' sensor fusion algorithm (using data from the sensors such as the gyroscope and/or a magnetometer) computes heading.

281. STMicro directly infringed claim 1 of the '758 Patent by making, selling, offering for sale, and/or importing the Accused STMicro IMU Products which, by design, practice the claimed process.

282. In addition, STMicro directly infringed claim 1 of the '758 Patent under 35 U.S.C. § 271(a) by using the Accused STMicro IMU Products, including in relation to product demonstration and testing.

283. In the alternative, to the extent that any steps of the methods covered by claim 1 of the ’758 patent are performed by third-parties, such as STMicro’s customers (e.g. OnePlus) or users of the OnePlus device, STMicro induced infringement of claim 1 of the ’758 Patent including by distributing the Accused STMicro IMU Products that practice the claimed process in ordinary use. STMicro’s technical design of its IMUs dictated that they be used to infringe the claim. The Accused STMicro IMU Products’ IMU infringed when customers operated the Accused OnePlus IMU Products. STMicro actively induced customers and end-users to directly infringe each and every claim limitation of at least claim 1 of the ’758 Patent under 35 U.S.C. § 271(b).

284. In the alternative, STMicro induced infringement of claim 1 of the ’758 Patent by end users including by distributing the Accused STMicro IMU Products that practice the claimed process in ordinary use.

285. The Accused STMicro IMU Products’ IMU is active, at least some of the time, whenever STMicro or its customers operate the Accused STMicro IMU Products.

286. STMicro has had actual knowledge of the ’758 Patent since at least April 28, 2016.

287. STMicro has knowingly induced its customers and/or end users to directly infringe at least claim 1 of the ’758 Patent with the specific intent to encourage such infringement, and knowing that the acts induced constitute patent infringement. STMicro’s inducement includes, for example, encouraging OnePlus to purchase and include its IMUs in its products, and by providing, for example, technical guides, product data sheets, demonstrations, software and hardware specifications, and other forms of support to OnePlus that induce it and its customers and/or end users to directly infringe claim 1 of the ’758 Patent by using the Accused STMicro IMU Products’ IMU.

288. OnePlus directly infringed claim 1 of the ’758 Patent by making, selling, and importing the Accused OnePlus IMU Products which, by design, practice the claimed process.

289. In addition, OnePlus infringed claim 1 of the ’758 Patent by using the Accused OnePlus IMU Products directly, including in relation to product demonstration and testing.

290. OnePlus made, used, offered to sell, sold, and/or imported the Accused OnePlus IMU Products knowing that OnePlus has infringed at least claim 1 of the ’758 Patent, when the Accused OnePlus IMU Products’ IMU was or is active, under 35 U.S.C. § 271(a) directly.

291. In the alternative, to the extent that any steps of the methods covered by claim 1 of the ’758 patent are performed by third-parties, such as OnePlus’ customers and users of the OnePlus devices, OnePlus induced infringement of claim 1 of the ’758 Patent including by distributing the Accused OnePlus IMU Products that practice the claimed process in ordinary use. OnePlus’ technical design of its products, including that they use inertial measurement units, dictated that they be used to infringe the claim. The Accused OnePlus IMU Products’ IMU is infringing when customers operate the Accused OnePlus IMU Products. OnePlus actively induced customers and end-users to directly infringe each and every claim limitation of at least claim 1 of the ’758 Patent under 35 U.S.C. § 271(b).

292. In the alternative, OnePlus induced infringement of claim 1 of the ’758 Patent by end users including by distributing the Accused OnePlus IMU Products that practice the claimed process in ordinary use.

293. The Accused OnePlus IMU Products’ IMU is active, at least some of the time, whenever OnePlus or its customers operate the Accused OnePlus IMU Products.

294. OnePlus has had knowledge of the ’758 Patent since April 13, 2015 and AGNC’s allegations of how the Accused OnePlus IMU Products infringe claim 1 of the ’758 Patent since at least March 2, 2016.

295. OnePlus has knowingly induced its customers and/or end users to directly infringe at least claim 1 of the ’758 Patent with the specific intent to encourage such infringement, and knowing that the acts induced constitute patent infringement. OnePlus’ inducement includes, for example, encouraging customers to turn on and use the Accused OnePlus IMU Products by providing technical guides, product data sheets, demonstrations, software and hardware

specifications, installation guides, and other forms of support that induce its customers and/or end users to directly infringe at least claim 1 of the ’758 Patent by using the Accused OnePlus IMU Products’ IMU.

WILLFUL INFRINGEMENT

296. OnePlus has infringed the above identified claims of each of the ’122, ’648, and ’758 Patents despite its knowledge of the Patents-in-Suit, knowledge of how its accused products infringe the Patents-in-Suit as described herein and as reflected in the correspondence and the objectively high likelihood that its actions constitute patent infringement.

297. OnePlus’ infringement of the Patents-in-Suit was willful and deliberate, entitling AGNC to enhanced damages under 35 U.S.C. §284 and to attorneys’ fees and costs incurred in prosecuting this action under 35 U.S.C. §285.

298. STMicro has infringed the above identified claims of each of the ’555 and ’758 Patents despite its knowledge of the Patents-in-Suitand the objectively high likelihood that its actions constitute patent infringement.

299. STMicro’s infringement of the ’555 and ’758 Patents was willful and deliberate, entitling AGNC to enhanced damages under 35 U.S.C. §284 and to attorneys’ fees and costs incurred in prosecuting this action under 35 U.S.C. §285.

JURY DEMAND

AGNC demands a trial by jury on all issues that may be so tried.

REQUEST FOR RELIEF

WHEREFORE, Plaintiff AGNC requests that this Court enter judgment in its favor and against Defendants OnePlus Technology (Shenzhen) Co., Ltd and STMicroelectronics NV and STMicroelectronics S.R.L. as follows:

A. Adjudging, finding, and declaring that Defendants have infringed the above-identified claims of each of the Patents-in-Suit under 35 U.S.C. § 271;

B. Awarding the past damages arising out of Defendants' infringement of the Patents-in-Suit to AGNC in an amount no less than a reasonable royalty, together with prejudgment and post-judgment interest, in an amount according to proof;

C. Adjudging, finding, and declaring that Defendants' infringement was willful and awarding enhanced damages and fees as a result of that willfulness under 35 U.S.C. § 284;

D. Adjudging, finding, and declaring that the Patents-in-Suit are valid and enforceable;

E. Awarding attorney's fees, costs, or other damages pursuant to 35 U.S.C. §§ 284 or 285 or as otherwise permitted by law; and

F. Granting AGNC such other further relief as is just and proper, or as the Court deems appropriate.

Dated: March 4, 2020

Respectfully submitted,

/s/*Alison A. Richards*

Alison Aubry Richards
IL Bar # 6285669 *(also admitted in WD Texas)*
arichards@giplg.com
Global IP Law Group, LLC
55 West Monroe Street
Suite 3400
Chicago, IL 60603
T: (312) 241-1500
F: (312) 241-1522

Attorneys for Plaintiff American GNC Corporation

IPR2024-00667
AGNC EX2012