

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

IN RE: NEUROGRAFIX ('360) PATENT
LITIGATION

MDL No. 13-md-2432-RGS

**SUPPLEMENTAL COMPLAINT FOR PATENT
INFRINGEMENT AND DEMAND FOR JURY TRIAL**

Plaintiffs NeuroGrafix, Neurography Institute Medical Associates, Inc. ("NIMA"), and Image-Based Surgicenter Corporation ("IBSC") (collectively, "Plaintiffs") allege as follows:

1. This case is an action for patent infringement of United States Patent No. 5,560,360 (the "'360 Patent") under the Patent Laws of the United States, as set forth in 35 U.S.C. §§271 and 280 through 285.

PARTIES

2. Plaintiff NeuroGrafix is a California corporation with its principal place of business located at 2716 Ocean Park Boulevard, Suite 3075, Santa Monica, California.

3. Plaintiff Neurography Institute Medical Associates, Inc. ("NIMA") is a California corporation with its principal place of business in Santa Monica, California.

4. Plaintiff Image-Based Surgicenter Corporation ("IBSC") is a California corporation with its principal place of business in Santa Monica, California.

5. Plaintiff, Dr. Aaron G. Filler ("Dr. Filler") is an inventor and owner of U.S. Patent No. 5,560,360.

6. On information and belief, defendant Philips Electronics North America Corporation d/b/a Philips Medical Systems North America ("Philips NA") is a Delaware corporation with its principal place of business located at 3000 Minuteman Road, Andover, Massachusetts 01810.

7. On information and belief, defendant Invivo Corporation (“Invivo”) is a Delaware corporation with its principal place of business at 3545 SW 47th Avenue, Gainesville, Florida 32608, and which operates nationwide, including in this District.

8. On information and belief, defendant Philips Medical Systems Nederland B.V. (“Philips Medical”) is a Dutch corporation with its principal place of business at Building QV-282, P.O. Box 10000, 5680 DA Best, The Netherlands, and which markets and promotes its products in the United States, including in this District.

9. On information and belief, defendant Koninklijke Philips Electronics N.V. (“Royal Philips”) is a Netherlands company with its principal place of business at Breitner Center, Amstelplein 2, 1096 BC Amsterdam, The Netherlands, and which markets and promotes its products in the United States, including in this District.

10. On information and belief, defendant Philips Healthcare Informatics, Inc. (“Philips Healthcare”) is a Delaware corporation with its principal place of business at 3000 Minuteman Road, Andover, Massachusetts 01810. Philips Healthcare has appointed Corporation Service Company, 84 State Street, Boston, Massachusetts 02109, as its agent for service of process.

11. Philips NA, Invivo, Royal Philips and Philips Healthcare are collectively referred to as “Philip Defendants.”

12. On information and belief, defendant The Johns Hopkins University is a Maryland corporation with its principal place of business located at Charles & 34th Street, Baltimore, MD 21218.

13. On information and belief, defendant The Johns Hopkins Hospital is a Maryland corporation with its principal place of business located at 600 North Wolfe Street, Baltimore, MD 21205.

14. The John Hopkins University and The Johns Hopkins Hospital are collectively referred to as “John Hopkins Defendants.” On information and belief, the John Hopkins Defendants collectively work together to offer the infringing products and services described below.

15. On information and belief, defendant Trustees of Boston University is a Massachusetts corporation with its principal place of business located at One Silber Way, Boston, MA 02215.

16. On information and belief, defendant Boston Medical Center Corporation is a Massachusetts corporation with its principal place of business located at 1 Boston Medical Center Pl., Boston, MA 02118.

17. On information and belief, defendant Boston University Affiliated Physicians, Inc. is a Massachusetts corporation with its principal place of business located at 660 Harrison Ave., Suite 306, Boston, MA 02118.

18. On information and belief, defendant Boston University Medical Center Radiologists, Inc is a Massachusetts corporation with its principal place of business located at 88 East Newton St., Boston, MA 02118.

19. Trustees of Boston University, Boston Medical Center Corporation, Boston University Affiliated Physicians, Inc. and Boston University Medical Center Radiologists, Inc. are collectively referred to as “Boston University Defendants.” On information and belief, the Boston University Defendants collectively work together to offer the infringing products and

services, described below, at the medical facilities affiliated with and/or operated by Boston University.

20. On information and belief, defendant Beth Israel Deaconess Medical Center, Inc. is a Massachusetts corporation with its principal place of business located at 330 Brookline Avenue, Boston, MA 02105.

21. On information and belief, defendant Harvard Medical Faculty Physicians at Beth Israel Deaconess Medical Center, Inc. is a Massachusetts corporation with its principal place of business located at 375 Longwood Ave., 3rd Floor, Boston, MA 02215 which employs physicians who engage in actions that infringe the '360 Patent.

22. On information and belief, defendant Beth Israel Deaconess Physicians Organization, LLC is a Massachusetts limited liability company with its principal place of business located at 400 Blue Hill Drive, Suite 2B, Westwood, MA 02090 which employs physicians who engage in actions that infringe the '360 Patent.

23. On information and belief, defendant Caregroup, Inc. is a Massachusetts corporation with its principal place of business located at 109 Brookline Ave., Suite 300, Boston, MA 02215, which owns or directs activities at hospitals with MRI equipment including Beth Israel Deaconess Medical Center, Beth Israel Deaconess Hospital-Needham, Beth Israel Deaconess Hospital-Milton, Mount Auburn Hospital and New England Baptist Hospital that infringe the '360 Patent.

24. On information and belief, defendant Beth Israel Deaconess Medical Center and Children's Hospital Medical Care Corporation is a Massachusetts corporation with its principal place of business located at 482 Bedford Street, Lexington, MA 02173.

25. On information and belief, defendant President and Fellows of Harvard College is a Massachusetts corporation with its principal place of business located at Massachusetts Hall, Cambridge, MA 02138. This corporation receives grants owns equipment and/or employs physicians and scientists who carry out data analysis and who operate MRI equipment in ways which infringe the '360 Patent. at Beth Israel Deaconess/Children's Hospital and other CareGroup, Inc hospitals.

26. Beth Israel Deaconess Medical Center, Inc, Harvard Medical Faculty Physicians at Beth Israel Deaconess Medical Center, Inc., Beth Israel Deaconess Physicians Organization, LLC, Caregroup, Inc., Beth Israel Deaconess Medical Center and Children's Hospital Medical Care Corporation and President and Fellows of Harvard College are collectively referred to as "Beth Israel Defendants." On information and belief, the Beth Israel Defendants collectively work together to offer the infringing products and services, described below, at Beth Israel Deaconess Medical Center and other related or affiliated facilities.

27. On information and belief, defendant The Brigham and Women's Hospital Inc. is a Massachusetts corporation with its principal place of business located at 75 Francis St., Boston, Massachusetts where it owns and operates hospitals including MRI equipment. Among the equipment and software owned, there is included equipment and software whose only purpose is to carry out diffusion anisotropy MRI scanning and/or to analyze diffusion anisotropy data for the purpose of preparing tractographic images.

28. On information and belief, defendant Brigham And Women's Physicians Organization, Inc. is a Massachusetts corporation with its principal place of business located at 75 Francis St., Boston, MA 02115 where it provides physician services to the Brigham and Woman's Hospital including radiological services such as prescribing and interpreting MRI

scans as well as performing analysis on data from diffusion anisotropy MRI scanning and processing such data and generating tractographic representations of neural tracts among other tasks that infringe upon the '360 Patent.

29. On information and belief, defendant Partners Healthcare System, Inc. (formerly known as MGH/Brigham Health Care System, Inc.) is a Massachusetts corporation with its principal place of business located at 800 Boylston St., Suite 1150, Boston, MA 02199. It owns, or directs activities at, and/or operates several hospitals including Brigham and Woman's Hospital, Inc; Massachusetts General Hospital, Faulkner Hospital, Martha's Vineyard Hospital, McLean Hospital, Newton Wellesley Hospital, North Shore Medical Center where equipment is owned whose sole purpose is for the collection and analysis MRI data which infringes upon the '360 Patent. In addition, it owns Partners Community Healthcare Inc, a management services organization for the Partner's Hospitals, which on information and belief employs technologists or arranges for contracting for services and sells such services and products that infringe upon the '360 Patent.

30. On information and belief, defendant President and Fellows of Harvard College is a Massachusetts corporation with its principal place of business located at Massachusetts Hall, Cambridge, MA 02138. This corporation receives, grants or owns equipment and/or employs physicians and scientists who carry out data analysis and who operate MRI equipment in ways which infringe the '360 Patent.

31. The Brigham and Women's Hospital Inc., Brigham And Women's Physicians Organization, Inc., Partners Healthcare System, Inc., and President and Fellows of Harvard College are collectively referred to as "Brigham Defendants." On information and belief, the

Brigham Defendants collectively work together to offer the infringing products and services, described below, at Brigham and Woman's Hospital and other related or affiliated facilities.

32. On information and belief, defendant Trustees of Tufts College is a Massachusetts corporation with its principal place of business located at Tufts College, Medford, MA 02155.

33. On information and belief, defendant Tufts Medical Center, Inc aka Tufts Shared Services, Inc. is a Massachusetts corporation with its principal place of business located at 800 Washington Street, Boston, MA 02111.

34. On information and belief, defendant Tufts Medical Center Physicians Organization, Inc. is a Massachusetts corporation with its principal place of business located at 800 Washington St., Box 1013, Boston, MA 02111.

35. Trustees of Tufts College, Tufts Medical Center Physicians Organization, Tufts Shared Services, Inc and Tufts Medical Center are collectively referred to as "Tufts Defendants." On information and belief, the Tufts Defendants collectively work together to offer the infringing products and services, described below, at the medical facilities affiliated with and/or operated by them.

36. On information and belief, Defendant Brainlab, Inc. is a Delaware corporation with its principal place of business located at 3 Westbrook Corporate Center, Suite 400, Westchester, Illinois 60154.

37. On information and belief, Defendant Brainlab AG is a German corporation with its principal place of business at Kapellenstraße 12, 85622 Feldkirchen, Germany that markets and promotes its products in the United States, including in this District.

38. On information and belief, Defendant Brainlab Medizinische Computersysteme GmbH is a German corporation with its principal place of business at Kapellenstraße 12, 85622

Feldkirchen, Germany that markets and promotes its products in the United States, including in this District.

39. Brainlab, Inc., Brainlab AG, and Brainlab Medizinische Computersysteme GmbH are collectively referred to as “Brainlab Defendants.”

40. On information and belief, Defendant The University of Chicago Medical Center is an Illinois corporation with its principal place of business located at 5841 S. Maryland Avenue, Chicago, Illinois 60637.

41. On information and belief, Defendant The University of Chicago is an Illinois corporation with its principal place of business located at 5801 S. Ellis Avenue, Chicago, Illinois 60637.

42. The University of Chicago Medical Center and The University of Chicago are collectively referred to as “University of Chicago Defendants.” On information and belief, the University of Chicago Defendants collectively work together to offer the infringing products and services, described below, at the medical facilities affiliated with and/or operated by The University of Chicago.

43. On information and belief, defendant The Trustees of Columbia University in the City of New York (“Columbia”) is a New York non-profit educational corporation with its principal place of business located at 535 West 116th Street, New York, New York, 10027.

JURISDICTION AND VENUE

44. This Court has federal subject matter jurisdiction over this action under 28 U.S.C. §§1331, 1332(a)(1), 1332(c)(1) and 1338(a).

45. Venue is proper in this Court pursuant to 28 U.S.C. §§1391(a), 1391(c), and 1400(b), and because Defendants have successfully sought transference to this District for pretrial purposes pursuant to 28 U.S.C. § 1407.

BACKGROUND

46. The University of Washington, a public institution of higher education in the state of Washington, was the owner by assignment of the '360 Patent entitled "Image Neurography and Diffusion Anisotropy Imaging." The '360 Patent issued on October 1, 1999. A true and correct copy of the '360 patent is attached as Exhibit A.

47. Washington Research Foundation ("WRF"), a not-for-profit corporation incorporated and existing under the laws of the State of Washington, had substantially all rights in the '360 patent since March 23, 1994. On December 17, 2013, the University of Washington assigned its ownership in the '360 patent to WRF.

48. On December 27, 2013, WRF assigned its ownership in the '360 patent to NeuroGrafix.

49. On December 27, 2013, NeuroGrafix assigned its ownership in the '360 patent to Dr. Filler.

50. On December 27, 2013, Dr. Filler and NeuroGrafix entered into a Non-Terminable Exclusive License Agreement in which Dr. Filler granted an exclusive license in the '360 patent to NeuroGrafix.

51. On June 15, 2012, WRF and NeuroGrafix entered into an Amended and Restated Non-Terminable Exclusive License Agreement in which WRF granted NeuroGrafix an exclusive license to substantially all rights in the '360 patent and retained no reversionary rights to the '360 patent.

52. On September 14, 2011, NeuroGrafix and NIMA entered into an amended license agreement in which NIMA received the exclusive right to practice the '360 patent in all fields of use, but granted back to NeuroGrafix an exclusive license to practice the '360 patent in the field of use of non-human, non-surgical medicine. On September 14, 2011, NIMA and IBSC entered into an exclusive license agreement in which NIMA granted to IBSC an exclusive license to practice the '360 patent in the field of human, surgical medicine. Accordingly, NeuroGrafix has an exclusive license to the '360 patent in the field of use of non-human, non-surgical medicine, IBSC has an exclusive license in the field of use of human, surgical medicine, and NIMA has an exclusive license in the field of use of human, nonsurgical medicine

53. Aaron G. Filler, Jay S. Tsurda, Todd L. Richards, and Franklyn A. Howe are listed as the inventors of the '360 patent.

54. NeuroGrafix, NIMA and IBSC have been investing in and practicing the technology disclosed in the '360 patent since at least 2000.

55. In 2004, the Philip Defendants collaborated with Dr. Filler (and a related DBA, Institute for Nerve Medicine Medical Associates Inc. ("INM")) on a video advertisement touting Plaintiffs' technology as the "absolute cutting edge" for the diagnosis and treatment of nerve conditions. The advertisement explained that "INM applies advanced technology found nowhere else in the world to successfully diagnose and treat spinal and nerve problems. The key to INM's success is their revolutionary use of MRI neurography . . . pioneered by Dr. Aaron Filler." The advertisement promoted Plaintiffs' use of Philips equipment to perform methods claimed in the '360 patent – "with Philips Medical Systems panorama IT Open MR Technology [Dr. Filler] can actually view the anatomy in real time while performing surgical procedures."

56. That same year, NeuroGrafix shared its business plan with Philips NA. Among other things, NeuroGrafix's business plan discloses the '360 patent and how NeuroGrafix practices the '360 patent.

57. In addition, the Philip Defendants have been aware of the '360 patent because the '360 patent was cited during the prosecution of the Philip Defendants' patents, including United States Patent No. 6,642,716 (the "'716 Patent'"), United States Patent No. 6,724,190 (the "'190 Patent'") and United States Patent No. 6,806,705 (the "'705 Patent'"). In fact, the '360 patent was a key reference used by the examiners in an Office Action sent in 2003 by the examiners of the applications that became the '705 and '190 Patents. The responses to these Office Actions contain considerable analysis of the '360 patent.

58. The John Hopkins Defendants have known about the '360 patent since, on information and belief, at least 2001. In 2003, the John Hopkins Defendants were granted U.S. Patent No. 6,526,305 (the "'305 patent'"), entitled "Method of Fiber Reconstruction Employing Data Acquired By Magnetic Resonance Imaging." During the prosecution of the '305 patent, according to the face of the patent, the examiner cited the '360 patent as prior art. The only office action mailed by the examiner during the prosecution of the '305 Patent was mailed on September 25, 2001.

59. On information and belief, the John Hopkins Defendants were aware of the '360 patent well before 2001. In or around 1996, a faculty member of the John Hopkins Defendants contacted Dr. Filler to express interest in Magnetic Resonance Neurography. During the following years, including after the formation of NeuroGrafix and NIMA, additional contacts took place in which faculty members of the John Hopkins Defendants expressed interest in providing high quality neurography services for its patients.

60. Additionally, in December of 2009, NeuroGrafix wrote to the John Hopkins Defendants to inform them of their infringement of the '360 patent and to inquire as to whether the John Hopkins Defendants were interested in negotiating a license. NeuroGrafix received a letter from counsel for the John Hopkins Defendants indicating that they would investigate and respond, but no further correspondence was received.

61. The John Hopkins Defendants were therefore aware of the '360 patent since at least as early as 2001 and likely were aware of the '360 patent well before that.

62. The Brigham Defendants became aware of the '360 patent at least as early as December 18, 2009. On December 18, 2009, Dr. Filler sent an email to Dr. Gary L. Gottlieb and Dr. Elizabeth G. Nabel, as the current and future presidents of The Brigham and Women's Hospital that the Brigham Defendants infringed the '360 patent and offering to discuss licensing the '360 patent.

63. The Brainlab Defendants became aware of the '360 patent at least as early as May 2009. In May 2009, Dr. Filler sent an email to the Brainlab Defendants informing them that they infringe the '360 patent and offered to discuss licensing of the '360 patent. The Brainlab Defendants declined to discuss licensing of the '360 patent. In spite of their awareness of their infringement, Defendants continue to make, use, sell, offer to sell and/or import, without authority, infringing products. *See, e.g.*, <http://www.brainlab.com/art/2827/4/fibertracking-and-functional-software/>; <http://www.brainlab.com/art/2844/4/intra-operative-mri/>.

COUNT I
PATENT INFRINGEMENT

64. Plaintiffs repeat and reallege the allegations contained in paragraphs 1 through 60 above, inclusive, as if fully repeated and restated herein.

65. The Philips Defendants have been and still are directly (literally and under the doctrine of equivalents) infringing at least claims 1, 36, 51 and 54 of the '360 patent by making, using, selling, offering to sell, or importing, without license or authority, products and services, including without limitation, the performance of and provision of equipment and methods for peripheral nerve MR Neurography, DTI and diffusion anisotropy based tractography. Such products include the Philips Achieva 3.0T, Philips Achieva 1.5T, Philips Intera 1.5T, Philips Intera 3.0T and Philips Eclipse 1.5T and related workstations and software, such as Fibertrak, PRIDE and InVivo software. Thus, by making, using, importing, offering for sale, and/or selling such products and software, the Philips Defendants have injured Plaintiffs and are thus liable to Plaintiffs for infringement of the '360 Patent under 35 U.S.C. § 271(a).

66. The Philips Defendants have also been and still are indirectly infringing, by way of inducing infringement by others of the '360 patent, by, among other things, making, using, importing, offering for sale, and/or selling, without license or authority, products and services, including without limitation, the performance of and provision of equipment and methods for peripheral nerve MR Neurography, DIT and diffusion anisotropy based tractography that induce others to infringe at least claims 1, 36, 51 and 54 of the '360 Patent. Such products include the Philips Achieva 3.0T, Philips Achieva 1.5T, Philips Intera 1.5T, Philips Intera 3.0T and Philips Eclipse 1.5T and related workstations and software, such as Fibertrak, PRIDE and InVivo software. These products are used in infringing products and services made, used, imported, offered for sale, and/or sold by direct infringers of the '360 patent in the United States, such as hospitals, radiologists and others. The Philips Defendants induce their customers to directly infringe by inducing or encouraging the use of their products and software to perform MR Neurography, DIT and diffusion anisotropy based tractography. *See, e.g.,*

<http://incenter.medical.philips.com/Default.aspx?tabid=3655> (offering training courses in performing DTI). Since at least 2003, and likely earlier, the Philips Defendants have had knowledge of the '360 patent and, by continuing the actions described above, have had the specific intent to, or should have known that their actions would, induce infringement of the '360 patent. Thus, by making, using, importing, offering for sale, and/or selling such products and software, the Philips Defendants have injured Plaintiffs and are thus liable to Plaintiffs for infringement of the '360 patent under 35 U.S.C. § 271(b).

67. The Philips Defendants have also been and still are indirectly infringing, by way of contributing to the infringement by others of the '360 patent, by, among other things, making, using, importing, offering for sale, and/or selling, without license or authority, software for use in systems that thereby fall within the scope of at least claims 1, 36, 51 and 54 of the '360 patent. Such products include the Philips Achieva 3.0T, Philips Achieva 1.5T, Philips Intera 1.5T, Philips Intera 3.0T and Philips Eclipse 1.5T and related workstations and software, such as Fibertrak, PRIDE and InVivo software. These products are used in infringing products and services made, used, imported, offered for sale, and/or sold by direct infringers of the '360 patent in the United States, such as hospitals, radiologists and others. The Philips Defendants induce their customers to directly infringe by inducing or encouraging the use of their products and software to perform MR Neurography, DIT and diffusion anisotropy based tractography. *See, e.g.,* <http://incenter.medical.philips.com/Default.aspx?tabid=3655> (offering training courses in performing DTI). The Philips Defendants' accused products and software, are a material part of the invention, and are especially made or especially adapted for use in the infringement of '360 patent and are not a staple article or commodity of commerce suitable for substantial noninfringing uses. Since at least 2003, and likely earlier, the Philips Defendants have had

knowledge of the '360 patent and have had the specific knowledge that the combination of its software and computer systems described above infringe the '360 patent. Thus, by making, using, importing, offering for sale, and/or selling such products and software, the Philips Defendants have injured Plaintiffs and are thus liable to Plaintiffs for infringement of the '360 patent under 35 U.S.C. § 271(c).

68. As a result of the Philips Defendants' continuing use of the claimed invention after receiving notice of the '360 patent, the Philips Defendants are willfully infringing the '360 patent.

69. The John Hopkins Defendants have been and still are directly (literally and under the doctrine of equivalents) infringing at least claims 1 and 36 of the '360 patent by making, using, selling, offering to sell, or importing, without license or authority, products and services that include, without limitation, the performance of MR Neurography, DTI and diffusion anisotropy based tractography using non-Siemens equipment and software, and the John Hopkins Defendants' manufacture, use, sale, offer for sale or importation of the John Hopkins Defendants' DTI Studio and MRI Studio software products. Thus, by making, using, importing, offering for sale, and/or selling such products and software, the John Hopkins Defendants have injured Plaintiffs and are thus liable to Plaintiffs for infringement of the '360 patent under 35 U.S.C. § 271(a)

70. The John Hopkins Defendants have also been and still are indirectly infringing, by way of inducing infringement by others of the '360 patent, by, among other things, providing courses and seminars inducing others to infringe at least claims 1 and 36 of the '360 patent by performing, without license or authority, MR Neurography, DTI and diffusion anisotropy based tractography using non-Siemens equipment and software. Additionally, the John Hopkins

Defendants have also been and still are indirectly infringing, by way of inducing infringement by others of the '360 patent, by, among other things, manufacturing, using, selling, offering for sale or importing the John Hopkins Defendants' DTI Studio and MRI Studio software products that induce others to infringe at least claims 1 and 36 of the '360 patent. *See, e.g.*, <https://www.mristudio.org/>, http://www.hopkinsmedicine.org/psychiatry/research/neuroimaging/research_methods/diffusion_tensor.html, http://www.hopkinsortho.org/musculoskeletal_mri.html. The John Hopkins Defendants' courses, seminars and products induce direct infringement of at least claims 1 and 36 of the '360 patent by, for example, hospitals, radiologists, technologists and others. The John Hopkins Defendants induce their customers to directly infringe by inducing or encouraging the use of their products and software to perform MR Neurography, DTI and diffusion anisotropy based tractography. Since at least 2001, and likely earlier, the John Hopkins Defendants have had knowledge of the '360 patent and, by continuing the actions described above, have had the specific intent to, or should have known that their actions would, induce infringement of the '360 patent. Thus, by making, using, importing, offering for sale, and/or selling such products and software, the John Hopkins Defendants have injured Plaintiffs and are thus liable to Plaintiffs for infringement of the '360 patent under 35 U.S.C. § 271(b).

71. The John Hopkins Defendants have also been and still are indirectly infringing, by way of contributing to the infringement by others of the '360 patent, by, among other things, making, using, importing, offering for sale, and/or selling, without license or authority, products and services, including without limitation, the John Hopkins Defendants' manufacture, use, sale, offer for sale or importation of the John Hopkins Defendants' DTI Studio and MRI Studio software products. These products are used in infringing products and services made, used,

imported, offered for sale, and/or sold by direct infringers of the '360 patent in the United States, such as hospitals, radiologists and others. The John Hopkins Defendants induce their customers to directly infringe by inducing or encouraging the use of their products and software to perform MR Neurography, DTI and diffusion anisotropy based tractography. *See, e.g.*, <https://www.mristudio.org/>, http://www.hopkinsmedicine.org/psychiatry/research/neuroimaging/research_methods/diffusion_tensor.html, http://www.hopkinsortho.org/musculoskeletal_mri.html. The John Hopkins Defendants' accused products and software, are a material part of the invention, and are especially made or especially adapted for use in the infringement of '360 patent and are not a staple article or commodity of commerce suitable for substantial noninfringing uses. Since at least 2001, and likely earlier, the John Hopkins Defendants have had knowledge of the '360 patent and have had the specific knowledge that the combination of its software and computer systems described above infringe the '360 patent. Thus, by making, using, importing, offering for sale, and/or selling such products and software, the John Hopkins Defendants have injured Plaintiffs and are thus liable to Plaintiffs for infringement of the '360 patent under 35 U.S.C. § 271(c).

72. As a result of the John Hopkins Defendants' continuing use of the claimed invention after receiving notice of the '360 patent, Defendants are willfully infringing the '360 patent.

73. The Boston University Defendants have been and still are directly (literally and under the doctrine of equivalents) infringing at least claim 36 of the '360 patent by making, using, selling, offering to sell, or importing, without license or authority, products and services that include, without limitation, the performance of diffusion tensor imaging and diffusion

anisotropy based tractography. Thus, by making, using, importing, offering for sale, and/or selling such products and software, the Boston University Defendants have injured Plaintiffs and are thus liable to Plaintiffs for infringement of the '360 patent under 35 U.S.C. § 271(a).

74. To the extent that facts learned in discovery show that the Boston University Defendants' infringement of the '360 patent is or has been willful, Plaintiffs reserve the right to request such a finding at the time of trial.

75. The Beth Israel Defendants have been and still are directly (literally and under the doctrine of equivalents) infringing at least claim 36 of the '360 patent by making, using, selling, offering to sell, or importing, without license or authority, products and services that include, without limitation, the performance of diffusion tensor imaging and diffusion anisotropy based tractography. Thus, by making, using, importing, offering for sale, and/or selling such products and software, the Beth Israel Defendants have injured Plaintiffs and are thus liable to Plaintiffs for infringement of the '360 patent under 35 U.S.C. § 271(a).

76. To the extent that facts learned in discovery show that the Beth Israel Defendants' infringement of the '360 patent is or has been willful, Plaintiffs reserve the right to request such a finding at the time of trial.

77. The Brigham Defendants have been and still are directly (literally and under the doctrine of equivalents) infringing at least claim 36 of the '360 patent by making, using, selling, offering to sell, or importing, without license or authority, products and services that include, without limitation, the performance of diffusion tensor imaging ("DTI") and diffusion anisotropy based tractography and making, using, selling and offering for sale of Slicer and 3D Slicer. Thus, by making, using, importing, offering for sale, and/or selling such products and software,

Defendants have injured Plaintiffs and are thus liable to Plaintiffs for infringement of the '360 patent under 35 U.S.C. § 271(a).

78. The Brigham Defendants have also been and still are indirectly infringing, by way of inducing infringement by others of at least claim 36 of the '360 patent, by, among other things, making, using, importing, offering for sale, and/or selling, without license or authority, products and services that include, without limitation, the performance of DTI and diffusion anisotropy based tractography and making, using, selling and offering for sale of Slicer and 3D Slicer.

79. The Brigham Defendants' Slicer and 3D Slicer products are used in infringing products and services made, used, imported, offered for sale, and/or sold by direct infringers of the '360 patent in the United States, such as hospitals, radiologists and others. The Brigham Defendants induce their customers to directly infringe by inducing or encouraging the use of their products and software to perform DTI and diffusion anisotropy based tractography. *See, e.g.,* <http://www.slicer.org>, <http://www.slicer.org/slicerWiki/index.php/Documentation/4.0/Modules/TractographyDisplay>, <http://www.slicer.org/slicerWiki/index.php/Documentation/4.0/Modules/TractographyLabelMapSeeding>. Since at least December 2009, and likely earlier, the Brigham Defendants have had knowledge of the '360 patent and, by continuing the actions described above, have had the specific intent to, or should have known that their actions would, induce infringement of the '360 patent. Thus, by making, using, importing, offering for sale, and/or selling such products and software, the Brigham Defendants have injured Plaintiffs and are thus liable to Plaintiffs for infringement of the '360 patent under 35 U.S.C. § 271(b).

80. The Brigham Defendants have also been and still are indirectly infringing, by way of contributing to the infringement by others of claim 36 of the '360 patent, by, among other things, making, using, importing, offering for sale, and/or selling, without license or authority, products and services that include, without limitation, the performance of DTI and diffusion anisotropy based tractography and making, using, selling and offering for sale of Slicer and 3D Slicer. The Brigham Defendants' Slicer and 3D Slicer products are used in infringing products and services made, used, imported, offered for sale, and/or sold by direct infringers of the '360 patent in the United States, such as hospitals, radiologists and others. The Brigham Defendants induce their customers to directly infringe by inducing or encouraging the use of their products and software to perform DTI and diffusion anisotropy based tractography. *See, e.g.*, <http://www.slicer.org>, <http://www.slicer.org/slicerWiki/index.php/Documentation/4.0/Modules/TractographyDisplay>, <http://www.slicer.org/slicerWiki/index.php/Documentation/4.0/Modules/TractographyLabelMapSeeding>. The Brigham Defendants' accused products and software, are a material part of the invention, and are especially made or especially adapted for use in the infringement of '360 patent and are not a staple article or commodity of commerce suitable for substantial noninfringing uses. Since at least December 2009, and likely earlier, the Brigham Defendants have had knowledge of the '360 patent and have had the specific knowledge that the combination of its software and computer systems described above infringe the '360 patent. Thus, by making, using, importing, offering for sale, and/or selling such products and software, the Brigham Defendants have injured Plaintiffs and are thus liable to Plaintiffs for infringement of the '360 patent under 35 U.S.C. § 271(c).

81. As a result of the Brigham Defendants' continuing use of the claimed invention after receiving notice of the '360 patent, the Brigham Defendants are willfully infringing the '360 patent.

82. The Tufts Defendants have been and still are directly (literally and under the doctrine of equivalents) infringing at least claim 36 of the '360 patent by making, using, selling, offering to sell, or importing, without license or authority, products and services that include, without limitation, the performance of diffusion tensor imaging and diffusion anisotropy based tractography. Thus, by making, using, importing, offering for sale, and/or selling such products and software, the Tufts Defendants have injured Plaintiffs and are thus liable to Plaintiffs for infringement of the '360 patent under 35 U.S.C. § 271(a).

83. To the extent that facts learned in discovery show that the Tufts Defendants' infringement of the '360 patent Patent is or has been willful, Plaintiffs reserve the right to request such a finding at the time of trial.

84. The Brainlab Defendants have been and still are directly (literally and under the doctrine of equivalents) infringing at least claim 36 of the '360 patent by making, using, selling, offering to sell, or importing, without license or authority, products and services, including without limitation, the performance of and provision of equipment and methods for DTI and diffusion anisotropy based tractography. Such products include the Brainlab Defendants' Brainsuite iMRI and related software, such as iPlan Fibertracking software. Thus, by making, using, importing, offering for sale, and/or selling such products and software, the Brainlab Defendants have injured Plaintiffs and are thus liable to Plaintiffs for infringement of the '360 patent under 35 U.S.C. § 271(a).

85. The Brainlab Defendants have also been and still are indirectly infringing, by way of inducing infringement by others of the '360 patent, by, among other things, making, using, importing, offering for sale, and/or selling, without license or authority, products and services, including without limitation, the performance of and provision of equipment and methods for DTI and diffusion anisotropy based tractography that induce others to infringe at least claim 36 of the '360 patent. Such products include the Brainlab Defendants' Brainsuite iMRI and related software, such as iPlan Fibertracking and BOLD MRI Mapping software, iPlan RT, iPlan Flow, iPlan Neuroradiology, and courses taught at the Brainlab Defendants' Academy. These products are used in infringing products and services made, used, imported, offered for sale, and/or sold by direct infringers of the '360 patent in the United States, such as hospitals, radiologists and others. The Brainlab Defendants induce their customers to directly infringe by inducing or encouraging the use of their products and software to perform DTI and diffusion anisotropy based tractography. *See, e.g.*, <http://www.brainlab.com/art/2827/4/fibertracking-and-functional-software/>; <http://www.brainlab.com/art/2844/4/intra-operative-mri/>. Since at least May 2009, and likely earlier, the Brainlab Defendants have had knowledge of the '360 patent and, by continuing the actions described above, have had the specific intent to, or should have known that their actions would, induce infringement of the '360 patent. Thus, by making, using, importing, offering for sale, and/or selling such products and software, the Brainlab Defendants have injured Plaintiffs and are thus liable to Plaintiffs for infringement of the '360 patent under 35 U.S.C. § 271(b).

86. The Brainlab Defendants have also been and still are indirectly infringing, by way of contributing to the infringement by others of the '360 patent, by, among other things, making, using, importing, offering for sale, and/or selling, without license or authority, software for use

in systems that thereby fall within the scope of at least claim 36 of the '360 patent. Such products include the Brainlab Defendants' Brainsuite iMRI and related software, such as iPlan Fibertracking and BOLD MRI Mapping software iPlan RT, iPlan Flow, iPlan Neuroradiology, and courses taught at the Brainlab Defendants' Academy. These products are used in infringing products and services made, used, imported, offered for sale, and/or sold by direct infringers of the '360 patent in the United States, such as hospitals, radiologists and others. The Brainlab Defendants induce their customers to directly infringe by inducing or encouraging the use of their products and software to perform DTI and diffusion anisotropy based tractography. *See, e.g.*, <http://www.brainlab.com/art/2827/4/fibertracking-and-functional-software/>; <http://www.brainlab.com/art/2844/4/intra-operative-mri/>. The Brainlab Defendants' accused products and software, are a material part of the invention, and are especially made or especially adapted for use in the infringement of '360 patent and are not a staple article or commodity of commerce suitable for substantial noninfringing uses. Since at least May 2009, and likely earlier, the Brainlab Defendants have had knowledge of the '360 patent and have had the specific knowledge that the combination of its software and computer systems described above infringe the '360 patent. Thus, by making, using, importing, offering for sale, and/or selling such products and software, the Brainlab Defendants have injured Plaintiffs and are thus liable to Plaintiffs for infringement of the '360 patent under 35 U.S.C. § 271(c).

87. As a result of the Brainlab Defendants' continuing use of the claimed invention after receiving notice of the '360 patent, the Brainlab Defendants are willfully infringing the '360 patent.

88. The University of Chicago Defendants have been and still are directly (literally and under the doctrine of equivalents) infringing at least claim 36 of the '360 patent by making,

using, selling, offering to sell, or importing, without license or authority, products and services that include, without limitation, the performance of DTI and diffusion anisotropy based tractography. Thus, by making, using, importing, offering for sale, and/or selling such products and software, the University of Chicago Defendants have injured Plaintiffs and are thus liable to Plaintiffs for infringement of the '360 patent under 35 U.S.C. § 271(a).

89. To the extent that facts learned in discovery show that the University of Chicago Defendants' infringement of the '360 patent is or has been willful, Plaintiffs reserve the right to request such a finding at the time of trial.

90. Defendant Columbia has been and still is directly (literally and under the doctrine of equivalents) infringing at least claim 36 of the '360 patent by making, using, selling, offering to sell, or importing, without license or authority, products and services that include, without limitation, the performance of diffusion tensor imaging and diffusion anisotropy based tractography. Thus, by making, using, importing, offering for sale, and/or selling such products and software, Defendant Columbia has injured Plaintiffs and are thus liable to Plaintiffs for infringement of the '360 patent under 35 U.S.C. § 271(a).

91. To the extent that facts learned in discovery show that Defendant Columbia's infringement of the '360 patent is or has been willful, Plaintiffs reserve the right to request such a finding at the time of trial.

92. As a result of Defendants' infringement of the '360 patent, Plaintiffs have suffered monetary damages in an amount not yet determined, and will continue to suffer damages in the future unless Defendants' infringing activities are enjoined by this Court.

93. Defendants' wrongful acts have damaged and will continue to damage Plaintiffs irreparably, and Plaintiffs have no adequate remedy at law for those wrongs and injuries. In

addition to their actual damages, Plaintiffs are entitled to a preliminary and permanent injunction restraining and enjoining Defendants and their agents, servants and employees, and all persons acting thereunder, in concert with, or on their behalf, from infringing the '360 patent.

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs respectfully request that this Court enter:

1. A judgment in favor of Plaintiffs that Defendants have infringed, directly and/or indirectly, by way of inducing and/or contributing to the infringement of the "'360 patent;
2. An injunction enjoining Defendants and their officers, directors, agents, servants, affiliates, employees, divisions, branches, subsidiaries, parents, and all others acting in concert or privity with any of them from infringing, inducing the infringement of, or contributing to the infringement of the '360 patent;
3. A judgment and order requiring Defendants to pay Plaintiffs their damages, costs, expenses, and prejudgment and post-judgment interest for Defendants' infringement of the '360 Patent as provided under 35 U.S.C. § 284;
4. An award to Plaintiffs for enhanced damages, as provided under 35 U.S.C. § 284, resulting from the knowing, deliberate, and willful nature of Defendants' prohibited conduct;
5. A judgment and order finding that this is an exceptional case within the meaning of 35 U.S.C. § 285 and awarding to Plaintiffs their reasonable attorneys' fees; and
6. Any and all other relief to which Plaintiffs may show themselves to be entitled.

JURY TRIAL DEMANDED

Plaintiffs hereby demand a trial by jury of all issues so triable.

Dated: December 27, 2013

Respectfully submitted,

PLAINTIFFS NEUROGRAFIX, NEUROGRAPHY
INSTITUTE MEDICAL ASSOCIATES, INC., and

IMAGE-BASED SURGICENTER CORPORATION

By their attorneys,

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