

video games. On June 3, 2014, Terminal Reality granted Infernal Technology an exclusive license to a number of patents, including the Asserted Patents as defined below, and the exclusive right to enforce same. On June 12, 2015, Terminal Reality and Infernal Technology entered into another Exclusive License Agreement and Exclusive Right to Enforce (the “2015 Exclusive License Agreement”). The 2015 Exclusive License Agreement also granted Infernal Technology an exclusive license to the Asserted Patents and the exclusive right to enforce those patents. The 2015 Exclusive License Agreement, however, did not grant Infernal Technology the right to practice in inventions of the Asserted Patents. On May 20, 2020, Terminal Reality and Infernal Technology entered into an agreement entitled “Clarification of Exclusive License Agreement and Exclusive Right to Enforce” clarifying that the 2015 Exclusive License Agreement did not grant Infernal Technology the right to practice in inventions of the Asserted Patents. Infernal Technology and Terminal Reality are collectively referred to herein as “Plaintiffs.”

3. Defendant Ubisoft, Inc. is a corporation organized and existing under the laws of the State of California, with its principal place of business located at 625 3rd Street, San Francisco, California 94107. Ubisoft, Inc. may be served with process through its registered agent Stephen Smith at the Law Office of Stephen S. Smith, PC, 30700 Russell Rand Road, Suite 250, Westlake Village, California 94107.

4. Defendant Ubisoft Entertainment SA is a company organized and existing under the laws of the Country of France, with its principal place of business located at 28, rue Armand Carrel 93108 Montreuil-sous-Bois Cedex, France. Ubisoft Entertainment SA may be served with process through its registered office 107, avenue Henri Fréville 35207 Rennes Cedex 2, France.

JURISDICTION AND VENUE

5. This is an action for patent infringement arising under the patent laws of the United States of America, Title 35, United States Code. This Court has original jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

6. Defendant Ubisoft, Inc. is subject to this Court’s specific personal jurisdiction because of its continuous business contacts in the State of North Carolina and in this District,

including committing acts of patent infringement within the State of North Carolina and this District, as alleged below.

7. North Carolina's long-arm statute states, in pertinent part, that a court may exercise jurisdiction over a party if it "[i]s engaged in substantial activity within this State, whether such activity is wholly interstate, intrastate, or otherwise." N.C.G.S. § 1-75.4(1)(d) (2017). This statute is intended to make available to the North Carolina courts the full jurisdictional powers permissible under federal due process.

8. Defendant Ubisoft, Inc., has purposefully directed its business activities to this State and this District. Ubisoft, Inc., has directly or through intermediaries (including distributors, retailers, and others) shipped, distributed, offered for sale, sold, and advertised its products infringing the asserted patents, as described below, in the United States, the State of North Carolina and this District. In addition, Ubisoft, Inc., has designated an agent for service of process in the State of North Carolina. Therefore, this Court has personal jurisdiction over the Defendant.

9. As alleged above, defendant Ubisoft Entertainment SA is a company organized and existing under the laws of the Country of France. The Court has personal jurisdiction over Ubisoft Entertainment SA under Federal Rules of Civil Procedure 4(k)(2). Rule 4(k)(2) states, in relevant part: "For a claim that arises under federal law, serving a summons ... establishes personal jurisdiction over a defendant if: (A) the defendant is not subject to jurisdiction in any state's courts of general jurisdiction; and (B) exercising jurisdiction is consistent with the United States Constitution and laws." FED. R. CIV. P. 4(k)(2). Thus, for a court to exercise personal jurisdiction over a defendant under Rule 4(k)(2): (1) the plaintiff's claim must arise under federal law; (2) the defendant must not be subject to jurisdiction in any state's courts of general jurisdiction; and (3) exercise of jurisdiction must comport with due process."

10. Defendant Ubisoft Entertainment SA has been selling, offering to sell and using the Accused Instrumentalities in the United States, constituting infringement of the patents asserted in this case. Ubisoft Entertainment SA has also been importing into the United States the Accused Games, also constituting infringement of the patents asserted in this case. Ubisoft Entertainment

SA has made its Accused Games available for sale in the United States through established distribution channels by placing Accused Games into the stream of commerce with the expectation that they would be purchased in the United States through retail outlets. Ubisoft Entertainment SA has imported the Accused Games into the United States so that they could be sold in the United States through these distribution channels. Ubisoft Entertainment SA has directed substantial marketing and promotion efforts and activities to persons in the United States to induce them to purchase and use the Accused Games. Ubisoft Entertainment SA has demonstrated the Accused Games in the United States. Ubisoft Entertainment SA, therefore, consistently directed substantial infringing business activities at the United States.

11. Upon information and belief, Ubisoft Entertainment SA has annual revenues in over a billion of dollars. Thus, the burden on Ubisoft Entertainment SA to defend this lawsuit in this district is not significant. Indeed, Ubisoft Entertainment SA has prosecuted substantial litigation in federal court in North Carolina and California for the last several years. Any burden on Ubisoft Entertainment SA is substantially outweighed by the interest of the United States in adjudicating the dispute and the interest of Terminal Reality and Infernal Technology, United States companies enforcing United States patent rights, in obtaining effective and convenient relief. Terminal Reality and Infernal Technology have a paramount interest in obtaining convenient and effective relief in a United States court.

12. Therefore, Rule 4(k)(2) of the Federal Rules of Civil Procedure, Ubisoft Entertainment SA is subject to this Court's specific personal jurisdiction.

13. Plaintiff Ubisoft Entertainment SA is a French company with its principal place of business in France. Ubisoft Entertainment SA, as a foreign corporation, is subject to suit in any judicial district.

THE PATENTS-IN-SUIT

14. On March 26, 2002 the United States Patent and Trademark Office issued United States Patent No. 6,362,822 (the "'822 Patent") entitled "Lighting and Shadowing Methods and

Arrangements for use in Computer Graphic Simulations,” a true copy of which is attached as Exhibit 1.

15. On June 13, 2006, the United States Patent and Trademark Office issued United States Patent No. 7,061,488 (the “’488 Patent”) entitled “Lighting and Shadowing Methods and Arrangements for use in Computer Graphic Simulations,” a true copy of which is attached as Exhibit 2. The ’488 Patent is a continuation-in-part of the ’822 Patent. The ’822 and ’488 Patents are collectively referred to as the “Asserted Patents.”

16. Infernal Technology is the exclusive licensee of the ’822 and ’488 Patents, and has the exclusive right to sue for and recover all past, present and future damages for infringement of the Asserted Patents.

THE ESTABLISHED VALIDITY OF THE PATENTS-IN-SUIT

17. On April 21, 2016, Electronic Arts Inc. (“EA”) petitioned the U.S. Patent Trial and Appeal Board (“PTAB”) for *inter partes* review of the ’822 and ’488 Patents (IPR2016-00928, IPR2016-00929, IPR2016-00930Z). In the IPR petitions, EA relied upon the following prior art references: (1) Segal, *et al.*, “Fast Shadows and Lighting Effects Using Texture Mapping,” *Computer Graphics Proceedings*, Volume 26, Number 2, July, 1992 (“Segal”); and (2) McReynolds, “Programming with OpenGL: Advanced Rendering,” SIGGRAPH ’96 Course, August, 1996 (“McReynolds”). With respect to the ’822 Patent, EA asserted that Claims 1-10 and 39-48 were unpatentable under 35 U.S.C. § 103 in view of Segal, and that Claims 1-20 and 39-48 were unpatentable under 35 U.S.C. § 103 as obvious over the combination of Segal and McReynolds. With respect to the ’488 Patent, EA argued that Claims 1-10, and 27-62 were unpatentable under Section 103 in view of Segal and that Claims 1-20 and 27-36 were unpatentable under Section 103 in view of Segal in combination with McReynolds.

18. On October 25, 2016, the PTAB instituted IPR proceedings as to all challenged claims of the '822 and '488 Patents. In addition to the Segal and McReynolds references asserted by EA in its petitions, the PTAB instituted IPR based on an additional prior art reference: James D. Foley, *et al.*, COMPUTER GRAPHICS, PRINCIPLES AND PRACTICE, 2^d ed. (1997) ("Foley"). Oral argument was heard by the PTAB on July 18, 2017. On October 19, 2017, and on October 23, 2017, the PTAB issued its Final Written Decisions in the IPR proceedings rejecting all of EA's challenges to the patentability of all claims of the '822 and '488 Patents in view of Segal, alone or in combination with McReynolds and/or Foley. Shortly thereafter, EA settled Plaintiffs' patent infringement claims and entered into a formal settlement and license agreement with Plaintiffs.

UBISOFT'S VIDEO GAME BUSINESS

19. Ubisoft Entertainment, S.A. develops, publishes, and distributes videogames throughout the world.

20. Ubisoft has consistently described itself in its press releases as follows: "Ubisoft is a leading creator, publisher and distributor of interactive entertainment and services, with a rich portfolio of world-renowned brands, including Assassin's Creed, Far Cry, For Honor, Just Dance, Watch_Dogs, Tom Clancy's video game series including Ghost Recon, Rainbow Six and The Division." *See e.g.*, <https://www.ubisoft.com/en-US/company/press/detail.aspx?id=282403#>.

21. In numerous pleadings filed in federal court, Ubisoft has described itself as a developer, publisher and distributor of video games throughout the world. For example, in a lawsuit filed by Ubisoft in this Court last year entitled *Ubisoft Entertainment, S.A. and Ubisoft, Inc. v. Yousician OY*, Case No. 5:18-cv-383, Dkt. No. 1 (E.D.N.C. August 1, 2018), Ubisoft stated

that “Ubisoft Entertainment, S.A. develops, publishes, and distributes video games throughout the world.”

22. In *Ubisoft, Inc. v. JVL*, Case No. 2:19-cv-09132 Dkt. No. 1 (E.D.N.C. October 23, 2019), Ubisoft stated that “Ubisoft is one of the world’s most prominent publishers of high-quality video games and interactive entertainment products. Ubisoft’s products include some of the most popular video games ever created, such as games in the Assassin’s Creed, Far Cry, and Tom Clancy franchises.”

23. Similarly, in *Ubisoft Entertainment, S.A. and Ubisoft, Inc. v. Ejoy.Com Limited, et al.*, Case No. 20-cv-4419, Dkt No. 1 (C.D. Cal. 2013), Ubisoft stated that “Ubisoft is among the world’s most prominent developers and publishers of high-quality video games and interactive entertainment products. Ubisoft’s products include some of the most popular video games ever created, including the bestselling competitive multiplayer game Tom Clancy’s Rainbow Six: Siege.”

24. Regarding the Assassin’s Creed video game series, Ubisoft stated in *Ubisoft Entertainment, S.A. and Ubisoft, Inc. v. Well Go Entertainment USA, Inc.*, Case 2:13-cv-04668, Dkt. No. 1 (C.D. Cal. 2013), that Ubisoft is the developer and publisher of “Assassin’s Creed,” an action-adventure video game series that has become one of the most commercially successful and critically acclaimed video game franchises in history.”

25. Ubisoft has explained in its annual report that “Ubisoft is a leading figure in the video game industry. The Group’s main business activities are centered around the production and ‘operation’ of video games for consoles, PCs, smartphones and tablets in both physical and digital formats.” Ubisoft Annual Report 2019.

26. Indeed, since its inception, Ubisoft has operated its video game business as an integrated group, with Ubisoft (i) overseeing and supervising the operations of its subsidiaries; (ii) establish operating budgets and business plans of its subsidiaries; (iii) oversee Ubisoft and its subsidiaries regarding their corporate and financial structure; and (iv) establish long-term business strategies for Ubisoft and its subsidiaries.

27. In particular, Ubisoft has operated its video game business through a network of “production subsidiaries” and “sales and marketing subsidiaries.” The “production subsidiaries” are responsible for the design and development of the software for a video game, including in particular the scenarios, layouts and game rules, as well as the development of design tools and game engines.

28. The “sales and marketing subsidiaries” are responsible for the worldwide distribution of Ubisoft products (e.g. CD games, ancillary products) to superstores and independent wholesalers. With regard to online business, sales and marketing subsidiaries primarily manage the sale of digital games via dedicated platforms such as Uplay, Steam, Sony, PSN, and XLA.

29. Ubisoft has asserted that it “sets itself apart from the competition through its strong and renowned corporate culture as well as through its unique production organization which enables the Group to continuously create successful new brands, retain all its most important franchises, and regularly launch games and new high quality content.” Ubisoft Annual Report 2019.

30. In particular, Ubisoft adopted an internal control system to establish goals, policies and implementation details for the operation of its video game business. The internal control system was designed, in part, “to strengthen team-working.”

31. In this connection, Ubisoft established a Group Management team to control the decisions regarding which video games Ubisoft would develop and publish, which Ubisoft studios would be involved in the development of those games, and the budgets for the development of video games. This Group Management team, known as the Ubisoft Executive Committee, consisted of the Executive Director, EMEA, the Executive Director, North America, the Chief Financial Officer, the Executive Director, Worldwide Production, and the Chief Creative Officer.

32. The members of the Executive Committee functioned as the operational managers of the Ubisoft group of companies. The Ubisoft Executive Committee developed strategy for the video game business of Ubisoft and implemented policies and procedures that applied generally to the entire group.

33. According to Ubisoft, “[t]his strategy has enabled Ubisoft to grow significantly and organically over the years,” and that “[b]y leveraging these assets, the Group has substantially transformed and expanded its portfolio of franchises, which are now increasingly focused on long-term player engagement: *Assassin’s Creed*, *The Crew*, *Far Cry*, *For Honor*, *Tom Clancy’s Ghost Recon*, *Tom Clancy’s Rainbow Six Siege*, *Tom Clancy’s The Division* and *Watch Dogs*.” *Id.*

34. Under this system, Ubisoft, through its Ubisoft Worldwide Studios arm, organized collaboration between and among numerous Ubisoft studios located throughout the world to develop video games for distribution and sale throughout the world, including the United States.

35. For example, Ubisoft arranged for its Ubisoft Paris studio to collaborate with the Ubisoft Montreal studio to develop several video games, including the acclaimed Tom Clancy’s Ghost Recon series and the Watch Dogs video game. Ubisoft also arranged for Ubisoft Paris studio to develop Tom Clancy’s Ghost Recon Wildlands military shooter video game.

36. Ubisoft picked the Ubisoft Montreal studio to develop video games for many of Ubisoft's blockbuster brands including For Honor, Far Cry, Tom Clancy's Rainbow Six, Assassin's Creed, and Watch Dogs. The Assassin's Creed Unity game, for example, was developed by 10 different Ubisoft subsidiaries around the globe, with Ubisoft Montreal named as the lead developer and the nine other internal studios providing assistance, including the studios Ubisoft studios located in Toronto, Singapore, Quebec, Annecy, Shanghai, Chengdu, Kiev, Montpellier and Bucharest.

37. Ubisoft also called upon its Ubisoft Barcelona studio to collaborate with other Ubisoft studios such as Ubisoft Montreal, Ubisoft Paris, Ubisoft Montpellier, Ubisoft Reflections, Ubisoft Milan and Red Storm Entertainment to develop important franchises such as Tom Clancy's Ghost Recon®, Assassin's Creed, and Tom Clancy's Rainbow Six Siege.

38. Ubisoft slated the Massive Entertainment studio to become a major producer of AAA blockbuster games within the Ubisoft family such as Tom Clancy's The Division. Ubisoft arranged for the studio to collaborate with Ubisoft Montreal on Assassin's Creed® Revelations. Ubisoft designated Ubisoft Massive to be responsible for the development of the Uplay PC platform.

39. Ubisoft picked Ubisoft Bucharest to collaborate with other Ubisoft studios on major titles, such as Tom Clancy's Ghost Recon, Just Dance, Assassin's Creed and Watch Dogs. Ubisoft Bucharest worked on the development of Watch Dogs 2 and Tom Clancy's Ghost Recon Wildlands and collaborated with Ubisoft Paris on the PvP mode for Tom Clancy's Ghost Recon® Wildlands. Ubisoft Bucharest also worked with Ubisoft Montreal on Assassin's Creed Origin.

40. The Ubisoft Chengdu studio worked closely with other Ubisoft studios on AAA brands such as Assassin's Creed, The Crew, Rainbow Six, Watch Dogs, Tom Clancy's Ghost

Recon® Phantoms, Tom Clancy's The Division and For Honor. The Ubisoft Chengdu studio team also worked on Assassin's Creed Origins in collaboration with Ubisoft Montreal.

41. Ubisoft had the Ubisoft Kiev studio bring Ubisoft's franchises to home computers. In addition, the Ubisoft Kiev studio collaborated with other Ubisoft studios on AAA projects such as Assassin's Creed Revelations, Tom Clancy's Ghost Recon Future Soldier®, Assassin's Creed III, Assassin's Creed IV Black Flag, Assassin's Creed Unity, Far Cry® 4, Assassin's Creed Syndicate or Tom Clancy's Rainbow Six Siege. Ubisoft Kiev also collaborated closely with Montreal on the PC version of Assassin's Creed® Origins and Far Cry.

42. Ubisoft's studio Ubisoft Montpellier successful collaborated with Ubisoft Montreal on Assassin's Creed® Unity, Ubisoft Quebec on Assassin's Creed® Syndicate and Ubisoft Paris on Tom Clancy's Ghost Recon® Wildlands.

43. Similarly, after working on the Assassin's Creed brand since 2010 in close collaboration with the Montreal studio, the Ubisoft Quebec team successfully took leadership of the last installment of the franchise with the release of Assassin's Creed Syndicate in 2015.

44. The Ubisoft Sophia studio successful collaborated with the Ubisoft Montreal studio and five other studios on Assassin's Creed. . . and lead the development of the highly acclaimed Assassin's Creed Rogue (for the PS3 and the Xbox360).

45. The Ubisoft Toronto studio team is worked on Far Cry 5 in collaboration with Ubisoft Montreal and also contributed to multiple award-winning Ubisoft brands including: Assassin's Creed®, Far Cry, Watch Dogs, and For Honor.

46. Thus, for over a decade, Ubisoft has managed, directed and controlled the development, testing, production, marketing and sale of video games through the "production subsidiaries" and "sales and marketing subsidiaries." Ubisoft senior management decide whether

and how to grow existing video game franchises and whether to develop new video game franchises. Ubisoft senior management decide whether to release new content for video game franchises or to discontinue video game franchises. Ubisoft controls the timing of development cycles for video game franchises. Ubisoft controls which Ubisoft studios will be involved in developing new video games or new content for existing games. Ubisoft controls the quality control and assurance measures implemented with respect to the development of video games. Ubisoft also controls how to market and distribute video game products.

47. As Ubisoft has explained, “[t]hanks to the complete control of its brands and studios, a unique corporate culture that allows talents to thrive and achieve their full potential, a rich and varied franchise portfolio, and a keen desire to enrich the lives of players, Ubisoft offers a long-term vision to its talented employees, its player community and its shareholders.”

UBISOFT’S INFRINGEMENT OF THE ASSERTED PATENTS

48. As mentioned above, Ubisoft is engaged in the business of developing, testing, publishing, distributing, and selling video games. Many of these video games employ game “engines,” which are tools available for video game designers to code and plan out a game. Ubisoft uses various game engines to run numerous video games published by it that infringe one or more claims of the Asserted Patents. These game engines are capable of performing deferred rendering, deferred shading, deferred lighting, physically based shading, and/or physically based rendering used in video games developed, published, distributed, and sold by Ubisoft. The infringing game engines are collectively referred to herein as the “Accused Game Engines.” The infringing video games that use the Accused Game Engines are collectively referred to herein as the “Accused Games.”

49. The Accused Game Engines and the Accused Games that infringe the asserted patents include, but are not limited to, the following:

	GAME	ENGINE	DEVELOPER(S)	PUBLISHER(S)
	Assassin's Creed Rogue (2014)	AnvilNext	Ubisoft Sofia	Ubisoft Entertainment SA
	Assassin's Creed Unity (2014)	AnvilNext 2.0	Ubisoft Montreal et al	Ubisoft Entertainment SA
	Assassin's Creed Syndicate (2015)	AnvilNext 2.0	Ubisoft Quebec	Ubisoft Entertainment SA
	Tom Clancy's Rainbow Six Siege (2015)	AnvilNext 2.0	Ubisoft Montreal	Ubisoft Entertainment SA
	For Honor (2017)	AnvilNext 2.0	Ubisoft Montreal	Ubisoft Entertainment SA
	Tom Clancy's Ghost Recon Wildlands (2017)	AnvilNext 2.0	Ubisoft Paris	Ubisoft Entertainment SA
	Assassin's Creed Origins (2017)	AnvilNext 2.0	Ubisoft Montreal	Ubisoft Entertainment SA
	Assassin's Creed Odyssey (2018)	AnvilNext 2.0	Ubisoft Quebec	Ubisoft Entertainment SA
	Far Cry IV (2014)	Dunia 2.0	Ubisoft Montreal	Ubisoft Entertainment SA
	Far Cry Primal (2016)	Duna 2.0	Ubisoft Montreal	Ubisoft Entertainment SA
	Far Cry V (2018)	Dunia 2.0	Ubisoft Montreal and Ubisoft Toronto	Ubisoft Entertainment SA
	Watch Dogs (2014)	Disrupt	Ubisoft Montreal	Ubisoft Entertainment SA
	Watch Dogs 2 (2016)	Disrupt	Ubisoft Montreal	Ubisoft Entertainment SA

50. The Accused Game Engines and Accused Games are collectively referred to herein as the "Accused Instrumentalities."

CLAIM 1 -- INFRINGEMENT OF U.S. PATENT NO. 6,362,822

51. Ubisoft has directly infringed one or more of the method claims of the '822 Patent by using one or more of those patented methods in the United States.

52. Ubisoft has directly infringed one or more of the method claims of the '822 Patent by using those claimed methods during development, testing and demonstration of the Accused Instrumentalities, all in violation of 35 U.S.C. § 271(a). In the context of Ubisoft's development,

testing and demonstration of its Accused Instrumentalities, Ubisoft is the end user. When testing or demonstrating its Accused Instrumentalities, Ubisoft is in sole and complete control of the entire operation of the video games, including the initiation and continued operation of the deferred rendering process used by those games. Ubisoft, therefore, performed all the steps of the asserted method claims covering that deferred rendering process when it tested and demonstrated the Accused Instrumentalities.

53. Each of the Accused Instrumentalities performs a rendering method, commonly known as deferred rendering, which meets the limitations of the asserted claims of the '822 Patent. Deferred rendering (also sometimes referred to as deferred shading) is a process for rendering a simulated, three-dimensional (3D) scene whereby the application of light to the scene is “deferred” until after the surface properties for the objects in the scene have been rendered.

54. For example, Ubisoft’s direct infringement of a specific claim of the '822 Patent for one of the Accused Instrumentalities is shown in the claim charts attached hereto as Exhibit 3.

55. Each of the Accused Instrumentalities performs a lighting and shadow rendering method for use in a computer system.

56. Each of the Accused Instrumentalities provides observer data of a simulated multi-dimensional scene.

57. Each of the Accused Instrumentalities provides lighting data associated with a plurality of simulated light sources arranged to illuminate the simulated multi-dimensional scene, the lighting data including light image data.

58. For each of the plurality of light sources, each of the Accused Instrumentalities compares at least a portion of the observer data with at least a portion of the lighting data to determine if a modeled point within the scene is illuminated by the light source, and stores at least

a portion of the light image data associated with the modeled point and the light source in a light accumulation buffer.

59. Each of the Accused Instrumentalities combines at least a portion of the light accumulation buffer with the observer data.

60. Each of the Accused Instrumentalities displays the resulting image data to a computer screen.

61. The duty to mark under 35 U.S.C. § 287 is inapplicable to the asserted method claims of the '822 Patent.

62. Plaintiffs have been damaged by Ubisoft's infringing activities.

CLAIM 2 – INFRINGEMENT OF U.S. PATENT NO. 7,061,488

63. Ubisoft has directly infringed one or more apparatus claims of the '488 Patent by using the claimed inventions or making, importing, offering for sale, and/or selling video games embodying the patented inventions.

64. Ubisoft has directly infringed one or more of the method claims of the '488 Patent by using one or more of those patented methods in the United States.

65. In particular, Ubisoft has directly infringed one or more of the method claims of the '488 Patent by using those claimed methods during development, testing and demonstration of the Accused Games, all in violation of 35 U.S.C. § 271(a).

66. Ubisoft is effectively the end user of the Accused Instrumentalities during Ubisoft's development, testing and demonstration of its Accused Instrumentalities. When testing or demonstrating its Accused Games, Ubisoft is in sole and complete control of the entire operation of the Accused Instrumentalities, including the initiation and continued operation of the deferred rendering process used by those games. Ubisoft, therefore, performed all the steps of the asserted

method claims covering that deferred rendering process when it tested and demonstrated the Accused Instrumentalities.

67. Each of the Accused Instrumentalities, when used, performs a rendering method, commonly known as deferred rendering, which meets the limitations of the asserted claims of the '488 Patent.

68. For example, Ubisoft's direct infringement of a specific claim of the '488 Patent for one of the Accused Instrumentalities is shown in the claim charts attached hereto as Exhibit 4.

69. Each of the Accused Instrumentalities performs a lighting and shadow rendering method for use in a computer system.

70. Each of the Accused Instrumentalities provides observer data of a simulated multi-dimensional scene.

71. Each of the Accused Instrumentalities provides lighting data associated with a plurality of simulated light sources arranged to illuminate the simulated multi-dimensional scene, the lighting data including light image data.

72. For each of the plurality of light sources, each of the Accused Instrumentalities compares at least a portion of the observer data with at least a portion of the lighting data to determine if a modeled point within the scene is illuminated by the light source, and stores at least a portion of the light image data associated with the modeled point and the light source in a light accumulation buffer.

73. Each of the Accused Instrumentalities combines at least a portion of the light accumulation buffer with the observer data.

74. Each of the Accused Instrumentalities outputs the resulting image data.

75. Plaintiffs have been damaged by Ubisoft's infringing activities.

76. The duty to mark under 35 U.S.C. § 287 is inapplicable to asserted claims of the '488 Patent.

DEMAND FOR JURY TRIAL

77. Plaintiffs, under Rule 38 of the Federal Rules of Civil Procedure, request a trial by jury of any issues so triable.

PRAYER FOR RELIEF

1. A judgment in favor of Plaintiffs that Ubisoft has directly infringed one or more claims of the Asserted Patents;

2. A judgment requiring Ubisoft to pay Plaintiffs damages adequate to compensate for infringement under 35 U.S.C. § 284, which damages shall, in no event, be less than a reasonable royalty for the use made of the inventions of the Asserted Patents, including pre- and post-judgment interest and costs, including expenses and disbursements; and

3. Any and all such further necessary relief as the Court may deem just and proper under the circumstances.

Dated: May 27, 2020

Respectfully submitted,

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