

**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON
AT SEATTLE**

Utherverse Gaming LLC,

Plaintiff,

v.

Epic Games, Inc.,

Defendant.

No. 2:21-CV-0799

**COMPLAINT FOR PATENT
INFRINGEMENT**

Plaintiff Utherverse Gaming LLC (“Utherverse Gaming”), hereby brings this action against Defendant Epic Games, Inc. (“Epic”) for patent infringement of United States Patent Nos. 8,276,071 (the “’071 Patent”), 8,812,954 (the “’954 Patent”), 9,123,157 (the “’157 Patent”), and 9,724,605 (the “’605 Patent”) (collectively, the “Asserted Patents”) and alleges as follows:

I. INTRODUCTION

1. This is a patent infringement case related to technologies that allow for vast numbers of participants to connect with others in virtual computer-generated environments to enjoy common virtual experiences. These inventions were originally developed by Brian and Gary Shuster, two brothers, and their colleague Aaron Burch. They recognized that the Internet could drive virtual shared experiences to connect large groups of remote individuals.

1 2. There were, however, significant technical obstacles to bringing multitudes of
2 participants into new virtual worlds. Multi-user virtual worlds were traditionally limited by, among
3 other things, the computational power required to implement and render each user in a virtual world.
4 As the number of participants in a world increase, the processing requirements associated with each
5 additional user increases exponentially, and can quickly surpass limitations on computer processing
6 speed and network bandwidth. Traditional virtual worlds were consequently smaller, fragmented,
7 with fewer participants, and notably, less able to support activities that relied on scale for successful
8 commercialization. The Shusters and Burch addressed these problems with new inventions, some of
9 which are reflected in the Asserted Patents, and they worked to bring their visions for virtual worlds
10 to life in conjunction with their company, Utherverse Digital.

11 3. Utherverse Digital has been at the forefront of creating solutions to the technological
12 problems that plague virtual worlds. The Asserted Patents describe solutions that allow, for
13 example, for virtual worlds to support larger numbers of participants in shared online spaces. For
14 example, by enabling multiple parallel dimensions of the same space or scene, and allowing for
15 specific user avatars, objects, or events to populate those dimensions, the inventors unlocked the
16 potential of computer generated virtual worlds and shared experiences to support dramatically
17 increased numbers of participants despite limitations in computer processing power and bandwidth.
18 The ability to host massively multi-user environments has opened the door to new computer-
19 generated virtual and shared experiences that allows participants to connect in ways that were
20 previously impractical or impossible within the confines of traditional computer-generated virtual
21 worlds.

22 4. In 2020, Utherverse Digital assigned all rights, title, and interest in the Asserted
23 Patents to Utherverse Gaming. Utherverse Gaming is an independent company, separate from
24 Utherverse Digital. As a result of that assignment, Utherverse Gaming is the owner of all right, title,
25 and interest in the Asserted Patents.

1 subject matter of this action is proper under 28 U.S.C. §§ 1331 and 1338(a).

2 11. This Court has personal jurisdiction over Epic because Epic transacted business and
3 committed infringing acts within and directed to the State of Washington including this specific
4 judicial district, and Utherville Gaming's claims arise from those activities.

5 12. Venue is proper in this Court pursuant to 28 U.S.C. § 1391(b) because Epic committed
6 acts of infringement in the Western District of Washington and maintains a regular and established
7 place of business in this district.

8 13. Epic has had a regular and established place of business in Washington state and this
9 judicial district since at least 2012, when Epic opened offices in the greater Seattle area to focus on
10 the development of Unreal Engine 4. In a September 6, 2012, article by gamesindustry.biz, Epic's
11 then-President, Dr. Michael Capps, was quoted as having said, "The proximity to key partners, the
12 density of world-class talent and all the factors that make Seattle an attractive place to live
13 convinced us that it is the perfect locale for Epic's West Coast operation." A true and correct copy
14 of the gamesindustry.biz article is attached hereto as Exhibit C.

15 14. On information and belief, Epic's Bellevue, Washington office currently employs
16 more than 80 people and continues to hire for online services, augmented and virtual reality
17 products, and Unreal Engine game development software. On information and belief, the Unreal
18 Engine game development software is used in current builds of *Fortnite*. On information and belief,
19 Epic's Washington state operations also include RAD Game Tools. On information and belief,
20 RAD Game Tools are used in current builds of *Fortnite*. Epic also operates other game studios that
21 collaborate and develop content titles with various partners in the Washington state area, including
22 the Tonic Games Group in conjunction with the likes of Washington residents Microsoft and
23 Nintendo.

IV. FACTS

A. Utherville Gaming's Asserted Patents

15. The '071 Patent is entitled "Multi-Instance, Multi-User Animation Platforms" and Utherville Gaming is the owner of all right, title, and interest in the '071 Patent. The '071 Patent was duly and properly issued by the USPTO on September 25, 2012. The '071 Patent was duly assigned to Utherville Gaming. The '071 Patent is valid and enforceable. A true and correct copy of the '071 Patent is attached hereto as Exhibit D.

16. The '954 Patent is entitled "Multi-Instance, Multi-User Virtual Reality Spaces" and Utherville Gaming is the owner of all right, title, and interest in the '954 Patent. The '954 Patent was duly and properly issued by the USPTO on August 19, 2014. The '954 Patent was duly assigned to Utherville Gaming. The '954 Patent is valid and enforceable. A true and correct copy of the '954 Patent is attached hereto as Exhibit E.

17. The '157 Patent is entitled "Multi-Instance, Multi-User Virtual Reality Spaces" and Utherville Gaming is the owner of all right, title, and interest in the '157 Patent. The '157 Patent was duly and properly issued by the USPTO on September 1, 2015. The '157 Patent was duly assigned to Utherville Gaming. The '157 Patent is valid and enforceable. A true and correct copy of the '157 Patent is attached hereto as Exhibit F.

18. The '605 Patent is entitled "Method, System and Apparatus of Recording and Playing Back an Experience in a Virtual Worlds System" and Utherville Gaming is the owner of all right, title, and interest in the '605 Patent. The '605 Patent was duly and properly issued by the USPTO on August 8, 2017. The '605 Patent was duly assigned to Utherville Gaming. The '605 Patent is valid and enforceable. A true and correct copy of the '605 Patent is attached hereto as Exhibit G.

19. The '071, '954 and '157 Patents are part of a family of patents owned by Utherville Gaming directed generally to multi-instance, multi-user animation platforms (the "MMAP

1 Patents”). The MMAP Patents share substantially the same specification. The ’157 Patent is a
2 continuation of the ’954 Patent, and the ’954 Patent is a continuation of a patent that is itself a
3 continuation of the ’071 Patent.

4 20. The ’605 Patent relates to a second family of patents owned by Utherverse Gaming
5 directed generally to playing back an experience in a virtual worlds system.

6 21. Collectively, the MMAP Patents and the ’605 Patent are referred to herein as the
7 “Asserted Patents.”

8 **B. The Challenges of Bringing People Together in Virtual Worlds**

9 22. Brian Shuster has been inventing new solutions for Internet problems for over
10 twenty years. A Financial Post article from January 13, 2013, says Brian “got in on the ground floor
11 of the Internet, hiring software talent from NASA’s Jet Propulsion Laboratory to develop Web-
12 hosting and online advertising systems that became industry standards.” After finding success in the
13 traditional world wide web, Brian began working on new “Virtual World Web” experiences that
14 would be “immersive and interactive, with users moving through game-like virtual environments
15 rather than reading static Web pages.” A true and correct copy of the Financial Post article is
16 attached hereto as Exhibit H.

17 23. Among the inventions created to support the Virtual World Web are the multi-
18 instance, multi-user animation and experience playback solutions described in the Asserted Patents.
19 These inventions overcome the limitations of technology by allowing computer-generated virtual
20 worlds to support larger numbers of participants. By early 2007, “[c]omputer generated virtual
21 environments [had become] increasingly popular methods for people, both real and automated, to
22 interact within a networked system.” ’071 Patent at 1:22-24. These online environments are
23 sometimes referred to as “virtual reality” or “virtual reality universe” (VRU) environments. *Id.* at
24 1:31-33.

25 24. In virtual reality, “[e]ach player selects an ‘avatar,’ which may comprise a three-
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1 dimensional figure of a man, woman, or other being, to represent them in the VRU environment.”

2 *Id.* at 1:37-39. “Players send inputs to a VRU engine to move their avatars around the VRU
3 environment, and are able to cause interaction between their avatars and objects in the VRU.” *Id.* at
4 1:39-42. “For example, a player’s avatar may interact with an automated entity or person, simulated
5 static objects, or avatars operated by other players.” *Id.* at 1:42-45.

6 25. “One drawback of the VRU is that, as in the actual world, space is limited by
7 environmental constraints.” *Id.* at 1:48-50. “[T]here is a limit on how much modeled space can be
8 occupied at the same time.” *Id.* at 2:22-23. “Because VRU users are visible to other users, they
9 occupy space, a portion of the visual field, or both.” *Id.* at 2:35-37. Thus, a virtual concert venue,
10 such as a nightclub, may only be able to accommodate a capped number of participants within a
11 fixed area of space within the VRU. *Id.* at 2:39-40. “While the VRU could in theory have a
12 nightclub of enormous dimensions, there would be areas within the nightclub, such as proximate to
13 a stage or proximate to celebrities present therein, which would be very desirable areas to inhabit.”
14 *Id.* at 2:40-44. “As a result, whether the area at issue is described as the full night club or the more
15 desirable areas therein, some or the entire nightclub may have less space available for occupancy
16 than there are people who desire to have their avatars occupy it.” *Id.* at 2:44-48.

17 26. As a further problem, “limitations on computer processing speed, network
18 bandwidth, and other factors also limit the number of participants and the richness of environment.”
19 *Id.* at 1:50-52. Server capacity may be incapable of simultaneously handling all participants. *Id.* at
20 1:67-2:1. Client capacity for each participant may also be “insufficient to process and display the
21 data needed for such user’s computer to appropriately and adequately render avatars or other
22 representations of the other users, and otherwise construct a complete and accurate representation of
23 the environment.” *Id.* at 2:1-6. “Thus, there are limitations on how many avatars, objects, textures
24 and other features can be rendered and animated for each user.” *Id.* at 2:56-58. In the nightclub
25 example, “if the dimensions of the nightclub were drawn so that 10,000 avatars could
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1 simultaneously be accommodated, seen, and interacted with, each user computer would be tasked
2 with tracking, rendering and animating each of 10,000 autonomously controlled avatars.” *Id.* at
3 2:58-63. “Similarly, avatars within the same space, when permitted to communicate with each
4 other, whether via chat, voice over IP, or otherwise, may generate too much content to permit
5 effective communication.” *Id.* at 2:58-67. “Accordingly, prior art VRU environments may limit the
6 number of simultaneous players and their methods of interactions for various reasons, including to
7 avoid exceeding the programming, networking, and hardware limitations of the servers and/or
8 clients.” *Id.* at 1:53-57.

9 27. Other limitations include “the inability to realistically depict multiple users in the
10 same place, the inability of users to walk through the same doorway simultaneously, the inability to
11 exceed occupancy limitations, and similar real world space limitations.” *Id.* at 2:31-35.

12 28. “It [was] desirable, therefore, to resolve these problems and to provide access for
13 greater numbers of avatars within a VRU space while minimizing undesired experiences for VRU
14 participants, and providing new, more varied and interesting opportunities and experiences for users
15 within the VRU Space.” *Id.* at 3:1-6.

16 **C. The Asserted Patents Provide Solutions to These Challenges**

17 29. The Asserted Patents overcame, among other things, these processing and
18 bandwidth problems, which specifically arose in the realm of computers and are necessarily rooted
19 in limitations of computer technology for online virtual environments. Thus, the claimed inventions
20 of the Asserted Patents are technical solutions to existing technical problems that traditionally
21 prevented achievement of critical mass at large-scale virtual events. When viewed as a whole, the
22 claims of each the Asserted Patents, including as ordered combinations, are not merely a recitation
23 of well-understood, routine, or conventional technologies or components.

24 **i. The MMAP Patents Solutions**

25 30. The MMAP Patents do not merely use computers as tools. The MMAP Patents
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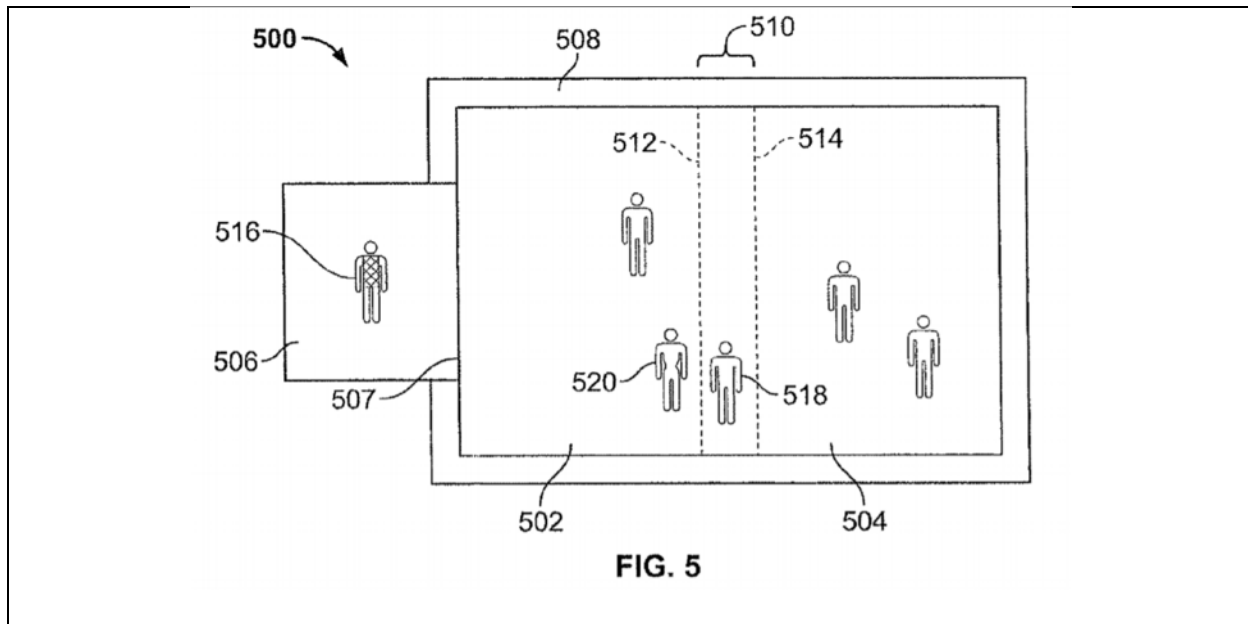
1 describe and claim improvements to computer systems.

2 31. The MMAP Patents disclose various embodiments that allow for massively
3 populated virtual worlds by providing, for example, “a method, system and apparatus for
4 dynamically establishing and managing multiple instances of a space within a VRU.” *Id.* 3:10-12.
5 Such multiple instances may also be referred to as “dimensions.” *Id.* at 3:12-13. As described in the
6 specification, “the inventions permit such dimensions to be utilized in a manner that does little or
7 nothing to impair the ability of the VRU to emulate those portions of the real world environment
8 that may be crucial to a positive user experience within a VRU.” *Id.* at 3:17-21

9 32. “[O]nce the occupancy capacity of an area has been met, another attempt to access
10 the area by an additional avatar may trigger creation of a new instance, or dimension, of the area.”
11 *Id.* at 3:23-25. The parallel dimension “may be provided by duplication of certain portions of the
12 content within an area, such as, for example, walls and other simulated structural elements, a stage
13 and all participants thereon, or other elements.” *Id.* at 3:27-32. Each time a parallel dimension
14 reaches capacity, a new parallel dimension may be generated. *Id.* at 3:36-39. In addition, “[p]arallel
15 dimensions may also be collapsed into fewer dimensions as avatar populations decline.” *Id.* at
16 14:30-31.

17 33. Different dimensions may be related to one another and able to interact or influence
18 one another in defined ways. *Id.* at 5:3-4. For example, “a defined area or portion of multiple
19 dimensions may be visible to, and/or interact with, other parts or members of the dimensions” *Id.* at
20 5:24-25. “For example, a stage area may be defined that is visible and audible in multiple
21 dimensions surrounding the stage area.” *Id.* 5:26-29. The performer on stage “has a multi-instance
22 presence in more than one dimension.” *Id.* at 5:53-55. If the performer “throws an object out of a
23 stage area into a surrounding nightclub, as the object passes a boundary between the stage area and
24 the multi-dimensional nightclub floor, the thrown object may be replicated and appear in each of the
25 Surrounding dimensions.” *Id.* at 5:31-35.

34. “[T]he surrounding multi-dimensional areas may influence a common area” *Id.* at 5:36-39. For example, “a performer on a common stage may receive audience feedback from multiple surrounding dimensions.” *Id.* at 5:37-39.



35. Figure 5 above shows “an exemplary multi-dimensional system” with “a common space (506)” that “may represent, for example, a stage area” across multiple parallel dimensions (502, 504). *Id.* at 11:3-22. The performer (516) is visible to all users in all parallel dimensions. *Id.* 11:58-60. “Some audience groups, or members, may be permitted to interact with the performers and may be selected by any of a number of criteria, including without limitation paid members, early arrivals, random selection, etc.” *Id.* at 11:61-64. In another example, participants “in multiple dimensions at a nightclub [may] get into the ‘stage diving’ line, and then inhabit a single avatar which is then permitted to enter the ‘performer’ dimension, be seen by all users, and then jump off the stage, disaggregate, and land, each user into his own dimension.” *Id.* at 12:10-15.

36. The claims of the MMAP Patents do not merely recite the receipt, analysis, or transmission of data. Claim 1 of the ’157 Patent is an example of one of the inventive solutions

1 claimed by the MMAP Patents. It recites:

2 A method, comprising: modeling, in a computer memory, multiple parallel instances
3 of a multi-dimensional virtual reality space, each of the plurality of parallel instances
4 replicating the multi-dimensional virtual reality space;

5 assigning ones of a plurality of modeled multi-dimensional avatars within the
6 computer memory so that each of the plurality of avatars populates a respective one
7 of the parallel instances and each of the plurality of parallel instances is populated by
8 a unique subset of the plurality of avatars, wherein the assigning limits a total number
9 of the plurality of avatars in each of the unique subsets; and

10 modeling a common space in the computer memory configured in relation to the
11 plurality of parallel instances so that at least one object located inside the common
12 space is visible from viewpoints located inside each of the plurality of parallel
13 instances.

14 37. The MMAP Patents therefore overcome the limitations of conventional VRUs by
15 providing for multiple parallel dimensions or instances within which participants can interact and
16 engage in common experiences by way of the solutions described in the MMAP Patents. Multiple
17 parallel dimensions or instances with such solutions allow for vast numbers of concurrent
18 participants to occupy the same virtual venue and share the same experience without overcrowding.
19 The MMAP Patents thereby overcome computer processing and network bandwidth limitations of
20 conventional virtual world systems, allowing for improved computer functionality and an enhanced
21 interactive user experience that facilitates enjoyment of common virtual experiences.

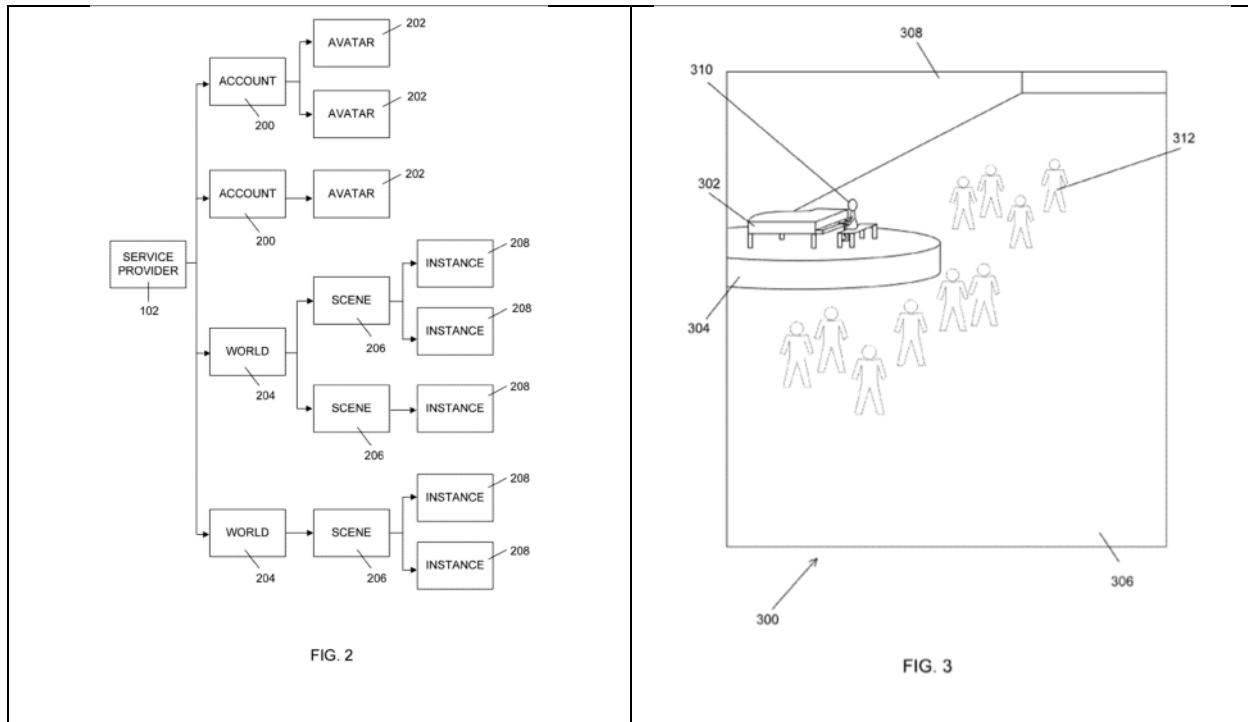
22 **ii. The Experience Playback Solution**

23 38. The '605 Patent does not merely use computers as tools. The '605 Patent describes
24 and claims improvements to computer systems.

25 39. The '605 Patent provides another solution that could be used as an alternative to, or
26 in conjunction with, one or more of the solutions of the MMAP Patents to allow for massively
27 populated virtual worlds in which participants can share the same experience without overcrowding.
28 The '605 Patent describes playing back experiences on multi-instance, multi-user animation

1 platforms. In one embodiment, “[i]t is possible to record a state of a VRU environment so that users
2 may log out of the VRU and, upon their return, resume an activity at the point where they left off.”
3 ’605 Patent at 1:33-35. Example applications include allowing players of a game in a VRU
4 environment to “take a break and return to the same [game] at a later time” or “replay[ing] a scene
5 that occurred in a VRU environment, such as a concert, a wedding or a lecture.” *Id.* at 1:35-40.

6 40. “Unlike a video recording, which displays a successive series of images, the method
7 of playing back a recorded experience described herein allows a user to navigate through the
8 recorded experience rather than simply watch a video playback.” *Id.* at 10:14-18. “[T]he method of
9 playing back a recorded experience allows for users to interact with other users who are also
10 participating in the playback of the recorded experience.” *Id.* at 10:18-21. In addition, “unlike video
11 playback, the recorded experience is not limited by a point of view from which the recording was
12 captured.” *Id.* at 10:21-25. “Because a user is able to navigate through the recorded experience by
13 changing their position and orientation within the recorded experience, they may view objects from
14 any angle that they choose.” *Id.* at 10:25-28. “As such playback of the same recorded experience
15 may be different for all users.” *Id.* at 10:28-29.



41. Figure 2 “shows an example arrangement of virtual worlds data.” *Id.* at 3:55-6. “The service provider 102 may further maintain worlds 204. Each world 204 may represent a virtual space in which avatars may interact. The service provider 102 may maintain multiple virtual worlds 204, and each virtual world 204 may be operated by different users 104 or administrators of service provider 102.” *Id.* at 4:17-22. “Virtual worlds 204 may in turn include scenes 206. Scenes 206 represent virtual locations where users may visit and enter.” *Id.* at 4:23-25. “In some situations, it may be desirable to have a single scene [206] available but have avatars enter different copies of that scene. Such copies are implemented by instances 208.” *Id.* at 4:37-39. “An instance 208 represents a running version of a scene, and users 104 interact within instances 208 of scenes 206.” *Id.* at 4:40-41. “New instances may also be created based on time intervals, avatar user requests, availability of objects within each instance, and so on.” *Id.* at 4:54-56. “In one embodiment, an environment may automatically change, or the avatars may be automatically transported, when a threshold event takes place.” *Id.* at 4:56-58.

42. Figure 3 shows another embodiment of the invention where “an example of a scene

300 [] has been instantiated by the service provider 102.” *Id.* at 5:39-40. “In this example, the scene 300 is a performance venue including a floor 306 and walls 308 and a piano 302 located on a stage 304 that is rendered for display at a user 104.” *Id.* at 5:39-43. In addition, “a performer avatar 310 is located on the stage 304 and an audience that includes avatars 312 that surround the stage to view the performance.” *Id.* at 5:43-46. For users to interact in a virtual world during playback of the recorded experience, “[t]he service provider 102, or another system component, receives, at one or more processors, data requesting changes to an instance of a scene including at least position and orientation of objects modeled in the scene.” *Id.* at 5:25-35. “Data representing the changes is then provided to the one or more users so that an event playing out in an instance of a scene may be experienced in substantially real time by users 104.” *Id.* at 5:35-38.

43. When a new instance is initiated, the service provider renders “for display at a client device, objects of the initial scene state in the new instance and render[s] updates to the initial scene state based on the subsequent changes over the time period.” *Id.* at 6:63-65, 7:4-9. “The objects of the recorded experience are displayed in the new scene such that, similar to when the recorded experience was experienced the first time, objects and boundaries of the recorded experience are present.” *Id.* at 7:10-13. “A user, by controlling an avatar via a user interface at a client device, may navigate through the recorded experience and interact with other avatars also participating in the playback of the recorded experience.” *Id.* at 7:13-17.

44. The claims of the ’605 Patent do not merely recite the receipt, analysis, or transmission of data. Claim 1 is an example of the inventions claimed by the ’605 Patent. It recites:

1. A method of playing back a recorded experience in a virtual worlds system, comprising:

instantiating, using one or more processors of a server, a new instance of a scene, the new instance being defined by data stored in memory, at least one client device displaying and participating in the new instance;

retrieving a recorded experience file from the memory, the recorded experience file

1 having been generated by saving an initial scene state and saving subsequent changes
2 and respective times during a time period of the recorded experience;

3 playing back the recorded experience file by rendering, for display by the at least one
4 client device, objects of the initial scene state in the new instance, including one or
5 more avatars, and rendering updates to the initial scene state based on the subsequent
6 changes over the time period; and

7 automatically transporting the one or more avatars to a different new instance of the
8 scene, upon occurrence of a threshold event, wherein the threshold event comprises
9 when a maximum capacity of avatars has been reached in the new instance of the
10 scene.

11 45. Thus, the '605 Patent also overcomes, among other things, a problem arising in the
12 realm of online virtually words, namely, facilitating the shared experience of a pre-recorded
13 experience in an interactive virtual world with multiple parallel dimensions or instances. In addition
14 to the solutions presented in the MMAP Patents, the '605 Patent presents an additional solution by
15 allowing the instances to share the experiences by way of recording and playing back events in the
16 instance. Both the MMAP Patents and the '605 Patent provide technological solutions that, each
17 utilized alone or optionally in combination with one another, help overcome computer processing
18 and network bandwidth limitations of conventional virtual world systems, allowing for improved
19 computer functionality and an enhanced interactive user experience that facilitates enjoyment of
20 common virtual experiences.

21 **D. The Claimed Inventions Were Not Well-Known, Routine, or Conventional**

22 46. The claimed inventions were not well-known, routine, or conventional at the time of
23 the invention and represent specific improvements over the prior art and existing systems and
24 methods. The inventiveness of the claimed inventions is reflected in the commercial success Epic
25 has achieved by implementing them, which has allowed Epic and its promotional partners to reach
26 audiences in previously unachievable ways. For example, Epic's co-founder identified the
Marshmello concert as a "major event" for Epic. *See* Exhibit I, an excerpt of *Epic Games, Inc. v.*
Apple Inc. Trial Exhibit DX-3036.013-.014. Similarly, in a September 2020 Washington Post
article, Epic's head of global partnerships described Fortnite's concert events as "*very lean-forward*,"

engaged social experience[s]” that are “not like watching a stream at home or on another platform.” <https://www.washingtonpost.com/video-games/2020/09/11/fortnite-live-events-planning/> (emphasis added). A true and correct copy of the September 2020 Washington Post article is attached hereto as Exhibit J.

47. In addition to its public statements lauding its concert events, on information and belief, Epic’s uses large-scale events to grow its base by expanding into untapped areas such as music, television, and movies. Not only does this increase the number of *Fortnite* users and grow related revenue, but it also creates new revenue streams. For example, according to an April 2020 Washington Post article, prior to Travis Scott’s Astronomic concert event, participants were able to “purchase Scott’s outfits and emotes.” <https://www.washingtonpost.com/video-games/2020/04/20/travis-scott-fortnite-concert/>. A true and correct copy of the April 2020 Washington Post article is attached hereto as Exhibit K. Consequently, Epic has seen increases in the number of participants using *Fortnite* and growth in related revenue, while its promotional partners have enjoyed increases in audience and sales. These successes are evidence that the claimed technology was not known in the prior art at the time of the invention, let alone well-known, routine, or conventional.

48. Although the bandwidth and space constraints of virtual computer-generated environments were known in the art, the solutions presented in the MMAP Patents and the ’605 Patent were not well-known, routine, or conventional at the time of their invention, which is demonstrated by, among other things, the Examiner’s description of the state of the art during prosecution of the Asserted Patents and related applications.

49. For example, during prosecution of the application that issued as the ’071 Patent, the Examiner cited U.S. Patent No. 6,767,287 (“McQuaid”) as prior art. In an office action, the Examiner stated that McQuaid disclosed “assigning ones of a plurality of avatars . . . so that each of the plurality of avatars populates a respective one of the parallel dimensions and each of the

1 plurality of parallel dimensions is populated by a unique subset of the plurality of avatars so as to
2 prevent over-population of any one of the parallel dimensions by avatars.” Exhibit L, Apr. 20, 2012
3 Office Action at 3. However, as the applicants explained, “McQuaid fails to teach *parallel*
4 dimensions (or parallel instances) in a virtual reality universe. McQuaid merely teaches the use of
5 *unique* instances in a virtual reality universe. Specifically, McQuaid teaches a virtual reality system
6 including a login server, at least one world server and a plurality of area servers that manipulate
7 avatars. The area servers include a processor for running software for administering unique virtual
8 geographic areas within associated virtual worlds.” Exhibit M, July 20, 2012 Resp. at 9. “Unique
9 areas are not and do not equate to parallel dimensions; by definition, a unique space is not a
10 duplicate and cannot read on a parallel area generated as a duplicate of an existing space.” *Id.* at 10.

11 50. As another example, during prosecution of the ’157 Patent, the Examiner cited U.S.
12 Patent No. 6,476,830 (“Farmer”) as prior art. In an office action, the Examiner described Farmer as
13 “disclos[ing] a system and method for enhancing the user’s experience in a multiplayer game” that
14 “teaches . . . limiting the number of avatars that can be present at one time in order to prevent over-
15 crowding of the visual interface.” *Id.* at 4.

16 51. As another example, during prosecution of the ’157 Patent, the Examiner cited U.S.
17 Publication No. 2005/0216853 (“Matsuda”) as prior art. In an office action, the Examiner stated that
18 Matsuda “teaches an aura (world) having a predetermined radius that is formed around a pilot avatar
19 (avatar of a particular user) and one or more drawn avatar (avatar of another user) and one or more
20 objects (such as pictures, a robot, an electronic pet, etc.), wherein the system limited the number of
21 objects in an aura, which may be set in advance.” *Id.*

22 52. As another example, during prosecution of the ’157 Patent, the Examiner cited U.S.
23 Patent No. 8,026,918 (“Murphy”) as prior art. In an office action, the Examiner stated that Murphy
24 “discloses a system and method for controlling communications with proximate avatars in a virtual
25 world (abstract). Murphy teaches selection criteria for selecting predetermined interests in
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1 neighboring avatar selection, wherein only the neighboring avatars that meet the criteria are
2 presented to the user in response to the discovery of other avatars. Murphy explains that the user
3 may specify the proximity-specific attributes to avoid overpopulating a list or group by setting the
4 limit on the number of avatars by using a ‘maximum number of discovered avatars’ setting section.”
5 *Id.* at 5-6.

6 53. During prosecution of the ’157 Patent, the Examiner stated certain cited prior art
7 references “fail to teach or suggest a method for modeling multiple parallel instances of a multi-
8 dimensional virtual reality space, each parallel instance replicating the multi-dimensional virtual
9 space; assigning a modeled multi-dimensional avatar so that each avatar populates a respective
10 parallel instance and each parallel instance is populated by a unique subset of avatars, wherein
11 assigning modeled avatars limits a total number of avatars in each unique subset; and modelling a
12 common space in relation to the plurality of parallel instances to make one or more objects located
13 inside the common space visible from viewpoints located inside each parallel instance.” *Id.* at 6.
14 The same Examiner made similar remarks in allowing claims from the application that issued as the
15 ’954 Patent. *See* Exhibit N, Dec. 24, 2013 Office Action at 6.

16 54. Despite the documented existence of problems with bandwidth and space
17 constraints, the Examiner determined for at least these reasons set forth above as well as those more
18 thoroughly discussed in the prosecution history of the Asserted Patents, that it was not well-known,
19 routine, or conventional to utilize the solutions presented in the MMAP Patents and the ’605 Patent.

20 **E. Epic’s Infringement of the Asserted Patents**

21 55. Epic infringes claims of the Asserted Patents by making, using, offering for sale,
22 selling and/or importing software in the United States that utilize the claimed multi-instance, multi-
23 user animation and/or experience playback solutions of the Asserted Patents.

24 56. For example, Epic operates *Fortnite*, an online video game that was originally
25 released in 2017. *Fortnite* is available in three distinct game mode versions that otherwise share the
26

1 same general gameplay and game engine UE4: *Fortnite Battle Royale*, *Fortnite Save the World*, and
2 *Fortnite Creative*, of which *Battle Royale* is the foundational iteration. *Fortnite* had an audience of
3 more than 125 million players in May 2018 with estimates of having earned over US \$1 billion by
4 July 2018 through micro-transactions. As of March 2019, *Fortnite* had drawn nearly 250 million
5 players. More recent reports estimate the number of participants in excess of 350 million players.

6 57. *Fortnite* relies on software that is capable of handling a large number of connections
7 to the same server while still retaining high bandwidth and rendering a large open in-game world.
8 *Fortnite* encompasses a plurality of three-dimensional parallel dimensions that are replica of a
9 common virtual world, with multiple avatars. Whenever *Fortnite* has a large-scale event, such as a
10 concert or dance party, that occurs on all game servers where all players log on concurrently to
11 view, upon information and belief, multiple parallel dimensions are used because, as shown below,
12 *Fortnite* does not render all players to one player's view. In other words, millions of players may be
13 in the same space, watching the same single-time event, but each player can only see a subset of the
14 other players, i.e., only the subset of players that are located in the same parallel dimension as
15 themselves.

16 58. In at least this way, *Fortnite* has utilized the multi-instance, multi-user animation
17 and experience playback solutions of the Asserted Patents to host large-scale events for multitudes
18 of participants, such as concert collaborations with real-world music artists and promotions for
19 upcoming movie releases. Epic's own documents confirm that it has relied on these large-scale
20 events to drive *Fortnite*'s growth. Hosting large-scale events has also allowed Epic to assist world
21 leading brands and entertainers to reach their audiences through *Fortnite*. A list and descriptions of
22 some of *Fortnite*'s large-scale events is provided by webpage found at:

23 https://fortnite.fandom.com/wiki/Live_Events. A true and correct copy of the webpage is attached
24 hereto as Exhibit O.

25 59. As another example, in February 2019, *Fortnite* hosted a concert with music artist
26

Marshmello. The concert boasted 10.7 million concurrent viewers who were signed in and attending simultaneously at the *Fortnite* virtual location Pleasant Park. Yet a video recording of this event from one player's perspective showed significantly fewer attendees. This video recording may be found on YouTube at: <https://www.youtube.com/watch?v=NBsCzN-jfvA&t=93s>. The one particular recording demonstrates a particular parallel dimension among a plurality of parallel dimension. Each player viewed the same concert and other objects located inside the common space is visible from viewpoints located inside each of the plurality of parallel dimensions. In at least this way, *Fortnite* has utilized the multi-instance, multi-user animation and experience playback solutions of the Asserted Patents to host repeatable, large-scale events for multitudes of participants.

60. A description of the Marshmello concert is provided on The Verge internet article found at: <https://www.theverge.com/2019/2/21/18234980/fortnite-marshmello-concert-viewer-numbers>. A true and correct copy of the article is attached hereto as Exhibit P.

61. As another example, in December 2019, *Fortnite* hosted a movie trailer premiere for the widely anticipated Star Wars movie *The Rise of Skywalker*. During the event, a virtual avatar of director J.J. Abrams arrived in the virtual world aboard the Millennium Falcon spacecraft and presented a trailer for the upcoming movie to in-game players. After the trailer was concluded, the J.J. Abrams avatar flew away on the Millennium Falcon, chased by enemy TIE-Fighters, and an audio message from the Star Wars character Emperor Palpatine was broadcast to in-game players. In at least this way, *Fortnite* has utilized the multi-instance, multi-user animation and experience playback solutions of the Asserted Patents to host repeatable, large-scale events for multitudes of participants. This virtual event was later referenced in the opening of the movie itself, demonstrating the far-reaching effect of virtual world promotions.

62. Further information regarding the event was described in a Forbes internet article found at: <https://www.forbes.com/sites/davidthier/2019/12/22/youll-only-understand-this-the-rise-of-skywalker-plot-point-if-you-play-fortnite/> and at a The Verge article found at:

1 [https://www.theverge.com/2019/12/14/21020296/star-wars-the-rise-of-skywalker-fortnite-jj-](https://www.theverge.com/2019/12/14/21020296/star-wars-the-rise-of-skywalker-fortnite-jj-abrams-lightsabers)
2 [abrams-lightsabers](https://www.theverge.com/2019/12/14/21020296/star-wars-the-rise-of-skywalker-fortnite-jj-abrams-lightsabers). True and correct copies of the Forbes and The Verge articles are attached hereto
3 as Exhibit Q and Exhibit R.

4 63. As another example, in April 2020, *Fortnite* hosted concerts with music artist Travis
5 Scott. The event was repeated multiple times, with each event utilizing prerecorded, choreographed
6 animations to achieve the concert experience. On each repetition, millions of participants were able
7 to attend simultaneously. These participants were necessarily spread across multiple parallel
8 dimensions or instances because only small subsets of avatars were visible in any one instance
9 despite there being many times that many participants attending the same experience.

10 64. In at least this way, *Fortnite* has utilized the claimed inventions of the Asserted
11 Patents to host repeatable, large-scale events for multitudes of participants.

12 65. The virtual concert was record-breaking in *Fortnite* and Travis Scott reportedly
13 earned significantly more than his average in-person show. According to a Forbes report described
14 in an NME internet article, the digital concert grossed the artist roughly \$20 million including
15 merchandise sales. Further information from the NME internet article can be found at:

16 [https://www.nme.com/en_asia/news/gaming-news/travis-scott-earned-20million-fortnite-concert-](https://www.nme.com/en_asia/news/gaming-news/travis-scott-earned-20million-fortnite-concert-event-2829903)
17 [event-2829903](https://www.nme.com/en_asia/news/gaming-news/travis-scott-earned-20million-fortnite-concert-event-2829903). A true and correct copy of the article is attached hereto as Exhibit S.

18 66. In these ways, which are by way of example, Epic has directly infringed the
19 Asserted Patents by making, using, selling, offering to sell and/or importing virtual, interactive
20 platforms and games that utilize the multi-instance, multi-user animation and recording and playing
21 back experience solutions, specifically the software that when executed on a server enables many
22 *Fortnite* participants to experience the same virtual worlds for virtual social events and concerts
23 such as those described above (the “Accused Products”), so as to obtain significant benefits of the
24 Asserted Patents’ innovations. Uthervse Gaming is entitled to recover from Epic the damages
25 adequate to compensate for such infringement, which have yet to be determined.

V. CAUSES OF ACTION
FIRST CAUSE OF ACTION
INFRINGEMENT OF THE '071 PATENT

67. Utherville Gaming incorporates all of the above paragraphs as though fully set forth herein.

68. In violation of 35 U.S.C. § 271, Epic has directly and/or indirectly infringed at least claim 8 of the '071 Patent, literally and/or under the doctrine of equivalents, by making, using, selling, offering to sell and/or importing the Accused Products in the United States that use the method recited in claim 8 of the '071 Patent.

69. Claim 8 of the '071 Patent depends from claim 1. Claim 1 is incorporated by reference into Claim 8 and therefore recites the following element originally set forth in claim 1: A method for managing a multi-instance, multi-user animation process, comprising modeling, using a computer, a plurality of parallel dimensions in a computer memory, each of the plurality of parallel dimensions being a replica of a modeled three dimensional space configured for modeling occupancy and movement of multiple avatars within limits that are defined by at least one model of a three dimensional object.

70. Upon information and belief, Epic's Accused Products model, using a computer, a plurality of parallel dimensions in a computer memory, each of which is a replica of a three dimensional space configured for modeling occupancy and movement of multiple avatars within limits that are defined by at least one model of a three dimensional object.

71. By way of example, Epic's Mashmello concert event was a computer-generated virtual event depicted to participants as a three-dimensional concert venue in which multiple participant avatars could occupy and move.



<https://www.youtube.com/watch?v=NBsCzN-jfvA> (screen shot excerpt of YouTube video of “Marshmello Holds First Ever Fortnite Concert Live at Pleasant Park” posted Feb. 2, 2019).

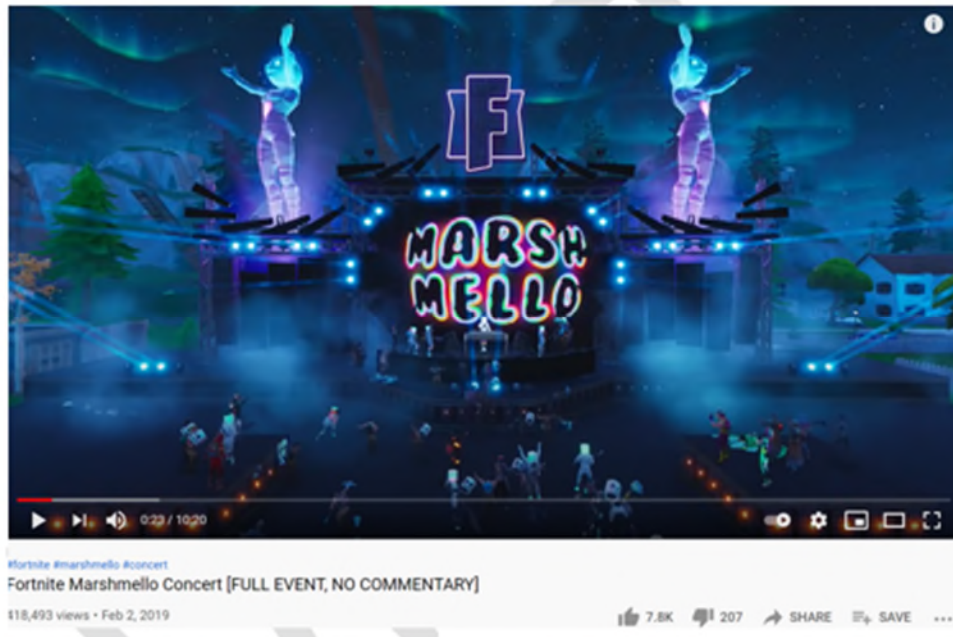
72. Although more than ten million users watched the concert live, the virtual venue shows only about 100 participant avatars occupying the three dimensional space. Thus, upon information and belief, for the Marshmello concert event, Epic necessarily modeled a plurality of parallel dimensions or separate instances to accommodate the millions of participants. Participant avatars are able to move within a three dimensional venue.

73. Claim 8 of the '071 Patent depends from claim 1. Claim 1 is incorporated by reference into Claim 8 and therefore recites the following element originally set forth in claim 1: assigning ones of a plurality of avatars within the computer memory so that each of the plurality of avatars populates a respective one of the parallel dimensions and each of the plurality of parallel dimensions is populated by a unique subset of the plurality of avatars, so as to prevent over-population of any one of the parallel dimensions by avatars.

74. Upon information and belief, Epic's Accused Products assign a plurality of avatars within the computer memory so that each of the plurality of avatars populates a respective one of the parallel dimensions and each of the plurality of parallel dimensions is populated by a unique

subset of the plurality of avatars, so as to prevent over-population of any one of the parallel dimensions by avatars.

75. By way of example, while millions of users participated in the Marshmello concert event, the virtual venue shows tens of participant avatars populating the venue in front of the virtual stage.



<https://www.youtube.com/watch?v=IbsZKdiyzj4> (screen shot excerpt of YouTube video of “Fortnite Marshmello Concert [FULL EVENT, NO COMMENTARY]”)

76. Each of the plurality of parallel dimensions is populated by a unique subset of the plurality of avatars, which prevents over-population of any one of the parallel dimensions by avatars. *See, e.g.*, <https://www.youtube.com/watch?v=ureS0NC9hJQ> (YouTube video of February 2, 2021 live stream of Marshmello concert showing participant avatars) and <https://www.youtube.com/watch?v=Ii5S6HzJce4> (YouTube video of February 2, 2021 live stream of Marshmello concert showing different participant avatars).

77. Claim 8 of the '071 Patent depends from claim 1. Claim 1 is incorporated by

reference into Claim 8 and therefore recites the following element originally set forth in claim 1:
animating ones of the plurality of avatars populating different ones of the parallel dimensions in
response to input from respective corresponding ones of a plurality of clients to provide virtual-
reality data, using the computer, the virtual-reality data configured to enable the clients to output an
animated display of a corresponding one of the parallel dimensions and avatars populated therein.

78. Upon information and belief, Epic's Accused Products animate the plurality of
avatars populating different ones of the parallel dimensions in response to input from respective
corresponding ones of a plurality of clients to provide virtual-reality data, using the computer, the
virtual-reality data configured to enable the clients to output an animated display of a corresponding
one of the parallel dimensions and avatars populated therein.

79. By way of example, for the Marshmello concert event, participants were able to
view the same stage, hear the same audio, and view the identical movement of "Marshmello" and
other virtual dancing avatars, yet participants viewed the virtual stage and "Marshmello" based on
their individual movement relative to the virtual stage and "Marshmello". *See, e.g.*,
<https://www.youtube.com/watch?v=ureS0NC9hJQ> (YouTube video of February 2, 2021 live stream
of Marshmello concert); <https://www.youtube.com/watch?v=Ii5S6HzJce4> (YouTube video of
February 2, 2021 live stream of Marshmello concert).

80. In addition, participant avatars are able to move in response to input from respective
ones of a plurality of clients to provide virtual-reality data, using the computer, the virtual reality
data configured to enable clients to output an animated display of a corresponding one of the
parallel dimensions and avatars populated therein.



<https://www.youtube.com/watch?v=li5S6HzJce4> (redacted screen shot excerpt of video of February 2, 2021 live stream of Marshmello concert depicting menu for user to choose *Fortnite* “Take the L” emote).



<https://www.youtube.com/watch?v=li5S6HzJce4> (redacted screen shot excerpt of video of February 2, 2021 live stream of Marshmello concert depicting avatar performing “Take the L” dance).

81. Claim 8 of the '071 Patent, in addition to the incorporated elements of claim 1, further recites: modeling a common space in the computer memory configured in relation to the plurality of parallel dimensions so that at least one object located inside the common space is visible

1 from viewpoints located inside each of the plurality of parallel dimensions.

2 82. Upon information and belief, Epic's Accused Products model a common space in
3 the computer memory configured in relation to the plurality of parallel dimensions so that at least
4 one object located inside the common space is visible from viewpoints located inside each of the
5 plurality of parallel dimensions.

6 83. By way of example, for the Marshmello concert event, the DJ Mello avatar was
7 situated in the common space of the virtual stage and was visible from each of the dimensions.



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17 <https://www.youtube.com/watch?v=ZyBb6Ha1Un4> (screen shot excerpt of video of February 2,
18 2021 live stream of Marshmello concert).

19 84. As of the filing of this complaint, Epic has infringed and continues to infringe the
20 '071 Patent under 35 U.S.C. § 271(a), directly, literally and/or under the doctrine of equivalents, by
21 making, using, selling, and/or offering to sell in the United States and/or importing into the United
22 States, the Accused Products, during the term of the '071 Patent.

23 85. Epic's actions and infringement of the '071 Patent are without license or
24 authorization from Utherverse Gaming.

25 86. Epic's acts of infringement have caused Utherverse Gaming to suffer damages.

1 Utherville Gaming is entitled to and seeks to recover from Epic pursuant to 35 U.S.C. § 284 the
2 damages it has sustained as a result of Epic's wrongful actions in an amount subject to proof at trial,
3 and in no event less than a reasonable royalty, together with interest and costs.

4 **SECOND CAUSE OF ACTION**
5 **INFRINGEMENT OF THE '954 PATENT**

6 87. Utherville Gaming incorporates all of the above paragraphs as though fully set forth
7 herein.

8 88. In violation of 35 U.S.C. § 271, Epic has directly and/or indirectly infringed at least
9 claim 4 of the '954 Patent, literally and/or under the doctrine of equivalents, by making, using,
10 selling, offering to sell and/or importing the Accused Products in the United States that use the
11 method recited in claim 4 of the '954 Patent.

12 89. Claim 4 of the '954 Patent depends from claim 1. Claim 1 is incorporated by
13 reference into Claim 4 and therefore recites the following element originally set forth in claim 1: A
14 method for modeling, in a computer memory, multiple parallel instances of a multi-dimensional
15 virtual reality space, each of the plurality of parallel instances replicating the multi-dimensional
16 virtual reality space.

17 90. Upon information and belief, Epic's Accused Products model, in a computer
18 memory, multiple parallel instances of a multi-dimensional virtual reality space, each of the
19 plurality of parallel instances replicating the multi-dimensional virtual reality space.

20 91. By way of example, Epic's Mashmello concert event was a computer-generated
21 virtual event depicted to participants as a three-dimensional concert venue.



<https://www.youtube.com/watch?v=NBsCzN-jfvA> (screen shot excerpt of YouTube video of “Marshmello Holds First Ever Fortnite Concert Live at Pleasant Park” posted Feb. 2, 2019).

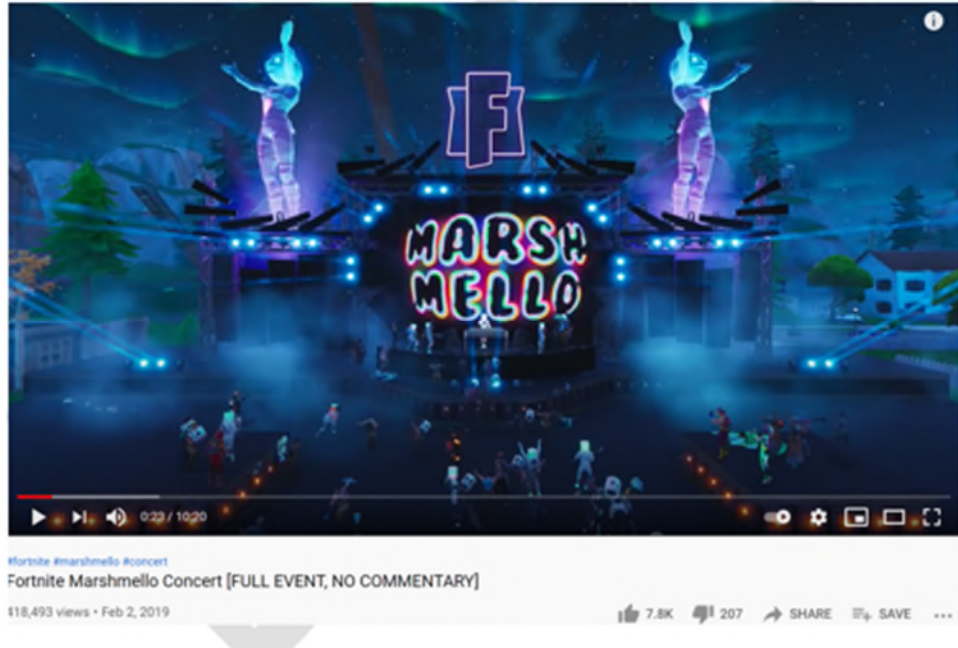
92. Although more than ten million users watched the concert live, the virtual venue shows only about 100 participant avatars occupying the three dimensional space. Thus, upon information and belief, for the Marshmello concert event, Epic necessarily modeled multiple parallel instances of a multi-dimensional virtual reality space, each of the plurality of parallel instances replicating the multi-dimensional virtual reality space.

93. Claim 4 of the '954 Patent depends from claim 1. Claim 1 is incorporated by reference into Claim 4 and therefore recites the following element originally set forth in claim 1: assigning ones of a plurality of modeled multi-dimensional avatars within the computer memory so that each of the plurality of avatars populates a respective one of the parallel instances and each of the plurality of parallel instances is populated by a unique subset of the plurality of avatars, wherein the assigning limits a total number of the plurality of avatars in each of the unique subsets.

94. Upon information and belief, Epic's Accused Products assign a plurality of modeled multi-dimensional avatars within the computer memory so that each of the plurality of avatars populates a respective one of the parallel instances and each of the plurality of parallel instances is populated by a unique subset of the plurality of avatars, wherein the assigning limits a total number

of the plurality of avatars in each of the unique subsets.

95. By way of example, while millions of users participated in the Marshmello concert event, the virtual venue shows tens of participant avatars populating the venue in front of the virtual stage.



<https://www.youtube.com/watch?v=IbsZKdiyzj4> (screen shot excerpt of YouTube video of “Fortnite Marshmello Concert [FULL EVENT, NO COMMENTARY]”)

96. Each of the plurality of parallel dimensions is populated by a unique subset of the plurality of avatars, and prevents over-population of any one of the parallel dimensions by avatars. See, e.g., <https://www.youtube.com/watch?v=ureS0NC9hJQ> (YouTube video of February 2, 2021 live stream of Marshmello concert showing participant avatars) and <https://www.youtube.com/watch?v=Ii5S6HzJce4> (YouTube video of February 2, 2021 live stream of Marshmello concert showing different participant avatars).

97. Claim 4 of the '954 Patent depends from claim 1. Claim 1 is incorporated by reference into Claim 4 and therefore recites the following element originally set forth in claim 1: generating an additional parallel instance of the multi-dimensional virtual reality space, based on

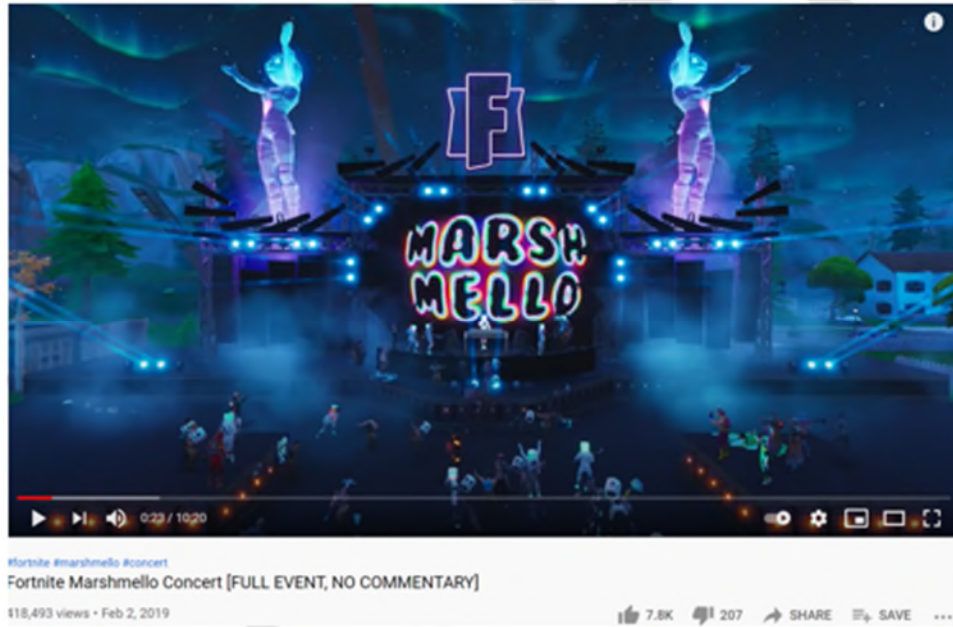
1 detecting an increase in a number of a plurality of client devices providing input to the modeling for
 2 controlling ones of the plurality of modeled multi-dimensional avatars.

3 98. Upon information and belief, Epic's Accused Products generate an additional
 4 parallel instance of the multi-dimensional virtual reality space, based on detecting an increase in a
 5 number of a plurality of client devices providing input to the modeling for controlling ones of the
 6 plurality of modeled multi-dimensional avatars.

7 99. By way of example, Epic has explained that it "run[s] Fortnite's dedicated game
 8 servers primarily on thousands of c4.8xlarge AWS instances, which scale up and down with our
 9 daily peak of players." See Exhibit T, [https://www.epicgames.com/fortnite/en-](https://www.epicgames.com/fortnite/en-US/news/postmortem-of-service-outage-at-3-4m-ccu)
 10 [US/news/postmortem-of-service-outage-at-3-4m-ccu](https://www.epicgames.com/fortnite/en-US/news/postmortem-of-service-outage-at-3-4m-ccu). During the Marshmello concert, different
 11 instantiations appear to have similar limited numbers of avatars all interacting with the same
 12 "Marshmello." Thus, on information and belief, Epic generates additional instantiations based on
 13 detecting an increase in a number of a plurality of client devices providing input to the modeling for
 14 controlling ones of the plurality of modeled multi-dimensional avatars.



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 23 <https://www.youtube.com/watch?v=HwbScTdNoik> (screen shot excerpt of YouTube video of
 24 "FULL Marshmello Fortnite Concert Event!!")



<https://www.youtube.com/watch?v=IbsZKdiyzj4> (screen shot excerpt of YouTube video of “Fortnite Marshmello Concert [FULL EVENT, NO COMMENTARY]”)

100. Claim 4 of the ’954 Patent, in addition to the incorporated elements of claim 1, further recites: modeling a common space in the computer memory configured in relation to the plurality of parallel instances so that at least one object located inside the common space is visible from viewpoints located inside each of the plurality of parallel instances.

101. By way of example, for the Marshmello concert event, the DJ Mello avatar was situated in the common space of the virtual stage and was visible from each of the dimensions. *See, e.g.,* <https://www.youtube.com/watch?v=ZyBb6Ha1Un4> (YouTube video of live stream of Marshmello concert).



<https://www.youtube.com/watch?v=ZyBb6Ha1Un4> (screen shot excerpt of video of February 2, 2021 live stream of Marshmello concert).

102. Upon information and belief, Epic's Accused Products models a common space in the computer memory configured in relation to the plurality of parallel instances so that at least one object located inside the common space is visible from viewpoints located inside each of the plurality of parallel instances.

103. Epic has infringed and continues to infringe the '954 Patent under 35 U.S.C. § 271(a), directly, literally and/or under the doctrine of equivalents, by making, using, selling, and/or offering to sell in the United States and/or importing into the United States, the Accused Products, during the term of the '954 Patent.

104. Epic's actions and infringement of the '954 Patent are without license or authorization from Utherverse Gaming.

105. Epic's acts of infringement have caused Utherverse Gaming to suffer damages. Utherverse Gaming is entitled to and seeks to recover from Epic pursuant to 35 U.S.C. § 284 the damages it has sustained as a result of Epic's wrongful actions in an amount subject to proof at trial, and in no event less than a reasonable royalty, together with interest and costs.

THIRD CAUSE OF ACTION
INFRINGEMENT OF THE '157 PATENT

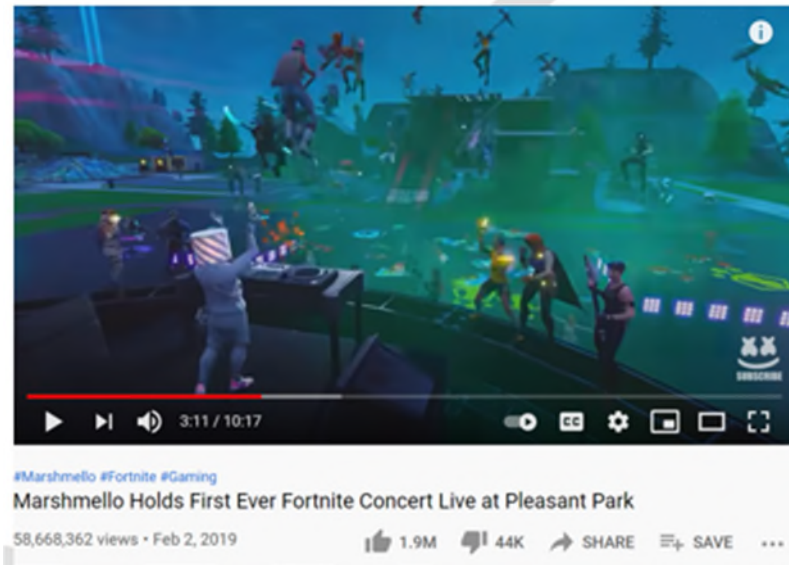
106. Uthervers Gaming incorporates all of the above paragraphs as though fully set forth herein.

107. In violation of 35 U.S.C. § 271, Epic has directly and/or indirectly infringed at least claim 1 of the '157 Patent, literally and/or under the doctrine of equivalents, by making, using, selling, offering to sell and/or importing the Accused Products in the United States that use the method recited in claim 1 of the '157 Patent.

108. Claim 1 of the '157 Patent recites: A method, comprising modeling, in a computer memory, multiple parallel instances of a multi-dimensional virtual reality space, each of the plurality of parallel instances replicating the multi-dimensional virtual reality space;

109. Upon information and belief, Epic's Accused Products model, in a computer memory, multiple parallel instances of a multi-dimensional virtual reality space, each of the plurality of parallel instances replicating the multi-dimensional virtual reality space.

110. By way of example, Epic's Mashmello concert event was a computer-generated virtual event occurring in a virtual reality space.



<https://www.youtube.com/watch?v=NBsCzN-jfvA> (screen shot excerpt of YouTube video of

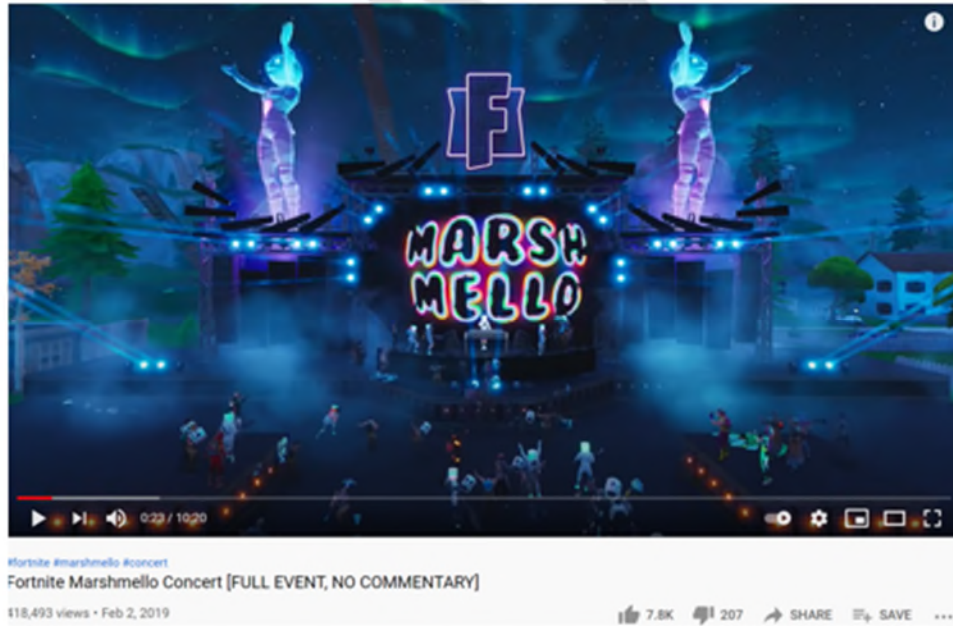
1 “Marshmello Holds First Ever Fortnite Concert Live at Pleasant Park” posted Feb. 2, 2019).

2 111. Although more than ten million users watched the concert live, the virtual venue
3 shows only about 100 participant avatars occupying the virtual reality space. Thus, upon
4 information and belief, for the Marshmello concert event, Epic necessarily modeled a plurality of
5 parallel dimensions or separate instances to accommodate the millions of participants.

6 112. Claim 1 of the '157 Patent recites: assigning ones of a plurality of modeled multi-
7 dimensional avatars within the computer memory so that each of the plurality of avatars populates a
8 respective one of the parallel instances and each of the plurality of parallel instances is populated by
9 a unique subset of the plurality of avatars, wherein the assigning limits a total number of the
10 plurality of avatars in each of the unique subsets.

11 113. Upon information and belief, Epic's Accused Products assign a plurality of modeled
12 multi-dimensional avatars within the computer memory so that each of the plurality of avatars
13 populates a respective one of the parallel instances and each of the plurality of parallel instances is
14 populated by a unique subset of the plurality of avatars, wherein the assigning limits a total number
15 of the plurality of avatars in each of the unique subset.

16 114. By way of example, while millions of users participated in the Marshmello concert
17 event, the virtual venue shows tens of participant avatars populating the venue in front of the virtual
18 stage.



<https://www.youtube.com/watch?v=IbsZKdiyzi4> (screen shot excerpt of YouTube video of “Fortnite Marshmello Concert [FULL EVENT, NO COMMENTARY]”)

115. Each of the plurality of parallel instances is populated by a unique subset of the plurality of avatars, which limits the total number of avatars in any one of the parallel instances. *See, e.g.,* <https://www.youtube.com/watch?v=ureS0NC9hJQ> (YouTube video of February 2, 2021 live stream of Marshmello concert showing participant avatars) and <https://www.youtube.com/watch?v=Ii5S6HzJce4> (YouTube video of February 2, 2021 live stream of Marshmello concert showing different participant avatars).

116. Claim 1 of the ’157 Patent recites: modeling a common space in the computer memory configured in relation to the plurality of parallel instances so that at least one object located inside the common space is visible from viewpoints located inside each of the plurality of parallel instances.

117. Upon information and belief, Epic’s Accused Products model a common space in the computer memory configured in relation to the plurality of parallel instances so that at least one object located inside the common space is visible from viewpoints located inside each of the

1 plurality of parallel instances.

2 118. By way of example, for the Marshmello concert event, the DJ Mello avatar was
3 situated in the common space of the virtual stage and was visible from each of the dimensions.



11 <https://www.youtube.com/watch?v=ZyBb6Ha1Un4> (screen shot excerpt of video of February 2,
12 2021 live stream of Marshmello concert).

13
14 119. Epic has infringed and continues to infringe the '157 Patent under 35 U.S.C. §
15 271(a), directly, literally and/or under the doctrine of equivalents, by making, using, selling, and/or
16 offering to sell in the United States and/or importing into the United States, the Accused Products,
17 during the term of the '157 Patent.

18 120. Epic's actions and infringement of the '157 Patent are without license or
19 authorization from Utherverse Gaming.

20 121. Epic's acts of infringement have caused Utherverse Gaming to suffer damages.
21 Utherverse Gaming is entitled to and seeks to recover from Epic pursuant to 35 U.S.C. § 284 the
22 damages it has sustained as a result of Epic's wrongful actions in an amount subject to proof at trial,
23 and in no event less than a reasonable royalty, together with interest and costs.

24 **FOURTH CAUSE OF ACTION**
25 **INFRINGEMENT OF THE '605 PATENT**

26 122. Utherverse Gaming incorporates all of the above paragraphs as though fully set forth

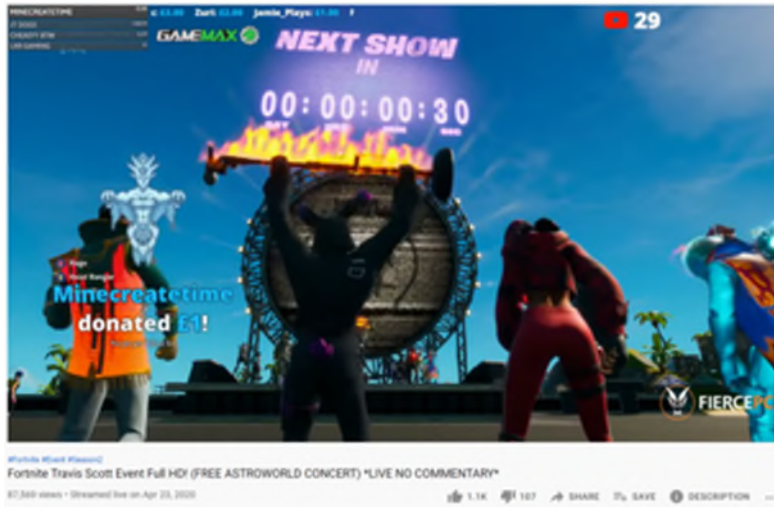
1 herein.

2 123. In violation of 35 U.S.C. § 271, Epic has directly and/or indirectly infringed at least
3 claim 2 of the '605 Patent, literally and/or under the doctrine of equivalents, by making, using,
4 selling, offering to sell and/or importing the Accused Products in the United States that use the
5 method recited in claim 2 of the '605 Patent.

6 124. Claim 2 of the '605 Patent depends from claim 1. Claim 1 is incorporated by
7 reference into Claim 2 and therefore recites the following element originally set forth in claim 1:
8 A method of playing back a recorded experience in a virtual worlds system, comprising
9 instantiating, using one or more processors of a server, a new instance of a scene, the new instance
10 being defined by data stored in memory, at least one client device displaying and participating in the
11 new instance.

12 125. Upon information and belief, Epic's Accused Products instantiate, using one or
13 more processors of a server, a new instance of a scene, the new instance being defined by data
14 stored in memory, at least one client device displaying and participating in the new instance.

15 126. By way of example, Epic's Travis Scott concerts were presented by instantiating
16 new instances of a pre-recorded virtual Travis Scott performance that were displayed on
17 participants' devices so that they could participate in the instance. *See* Exhibit U, "This weekend's
18 coolest concert is happening in Fortnite: Travis Scott's in-game 'tour' is a surreal, virtual live
19 show", [https://www.vox.com/culture/2020/4/24/21235196/travis-scott-fortnite-concert-livestream-](https://www.vox.com/culture/2020/4/24/21235196/travis-scott-fortnite-concert-livestream-the-scotts-music-video)
20 [the-scotts-music-video](https://www.vox.com/culture/2020/4/24/21235196/travis-scott-fortnite-concert-livestream-the-scotts-music-video), posted Apr. 24, 2020 ("Anyone who shows up is treated to a surreal, 10-
21 minute show, where Giant Travis Scott suddenly gains godlike powers to fling players into outer
22 space, underwater, and a colorful series of dimensions....All of these visuals are timed to the music,
23 so Scott isn't actually playing his songs live.").



<https://www.youtube.com/watch?v=gYP9Katzh0c> (screen shot excerpt of YouTube video of “Fortnite Travis Scott Event Full HD! (FREE ASTROWORLD CONCERT) *LIVE NO COMMENTARY*” posted Apr. 23, 2020).

127. Claim 2 of the ’605 Patent depends from claim 1. Claim 1 is incorporated by reference into Claim 2 and therefore recites the following element originally set forth in claim 1: retrieving a recorded experience file from the memory, the recorded experience file having been generated by saving an initial scene state and saving subsequent changes and respective times during a time period of the recorded experience.

128. Upon information and belief, Epic’s Accused Products retrieve a recorded experience file from the memory, the recorded experience file having been generated by saving an initial scene state and saving subsequent changes and respective times during a time period of the recorded experience.

129. By way of example, the Travis Scott performance was presented at multiple times on multiple days by replaying a pre-recorded virtual Travis Scott performance that was replayed from a recorded experience file, which had been recorded by saving an initial scene state and further saving changes to the scene state over time. For example, on information and belief, the Travis Scott performance began with an object flying through the scene and coming to the ground, wherein the

movement of the object through the instance was determined by previously saved changes:



#Fortnite #Event #Season2
Fortnite Travis Scott Event Full HD! (FREE ASTROWORLD CONCERT) *LIVE NO COMMENTARY*
87,597 views • Streamed live on Apr 23, 2020



#Fortnite #Event #Season2
Fortnite Travis Scott Event Full HD! (FREE ASTROWORLD CONCERT) *LIVE NO COMMENTARY*
87,597 views • Streamed live on Apr 23, 2020



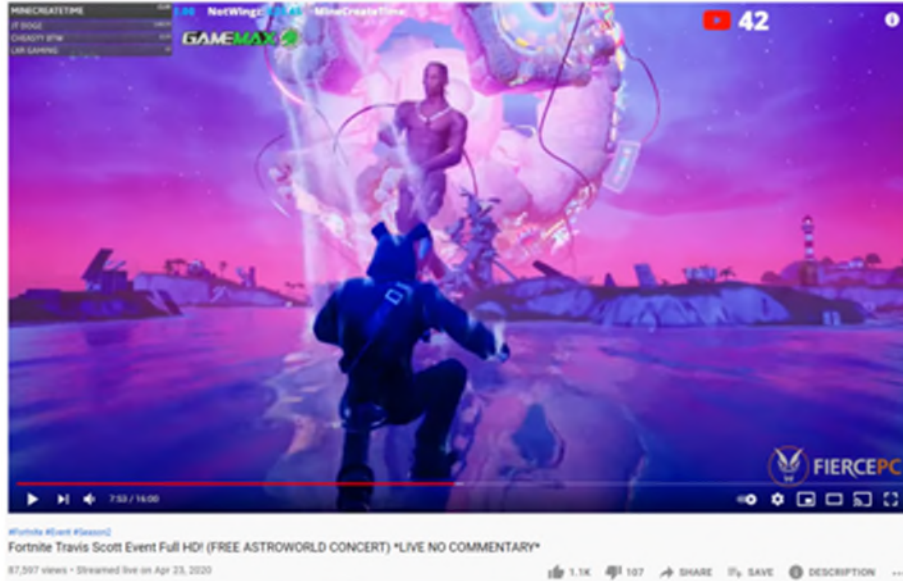
<https://www.youtube.com/watch?v=gYP9Katzh0c> (screen shot excerpt of YouTube video of “Fortnite Travis Scott Event Full HD! (FREE ASTROWORLD CONCERT) *LIVE NO COMMENTARY*” posted Apr. 23, 2020). *See also* Exhibit U, “This weekend’s coolest concert is happening in Fortnite: Travis Scott’s in-game ‘tour’ is a surreal, virtual live show”, <https://www.vox.com/culture/2020/4/24/21235196/travis-scott-fortnite-concert-livestream-the-scotts-music-video>, posted Apr. 24, 2020 (“Anyone who shows up is treated to a surreal, 10-minute show, where Giant Travis Scott suddenly gains godlike powers to fling players into outer space, underwater, and a colorful series of dimensions....All of these visuals are timed to the music, so Scott isn’t actually playing his songs live.”).

130. Claim 2 of the ’605 Patent depends from claim 1. Claim 1 is incorporated by reference into Claim 2 and therefore recites the following element originally set forth in claim 1: playing back the recorded experience file by rendering, for display by the at least one client device, objects of the initial scene state in the new instance, including one or more avatars, and rendering updates to the initial scene state based on the subsequent changes over the time period.

131. Upon information and belief, Epic’s Accused Products play back the recorded experience file by rendering, for display by the at least one client device, objects of the initial scene

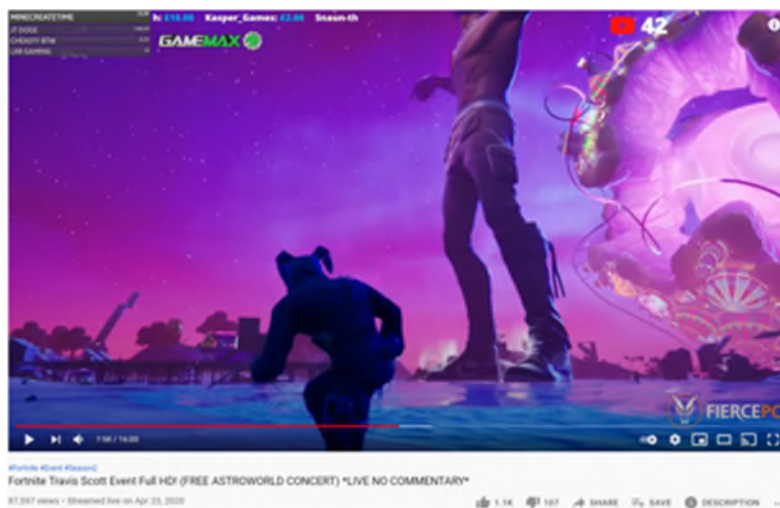
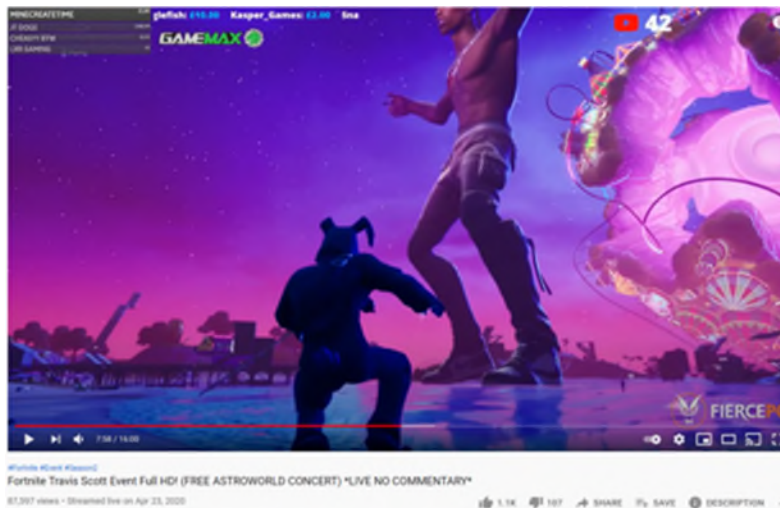
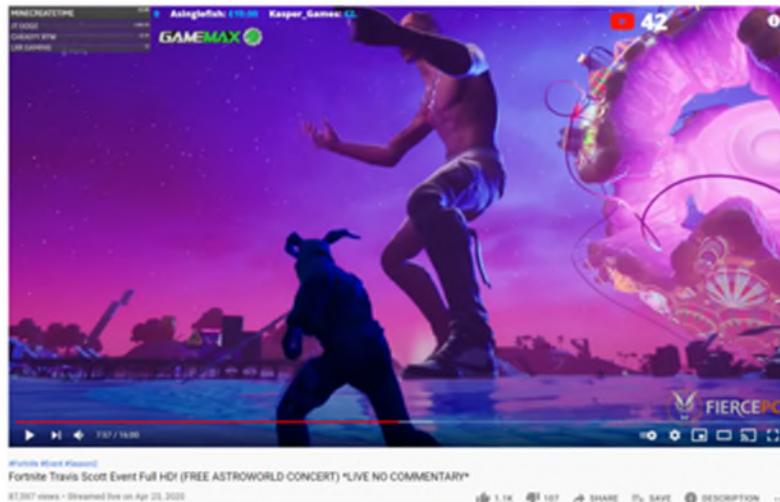
state in the new instance, including one or more avatars, and rendering updates to the initial scene state based on the subsequent changes over the time period.

132. By way of example, during Epic's Travis Scott concerns the Travis Scott performance is played back with objects from the initial scene state, such as a large Travis Scott character, rendered in the new instance, for display on at least one client device.



<https://www.youtube.com/watch?v=gYP9Katzh0c> (screen shot excerpt of YouTube video of “Fortnite Travis Scott Event Full HD! (FREE ASTROWORLD CONCERT) *LIVE NO COMMENTARY*” posted Apr. 23, 2020).

133. Also rendered for display on at least one client device are participant avatars, such as those appearing in the foreground of the Travis Scott performance. As the Travis Scott performance continues, updates to the initial scene state are made and rendered, replaying the pre-recorded experience for the participants.

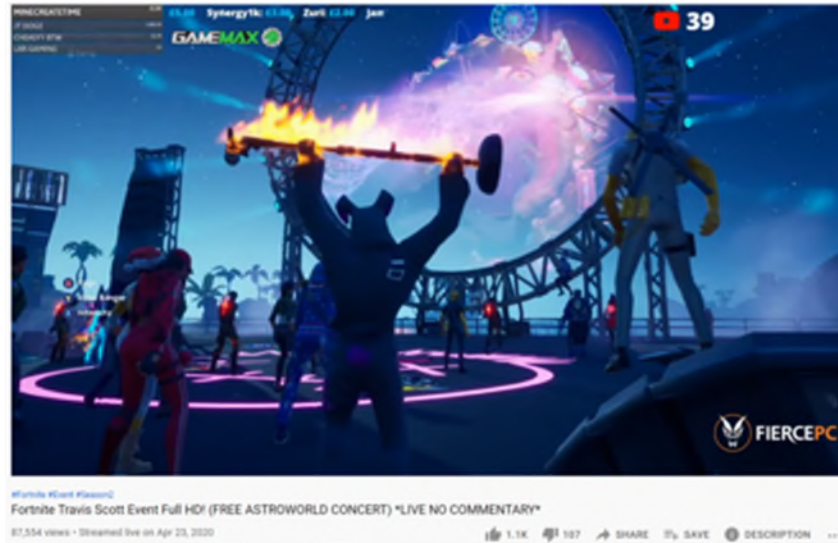


1 <https://www.youtube.com/watch?v=gYP9Katzh0c> (screen shot excerpts of YouTube video of
2 “Fortnite Travis Scott Event Full HD! (FREE ASTROWORLD CONCERT) *LIVE NO
3 COMMENTARY*” posted Apr. 23, 2020). *See also* Exhibit U, “This weekend’s coolest concert is
4 happening in Fortnite: Travis Scott’s in-game ‘tour’ is a surreal, virtual live show”,
5 [https://www.vox.com/culture/2020/4/24/21235196/travis-scott-fortnite-concert-livestream-the-](https://www.vox.com/culture/2020/4/24/21235196/travis-scott-fortnite-concert-livestream-the-scotts-music-video)
6 [scotts-music-video](https://www.vox.com/culture/2020/4/24/21235196/travis-scott-fortnite-concert-livestream-the-scotts-music-video), posted Apr. 24, 2020 (“Anyone who shows up is treated to a surreal, 10-minute
7 show, where Giant Travis Scott suddenly gains godlike powers to fling players into outer space,
8 underwater, and a colorful series of dimensions....All of these visuals are timed to the music, so
9 Scott isn’t actually playing his songs live.”).

10 134. Claim 2 of the ’605 Patent depends from claim 1. Claim 1 is incorporated by
11 reference into Claim 2 and therefore recites the following element originally set forth in claim 1:
12 automatically transporting the one or more avatars to a different new instance of the scene, upon
13 occurrence of a threshold event, wherein the threshold event comprises when a maximum capacity
14 of avatars has been reached in the new instance of the scene.

15 135. Upon information and belief, Epic’s Accused Products automatically transport the
16 one or more avatars to a different new instance of the scene, upon occurrence of a threshold event,
17 wherein the threshold event comprises when a maximum capacity of avatars has been reached in the
18 new instance of the scene.

19 136. By way of example, although more than 12.3 million players participated in a
20 simultaneous replay of the pre-recorded virtual Travis Scott performance, the virtual venue shows
21 about 100 participant avatars occupying the three-dimensional space. Thus, upon information and
22 belief, for the Travis Scott concerts, Epic necessarily transported avatars to different new instances
23 of a scene when a maximum capacity of avatars had been reached.



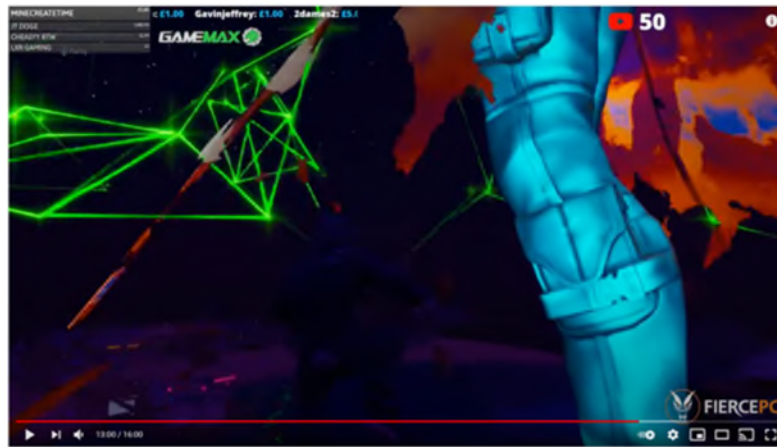
<https://www.youtube.com/watch?v=gYP9Katzh0c> (screen shot excerpt of YouTube video of “Fortnite Travis Scott Event Full HD! (FREE ASTROWORLD CONCERT) *LIVE NO COMMENTARY*” posted Apr. 23, 2020).

137. Claim 2 of the ’605 Patent, in addition to the incorporated elements of claim 1, further recites: wherein movement within the new instance by the one or more avatars associated with at least one client device is limited by objects of the recorded experience.

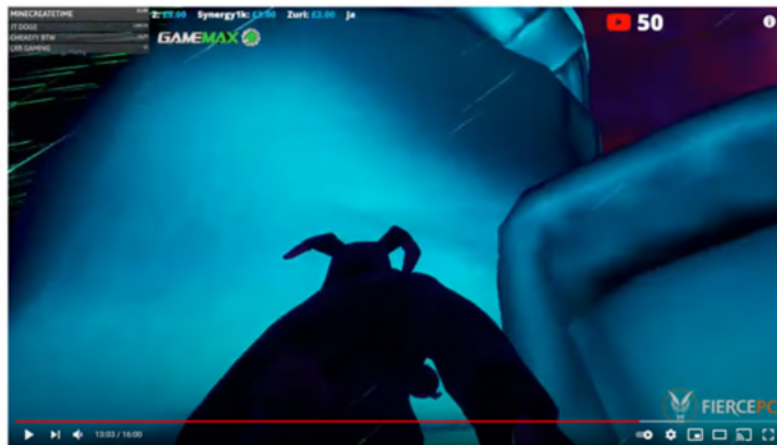
138. Upon information and belief, Epic’s Accused Products the movement within the new instance by the one or more avatars associated with at least one client device is limited by objects of the recorded experience.

139. By way of example, during Epic’s Travis Scott concerts, avatars were unable in some instances to directly interact with certain objects of the recorded experience, such as the large Travis Scott character. Avatars could get close to the large Travis Scott character or occupy certain spaces directly adjacent to the large Travis Scott character, but they could not jump on, attack, or directly engage the Travis Scott character or simultaneously occupy the same space as the large Travis Scott character. In the screen shot below, an avatar moves through space toward the leg of the large Travis Scott character, which limits the avatar’s movement within the

instance in which it has been transported.



#Fortnite #Event #Klaxson2
Fortnite Travis Scott Event Full HD! (FREE ASTROWORLD CONCERT) *LIVE NO COMMENTARY*
87,587 views • Streamed live on Apr 23, 2020

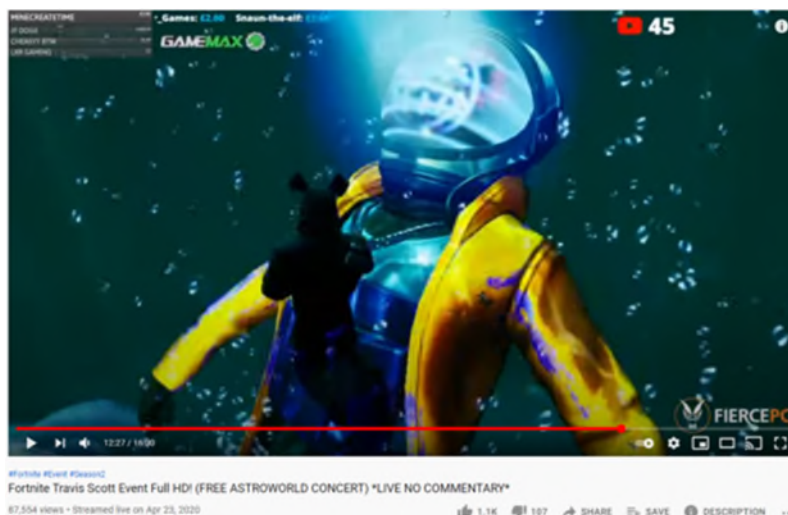


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Fortnite Travis Scott Event Full HD! (FREE ASTROWORLD CONCERT) *LIVE NO COMMENTARY*
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140. At another part of the Travis Scott performance, objects of the recorded experience went underwater, taking participants’ avatars with them, during which time participants’ avatars were limited in function and could only swim, and could not run, jump, or dance.



<https://www.youtube.com/watch?v=gYP9Katzh0c> (screen shot excerpt of YouTube video of

1 “Fortnite Travis Scott Event Full HD! (FREE ASTROWORLD CONCERT) *LIVE NO
2 COMMENTARY*” posted Apr. 23, 2020).

3 141. Epic has infringed and continues to infringe the ’605 Patent under 35 U.S.C. §
4 271(a), directly, literally and/or under the doctrine of equivalents, by making, using, selling, and/or
5 offering to sell in the United States and/or importing into the United States, the Accused Products,
6 during the term of the ’605 Patent.

7 142. Epic’s actions and infringement of the ’605 Patent are without license or
8 authorization from Utherverse Gaming.

9 143. Epic’s acts of infringement have caused Utherverse Gaming to suffer damages.
10 Utherverse Gaming is entitled to and seeks to recover from Epic pursuant to 35 U.S.C. § 284 the
11 damages it has sustained as a result of Epic’s wrongful actions in an amount subject to proof at trial,
12 and in no event less than a reasonable royalty, together with interest and costs.

13 VI. PRAYER FOR RELIEF

14 Wherefore, Utherverse Gaming respectfully requests that this Court enter judgment in its
15 favor and against Epic as follows:

- 16 a) a judgment and award that Epic has infringed, either literally and/or under the
17 doctrine of equivalents, each of the Asserted Patents;
- 18 b) a judgment and order requiring Epic to pay Utherverse Gaming its damages,
19 costs, and expenses, to which Utherverse Gaming is entitled due to Epic’s
20 infringement;
- 21 c) a judgment and order requiring Epic to provide an accounting and to pay
22 Utherverse Gaming supplemental damages, including without limitation, pre-
23 judgment and post-judgment interest; and
- 24 d) such other and further relief to which it may be entitled.

VII. DEMAND FOR JURY TRIAL

Utherville Gaming hereby demands trial by jury on all claims and issues so triable.

DATED this 11th day of June, 2021.

Respectfully Submitted,

POLSINELLI P.C.

By: /s/ Gary E. Hood

Gary E. Hood

WSBA No. 26209

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Attorneys for Utherverse Gaming, LLC