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## I. INTRODUCTION

Anascape's claim construction theme and its fundamental argument in this litigation is that the '525 and '700 patents disclose a number of different controller inventions, some of which use a single input member (i.e., a single trackball or joystick) moveable in six degrees of freedom ("6DOF") relative to a reference member (e.g., housing) of the controller, while others of which do not require a single input member moveable in 6DOF. Anascape must take this expansive position, because, as its preliminary infringement contentions make clear, none of the accused Nintendo video game controllers uses a single input member moveable in 6DOF relative to a reference member of the controller. Nintendo's accused game controller use combinations of conventional elements such as two-axis joysticks and cross-switches, all of which admittedly existed in the prior art, and none of which, alone or in combination, are moveable in 6DOF relative to the controller's reference member. For example, the accused GameCube controller has a standard, two-axis joystick designed to be operated by the left thumb, a separate, standard cross-switch also meant to be operated by the left thumb and a second standard two-axis joystick meant to be operated by the right thumb. (A photograph of the GameCube controller is attached as Exhibit 1.)

However, Anascape fails to apprise the Court that the '525 patent specification, of which the '700 patent is a continuation, repeatedly limits the disclosed invention to require a single input member moveable in 6DOF relative to a reference member of the controller and specifically distinguishes such a controller from prior art controllers missing this feature. As detailed below, inventor Armstrong repeatedly made similar disclaimers when he prosecuted prior, related patent applications. The '525 and '700 patents rely on these earlier applications for priority, i.e., they claim an earlier filing date based on these earlier applications. Armstrong should be taken at his word. The asserted claims of the '525 and '700 patents should be limited

to controllers having a single input member moveable in 6DOF relative to a reference member of the controller.

Anascape takes a similarly expansive approach with respect to its proposed construction of the '525 and '700 patent's "flexible membrane sheet." Throughout the specification and prosecution history, Armstrong touted advantages achieved by the flexible membrane sheet's inclusion of both sensors and associated circuitry, and distinguished and criticized prior art 6DOF controllers which did not have a flexible membrane sheet containing both sensors and circuitry. Anascape now argues that this purportedly novel feature is broad enough to cover run-of-the-mill prior art ribbon cables used in Nintendo's accused controllers, which are nothing more than wires in a common insulation sheath and contain neither sensors nor associated circuitry. (Photographs of a controller ribbon cable that Anascape accuses of infringement are attached as Exhibit 2.) Anascape's overly broad proposed construction of "flexible membrane sheet" should be rejected.

## **II. BACKGROUND OF THE '525 AND '700 PATENTS**

### **A. '525 PATENT**

The '525 patent, entitled "Image Controllers with Sheet Connected Sensors," was filed on July 5, 1996 and issued on April 24, 2001.<sup>1</sup> The '525 patent describes a specifically structured "image controller" having a "single input member" (i.e., a single trackball or joystick) that responds to movement of the hand in all "six degrees of freedom" ("6DOF") and a "flexible membrane sheet" that includes sensors and circuitry said to be useful in such controllers. According to the patent, a 6DOF controller structured in this way is an improvement over prior art 6DOF controllers and constitutes Armstrong's invention:

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<sup>1</sup>The '525 patent is a continuation-in-part of application no. 08/393,459, which issued as U.S. Patent No. 5,565,891 and a continuation-in-part of application no. 07/847,619, which issued as U.S. Patent No. 5,589,828.

***In the prior art there exist 6 DOF controllers of a type having a hand operable, single input member moveable in six degrees of freedom . . . . this type of controller having the 6 DOF operable input member outputs a signal(s) for each degree of freedom input, and it is this type of 6 DOF controller which is believed to be by far the most easily used for 3-D graphics control, and it is with this type of 6 DOF controller that the present invention is primarily concerned.***

‘525 at 1:61-2:2 (emphasis added).

Anascape’s brief (“Br.”) at page 4 provides an explanation of the term “six degrees of freedom” as referring to freedom of movement on and about the three different axes of motion that exist in three dimensional space. These six degrees of freedom of movement are illustrated in Figure 7, which is common to both the ‘525 and ‘700 patents. As described in the ‘525 patent specification, the invention relates to a single input member that can be moved by a hand in six degrees of freedom and which translates those hand movements into electrical signals which can be used to control images on a display:

***The present controllers sense hand inputs on the input member via movement or force influenced sensors, and send information describing rotation or rotational force of the hand operable input member in either direction about three mutually perpendicular bi-directional axes herein referred to as yaw, pitch and roll, (or first, second and third); and information describing linear moment of the hand operable input member along the axes to a host computer or like graphics generation device for control of graphics of a display, thus [3D or] six degrees of freedom of movement or force against the input member are converted to input-representative signals for control of graphics images.***

‘525 at 4:56-67 (emphasis added); *see also* ‘700 at 2:18-36.

Additionally, the input member of the claimed invention must move in six degrees of freedom “relative to a reference member of the controller.” *See, e.g.*, ‘525 at 7:52-53; 7:61-62; 8:5-6; 8:13-14; 8:21-22; Abstract: 3-4. Thus, the hand operable input member is “defined in relationship to a reference member of the controller,” for example, “a trackball operable relative to a housing (reference member).” ‘525 at 5:2-4. Without this limitation, every input member would be a 6DOF input member, as virtually every object in free space is moveable in six

degrees of freedom. In his Disclosure of Invention included in the '525 prosecution history, Armstrong references this feature in explaining that the invention does not require the controller housing to be moved:

OBJECTS AND ADVANTAGES With the present invention, there exists no requirement that the housing be moved, unlike a 6 DOF glove for example, and this aspect renders many advantages. . . .

'525 Prosecution History, 11/22/1995 Disclosure of Invention at 9 (Ex. 3) (emphasis added).

In the '525 patent specification, Armstrong criticizes and distinguishes the prior art 6DOF controller of U.S. Patent No. 5,298,919 ("Chang") on the basis that Chang has multiple input members and lacks a single input member moveable in six degrees of freedom relative to a reference member of the controller:

The Chang device is basically a six degree of freedom computer controller for computer graphics.... However, as will become appreciated, in Chang's controller, *the lack of a hand operable single input member operable in six degrees of freedom has many significant disadvantages. Further, the Chang controller does not have a [sic] any input member capable of being manipulated in 6 DOF relative to any reference member of the controller, which yields additional significant disadvantages . . . .*

*The Chang controller does not have a single input member such as one ball or one handle which can be operated (causing representative electrical output) in six degrees of freedom. Nor can any one Chang input member be manipulated (moved) relative to a reference member on the controller in six degrees of freedom. Thus, the Chang device is functionally and structurally deficient.*

'525 at 3:27-37; 4:24-30 (emphasis added); *see also* '525 at 3:38-4:7.

Throughout the '525 specification, Armstrong repeatedly emphasizes the importance of a "single input member" that is moveable in six degrees of freedom relative to a reference member of the controller, and he expressly states that this feature is a fundamental aspect of his invention. For example, Armstrong states:

*The present controllers include the hand operable input member defined in relationship to a reference member of the controller. The input member can be a trackball operable relative to a housing (reference member) as described in my*

above mentioned co-pending application, *or alternatively, the input member can be any handle fit to be manipulated by a human hand, such as a joystick type handle, but in either case, the input member accepts 6 DOF of hand input relative to the reference member*, and the converter acts or operates from the hand inputs to cause influencing of the sensors which inform or shape electricity to be used as, or to produce such as by way of processing, an output signal suitable for a host device to at least in part control the image on the display of the host device.

‘525 at 5:1-14 (emphasis added).<sup>2</sup>

Moreover, every embodiment in the ‘525 patent describes a single input member moveable in 6DOF relative to a reference member, either in the form of a single trackball or a single handle (e.g., a joystick). *See, e.g.*, Figs. 1-6 (showing a single trackball); Figs. 13-36 (showing a single handle); Col. 7, lines 47-49 (“A 6 DOF trackball-type embodiment is illustrated in FIGS. 1-10, and 6 DOF joystick type embodiments are illustrated in FIGS. 13-36”).

During the prosecution of a prior, related patent application to which the ‘525 patent claims priority, Armstrong further emphasized the importance to his invention of a single input member moveable in 6DOF relative to a reference member of the controller and distinguished his invention from prior art controllers having input members that are moveable in less than 6DOF and thus lacking a single input member moveable in 6DOF relative to a reference member of the controller:

Additionally, a truly intuitive 6-DOF controller having all inputs through the single handle is one which allows the hand inputs against the handle to move the controller handle and also preferably the object (or viewpoint) on the display only (exclusively or purely) in the direction of the hand input force against the handle. . . .

***The use of a separate handle or thumbwheel 25 in Dzholdasbekov for one of the degrees of rotational freedom is an entirely different structural arrangement than that of the present claimed invention. . . . Likewise, Dzholdasbekov does not anticipate structuring a single handle to be resolvable about three mutually perpendicular axes intersecting one another within the handle, said three***

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<sup>2</sup> *See also* ‘525 at Abstract: 1-4; 5:56-57; 7:50-53; 7:59-62; 8:3-6; 8:11-14; 8:18-21.

***mutually perpendicular axes being the three “sensed” or detected axes, thus Dzholdasbekov does not anticipate the structure of the present claims . . . .***

‘828 Prosecution History, 1/11/96 Response to Final Office Action at 32, 41 (emphasis added) (Ex. 4).

The ‘525 patent also purports to improve upon prior art 6DOF controllers by providing a “flexible membrane sensor sheet.” More specifically, the ‘525 patent repeatedly touts benefits attributable to flexible membrane sensor sheets having both sensors and associated circuitry and criticizes prior art 6DOF controllers for failing to have a flexible membrane sheet including both sensors and associated circuitry. The ‘525 patent emphasizes that a sensor connecting sheet structured in this way eliminates the need for individual wires to be hand installed and individually applied to sensors and further allows the sensors to be positioned so that they can be configured (e.g., bent) in various shapes and configurations, all of which purportedly reduces the manufacturing costs of 6DOF controllers. In discussing the invention, Armstrong distinguished the prior art on this basis:

***Another failure in prior art 6 DOF controllers of the type having a hand operable single input member is the failure to use or anticipate use of inexpensive, flexible membrane sensor sheets, which are initially flat when manufactured, and which include sensors and conductive traces applied to the flat sheet structure.*** Such flat sheet membrane sensors could be advantageously used as a generally flat sensor support panel, or alternatively in bent or three dimensionally formed shapes in 6 DOF controller structures which utilize three dimensional constellation sensor mounting and appropriate structures for cooperative interaction with the sensors . . . .

***King [a prior art patent] also fails to anticipate the use of flexible membrane sensor sheets which include sensors and printed conductive traces*** which can be manufactured inexpensively in a flat sheet form, and used in flat sheet form, or alternatively, bent into three dimensionally formed shapes to position the sensors in three dimensional constellations. ***Thus the sensors and associated electrical conductors (wires) in the King device*** are believed to be required to be hand installed, and the wires individually applied to the sensors and then brought into a generally central area during the manufacturing of the King controller . . . .

‘525 at 2:16-27, 2:61-3:7 (emphasis added); *see also id.* at 5:44-6:3; 7:59-8:17; 19:11-18; 22:35-23:10; 32:35-45; Figs. 13, 17, 18.

According to Armstrong, the ‘525 invention solves the problems associated with prior art devices such as King by providing a flexible sensor connecting sheet that includes the sensors and the associated circuitry:

The present invention solves the aforementioned prior art problems associated with 6 DOF controllers having one 6 DOF input member, with multiple, individually hand mounted and positioned sensors or sensor units in widely-spread three dimensional constellations, and the problems of hand applied wiring of individually insulated wire to the individual sensors or sensor units. ***The present 6 DOF controller solves these problems primarily with sheet supported sensor structuring and most associated circuitry on the sheet which is at least initially flat when the sensors and conductive circuit traces are applied . . . .***

‘525 at 5:56-6:3 (emphasis added).

## B. ‘700 PATENT

The ‘700 patent, entitled “3D Controller With Vibration,” was filed on November 16, 2000 and issued on June 14, 2005. The ‘700 patent is a continuation of the ‘525 patent. The ‘700 patent states that “the positive teachings and disclosure of [the ‘525 patent] is [] incorporated by reference” into the ‘700 patent. ‘700 at 1:53-54. Because the ‘700 patent claims to the benefit of the parent application filing date of the ‘525 patent (the ‘828 patent application filed on March 5, 1992), the specifications as well as statements by Armstrong in the prosecution of those earlier applications are directly relevant to construing the asserted ‘700 patent claims.<sup>3</sup>

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<sup>3</sup>While not an issue that the Court need resolve at the claim construction stage, Nintendo notes that a serious issue exists as to whether the ‘700 patent is entitled to any priority date earlier than the actual filing of the ‘700 application itself on November 16, 2000 due to changes that Armstrong made in an unsuccessful effort to broaden the specification as compared to the ‘525 patent specification. *See, e.g., Studiengesellschaft Kohle m.b.H. v. Shell Oil Co.*, 112 F.3d 1561, 1564 (Fed. Cir. 1997) (explaining that an earlier priority date “does not extend to claims with subject matter outside the description in the earlier application. In other words, a claim []acquires an earlier filing date if, and only if, it could have been added to an earlier application without introducing new matter.”) (internal citations omitted). Moreover, if Anascape’s overly broad constructions are adopted, the ‘525 and ‘700 patents are invalid under 35 U.S.C. §112(1). *See Liebel- Flarsheim Co. v. Medrad, Inc.*, 481 F.3rd 1371, 1380 (Fed. Cir. 2007)

In particular, the statements and disavowals described above in connection with the '525 patent apply with equal force to the '700 patent.<sup>4</sup>

The '700 patent discloses a "3-D graphics controller" and a "hand-operated controller" that, like the '525 patent's claimed "image controller," includes structure for sensing movement of the hand in all six degrees of freedom relative to a reference member of the controller and a "flexible membrane sheet" that includes sensors and circuitry. In the '700 patent claims, these structures are referred to as "[first] [second] [third] elements," "[first] [second] [third] [fourth] bi-directional proportional sensors," and "structure."

The term "3D" appears throughout the '700 specification as language Armstrong substituted for the term "6DOF" used in the '525 specification. For example, Armstrong changed the language "[a] primary object of the invention is to provide a 6DOF image controller . . . ." appearing in the '525 patent specification to "[a] primary object of the invention is to provide a 3D image controller" in the '700 specification. '525 at 7:50-51; '700 at 4:34-35. During the prosecution of the '700 patent, Armstrong asserted that such changes merely reflect an evolution in vocabulary: "This '6DOF' and 'six degrees of freedom' language is not as commonly used now as when the '525 patent was filed and the same equivalent product or device which was once so called is now commonly called a 3D or three-dimensional controller." '700 Prosecution History, 10/25/02 Preliminary Amendment at 10 (Ex. 6). Thus, the term "3D" as used in the '700 specification is synonymous with 6DOF.

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("The irony of this situation is that Liebel successfully pressed to have its claims include a jacketless system, but having won that battle, it then had to show that such a claim was fully enabled, a challenge it could not meet.").

<sup>4</sup>See, e.g., *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1333 (Fed. Cir. 2003) ("[P]rosecution disclaimer may arise from disavowals made during the prosecution of ancestor patent applications."); *AdvanceMe, Inc. v. Rapidpay, LLC*, No. 6:05cv424, 2006 U.S. Dist. LEXIS 92444, at \*13 (E.D. Tex. Dec. 21, 2006) ("[T]he prosecution history of a parent patent is part of the prosecution history of the child patent.") (Ex. 5).



As in the ‘525 patent, every embodiment of the ‘700 patent describes a single input member moveable in 6DOF relative to a reference member of the controller. Figures 1-50 of the ‘700 patent are identical to Figures 1-50 of the ‘525 patent – every embodiment described in the figures shows either a single trackball or single joystick moveable in six degrees of freedom. *See supra* at 5.

Moreover, the prosecution history of the ‘700 patent makes clear that a fundamental aspect of the invention of the ‘700 patent is a controller having a 6DOF single input member. For example, in allowing the claims, the patent examiner stated:

The same reasons as set forth in claims 39-40 and 52, however with the two planar design it allows the origin of all axes *to remain within the handle* and yet much of the mechanical resolving structure is moved down into the remaining part of the controller where space is plentiful, thus *the handle* can be made smaller and in fact the whole controller can be made smaller.”

‘700 Prosecution History, 12/17/02 Notice of Allowability at 4 (emphasis added) (Ex. 7). Given that the origin of all (three) axes of control is contained within one input member, here, the “handle,” it is evident from this passage that the single input member described is moveable in six degrees of freedom.<sup>5</sup>

### III. NINTENDO’S PROPOSED CONSTRUCTIONS OF THE DISPUTED TERMS<sup>6</sup>

#### A. THE ‘525 PATENT’S “IMAGE CONTROLLER” AND THE ‘700 PATENT’S “3-D GRAPHICS CONTROLLER” AND “HAND-OPERATED CONTROLLER” EACH REQUIRE A SINGLE INPUT MEMBER MOVEABLE IN SIX DEGREES OF FREEDOM RELATIVE TO A REFERENCE MEMBER OF THE CONTROLLER

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<sup>5</sup> The ‘700 patent contains some references to controllers with “at least” one input member. *See* ‘700 at 2:38-50; 4:34-37; 4:46-47; 4:56-57; 4:64-65; 5:6-7. These references simply mean that the claimed controllers may contain other input members in addition to the single 6DOF input member relative to a reference member of the controller. Anascape does not rely on this “at least” language for any of its claim construction arguments.

<sup>6</sup> A person of ordinary skill in the art is one who has at least a bachelor’s degree in mechanical or electrical engineering and at least several years experience in designing and improving controllers for video games, robotics, computers, or other electronic devices.

Properly construed, the terms “image controller,” “3D graphics controller,” and “hand-operated controller” each mean “a controller having a hand operable single input member that is moveable along and/or rotatable about three mutually perpendicular axes in six degrees of freedom (‘6DOF’) relative to a reference member of the controller.”<sup>7</sup>

Because the ‘525 specification is incorporated by reference into the ‘700 specification, the parties are in agreement that it is appropriate to look to the ‘525 specification in order to construe the claims of both the ‘525 and ‘700 patents.<sup>8</sup> The ‘525 specification mandates Nintendo’s proposed construction, as it repeatedly defines a single input member moveable in 6DOF relative to a reference member of the controller, not as a preferred or exemplary embodiment, but as the invention itself:

In the prior art there exist 6 DOF controllers of a type having a hand operable, single input member moveable in six degrees of freedom for axes control relative to a reference member of the controller. This type of controller having the 6 DOF operable input member outputs a signal(s) for each degree of freedom input, and it is this type of 6 DOF controller which is believed to be by far the most easily used for 3-D graphics control, and ***it is with this type of 6 DOF controller that the present invention is primarily concerned.***

‘525 at 1:61- 2:2 (emphasis added).<sup>9</sup>

Armstrong repeatedly and consistently characterized the “invention” to require a single input member moveable in 6DOF relative to a reference member of the controller, thus effecting a disclaimer of other types of controllers. As a result, construing the “controller” terms in this

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<sup>7</sup> As explained in Section A, *supra* at 3-4, the fact that an input member is “moveable in six degrees of freedom” is meaningful only if it is understood that “moveable” necessarily implies movement relative to a reference member of the controller. Thus, here and in every other instance in this brief, whether explicit or not, where an input member is said to be “moveable,” the contemplated movement is relative to a reference member of the controller.

<sup>8</sup> In its claim construction brief, the only specifications to which Anascape refers in attempting to defend its constructions of the disputed claim terms of both of the asserted patents are the ‘525 specification and, in one instance, the ‘828 specification, which is a grandfather application to the ‘525 patent. *See* Br. at 9-33.

<sup>9</sup> *See also* Section A, *supra*, (cataloging the numerous statements in the ‘525 specification defining the invention as a controller having a single input member moveable in 6DOF relative to a reference member of the controller).

manner is mandated by Federal Circuit precedent. In *Akeva L.L.C. v. Adidas-Salomon AG*, 208 Fed. Appx. 861, 863-4 (Fed. Cir. 2006), for example, the Federal Circuit construed the term “secured” to mean “detachably secured” in a patent whose specification stated, “the shoe of the present invention incorporates a heel structure, including a detachable rear sole . . . .” Shoes with non-detachable soles were disclaimed. The court reasoned that “the language of the ‘471 specification specifically states that the invention of the ‘471 patent is an athletic shoe with a detachable heel.” (Ex. 8). Numerous other Federal Circuit decisions are in accord. *See, e.g., Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357 F.3d 1340, 1348 (Fed. Cir. 2004) (limiting the terms “sending”, “transmitting”, and “receiving” to making such communications over a telephone line in light of the specifications’ clear statements saying that “the present system” was directed to communications “over a standard telephone line.”); *Gaus v. Conair Corp.*, 363 F.3d 1284, 1290 (Fed. Cir. 2004) (finding that discussion in the specification of a protective device in a hairdryer that prevented the user from connecting to the electrical operating unit via fluid was a disclaimer rather than merely a description of a preferred embodiment, because the specification stated that the disconnecting feature was “according to the invention”); *Honeywell Int’l, Inc. v. ITT Indus.*, 452 F.3d 1312, 1318 (Fed. Cir. 2006) (limiting “fuel injection system component” to mean “a fuel filter,” based on the specifications repeated references to the fuel filter as “this invention” or “the present invention”).<sup>10</sup>

In addition to disavowing controllers that lack a single input member moveable in 6DOF by plainly defining the “invention,” the ‘525 specification also disavows coverage of such controllers by explicitly distinguishing the invented controller from the prior art Chang controller which lacked the purported invention. *See* Section A, *supra*, quoting ‘525 at 4:24-30.

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<sup>10</sup> *See also Andersen Corp. v. Fiber Composites, LLC*, 474 F.3d 1361, 1366-67 (Fed. Cir. 2007); *Alloc, Inc. v. International Trade Com’n*, 342 F.3d 1361, 1370-71 (Fed. Cir. 2003); *Netword LLC v. Centraal Corp.*, 242 F.3d 1347, 1352 (Fed. Cir. 2001); *Wang Labs v. America Online*, 197 F.3d 1377, 1383 (Fed. Cir. 1999).

A case directly on point is *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1343 (Fed. Cir. 2001). In *Scimed*, the Federal Circuit found that the patentee had disclaimed catheters using dual lumens. The patentee did so by distinguishing prior art catheters based on their use of dual lumens and touting the advantages of coaxial lumens. *Id.* See also *Wireless Agents, LLC v. Sony Ericsson Mobile Commc'ns AB*, 189 Fed. Appx. 965, 2006 U.S. App. LEXIS 18933, at \*18 (Fed. Cir. Jul. 26, 2006) (the specification's criticism of twelve-digit keyboards constituted a disavowal that limited the term "alphanumeric keyboard" to one including a substantially full set of alphabetic and numeric digits) (Ex. 9); *Honeywell*, 452 F.3d at 1319 ("based on the disclosure in the written description, which demeaned the properties of carbon fibers, we conclude that the patentee thereby disavowed carbon fibers from the scope of the '879 patent's claims"). This is directly analogous to Armstrong's criticism of the Chang prior art for not having a single input member operable in six degrees of freedom and touting the advantages of a controller that has such a member. The Chang distinction and the unequivocal declarations of what was invented independently constitute precisely the type of specification language the Federal Circuit has found to constitute a disavowal of claim scope. See *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (*en banc*) (stating that "the specification may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor").<sup>11</sup>

Contrary to Anascape's argument that the "controller" terms should not be construed as limitations in most of the asserted claims because, in many cases, they appear only in the

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<sup>11</sup> This case is distinguishable from *Ventana Med. Sys., Inc. v. Biogenex Labs., Inc.*, 473 F.3d 1173 (Fed. Cir. 2006), cited by Anascape (Br. at 7). In *Ventana*, the specification "include[d] discussion of a number of different prior art devices that employ[ed] a number of different dispensing techniques," including direct dispensing. The court found improper an attempt to limit a claim term to cover only direct dispensing when the proffered evidence was "only general statements by the inventors indicating that the invention [was] intended to improve upon prior art automated staining methods." *Id.* at 1180-81. Here, by contrast, there is an explicit distinction from a particular prior art reference for the reason that it did not have "any one input member [that could] be manipulated . . . relative to a reference member in six degrees of freedom." Armstrong thus distinguished and thereby disclaimed the prior art based on a specific structural difference from what Armstrong defined as the invention.

preambles (Br. at 8-10), the preambles here have significant import and should be construed as positive limitations for multiple, independent reasons:

First, as Anascape itself recognizes, preamble terms are limitations where, absent the preamble, the body of the claim does not set forth a complete invention. *See* Br. at 10. The appropriate claim construction analysis of a claim preamble will “ascertain whether it states a necessary and defining aspect of the invention.” *On Demand Mach. Corp. v. Ingram Indus., Inc.*, 442 F.3d 1331, 1343 (Fed. Cir. 2006); *see NTP, Inc. v. Research in Motion, Ltd.*, 418 F.3d 1282, 1305 (Fed. Cir. 2005) (construing the preamble as a limitation and stating that “a preamble generally limits the claimed invention if it ‘recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim.’”); *Vision Advancement, LLC v. Vistakon*, 2007 U.S. Dist. LEXIS 5742, at \*32-33 (E.D. Tex. Jan. 26, 2007) (same) (Ex. 10).

Here, the preambles in the asserted claims should be construed as limitations because in each instance, absent the preamble, the claim does not describe a complete invention.<sup>12</sup> Without the preamble, each asserted claim is not a controller but instead merely a collection of components—an input member, some buttons, a sheet, and circuitry—with no discernable relationship or structure. The preamble thus establishes the “framework” of Armstrong’s

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<sup>12</sup> Claim 5 of the ‘525 patent illustrates this point. Without the preamble, claim 5 would read as follows:

an input member moveable on at least two axes, said input member having associated sensors;  
and

a plurality of finger depressible buttons, said finger depressible buttons having associated sensors; and

at least one sheet connecting to the sensors of said input member, and said at least one sheet connecting to the sensors of said finger depressible buttons;

said at least one sheet includes electrically conductive traces, said traces engaging the sensors;

at least one of the finger depressible buttons is structured with a resilient dome cap;

said resilient dome cap is structured to provide a tactile feedback to a human hand; said at least one sheet comprises

a flexible membrane sheet connected to a rigid circuit board sheet.

invention and is necessary to “focus the reader on the invention that is being claimed.” *On Demand*, 442 F.3d at 1343 (“We conclude that the preamble in this case necessarily limits the claims, in that it states the framework of the invention . . . .”)

Second, where, as here, the preamble recites what the specification shows to be a fundamental feature of the invention, it is entirely appropriate to require the preamble to be a positive limitation. *See, e.g., Poly-America, L.P. v. GSE Lining Tech., Inc.*, 383 F.3d 1303, 1310 (Fed. Cir. 2004) (the phrase “blown-film” in the preamble was limiting where the specification was “replete with references to the invention as a ‘blown-film’ liner” including in the patent title and “Summary of the Invention”; the preamble language, repeated in each one of the patent’s claims, disclosed “a fundamental characteristic of the claimed invention”); *On Demand*, 442 F.3d at 1343 (holding the preamble to be a limitation: “The high speed manufacture of a single copy is fundamental to the Ross invention, for the specification highlights that the customer may have a printed and bound copy within ‘three to five minutes.’”)

Third, the prosecution history of the ‘700 patent establishes that the “controller” terms in the preambles were important to the patentability of the claims. Specifically, the patent examiner issued a Notice of Allowability containing a detailed statement of the reasons for allowance.

At the outset, the patent examiner stated:

In particular, no [prior art] reference could be used singular or in combination that taught or disclosed an instance in which, (in a general and broad sense) a game controller that is used for a television based game, that has the capability of using up to but doesn’t have to, six degrees of freedom or 6DOF, all sensors relating to the 6DOF contained on one circuit sheet . . . .

Ex. 7 at 2. The patent examiner then provided a detailed assessment of each claim group, repeatedly calling out the controller aspect of the claims:

As pertaining to claims 39-40 and 41-42 .... This sheet is electrically printed thus the abundance of individual wires is reduced making *the controller* less

cumbersome and less bulky when replacing the sheet and during manufacturing. In addition, **the controller** can be made smaller because of less parts.

[T]he same reasons [for patentability] as set forth in claims 39-40 and 52, however with the two planar design **it allows the origin of all axes to remain within the handle** and yet much of the mechanical resolving structure is removed down into the remaining part **of the controller** where space is more plentiful, thus the handle can be made smaller and in fact **the whole controller** can be made smaller.

As pertaining to claims 57-62, **there is a controller** that rotates a platform . . . .

Ex. 7 at 2, 4.

Since the patent examiner referred repeatedly to the controller as the overall framework for the invention in explaining why the claims were allowable over the prior art, the patent examiner's statements provide further confirmation that the "controller" terms in the preambles are positive limitations. *Cf. Intirtool, Ltd. v. Texar Corp.*, 369 F.3d 1289, 1294-1295 (Fed. Cir. 2004) (the preamble may limit the claim if the patentee relies on the preamble during prosecution to distinguish the claimed invention from the prior art).

Finally, the "controller" preamble language of asserted independent claims 16, 17, 19, 26 and 32 the '700 patent warrants construction for the additional reason that it serves as an antecedent basis for "controller" terms appearing in the bodies of these claims. *See, e.g., Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 952-953 (Fed. Cir. 2006) (finding preamble limiting where, *inter alia*, "the body of the claim does not recite the complete invention, but refers back to the features of the abutment described in the preamble, so that the references to the abutment in the body of the claim derive their antecedent basis from the preamble."); *NTP*, 418 F.3d at 1305-06.<sup>13</sup>

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<sup>13</sup> The cases Anascape cites in support of its preamble argument are inapposite. In *Allen Engineering Corp.*, for example, the defendant sought to construe the words "fast steering" in a preamble that read "A self-propelled, fast steering motorized riding trowel for finishing a concrete surface . . ." *Allen Eng'g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1346 (Fed. Cir. 2002). Aside from the fact that "fast steering" was a vague descriptive term with no context in which to be construed, the claim bodies at issue in that case were complete in that they recited "riding

Anascape's reliance on *Acumed LLC v. Stryker Corp.*, 2007 U.S. App. LEXIS 8375 (Fed. Cir. Apr. 12, 2007) (Ex. 11) is misplaced. Br. at 6. In *Acumed*, the specification merely described a preferred embodiment of the invention by pointing out that one desirable feature, namely that it could be inserted into a cavity that was formed by broaching, required that the inserted object not have angled bends or small radius curves. *Id.* at \*11. This is far different from this case, in which the invention itself, rather than a preferred embodiment, is repeatedly characterized as having a single input member moveable in six degrees of freedom relative to a reference member of the controller and where prior art missing this feature was specifically distinguished and disavowed.

Anascape also argues that construction of the "controller" terms should be governed by those terms' "plain meaning," which will be "readily understandable." Br. at 11. In making this argument, Anascape is attempting to construe the terms without regard to the specification in order to broaden their scope beyond anything Armstrong actually invented. This practice is contrary to law. Where as here, the specification "makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question." *SciMed*, 242 F.3d at 1341; *Akeva*, 208 Fed. Appx. at 865.<sup>14</sup>

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trowel[s]" instead of leaving the reader to wonder what was invented. *Id.* at 1343. Similarly, the claimed tool at issue in *Intirtool* was described in "complete and exacting structural detail" and thus was complete without the preamble. *Intirtool*, 369 F.3d at 1295. Anascape does not cite any case analogous to the instant case, in which the preamble is necessary to define the framework of the invention.

<sup>14</sup> Anascape cites *NTP, Inc. v. Research in Motion, Ltd.*, 418 F.3d 1282 (Fed. Cir. 2005) in support of its argument that Nintendo improperly attempts to import claim limitations from the specification. Br. at 7. *NTP* is inapposite. In that case, the defendant sought to limit all asserted claims to embodiments in which the RF receiver was separate and distinct from the destination processor. *NTP*, 418 F.3d at 1309. It argued that those two structures were housed separately. *Id.* at 1310. The terms through which defendant sought to impose this limitation were "transfer," "connected to," and "coupled to." Thus, defendant's proposed construction would place a limitation on two structures, *i.e.*, the receiver and the processor, via terms that neither described nor defined those structures. Instead



Anascape also contends that Nintendo's proposed construction is incorrect because the specifications "specifically describe controllers that provide fewer than six degrees of freedom and/or contain multiple input members." Br. at 13-14. The four bullet point quotations listed by Anascape on page 14 of its brief are fundamentally misleading.

Anascape's first two bullet points, referring to two and three degree of freedom joysticks, come from the same sentence in column 1 of the '525 specification, under the heading "Description of the Prior Art." The full sentence, most of which Anascape eliminated with ellipses, demonstrates that Armstrong was contrasting *prior art* two and three degree of freedom joysticks with prior art single input member controllers moveable in 6DOF. Thus, these referenced prior art joysticks have nothing to do with the single input member 6DOF controller repeatedly called out in the '525 specification as the invention:

Typically in the prior art, a three degree of freedom joystick type input device costs more to manufacture than a two degree of freedom joystick, and a six degree of freedom (henceforth 6 DOF) joystick input device costs significantly more to manufacture compared to a three degree of freedom joystick.

'525 at 1:41-46.

Anascape's third bullet point quote is the only one of the four that actually references a discussion of Armstrong's own invention – it reads, "hand-operated graphic image controllers, and particularly six degree of freedom computer image controllers . . . ." Br. at 14. This language, which comes from the first sentence of the "Background of the Invention," is entirely consistent with the '525 specification's repeated references to the invention as a single input member 6DOF controller.

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of construing "transferred," "coupled to," and "connected to" to define a type of transfer, coupling, or connection, it attempted to use those terms – a verb and two prepositional phrases – to describe physical structures – nouns – not implicated in those terms. This is unlike Nintendo's arguments, which use proper canons of construction to hold Armstrong to what he himself described as the "invention."

Anascape's final bullet quotation is perhaps the most misleading of all. In support of its assertion that the specification does not require a single input member 6DOF controller, and, instead, describes controllers that contain input members moveable in less than 6DOF, Anascape provides the following cropped quote from the "Description of the Prior Art" section of the '525 specification:

[the multiple input member prior art device] is basically a six degree of freedom computer controller .... However, .... the lack of a hand operable single input member operable in six degrees of freedom ... Br. at 14.

The full text of this quote shows that, far from supporting Anascape's assertion, this portion of the specification is directly contrary to Anascape's contention:

The Chang device is basically a six degree of freedom computer controller for computer graphics, and includes a generally flat plane printed circuit board on which all of the sensors are mounted. However, as will become appreciated, in Chang's controller, the lack of a hand operable single input member operable in six degrees of freedom has many disadvantages.

'525 at 3:26-32. As set forth in Section A, *supra*, at 4, this sentence is part of several paragraphs of the '525 specification (*see* 3:24-4:30) which explicitly criticize the prior art Chang device and distinguish it from the purported invention on the basis that it is missing a single input member operable in 6DOF. Anascape's quote-cropping attempt to transform this flat-out disclaimer into something that supports its position that the patent covers controllers with multiple input members underscores the weakness of its position.<sup>15</sup>

Anascape also argues that Nintendo's proposed construction requiring a single input member operable in 6DOF is not correct because Figures 1-6 disclose a controller that uses more than one input member to "capture" six degrees of freedom. Br. at 16. In fact, the embodiment disclosed in those figures, like every embodiment disclosed in the specifications, does have a

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<sup>15</sup> Anascape's manipulation of this quote exceeds the bounds of fair advocacy and indicates that all of its citations to the record should be approached with caution.

single input member that is moveable in six degrees of freedom relative to a reference member of the controller. The specification's discussion of Figures 1–4 could not be any clearer on this point: “[T]rackball 12 which in this example is the hand operable single input member operable in full six degrees of freedom.” (‘525 at 11:19-25). The specification then goes on to explain how trackball 12 is itself operable in six degrees of freedom.<sup>16</sup>

The structure Anascape asserts as a second input member is a “collet” (cone shaped sleeve) horizontally circumscribing the trackball in Figures 1–6. The specification makes clear that the collet feature is optional. ‘525 at 12:49. (“Collet 16, if utilized, . . . .”) One use is simply as an easily graspable sleeve that moves the trackball in any linear direction. ‘525 at 12:49-51. A second use is to achieve rotation about the yaw axis. ‘525 at 16:46-49. Crucially, however, even when the optional collet is used, the trackball is still a single input member moveable in all six degrees of freedom: “When a rotatable collet is used, a sensor is used to detect rotation of collet 16 as described above, but this does not bar still having a sensor (encoder) in communication with trackball 12 for detecting *rotation of the trackball about the yaw axis*, . . . .” ‘525 at 17:14-18 (emphasis added). While the specification refers to the collet as a “secondary input member” (*see* Br. at 17), Anascape fails to mention that this term is used only in a sentence in which the 6DOF operation of the single input member trackball is explicit: “Further, the trackball 12 input member may be interpretable on all six axes as previously described, and the rotatable collet can serve as an additional secondary input member . . . .” ‘525

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<sup>16</sup> See, e.g., ‘525 at 12:59-67 (“Lower member 20 of carriage 14 preferably physically supports wheels, rollers, bearing or slide members or smooth surfaces which otherwise aid in **supporting trackball 12 in a freely spherically rotatable manner**, and in the example illustrated, three mutually perpendicular encoders . . . for sensing rotation, direction and amount of **rotation of trackball 12 about the yaw, pitch and roll axes** include rotatable wheels . . . .”); *id.* at 13:28-30 (“ . . . **trackball 12 can be moved linearly in all directions** relative to housing 10, . . . .”) (emphases added).

at 17:20-22. Accordingly, Anascape's effort to expand the specification to include multiple input members to "capture" six degrees of freedom is simply incorrect.<sup>17</sup>

Anascape also argues that Nintendo's proposed construction is undermined by the "fact" that Figure 47 discloses an embodiment of a controller that moves in less than six degrees of freedom. Br. at 17. Figure 47 does not disclose a complete embodiment of the invention.<sup>18</sup> Rather, it discloses just the upper part of a contemplated single input member 6DOF embodiment: "FIG. 47 shows a perspective view of the sensors of FIGS 45 and 46 as they can be embodied within a handle." '525 at 10:66-67. The specification states that the structure with bidirectional sensors shown in Figure 47 is to be used "for creating 6 DOF functional structures with previously described structures of the embodiment of Figs. 20-28, thus for full 6 DOF operability six bi-directional sensors would be used." '525 at 31:11-15. None of the structures into which the specification describes placing the joystick of Figure 47 utilizes multiple input members, and it is never suggested that the joystick may be used alone as a 2DOF input member.<sup>19</sup>

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<sup>17</sup> Anascape also relies on a passing reference in the specification that Anascape asserts "explicitly teach[es]" input members operable in fewer than six degrees of freedom: "[t]he input member . . . may be manipulatable [sic] or operable in up to 6 DOF . . ." ('525 at 7:39-42). See Br. at 14. This thin thread is in no way an explicit teaching of a single input controller moveable in 6DOF relative to a reference member. Even if it were, the extensive disavowals and descriptions of the "invention" by Armstrong would trump this language. See, e.g., *Akeva*, 208 Fed. Appx. at 863-4 (specification as a whole that limited the invention to athletic shoes with detachable heel trumped specification language covering "all possible combinations of the features shown in the different embodiments, as well as modifications and variations of this invention").

<sup>18</sup> Where Armstrong disclosed figures that embodied his purported invention, he said just that in his descriptions of those figures. See, e.g. *id.* at 8:65-67 ("FIG. 1 is a top view of a trackball type embodiment of the invention . . ."); *id.* at 9:38-39 (FIG. 12 is a partial cross-sectional end view of a joystick type embodiment of the invention."); *id.* at 9:43-44 ("FIG. 13 shows an exploded view of another joystick embodiment of the current invention . . ."). Armstrong made no such statement regarding Figure 47.

<sup>19</sup> Irrespective of the fact that Figure 47 is identified as a component rather than an embodiment of the invention, Anascape argues that the sensors illustrated in that figure evidence coverage of a controller that has an input member moveable in less than 6DOF because the sensors could be deployed by themselves as an input member capable of movement along only two axes. Br. at 17. However, nothing in the specification indicates that this figure was disclosed for use in a controller that lacked a single input member moveable in six degrees of freedom. Moreover,

Anascape's argument that Nintendo's proposed construction is barred by the doctrine of claim differentiation also fails. Anascape asserts that because there are dependent claims that require operation in six degrees of freedom, independent claims that do not explicitly require this feature must be construed more broadly. Br. at 14. However, claim differentiation does not warrant excluding a limitation from construction of an independent claim when the dependent claim recites additional limitations.<sup>20</sup> Anascape relies upon independent claim 1 and dependent claim 4 to support its claim differentiation argument. Claim 1 recites "an input member . . . .*moveable* on at least two axes . . . ." In contrast, claim 4 recites "[a]n image controller according to claim 3 (which depends form Claim 1) in which said input member is *operable* on at least six axes." The distinction between *moveability* in six degrees of freedom and *operability* in six degrees of freedom is important. In the '525 patent specification, Armstrong clearly explains and distinguishes these discrete concepts in the context of his invention:

The term 'manipulate' . . . is used in the context of the input member being manipulatable in 6 DOF relative to the reference member. This means that the input member or handle can be linearly moved along and/or rotated about the three mutually perpendicular axes in 6 DOF but it does not necessarily mean that sensors are being stimulated . . . .

The term 'operate' . . . is used in the context of the input member being operable in 6 DOF relative to the reference member. This means that the handle can be linearly moved along and/or rotated about the three mutually perpendicular axes in 6 DOF and it does necessarily mean that sensors are being stimulated and that the device is outputting a signal representative of the input operation.

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the specification suggests no deployment of Figure 47 as a single input member moveable in 6DOF but instead describes how to use the illustrated sensors with other sensors "for full 6 DOF operability." *Id.* at 31:11-15.

<sup>20</sup> See *SRAM Corp. v. AD-II Eng'g, Inc.*, 465 F.3d 1351, 1358 (Fed. Cir. 2006), *reh'g denied, reh'g en banc denied*, No. 05-1365, 2006 U.S. App. LEXIS 32264 (Fed. Cir. Dec. 15, 2006) (holding that a dependent claim recited an additional limitation and "would not be rendered superfluous" by a construction of an independent claim); *Telemac Cellular Corp. v. Topp Telecom, Inc.*, 247 F.3d 1316, 1325-26 (Fed. Cir. 2001) (rejecting claim differentiation argument that a construction of the independent claim "negated" provisions in a dependent claim because, *inter alia*, the dependent claim "embraces additional limitations not encompassed within [the independent claim.]"); *Tessera, Inc. v. Micron Tech., Inc.*, 423 F. Supp. 2d 624, 632-33 (E.D. Tex. 2006) (finding claim differentiation argument without merit when dependent claim added additional limitation of the type of material to be used).

'525 at 7:1-8, 7:15-22

Thus, “moveable” in 6DOF refers solely to the movement of the single input member, while “operable” in 6DOF refers to both the movement of the single input member and that the sensors in the controller are being stimulated by such movement and output a signal in response thereto. Dependent claim 4 is thus distinct from claim 1 not only in the number of axes it recites but also in what the input member does as a result of the movements on those axes.<sup>21</sup>

**B. THE '525 PATENT'S "INPUT MEMBER" IS PROPERLY CONSTRUED AS A SINGLE TRACKBALL OR HANDLE THAT CAN BE MANIPULATED IN SIX DEGREES OF FREEDOM AND THE '700 PATENT'S "FIRST [SECOND] [THIRD] ELEMENT," "[FIRST, SECOND, THIRD, FOURTH] BI-DIRECTIONAL PROPORTIONAL SENSOR," AND "STRUCTURE" ARE EACH PROPERLY CONSTRUED AS CONTROLLED BY A SIX DEGREE OF FREEDOM SINGLE INPUT MEMBER**

1. “Input member”

As set forth in Section A, *supra*, Armstrong made clear throughout the '525 specification and prosecution history that the invention of the '525 patent is a controller with a hand operable single input member moveable in six degrees of freedom, and he explicitly distinguished and disavowed prior art controllers, like Chang, that lacked this structure. For these same reasons, the correct construction of the '525 patent's “input member” is “a hand operable, single trackball

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<sup>21</sup> As discussed in Section A, the '525 and '700 specifications clearly disavow controllers that do not have a single input member operable in six degrees of freedom. Thus, claims for input members that do not explicitly recite movement in six degrees of freedom are nonetheless limited to input members that are moveable in six degrees of freedom even though other claims have the explicit limitation. The doctrine of claim differentiation will not defeat claim constructions that are mandated by the specification, and the doctrine does not apply in this case for this independent reason. *See, e.g., Seachange Int'l, Inc. v. C-COR Inc.*, 413 F.3d 1361, 1369 (Fed. Cir. 2005) (the “presumption is not a hard and fast rule and will be overcome by a contrary construction dictated by the written description or prosecution history.”); *Toro Co. v. White Consolidated Indus., Inc.*, 199 F.3d 1295, 1302, (Fed. Cir. 1999), (“The doctrine of claim differentiation can shed light on the proper scope to be afforded a claim limitation . . . . However, the doctrine of claim differentiation does not serve to broaden claims beyond their meaning in light of the specification, . . . and does not override clear statements of scope in the specification and the prosecution history.”); *see also Nike, Inc. v. Adidas America Inc.*, No. 9:06-CV-43, 2006 U.S. Dist. LEXIS 91011, at \*19 (E.D. Tex. Dec. 18, 2006) (limiting an element described in the claims as “columnar” to one that was generally cylindrical in shape, even through a dependent claim limited “said support means” to those that “have a cylindrical configuration”) (Ex. 12).

or handle fit to be manipulated<sup>22</sup> by a human hand in 6DOF.” Such a construction comports with the definition Armstrong gave to the term in the ‘525 specification – “[t]he input member can be a trackball operable relative to a housing (reference member) as described in my [] co-pending application, or alternatively, the input member can be any handle fit to be manipulated by a human hand, such as a joystick type handle, *but in either case*, the input member accepts 6 DOF of the hand input relative to the reference member . . .” ‘525 at 5:1-14 (emphasis added). Anascape’s proposed construction of this term as merely a “trackball or joystick” (Br. at 18) is proffered in a vacuum, without regard to the specification or the prosecution history and is, therefore, incorrect.

## 2. “Element”, “Sensor” and “Structure” Terms

The asserted claims of the ‘700 patents contain specific components of the controller, referred as “first, second or third elements,” “first, second, third or fourth sensors,” or “structure.” For example, claim 32 reads, in pertinent part, as follows:

32. A 3-D graphics controller having an economical combination of elements and buttons allowing a user to control a television based game, the controller comprising:
- a housing;
  - a first element** structured to activate four unidirectional sensors used to control a television based game, said first element supported at least in part by said housing and sufficiently exposed to allow two axes of input;
  - a second element** structured to activate a first two rotary potentiometers used to control the game;
  - a third element** structured to activate a second two rotary potentiometers used to control the game ....

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<sup>22</sup> “Manipulated” is defined in the ‘525 specification to mean “linearly moved along and/or rotated about the three mutually perpendicular axes in 6 DOF . . . .” (7:5-7) “Fit to be manipulated” thus means the same thing as “moveable.”

This claim is representative of the asserted claims which recite a first [second] [third] element. Although Armstrong does not explicitly reference “element” in the written description of his invention, the specification establishes that the “elements” are all controlled by a single input member moveable in 6DOF. *See, e.g.*, ‘525 at Figs. 2-3, 12-21. This is confirmed by the prosecution history of the ‘700 patent during which Armstrong stated that “[i]n the claims the use of the word ‘element’ is intended to mean or be defined as a singular structure, member, part, component or the like, or a plurality of structures, members, parts, components or the like, *as disclosed* in Applicant’s disclosure and their equivalents.” ‘700 Prosecution History, 3/11/03 Amendment at 24 (emphasis added) (Ex. 13). As explained in Section A, the only “structures, members, parts, components” described in the ‘700 specification are those controlled by a hand operable, single input member moveable in 6DOF. Thus, by Armstrong’s own admission, the “elements” are limited to such structures.

Claim 14, set forth below in pertinent part, recites [first, second, third, fourth] bi-directional proportional sensors:

14. A 3-D graphics controller used with a television based game, comprising:
  - a first element moveable on two axes, said first element structured to activate
  - four unidirectional sensors, said four unidirectional sensors used to input a first axis and a second axis of control for the game;
  - a first bi-directional proportional sensor**, said first bi-directional proportional sensor used to input a third axis of control for the game;
  - a second bi-directional proportional sensor**, said second bi-directional proportional sensor used to input a fourth axis of control for the game;
  - a third bi-directional proportional sensor**, said third bi-directional proportional sensor used to input a fifth axis of control for the game;
  - a fourth bi-directional proportional sensor**, said fourth bi-directional proportional sensor used to input a sixth axis of control for the game ...



In all embodiments, sensors of the type set forth in the claims are always used as part of a single input member 6DOF controller. *See, e.g.*, ‘525 at 12:59-13:7; 19:1-10; 31:11-47. Thus, it is clear from the specification that the [first, second, third, fourth] bi-directional proportional sensors are controlled or activated by a hand operable, single input member moveable in 6DOF.

Claims 19 and 26 of the ‘700 patent each recite “structure allowing hand inputs . . . to be translated into electrical outputs . . .” This “structure” includes the “element” and “bi-directional proportional sensor” discussed above, which Anascape recognizes in giving those three terms the same definition. Br. at 18. Once again, Anascape ignores the ‘700 specification’s disclosure and defines “structure” together with “[second][third] element” to mean “a [second][third] structure, member, part, component or combination of the same.” *Id.* As set forth above, the correct construction in light of the specification recognizes that “structure” is controlled by a hand operable, single input member moveable in 6DOF.

**C. THE ‘525 AND ‘700 PATENTS’ “FLEXIBLE MEMBRANE SHEET” MUST INCLUDE SENSORS AND CIRCUITRY AND THE ‘525 PATENT’S “AT LEAST ONE SHEET” REQUIRES A FLEXIBLE MEMBRANE SHEET**

All of the asserted claims of the ‘525 patent, and asserted claims 21 and 26 of the ‘700 patent require a “flexible membrane sheet.” The proper construction of this term is “a flexible sheet that includes sensors and conductive traces.” The asserted claims of the ‘525 patent also require “at least one sheet.” The proper construction of this term is “at least one flexible membrane sheet.”

1. “Flexible Membrane Sheet”

The dispute here is whether this claim term requires a flexible sheet with both sensors and circuitry, as Nintendo contends, or whether the flexible sheet need only include sensors and/or circuitry, as Anascape contends. The ‘525 specification repeatedly emphasizes benefits

attributable to the use in the invention of flexible membrane sensor sheets having both sensors and circuitry on the sheet. In particular, Armstrong emphasizes that the use in the invention of flexible membrane sensor sheets containing both circuitry and sensors obviates the need for individual wires to be hand installed and individually applied to sensors. The ‘525 specification goes on to explain that the use of such a flexible sheet allows the sensors to be bent in three dimensional shapes to facilitate 6DOF controller structures. For example, in discussing the invention, the ‘525 specification states that:

***Another object of the invention is to provide an easy to use 6 DOF controller (physical-to-electrical converter) which includes a single input member being hand operable relative to a reference member of the controller, and which provides the advantage of structure for cooperative interaction with the sensors positioned in a three dimensional constellation, with the sensors and associated circuit conductors initially applied to flexible substantially flat sheet material, which is then bent or otherwise formed into a suitable three dimensional constellation appropriate for circuit trace routing and sensor location mounting.***

‘525 at 7:59-8:2 (emphasis added).

The ‘525 specification explicitly distinguished the prior art for similar reasons:

***Another failure in prior art 6 DOF controllers of the type having a hand operable single input member is the failure to use or anticipate use of inexpensive, flexible membrane sensor sheets, which are initially flat when manufactured, and which include sensors and conductive traces applied to the flat sheet structure. Such flat sheet membrane sensors could be advantageously used as a generally flat sensor support panel, or alternatively in bent or three dimensionally formed shapes in 6 DOF controller structures which utilize three dimensional constellation sensor mounting and appropriate structures for cooperative interaction with the sensors . . . .***

***King also fails to anticipate the use of flexible membrane sensor sheets which include sensors and printed conductive traces which can be manufactured inexpensively in a flat sheet form, and used in flat sheet form, or alternatively, bent into three dimensionally formed shapes to position the sensors in three dimensional constellations. Thus the sensors and associated electrical conductors (wires) in the King device are believed to be required to be hand installed, and the wires individually applied to the sensors and then brought into a generally central area during the manufacturing of the King controller . . . .***

‘525 at 2:16-27, 2:61-3:7 (emphasis added); *see also id.* at 5:44-6:3; 7:59-8:17; 19:11-18; 22:35-23:10; 32:35-45; Figs. 13, 17, 18.

Moreover, the ‘525 specification also describes the manufacture of flexible membrane sheets as including both circuitry and sensors:

Flexible membrane sensor sheets are currently being manufactured by way of utilizing non-conductive flexible plastics sheets, and printing thereon with electrically conductive ink when the sheets are laying flat, ***to define circuit conductors and contact switches (sensors).***

‘525 at 6:24-29 (emphasis added). In addition, Figures 13-15, 17-18 and 29 of the patents illustrate flexible “membrane sensor sheet 206.” As its name implies, membrane sensor sheet 206 has sensors 207 and circuitry in the form of conductive traces 256. *See, e.g.*, ‘525 at 21:32-44, 22:35-23:16. Other flexible membrane sensor sheets are shown in Figures 20-23, 28, 29, 39-44, and 48-50. Each of these flexible membrane sensor sheets includes sensors and circuitry.<sup>23</sup>

Anascape’s argument that the flexible membrane sheet need only include circuitry or sensors, but does not require both, is based on a misreading of the ‘525 specification. None of the four snippets of the specification cited to by Anascape (Br. at 23) support its expansive construction. Anascape first quotes a portion of the Abstract stating that “[s]ome, most or all of

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<sup>23</sup> The prosecution history further supports Nintendo’s construction. Application claim 48, which became claim 5 in the ‘525 patent, originally did not include a flexible membrane sheet as an element. After the Examiner rejected this and other claims in view of prior art, Armstrong held an interview with the Examiner. The Examiner’s summary of that interview set forth his view that the prior art did “not teach the integrated membrane shown in applicant’s figure 18 where the membrane for the alpha-numeric keys and the 6DOF joystick are the same membrane.” ‘525 Prosecution History, 8/02/00 Interview Summary at 3 (Ex. 14). Figure 18 depicts a flexible membrane sheet containing both sensors and circuitry. The asserted claims of the ‘525 patent were not allowed until after the flexible membrane sheet element was added. *See* ‘525 Prosecution History, 9/7/00 Response to Office Action at 3 (“The Examiner states [in his last office action]: ‘The prior art of record does not teach or suggest placing an input member . . . onto a flexible sheet.’ Accordingly, in the Amendments below, . . . the independent claim 48 (once amended) now includes the elements of claims 53/51/50/49/48.”) (Ex. 15). Thus, the prosecution history confirms that the flexible membrane sheet, which was key to the patentability of the asserted claims, requires both sensors and circuitry. Armstrong’s disclaimer with respect to issued claim 5 has the same limiting effect on issued claim 12 (application claim 61). *See, e.g., PODS, Inc. v. Porta Stor, Inc.*, 2007 WL 1226740, at \*\*4-6 (Fed. Cir. Apr. 27, 2007) (Ex. 16); *Elkay Mfg. Co. v. Ebco Mfg. Co.*, 192 F.3d 973, 979-80 (Fed. Cir. 1999); *CVI/Beta Ventures, Inc. v. Tura LP*, 112 F.3d 1146, 1159 (Fed. Cir. 1997); *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1579 (Fed. Cir. 1995). This prosecution history applies equally to the “at least one sheet” language. *See infra* at 29.

the sensors are *preferably* supported on a generally single plane, such as on a printed flexible membrane sheet ....” (emphasis added by Anascape). Anascape apparently draws from this the conclusion that the flexible membrane sheet preferably, but need not, include sensors. In fact, the word “preferably” in the quoted sentence relates to the sensors being supported on a generally single plane, and has nothing to do with whether or not the flexible membrane sheet contains sensors. This is apparent from the rest of the Abstract discussing an alternative embodiment, which Anascape eliminated by the use of an ellipsis, in which the sheet is bent into a three dimensional configuration:

In an alternative embodiment, sensors and conductive traces are applied on a generally flat, flexible membrane sensor sheet, *which is then bent into a three dimensional configuration* . . . . The use of sensors connected by a sheet member, *whether finally applied in flat of 3-D configuration, enables efficient circuit and sensor connection* ....

‘525 at Abstract: 16-25 (emphasis added). Thus, the Abstract distinguishes between two embodiments, one in which the sensors on the flexible membrane sheet preferably remain on a single plane and a second in which the sensors are bent into a 3D shape. However, in both embodiments, the flexible membrane sheet includes both sensors and circuitry.

The next two quotations from the specification relied on by Anascape simply note that the sensors are hand applied or placed onto the flexible membrane sheet. Br. at 23. Neither quotation supports the proposition that the flexible membrane sheet need not contain both circuitry and sensors. Anascape’s final quote is “... a flexible membrane sensor sheet *having at least circuitry* in the form of electrically conductive traces ...” ‘525 at 12:12-14 (emphasis by Anascape). This quote is similarly no help to Anascape. While Anascape focuses on the “having at least circuitry” language, it ignores the fact that the quoted language refers to the

sheet as “a flexible membrane *sensor* sheet.” Thus, the plain language of this portion of the specification shows that the flexible membrane sheet contains sensors and circuitry.<sup>24</sup>

## 2. “At Least One Sheet”

Independent claims 5 and 12 of the ‘525 patent each recite “at least one sheet” and conclude, respectively, with the language “said at least one sheet comprises a flexible membrane sheet connected to a rigid circuit board sheet” (‘525 at 33:66-34:2) and “said at least one sheet comprising at least a flexible membrane sheet” (*id.* at 34:37-38). According to long-standing principles of claim construction, the claimed “at least one sheet” necessarily includes a flexible membrane sheet, and may also include other elements. “‘Comprising’ is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim.” *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501, (Fed. Cir. 1997); *see also Finisar Corp. v. The DirectTV Group, Inc.*, 416 F. Supp.2d 512, 521 (E.D. Tex. 2006) (“The word ‘comprising’ is open ended, meaning that the patentee claims at least what follows, and potentially more.”). In claims 5 and 12, the term “said at least one sheet” necessarily refers back to a prior element; it would otherwise be invalid for lack of proper antecedent basis.<sup>25</sup> “[S]aid at least one sheet” is therefore the same as “at least one sheet,” which is at least “a flexible membrane sheet.” Thus, Anascape’s contention that “the claim language confirms that the term ‘at least one sheet’ does not necessarily require a flexible membrane sheet” (Br. at 25) is contrary to law and should be rejected.

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<sup>24</sup> Anascape also points to the sensor shown in Figure 38 and asserts that it could be used in connection with a sensor-less flexible membrane sheet. Br. at 23. However, there is no disclosure in the ‘525 specification describing the connection of the Figure 38 sensor to a sensor-less flexible membrane sheet.

<sup>25</sup> *See, e.g.*, LANDIS ON MECHANICS OF PATENT CLAIM DRAFTING at § 3.11 (5th ed. 2005) (Ex. 17) (“The first time an element or part is mentioned, it should not be preceded by a definite article (‘the’) or by ‘said’. Instead the indefinite article (‘a’ or ‘an’) should be used.”); *see also* MANUAL OF PATENT EXAMINING PROCEDURE at § 2173.05(e) (Ex. 18); *E-Watch, Inc. v. March Networks Corp.*, 2006 U.S. Dist. LEXIS 54366, at \*37-38 (E.D. Tex. Aug. 4, 2006) (Ex. 19) (finding invalid the term “said sensor” because it was unclear to which of the previously recited “sensors” that term referred back).

**D. THE TERMS “MOVEABLE ON TWO AXES” AND “MOVEABLE ON TWO MUTUALLY PERPENDICULAR AXES” IN THE ‘700 PATENT AND “MOVEABLE ON AT LEAST TWO AXES” IN THE ‘525 PATENT REQUIRE LINEAR MOVEMENT, NOT ROTATIONAL MOVEMENT**

Independent claims 5 and 12 of the ‘525 patent and independent claims 14, 19 and 26 of the ‘700 patent require certain structure that is “moveable on two axes.”<sup>26</sup> Nintendo’s proposed construction of this term is “capable of linear movement along at least two axes relative to a reference member of the controller.” Anascape offers no construction of this term, but asserts that “the term ‘moveable’ does not exclude rotational movement.” Br. at 21-22. Anascape’s argument ignores the complete term to be construed, focusing instead on only the word “moveable.” Critical to a proper understanding of this term, however, are the words “on two axes.” Indeed, these additional three words are what identify the specific type of movement being claimed. Movement “on” an axis is movement along the axis itself, i.e., *linear* movement of a structure along an axis relative to a reference member of the controller, as opposed to rotational movement about an axis. *See, e.g., Bicon*, 441 F.3d at 950, 951 (“claims are interpreted with an eye toward giving effect to all terms in the claim”; “claim language should not [be] treated as meaningless”).

The six degrees of freedom are composed of three degrees of linear movement and three degrees of rotation. The ‘525 specification describes the six degrees of freedom in the context of Armstrong’s purported invention as requiring linear movement on (or along) the three axes and rotational movement about those axes:

The present controllers sense hand inputs on the input member via movement or force influenced sensors, and send information describing *rotation or rotational force* of the hand operable input member in either direction *about three mutually*

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<sup>26</sup> Claims 5 and 12 of the ‘525 patent recite an “input member moveable on at least two axes.” Claim 14 of the ‘700 patent recites a “first element moveable on two axes.” Claims 19 and 26 of the ‘700 patent recite “[second] [third] element moveable on two mutually perpendicular axes.” These claim requirements will be referred to collectively as “moveable on two axes.”

*perpendicular bi-directional axes* herein referred to as yaw, pitch and roll, (or first, second and third); *and* information describing *linear moment* of the hand operable input member along the axes to a host computer or like graphics generation device for control of graphics of a display, thus 3D or six degrees of freedom of movement or force against the input member are converted to input-representative signals for control of graphics images.

‘525 at 4:55-67 (emphasis added); *see also id.* at 8:49-59.

Figure 7 of the patents illustrates the difference between movement on an axis and rotation about an axis. Specifically, linear movement occurs on (or along) each axis line. In contrast, rotation, depicted by the curved arrows, occurs about each axis line. *See also* Figure 4 (which uses double-headed arrows to depict linear movement); ‘525 at 21:56- 22:34 (distinguishing between linear movement along axes and rotational movement about axes).

Thus, the specification makes clear that “moveable on two axes” requires such linear movement and that the term does *not* encompass rotation of a structure about two axes.<sup>27</sup> Accordingly, the term “moveable on two axes” should be construed to mean “capable of linear movement along at least two axes relative to a reference member of the controller.” *See, e.g., Bell Atlantic Network Servs., Inc. v. Covad Commc’ns. Group, Inc.*, 262 F.3d 1258, 1271 (Fed. Cir. 2001) (“when a patentee uses a claim term throughout the entire patent specification, in a manner consistent with only a single meaning, he has defined that term ‘by implication.’”); *Nat’l Instrmts. v. The Mathworks, Inc.*, 2002 U.S. Dist. LEXIS 27577, at \*12-13 (E.D. Tex. May 29, 2002) (Ex. 20) (incorporating specific characteristics into the definition of “data flow diagram” based on the inventors’ consistent use of that term throughout the specification; “these terms are used throughout the description in a consistent way and they have but one meaning in the context of these patents”).

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<sup>27</sup> Additional distinctions between linear movement and rotation appear throughout the ‘525 specification. *See, e.g.,* ‘525 patent at 7:4-30; 8:49-59; 13:8-46; 21:16-22:34; 24:20-37; ‘700 patent at 2:24-36; 5:44-54; 10:4-42; 18:53-19:33; 21:7-34; 24:20-37; *see also* 11/22/95 Disclosure of Inventions at 4 (“[Prior art] King’s handle moves in a rotational arc when the user’s intent is a purely linear input.”) (Ex. 3).

Anascape raises two arguments in support of its position that the term “moveable on two axes” should not be construed. First, Anascape asserts that, under Nintendo’s proposed construction, “claim 19 of the ‘700 patent would require the controller to capture four linear degrees of freedom; however, only three dimensions exist in reality.” Br. at 21.

Claim 19 requires “a second element moveable on two mutually perpendicular axes” and “a third element moveable on two mutually perpendicular axes.” As an initial matter, each of the axes of 3-dimensional space (i.e., yaw, pitch and roll) is perpendicular to each other axis. *See, e.g.,* ‘700 at 6:10-15 (“FIG. 7 shows three mutually perpendicular axes herein referred to as first, second and third, or respectively roll, pitch and yaw axes, which are shown having a mutual point of intersection at the center of the input member which is shown as a trackball but may be any hand manipulated input member.”). Nothing in claim 19 precludes the second and third elements from sharing one or more common axes. For example, the second element may be moveable linearly on the yaw and pitch axes (which are perpendicular to each other), while the third element may be moveable linearly on the pitch and roll axes (which are also perpendicular to each other). Thus, Nintendo’s proposed claim construction does not add a fourth dimension into the claims.

Second, Anascape asserts that Nintendo’s proposed construction excludes a preferred embodiment from the scope of claim 14 of the ‘700 patent. Br. at 21-22. Specifically, Anascape argues that the requirement of linear movement would exclude the structure of Figure 28, which utilizes rotation to activate sensors 207. This argument ignores the clear language of claim 14.

Claim 14 calls for “a first element [1] moveable on two axes, [2] said first element structured to activate four unidirectional sensors.” Anascape’s argument requires that the four unidirectional sensors be activated *by* the first element’s movement on two axes. As underscored



by the bracketed numbers, however, the above claim language does not link the movement of the first element with activation of the four unidirectional sensors. Instead, the two clauses (separated by a comma) are directed to two separate requirements of the first element. The first requirement concerns the element's maneuverability, and the second requirement concerns the element's structure for activating the four unidirectional sensors. Anascape states that platform 300 – identified in the patent as “handle 300” – is structured to activate four unidirectional sensors 207 by rotating about shaft 302. Br. at 22. However, Anascape fails to note that platform/handle 300 is also moveable *linearly* along two axes. In fact, the patent specification explicitly states that platform/handle 300 is capable of rotation, as well as linear movement on two axes. See ‘700 at 21:18-34. Thus, Nintendo’s proposed construction does not exclude the Figure 28 structure from the scope of claim 14.

**E. THE ‘525 PATENT’S “ELECTRICALLY CONDUCTIVE TRACES” ARE LIMITED TO CONDUCTIVE INK TRACES**

Claim 5 of the ‘525 patent recites “electrically conductive traces, said traces engaging the sensors.” According to the language in that claim, the traces are included as part of “said at least one sheet,”<sup>28</sup> where “said at least one sheet comprises a flexible membrane sheet . . .” (33:66-34:2) Therefore, the traces are necessarily part of a flexible membrane sheet.

The ‘525 specification provides specific guidance on traces that are used with flexible membrane sheets, *i.e.*, conductive ink traces. See *id.* at 6:24-27 (“Flexible membrane sensor sheets are currently being manufactured by way of utilizing non-conductive flexible plastics sheets, and printing thereon with electrically conductive ink . . .”); *id.* at 6:29-39 (“Usually, and this is believed well known, printed contact switches on flexible membranes utilizes three layers

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<sup>28</sup> See *id.* at 33:61-62 (“said at least one sheet includes electrically conductive traces, said traces engaging the sensors”).

of plastic sheets . . . . A conductor trace of printed conductive ink is printed on each of the outer sheets and connects to the contact of that sheet.”); *id.* at 6:44-47 (“The printed conductive inks remain, or can be formulated to remain flexible after curing, and this allows the flexible membrane sensor sheet to be bent without the printed circuits breaking.”)

Anascape contends that the correct construction should encompass multiple types of fixed-place electrical conductors instead of being limited to conductive ink traces. Anascape points to several lines in the specification that teach the use of “fixed-place electrical conductors” without specifying a type. Br. at 28. However, none of these cited references apply specifically to flexible membrane sheets. For that reason, they use the more general language that encompasses other fixed-place electrical conductors. As noted above, however, where the specification specifically discusses flexible membrane sheets, it teaches only the use of conductive ink traces.

**F. THE ‘700 PATENT’S TERM “NAVIGATING A VIEWPOINT” MEANS POSITIONING AND ORIENTING A USER’S VIEW, AS OPPOSED TO CONTROLLING AN OBJECT**

Asserted claims 19 and 26 of the ‘700 patent contain the term “navigating a viewpoint”. Specifically, these claims require a controller having sensors “to allow controlling objects and navigating a viewpoint.” ‘700 at 37:18-19; 25-26; 30-31; 59. Nintendo’s proposed construction is “positioning and orienting a user’s view, as opposed to controlling an object.” Anascape asserts that no construction is necessary, but then proposes the following construction as a fall back: “controlling the user’s point of view in 3-D graphics.” Br. at 30. Given Anascape’s cursory treatment of this claim term in its brief, it is difficult for Nintendo to tell whether there is a meaningful dispute here. A dispute would seem to exist to the extent that Anascape is contesting Nintendo’s assertion that “navigating a viewpoint” does not include controlling an object on a display.

The plain language of claims 19 and 26 of the '700 patent draws a distinction between “navigating a viewpoint” and “controlling objects” by repeatedly reciting them in conjunction. (37:18-19; 25-26; 30-31; 59) “Where, as here, the patentee uses different terms within a claim, especially within close proximity of each other, an inference that the terms have different meanings arises. *See, e.g., Ethicon Endo-Surgery v. U.S. Surgical Corp.*, 93 F.3d 1572, 1579 (Fed. Cir. 1996) (finding that two terms used within the same claim cannot be synonymous, reasoning that “[i]f the terms ... described a single element, one would expect the claim to consistently refer to this element as [one term or the other,] but not both, especially not within the same clause.”); *E-Watch, Inc.* 2006 U.S. Dist. LEXIS 54366, at \*38 (use of different terms within a claim, especially within close proximity of each other, leads to an inference that the terms have different meanings) (Ex. 19). Consequently, it is clear from the claim language itself that Armstrong intended “navigating a viewpoint” to mean something different than “controlling objects.”

The specification of the '700 patent likewise differentiates between “navigating a viewpoint” and “controlling objects.” *See* '700 at 1:64-66 (“the controller structured with sensors to allow controlling objects and navigating a viewpoint...”); *id.* at 2:12-19 (“for a user to be easily able to control objects and/or navigate a viewpoint within a three-dimensional graphics display, . . .”). Thus, the correct construction for “navigating a viewpoint” is thus “positioning and orienting a user’s point of view, as opposed to controlling an object.”

#### **IV. CONCLUSION**

For the foregoing reasons, Nintendo respectfully submits that its proposed constructions for the claim terms identified above are correct and should be adopted by the Court.

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**CERTIFICATE OF SERVICE**

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