

Exhibit A

Valve's Accused VR Instrumentalities infringe the following asserted claims of U.S. Patent No. 7,336,260 to Martin, et al. (the "'260 patent") in at least the following exemplary ways. To the extent that the cited documentation relating to Valve's Accused VR Instrumentalities does not disclose all features, methods or operations required by the asserted claims, such non-disclosed features, methods or operations are inherently or equivalently practiced. Immersion's preliminary infringement contentions are based on information presently available to Immersion. Based upon that information, Valve's deployment, operation, maintenance, testing, use, sale, and importation of the Accused VR Instrumentalities as described below infringes one or more claims of the '260 Patent either literally or under the doctrine of equivalents. Immersion reserves the right to provide further details regarding Valve's infringement, whether that infringement is literal or under the doctrine of equivalents, as discovery is provided by Valve, and to the fullest extent permissible under the Federal and Local Rules, and any Order of this Court. The specific components, systems, and constructs identified in this chart are for exemplary purposes only and Immersion reserves all rights to supplement as additional components, systems, and constructs become known through discovery, as well as after Valve produces documents and source code and/or the Court construes any terms from the claims of the '260 Patent.

For example, Valve provides guides for developing games and applications with the Unreal, Unity, and Source engines for the Accused VR Instrumentalities, which are subject to Valve's control and used for Valve's benefit. In addition, certain developers may develop games and applications with different engines that nonetheless must interoperate with the Accused VR Instrumentalities and are subject to Valve's control and used for Valve's benefit. Regardless of which engine is deployed, the Accused VR Instrumentalities infringe the asserted claims, as identified in the examples below.

Valve directly infringes the claims of the '260 Patent in the exemplary ways detailed below. Valve indirectly infringes the claims of the '260 Patent to the extent Valve's users are direct infringers of the claims of the '260 Patent as referenced below, and their acts of direct infringement are use of the Accused VR Instrumentalities in an infringing manner as described below. With knowledge of infringement of the claims of the '260 Patent going back to at least the filing of the Complaint in this matter, Valve has taken and continues to take active steps to induce infringement of the claims of the '260 Patent by its users. Such active steps include, but are not limited to, making and selling the Accused VR Instrumentalities, encouraging third parties to develop infringing features for the Accused VR Instrumentalities, providing its users with instructions on use of the accused features of Accused VR Instrumentalities.

In addition, Valve infringes by supplying or causing to be supplied in or from the United States all or a substantial portion of the components of the Accused VR Instrumentalities, including software, in such manner as to actively induce the combination of such components outside of the United States in a manner that would infringe the patent if such combination occurred within the United States. Valve further also causes to be supplied in or from the United States components of the Accused VR Instrumentalities especially

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made for use in the Accused VR Instrumentalities, including without limitation software, that are not staple articles of commerce suitable for substantial noninfringing use, knowing that such component is so made or adapted and intending that such component will be combined outside of the United States in a manner that would infringe the patent if such combination occurred within the United States.

Claim 1	Valve's Accused Instrumentalities
1[P]. A computer-readable medium having instructions, the instructions including instructions that cause a processor to:	To the extent the preamble is determined to be limiting, the Accused VR Instrumentalities include a computer-readable medium having instructions, the instructions including instructions that cause a processor to meet the limitations below. For example, Valve specifies certain minimum system specifications, including processor and memory requirements:¹ Minimum • OS: Windows 10, SteamOS, Linux • Processor: Dual Core with Hyper-Threading • Memory: 8 GB RAM • Graphics: Nvidia GeForce GTX 970 / AMD RX 480 • Network: Broadband Internet connection • Additional Notes: Available DisplayPort (Version1.2) and USB (2.0+) Port required Further, Valve's SteamVR supports multiple engines, including the Unity Engine², the Unreal Engine³, and the proprietary Source 2 Engine, through multiple SDKs such as OpenVR⁴ and OpenXR⁵ to implement applications and games.

¹ See <https://help.steampowered.com/en/faqs/view/105E-66E3-962A-1577> (last accessed May 10, 2023).

² See https://valvesoftware.github.io/steamvr_unity_plugin/ (last accessed May 10, 2023); <https://github.com/ValveSoftware/unity-xr-plugin> (last accessed May 10, 2023).

³ See https://github.com/ValveSoftware/steamvr_unreal_plugin (last accessed May 10, 2023).

⁴ See <https://help.steampowered.com/en/faqs/view/46C3-050A-2E52-12D6> (last accessed May 10, 2023); <https://github.com/ValveSoftware/openvr/wiki/API-Documentation> (last accessed May 10, 2023).

⁵ See <https://github.com/ValveSoftware/OpenXR-Canonical-Pose-Tool> (last accessed May 10, 2023); https://github.com/ValveSoftware/openxr_engine_plugins (last accessed May 10, 2023).

Claim 1	Valve's Accused Instrumentalities
	As one example, OpenVR is divided into two layers: application and driver. Valve documentation notes that, "One real-world example of an application is a game engine like Unity."⁶ Further, "OpenVR for application talks to SteamVR. SteamVR then talks to OpenVR driver."⁷ As another example, Valve provides the Steam Input API, which is a flexible action-based API that supports all major controller types.⁸ This API includes member functions, such as, TriggerHapticPulse, that "[t]riggers a (low-level) haptic pulse on supported controllers."⁹
1[A]. detect a first pressure on a first input device;	Valve's Accused VR Instrumentalities detect a first pressure on a first input device. Users operate the Valve Index with two controllers, each of which is an example of an input device. For example, in <i>Moondust</i>,¹⁰ which demonstrates the technical capabilities of the Valve Index controllers (also known as Knuckles), users "[c]rush moon rocks to a fine powder with your powerful hands, taking advantage of the high-fidelity force sensors on Knuckles."¹¹ The "source code and assets" for <i>Moondust</i> are publicly available.¹² This project uses Unity and "the new SteamVR Input System."¹³ Inside of the script MoonRock.cs, the Update() method contains the following line that gets a value for the user's grip squeeze:¹⁴ <pre>42 float squeeze = actionSqueeze.GetAxis(hand);</pre> Further, the figure below is a screenshot taken from a Valve Index while testing this functionality. As shown below, while recording this interaction, a "Squeeze" bar shows how much pressure the user applies while squeezing the controller:

⁶ See <https://github.com/ValveSoftware/openvr/wiki/API-Documentation> (last accessed May 10, 2023).

⁷ See <https://github.com/ValveSoftware/openvr/wiki/API-Documentation> (last accessed May 10, 2023).

⁸ See <https://partner.steamgames.com/doc/api/isteaminput> (last accessed May 10, 2023).

⁹ See <https://partner.steamgames.com/doc/api/isteaminput#functions> (last accessed May 10, 2023).

¹⁰ See https://store.steampowered.com/app/887260/Moondust_Knuckles_Tech_Demos/ (last accessed May 10, 2023).

¹¹ See https://store.steampowered.com/app/887260/Moondust_Knuckles_Tech_Demos/ (last accessed May 10, 2023).

¹² See <https://github.com/ValveSoftware/Moondust> (last accessed May 10, 2023).

¹³ See <https://github.com/ValveSoftware/Moondust> (last accessed May 10, 2023).

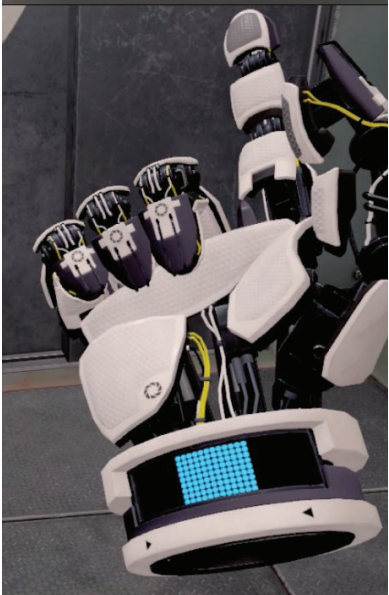
¹⁴ See <https://github.com/ValveSoftware/Moondust/blob/master/Assets/Scripts/MoonRock.cs> (last accessed May 10, 2023).

Claim 1	Valve's Accused Instrumentalities
	 As another example, <i>Half-Life: Alyx</i> offers users several achievements, including the “Freshly Squeezed” achievement in <i>Chapter 2: The Quarantine Zone</i>, where users squeeze headcrab hearts.¹⁵

¹⁵ See <https://steamcommunity.com/sharedfiles/filedetails/?id=2032991058>.

Claim 1	Valve's Accused Instrumentalities
	 As another example in <i>Aperture Hand Lab</i>¹⁶ allows users to squeeze the Index controller grip. As shown below, a meter on the wrist shows how much pressure the user applies while squeezing the controller:

¹⁶ See https://store.steampowered.com/app/868020/Aperture_Hand_Lab/.

Claim 1	Valve's Accused Instrumentalities
	 Thus, Valve's Accused VR Instrumentalities detect a first pressure on a first input device, consistent with the examples noted above.
1[B]. provide a first tactile sensation to the first unput device, the first tactile sensation based at least in part on the first pressure;	Valve's Accused VR Instrumentalities provide a first tactile sensation to the first input device, the first tactile sensation based at least in part on the first pressure. For example, the "source code and assets" for <i>Moondust</i> are publicly available.¹⁷ This project uses Unity and "the new SteamVR Input System."¹⁸ Inside of the script MoonRock.cs, the Update() method contains the following line that gets a value for the user's grip squeeze, which is an example of the first pressure:¹⁹ <pre>42 float squeeze = actionSqueeze.GetAxis(hand);</pre>

¹⁷ See <https://github.com/ValveSoftware/Moondust> (last accessed May 10, 2023).

¹⁸ See <https://github.com/ValveSoftware/Moondust> (last accessed May 10, 2023).

¹⁹ See <https://github.com/ValveSoftware/Moondust/blob/master/Assets/Scripts/MoonRock.cs> (last accessed May 10, 2023).

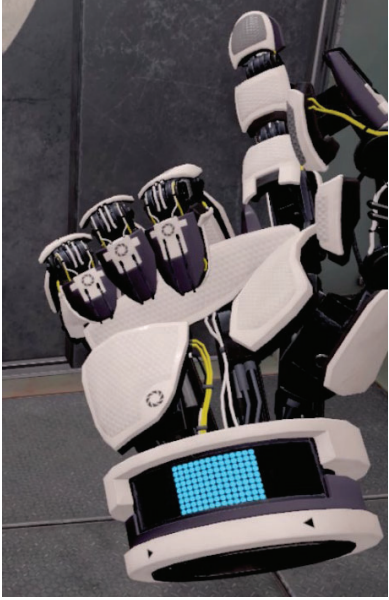
Claim 1	Valve's Accused Instrumentalities
	Later in the Update() method, the script triggers a tactile sensation, for example a haptic pulse, based on this squeeze value:²⁰ <pre> 59 if (squeeze > 0.3f) 60 interactable.attachedToHand.TriggerHapticPulse((ushort)Mathf.Lerp(200, 1000, squeeze * 2)); </pre> As another example, in <i>Half-Life: Alyx</i>, performing the squeeze described in Limitation 1[A] results in haptics. As another example, in <i>Aperture Hand Lab</i>, performing the squeeze described in Limitation 1[A] results in haptics. Thus, Valve's Accused VR Instrumentalities provide a first tactile sensation to the first input device, the first tactile sensation based at least in part on the first pressure, consistent with the examples noted above.
1[C]. detect a second pressure on the first input device, the second pressure greater than the first pressure; and	Valve's Accused VR Instrumentalities detect a second pressure on the first input device, the second pressure greater than the first pressure. For example in <i>Moondust</i>, users can “[c]rush moon rocks to a fine powder with your powerful hands, taking advantage of the high-fidelity force sensors on Knuckles.”²¹ The figure below is a screenshot taken from a Valve Index while testing this functionality, and shows an example of a second pressure greater than the first pressure. As shown below, while recording this interaction, a “Squeeze” bar shows a greater pressure than illustrated under Limitation 1A that users can apply while squeezing the controller before crushing the rock:

²⁰ See <https://github.com/ValveSoftware/Moondust/blob/master/Assets/Scripts/MoonRock.cs> (last accessed May 10, 2023).

²¹ See https://store.steampowered.com/app/887260/Moondust_Knuckles_Tech_Demos/ (last accessed May 10, 2023).

Claim 1	Valve's Accused Instrumentalities
	 As another example, in <i>Half-Life: Alyx</i>, users can squeeze with a second pressure that is greater than the first pressure:

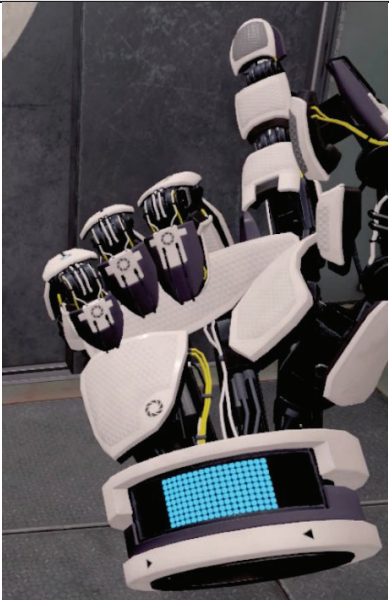
Claim 1	Valve's Accused Instrumentalities
	A photograph of a prosthetic hand, specifically a myoelectric arm, shown in a squeezing motion. The hand is dark-colored with a textured surface. A green wrist meter is attached to the wrist area, displaying a red line graph that indicates pressure levels. The background is a wooden workbench. As another example in <i>Aperture Hand Lab</i>, users can squeeze with a second pressure that is greater than the first pressure, as indicated by the wrist meter:

Claim 1	Valve's Accused Instrumentalities
	 Thus, Valve's Accused VR Instrumentalities detect a second pressure on the first input device, the second pressure greater than the first pressure, consistent with the examples noted above.
1[D]. provide a second tactile sensation to the first input device, the second tactile sensation based at least in part on the second pressure;	Valve's Accused VR Instrumentalities provide a second tactile sensation to the first input device, the second tactile sensation based at least in part on the second pressure. The Accused VR Instrumentalities provide a tactile sensation in response to, for example, the functionality shown under Limitation 1C. (<i>See</i> Limitation 1B for a more detailed explanation of how the Accused VR Instrumentalities provide a second tactile sensation based at least in part on the second pressure.)
1[E]. detect a third pressure on the first input device, the third pressure	Valve's Accused VR Instrumentalities detect a third pressure on the first input device, the third pressure greater than the second pressure.

Claim 1	Valve's Accused Instrumentalities
greater than the second pressure; and	For example in <i>Moondust</i>, users can “[c]rush moon rocks to a fine powder with your powerful hands, taking advantage of the high-fidelity force sensors on Knuckles.”²² The figure below is a screenshot taken from a Valve Index while testing this functionality, and shows an example of a third pressure greater than the second pressure. As shown below, while recording this interaction, a “Squeeze” bar shows a greater pressure than illustrated under Limitations 1A and 1C that users can apply while squeezing the controller before crushing the rock:  As another example, in <i>Half-Life: Alyx</i>, users can squeeze with a third pressure that is greater than the second pressure:

²² See https://store.steampowered.com/app/887260/Moondust_Knuckles_Tech_Demos/ (last accessed May 10, 2023).

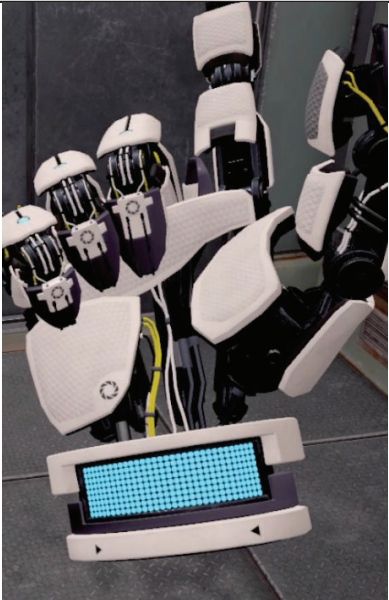
Claim 1	Valve's Accused Instrumentalities
	 As another example in <i>Aperture Hand Lab</i>, users can squeeze with a third pressure that is greater than the second pressure, as indicated by the wrist meter:

Claim 1	Valve's Accused Instrumentalities
	 Thus, Valve's Accused VR Instrumentalities detect a third pressure on the first input device, the third pressure greater than the second pressure, consistent with the examples noted above.
1[F]. provide a third tactile sensation to the first input device.	Valve's Accused VR Instrumentalities provide a third tactile sensation to the first input device. The Accused VR Instrumentalities provide a tactile sensation in response to, for example, the functionality shown under Limitation 1E. (<i>See</i> Limitation 1B for a more detailed explanation of how the Accused VR Instrumentalities provide a third tactile sensation.)
Claim 2	Valve's Accused Instrumentalities
2[P]. The computer-readable medium of claim 1 further comprising stored	Valve's Accused VR Instrumentalities include the computer-readable medium of claim 1 further comprising stored instructions, the stored instructions including instructions which, when executed by a processor, cause the processor to meet the limitations below.

Claim 2	Valve's Accused Instrumentalities
instructions, the stored instructions including instructions which, when executed by a processor, cause the processor to:	Further, See 1[P].
2[A]. detect a fourth pressure on the first input device, the fourth pressure greater than the third pressure; and	Valve's Accused VR Instrumentalities detect a fourth pressure on the first input device, the fourth pressure greater than the third pressure. For example in <i>Moondust</i>, users can “[c]rush moon rocks to a fine powder with your powerful hands, taking advantage of the high-fidelity force sensors on Knuckles.”²³ The figure below is a screenshot taken from a Valve Index while testing this functionality, and shows an example of a third pressure greater than the second pressure. As shown below, while recording this interaction, a “Squeeze” bar shows a greater pressure than illustrated under Limitations 1[A], 1[C], and 1[E] that users can apply while squeezing the controller before crushing the rock: 

²³ See https://store.steampowered.com/app/887260/Moondust_Knuckles_Tech_Demos/ (last accessed May 10, 2023).

Claim 2	Valve's Accused Instrumentalities
	As another example, in <i>Half-Life: Alyx</i>, users can squeeze with a fourth pressure that is greater than the third pressure from Limitation 1[E]:  As another example in <i>Aperture Hand Lab</i>, users can squeeze with a fourth pressure that is greater than the third pressure from Limitation 1[E], as indicated by the wrist meter:

Claim 2	Valve's Accused Instrumentalities
	 Thus, Valve's Accused VR Instrumentalities detect a fourth pressure on the first input device, the fourth pressure greater than the third pressure, consistent with the examples noted above.
2[B]. provide a fourth tactile sensation to the first input device.	Valve's Accused VR Instrumentalities provide a fourth tactile sensation to the first input device. Valve's Accused VR Instrumentalities provide a tactile sensation in response to, for example, the functionality shown under Limitation 2A. (<i>See</i> Limitation 1B for a more detailed explanation of how the Accused VR Instrumentalities provide a fourth tactile sensation.)

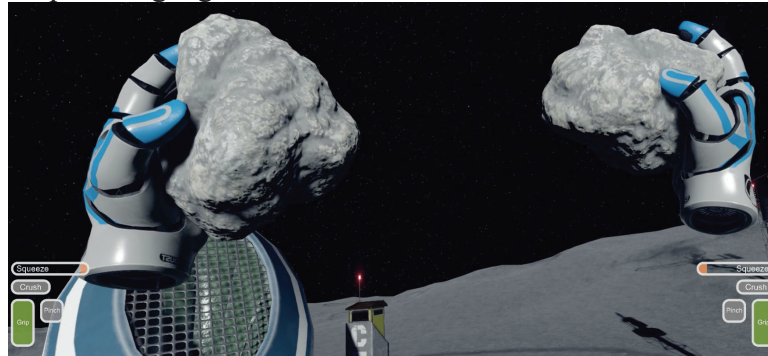
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Claim 5	Valve's Accused Instrumentalities
5[P]. The computer-readable medium of claim 1 further comprising stored instructions, the stored instructions including instructions which, when executed by a processor, cause the processor to:	Valve's Accused VR Instrumentalities include the computer-readable medium of claim 1 further comprising stored instructions, the stored instructions including instructions which, when executed by a processor, cause the processor to meet the limitations below. Further, See 1[P].

5[A]. detect a fourth pressure on a second input device; and

Valve's Accused VR Instrumentalities detect a fourth pressure on a second input device.

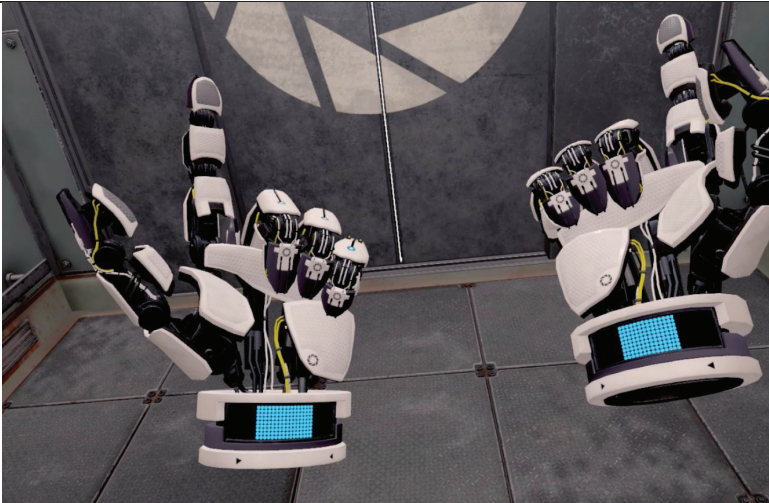
For example, in *Moondust*, users can squeeze with their other hand with a fourth pressure, as indicated by the "Squeeze" gauge:



As another example, in *Half-Life: Alyx*, users can squeeze with their other hand with a fourth pressure:



As another example in *Aperture Hand Lab*, users can squeeze with their other hand with a fourth pressure:

	 Thus, Valve's Accused VR Instrumentalities detect a fourth pressure on a second input device, consistent with the examples noted above.
5[B]. provide a fourth tactile sensation to the second input device.	The Accused VR Instrumentalities provide a tactile sensation in response to, for example, the functionality shown under Limitation 1E. (See Limitation 1B for a more detailed explanation of how the Accused VR Instrumentalities provide a fourth tactile sensation to the second input device.)
Claim 6 6. The computer readable medium of claim 5, the fourth tactile sensation different from the first tactile sensation.	Valve's Accused Instrumentalities Valve's Accused VR Instrumentalities include the computer readable medium of claim 5, where the fourth tactile sensation different from the first tactile sensation. As explained in Limitation 1[B], the haptic effects differ based on squeeze.

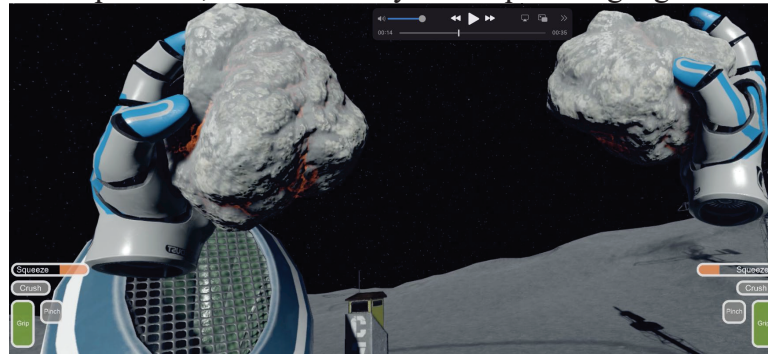
Immersion's Preliminary Infringement Contentions (10/20/2023)

Claim 7	Valve's Accused Instrumentalities
7[P]. The computer-readable medium of claim 5 further comprising stored instructions, the stored instructions including instructions which, when executed by a processor, cause the processor to:	Valve's Accused VR Instrumentalities include the computer-readable medium of claim 5 further comprising stored instructions, the stored instructions including instructions which, when executed by a processor, cause the processor to meet the limitations below. Further, See 1[P].

7[A]. detect a fifth pressure on the second input device, the fifth pressure greater than the fourth pressure; and

Valve's Accused VR Instrumentalities detect a fifth pressure on the second input device, the fifth pressure greater than the fourth pressure.

For example, in *Moondust*, users can squeeze with their other hand with a fifth pressure greater than the fourth pressure, as indicated by the "Squeeze" gauge:



As another example, in *Half-Life: Alyx*, users can squeeze with their other hand with a fifth pressure greater than the fourth pressure:



As another example in *Aperture Hand Lab*, users can squeeze with their other hand with a fifth pressure greater than the fourth pressure:



Thus, Valve's Accused VR Instrumentalities detect a fifth pressure on the second input device, the fifth pressure greater than the fourth pressure, consistent with the examples noted above.

7[B]. provide a fifth tactile sensation to the second input device.

Valve's Accused VR Instrumentalities provide a fifth tactile sensation to the second input device.

The Accused VR Instrumentalities provide a tactile sensation in response to, for example, the functionality shown under Limitation 1E. (*See* Limitation 1B for a more detailed explanation of how the Accused VR Instrumentalities provide a fifth tactile sensation to the second input device.)