

Appendix A: Claim Chart for U.S. Patent No. 9,055,254¹

Claim Number	Claim Language	
1[a]	A method, comprising:	To the extent that the claim’s preamble is determined to be a limitation or otherwise limiting, LG and the Accused Instrumentalities perform the following steps.
1[b]	receiving, wirelessly by at least one of an infrared and radio frequency module of a television and from a remote control, a request to change a	The Accused Instrumentalities are capable of receiving wirelessly by at least one of an infrared and radio frequency module of a television and from a remote control, a request to change a programming channel. For example, the Accused Instrumentalities include a remote control that, operates at least in the infrared frequency and transmits inputs to the television.

¹ Pursuant to E.D. Tex. Patent Rule 3-1(c), this claim chart identifies where each element of the asserted claims of this patent is found within all models of LG’s currently offered lines of products—OLED TVs, QNED MiniLED TVs, NanoCell TVs, and 4K Ultra HD TVs—as well as any previous versions or models of the currently offered lines of products and any other model of LG TV on which any version of LG webOS was installed (collectively, the “Accused Instrumentalities”). On information and belief, the operation of these devices with respect to these infringement contentions is substantially the same or identical, at least because each runs the LG webOS operating system—previously or alternatively known as webOS, Open webOS, HP webOS, and Palm webOS—which governs the functionality of these devices that is relevant to these infringement contentions. Thus, although this claim chart includes exemplary citations and images for devices running webOS 5.0, the explanations of how the Accused Instrumentalities meet each limitation of the claims charted herein are substantially the same or identical for each LG TV on which any version of LG webOS was installed, except as otherwise noted (*e.g.*, where a citation expressly notes it addresses a TV running webOS 2022). Plaintiff Multimedia notes that LG recently announced its 2023 TVs will include a new version of webOS (“webOS 2023”); based on publicly available information, Multimedia expects discovery to confirm that televisions on which LG’s updated webOS is installed will also infringe the asserted patent, at least due to its similarity to previous versions of webOS. *See* <https://www.lgnewsroom.com/2023/01/lgs-2023-oled-tvs-take-viewing-immersion-and-user-experience-to-new-heights/>. In providing these contentions, Multimedia notes that the identification below of where each element of the asserted claims of this patent is found is exemplary; each element of the asserted claims of this patent can be found throughout the Accused Instrumentalities, and Multimedia expressly reserves the right to rely on such other applications, features of, and methods of using the Accused Instrumentalities, and on other facts adduced through discovery, in proving its case at trial. Additionally, some of the claim elements herein may be software limitations. Accordingly, Multimedia reserves the right to amend and/or supplement this claim chart after a complete production of the source code for the Accused Instrumentalities and after production of exemplary televisions with webOS 2023 installed.

programming
channel;

4 Using Remote Control

Using Magic Remote Control

(Depending upon model)
The descriptions in this manual are based on the buttons on the remote control. Please read this manual carefully and use the TV correctly.
This remote uses infrared light. When in use, it should be pointed in the direction of the TV's remote sensor.

Power Turns the TV on or off.

(Dash) Inserts a — between numbers such as 2-1 and 2-2.

GUIDE** Accesses the saved channel list. Accesses the [Guide]. Accesses the [Edit Quick Access].

[Edit Quick Access] is a feature that allows you to enter a specified app or Live TV directly by pressing and holding the number buttons.

Volume buttons Adjusts the volume level.

Channel buttons Scrolls through the saved channels.

Home Accesses the Home menu.

Home Launches the last used apps.

Input Changes the input source.

Input Accesses the [Home Dashboard].

Wheel (OK) Press the center of **○** button to select a menu. You can change channels by using **○** button.

Wheel (OK) Accesses the [Magic Explorer]. You can run the [Magic Explorer] feature when the pointer colour is changed to purple. If watching a channel, press and hold down the pointer onto the video. When using [TV Guide], [Settings], [Sports Alert], or [Art Gallery], press and hold down on the text.

Back Returns to the previous level.

Back Clears on-screen displays and returns to last input viewing.

Microphone



Number buttons Enters numbers. Accesses the [Quick Help].

More actions Displays more remote control functions.

AD/SAP** SAP (Secondary Audio Program) feature can also be enabled by pressing the ... button.

Mute Mutes all sounds.

Mute Accesses the [Accessibility] menu.

Voice recognition Network connection is required to use the voice recognition function.

Check for recommended content. (Some recommended services may not be available in some countries.)

Voice recognition Speak while pressing and holding the button to use the voice recognition feature.

Q. Settings Accesses the Quick Settings.

Q. Settings Displays the [All Settings] menu.

Up/Down/Left/Right Press the up, down, left or right button to scroll the menu. If you press **⬇️** buttons while the pointer is in use, the pointer will disappear from the screen and Magic Remote will operate like a general remote control. To display the pointer on the screen again, shake Magic Remote to the left and right.

These access special functions in some menus.

Streaming Service buttons Connects to the Video Streaming Service.

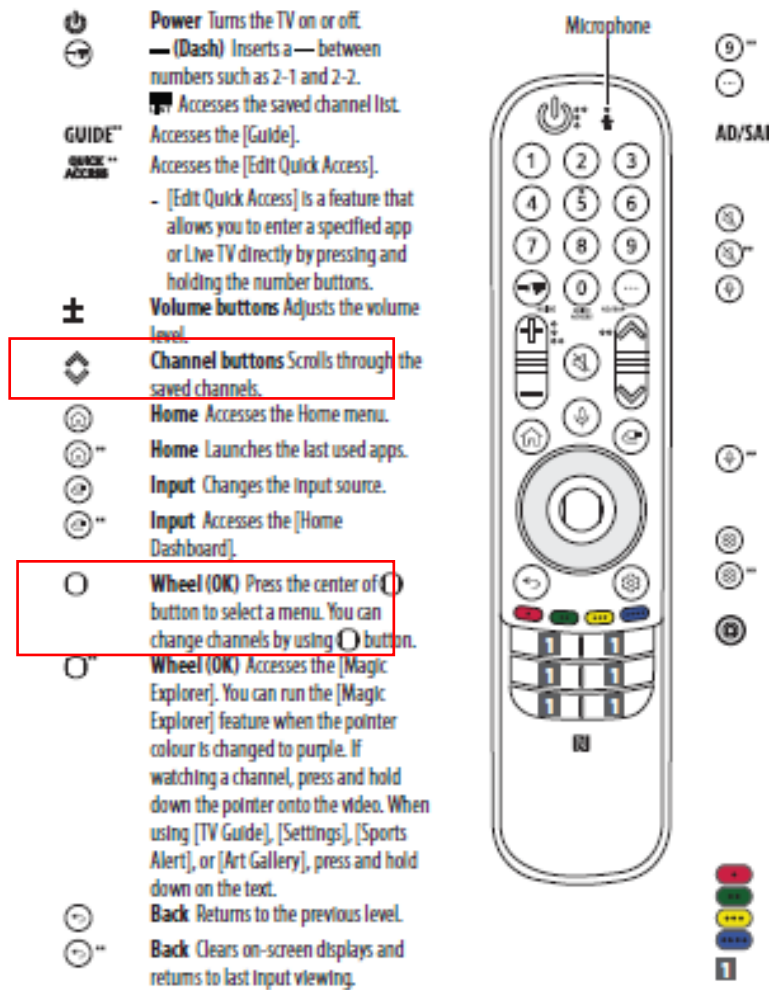
(Some buttons and services may not be provided depending upon models or regions.)

Note **To use the button, press and hold for more than 1 second.

14

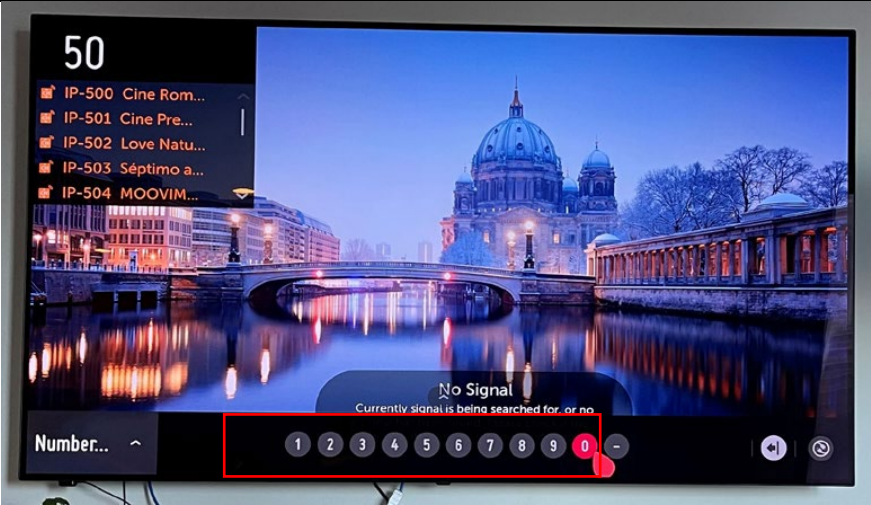
See, e.g., LG Owner's Manual, at 14.

LG's E-manual indicates that its Smart TVs can receive a request to change a programming channel via a remote control, in several ways:



See, e.g., LG Owner's Manual, at 14.

		The remote control can also be used to change the channel using an on screen change changer. <i>See</i> claim limitation 1[c].												
1[c]	displaying, by a microprocessor executable application framework and on a television screen, an on screen channel changer, the displayed on screen channel changer comprising electronic program guide (“EPG”) information and a number input bar comprising digits, wherein the digits range from 0 to 9;	The Accused Instrumentalities are capable of displaying, by a microprocessor executable application framework and on a television screen, an on screen channel changer, the displayed on screen channel changer comprising electronic program guide (“EPG”) information and a number input bar comprising digits, wherein the digits range from 0 to 9. As will be shown after further discovery, the Accused Instrumentalities include a microprocessor that is capable of being used to execute the application framework of this method. For example, the LG OLED evo C3 77 in 4K Smart TV 2023 includes at least the α9 Gen6 AI Processor: PICTURE(PROCESSING) <table><tr><td>AI Picture</td><td>AI Picture Pro</td><td>HDR (High Dynamic Range)</td><td>Dolby Vision / HDR10 / HLG</td></tr><tr><td>Motion</td><td>OLED Motion</td><td>Picture Processor</td><td>α9 AI Processor Gen6</td></tr><tr><td>Upscaling</td><td>AI Super Upscaling 4K</td><td></td><td></td></tr></table> <i>See</i> https://www.lg.com/us/tvs/lg-oled77c3pua; <i>see also</i> https://www.lg.com/us/tvs (linking to specifications for LG TVs). For example, the Accused Instrumentalities are capable of displaying, by a microprocessor executable application framework—as will be shown in further discovery—and on a television screen, an on screen channel changer, the displayed on screen channel changer comprising electronic program guide (“EPG”) information and a number input bar comprising digits, wherein the digits range from 0 to 9. The on-screen channel changer, generated via an application framework, comprises a number input bar comprising digits ranging from 0 to 9:	AI Picture	AI Picture Pro	HDR (High Dynamic Range)	Dolby Vision / HDR10 / HLG	Motion	OLED Motion	Picture Processor	α9 AI Processor Gen6	Upscaling	AI Super Upscaling 4K		
AI Picture	AI Picture Pro	HDR (High Dynamic Range)	Dolby Vision / HDR10 / HLG											
Motion	OLED Motion	Picture Processor	α9 AI Processor Gen6											
Upscaling	AI Super Upscaling 4K													

		 This on screen channel changer further comprises EPG information, such as program channel and program name: 
1[d]	receiving, by the application	The Accused Instrumentalities are capable of receiving, by the application framework and from the remote control, a channel selection based on digits selected by a user using the remote control and the

	framework and from the remote control, a channel selection based on digits selected by a user using the remote control and the number input bar of the on screen channel changer, wherein the user selects the digits using non-numeric keys of the remote control; and	number input bar of the on screen channel changer, wherein the user selects the digits using non-numeric keys of the remote control. For example, the Accused Instrumentalities are capable of receiving, by the application framework and from the remote control, a channel selection based on digits selected by a user using the remote control and the number input bar of the on screen channel changer, wherein the user selects the digits using non-numeric keys of the remote control. A user may make a channel selection by bringing up the number input bar using the remote control and selecting the digits using non-numerical keys of the remote control. Specifically, the user can use the “wheel,” “ok,” directional buttons, or the “color” buttons. LG Owner’s Manual at 14. (“Wheel (OK) Press the center of button to select a menu. You can change channels by using button. Wheel (OK) Accesses the [Magic Explorer]. You can run the [Magic Explorer] feature when the pointer colour is changed to purple. If watching a channel, press and hold down the pointer onto the video. When using [TV Guide], [Settings], [Sports Alert], or [Art Gallery], press and hold down on the text.” “Up/Down/Left/Right Press the up, down, left or right button to scroll the menu. If you press buttons while the pointer is in use, the pointer will disappear from the screen and Magic Remote will operate like a general remote control. To display the pointer on the screen again, shake Magic Remote to the left and right.”)
--	--	--

4 Using Remote Control

Using Magic Remote Control

(Depending upon model)

The descriptions in this manual are based on the buttons on the remote control. Please read this manual carefully and use the TV correctly. This remote uses infrared light. When in use, it should be pointed in the direction of the TV's remote sensor.



Power Turns the TV on or off.

— (Dash) Inserts a — between numbers such as 2-1 and 2-2.

TV Accesses the saved channel list.

GUIDE** Accesses the [Guide].

QUICK ACCESS** Accesses the [Edit Quick Access].

- [Edit Quick Access] is a feature that allows you to enter a specified app or Live TV directly by pressing and holding the number buttons.

Volume buttons Adjusts the volume level.

Channel buttons Scrolls through the saved channels.

Home Accesses the Home menu.

Home Launches the last used apps.

Input Changes the input source.

Input Accesses the [Home Dashboard].

Wheel (OK) Press the center of **○** button to select a menu. You can change channels by using **○** button.

Wheel (OK) Accesses the [Magic Explorer]. You can run the [Magic Explorer] feature when the pointer colour is changed to purple. If watching a channel, press and hold down the pointer onto the video. When using [TV Guide], [Settings], [Sports Alert], or [Art Gallery], press and hold down on the text.

Back Returns to the previous level.

Back Clears on-screen displays and returns to last input viewing.

Microphone

Number buttons Enters numbers.

9** Accesses the [Quick Help].

More actions Displays more remote control functions.

AD/SAP** SAP (Secondary Audio Program) feature can also be enabled by pressing the ... button.

Mute Mutes all sounds.

Mute Accesses the [Accessibility] menu.

Voice recognition Network connection is required to use the voice recognition function.

Check for recommended content. (Some recommended services may not be available in some countries.)

Voice recognition Speak while pressing and holding the button to use the voice recognition feature.

Q. Settings Accesses the Quick Settings.

Q. Settings Displays the [All Settings] menu.

Up/Down/Left/Right Press the up, down, left or right button to scroll the menu. If you press **Ⓢ** buttons while the pointer is in use, the pointer will disappear from the screen and Magic Remote will operate like a general remote control. To display the pointer on the screen again, shake Magic Remote to the left and right.

These access special functions in some menus.

Streaming Service buttons Connects to the Video Streaming Service.

(Some buttons and services may not be provided depending upon models or regions.)

(LG Owner's Manual at 14.)

1[e]

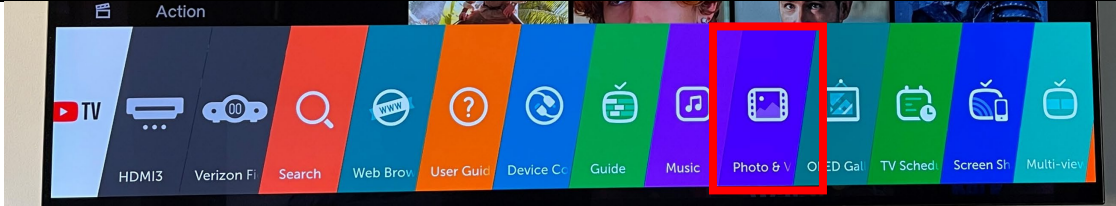
changing, by the application

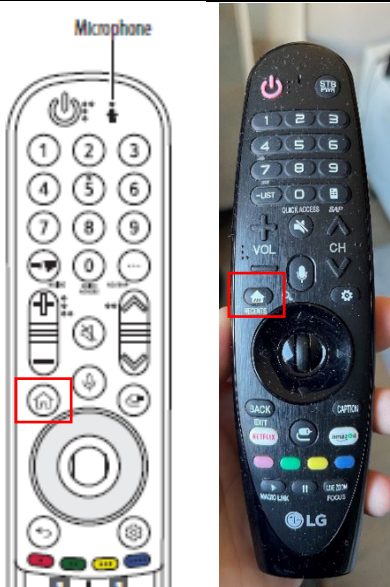
The Accused Instrumentalities are capable of changing, by the application framework, to the selected channel.

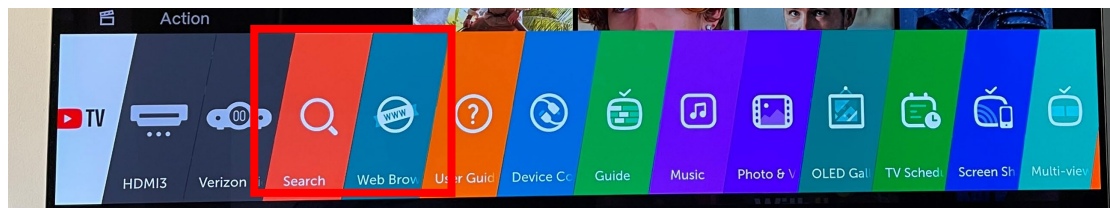
	framework, to the selected channel,	For example, when a user selects a channel in the manner described in Claim Limitation 1[d], the Accused Instrumentalities change the channel to the selected channel. The following is an exemplary annotated image of the LG Smart Remote indicating the location of the buttons that correspond to limitations 1[f]-[i]:  Home Button (short press) • “Media Center Button” • “Application Center Button” • “Application Panel Button” • “Global Panel Button” Home Button (long press) • Alternative “Application Center Button” Application Buttons • Alternative “Application Panel Button” Settings Button • Alternative “Global Panel Button”
--	--	--

1[f]	wherein the remote control comprises: a media center button that, when selected, provides, by the television screen, displayed information regarding one or more of groupings of music, groupings of videos, groupings of photographs, and internal and external computational devices, the computational devices comprising one or more of personal computers, laptops, tablet computers, wireless phones, and removable	The Accused Instrumentalities have a remote control that comprises: a media center button that, when selected provides, by the television screen, displayed information regarding one or more of groupings of music, groupings of videos, groupings of photographs, and internal and external computational devices, the computational devices comprising one or more of personal computers, laptops, tablet computers, wireless phones, and removable computer readable media. LG Smart Remotes comprise a media center button that, when selected, provides, by the television screen, displayed information regarding one or more of groupings of music, groupings of videos, groupings of photographs, and internal and external computational devices, the computational devices comprising one or more of personal computers, laptops, tablet computers, wireless phones, and removable computer readable media. As one example, LG Smart Remotes contain a “Home” button as shown below on the left side of the remote control.
------	--	--

	computer readable media;	See, e.g., LG Owner's Manual, at 14 (left); user photo (right). A short press of the "home" button can launch a digital panel which displays information related to videos, photographs, and/or internal and external computational devices.  Home Accesses the Home menu.  Home Launches the last used apps. LG Owner's Manual at 14. 
--	--------------------------	--

		 See also https://www.youtube.com/watch?v=RnLhp7Yqucw.
1[g]	an application center button that, when selected, provides, by the television screen, displayed information regarding pre-installed and downloaded software applications, wherein the downloaded software applications comprise one or more of a web browser, settings control, and content search algorithms;	The Accused Instrumentalities comprise an application center button that, when selected, provides, by the television screen, displayed information regarding pre-installed and downloaded software applications, wherein the downloaded software applications comprise one or more of a web browser, settings control, and content search algorithms. LG Smart Remotes comprise an application center button that, when selected, provides, by the television screen, displayed information regarding pre-installed and downloaded software applications, wherein the downloaded software applications comprise one or more of a web browser, settings control, and content search algorithms. As one example, LG Smart Remotes contain a “Home” button as shown below on the left side of the remote control.

		 See, e.g., LG Owner's Manual, at 14 (left); user photo (right). A short press of the “home” button can launch a digital panel which displays information related to pre-installed and downloaded software applications, including at least settings control, content search algorithms, and a web browser:  Home Accesses the Home menu.  Home Launches the last used apps. LG Owner's Manual at 14.
--	--	--



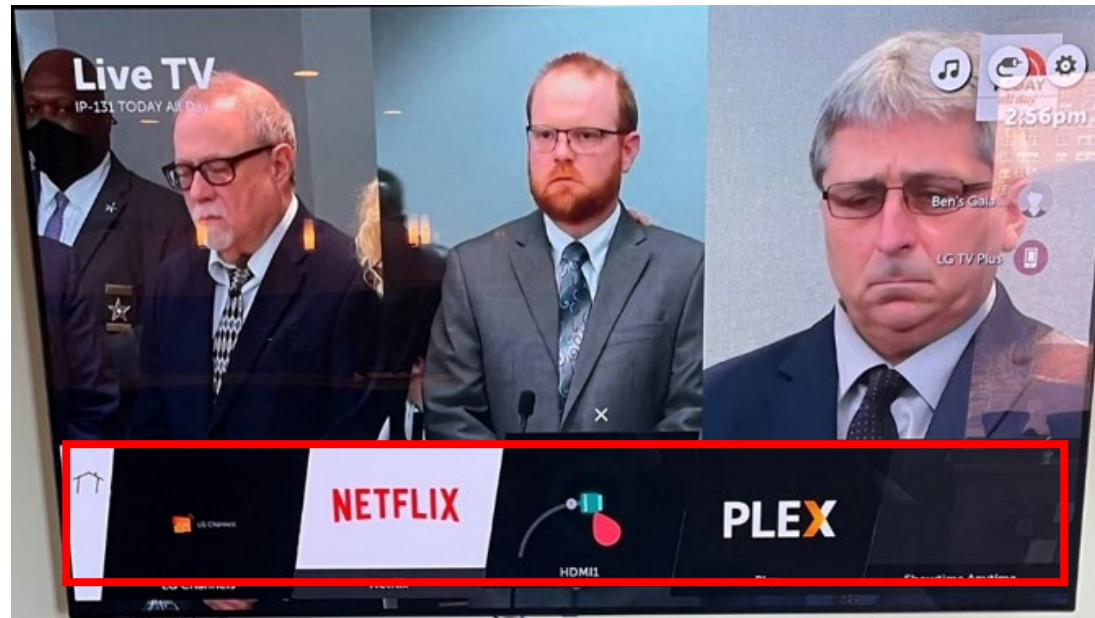
See also <https://www.youtube.com/watch?v=RnLhp7Yqucw>.

In the alternative, the remote contains a “Home” button. When the “Home” button is pressed with a “long” press—as opposed to a “short” press, which activates panel described in the “Media Center” limitation above—the “last used apps” menu is displayed on the screen, which comprises an

information panel regarding pre-installed and downloaded software applications, wherein the downloaded software applications comprise one or more of a web browser, settings control, and content search algorithms, such as the “Netflix” app:

-  **Home** Accesses the Home menu.
-  **Home** Launches the last used apps.

LG Owner’s Manual at 14.

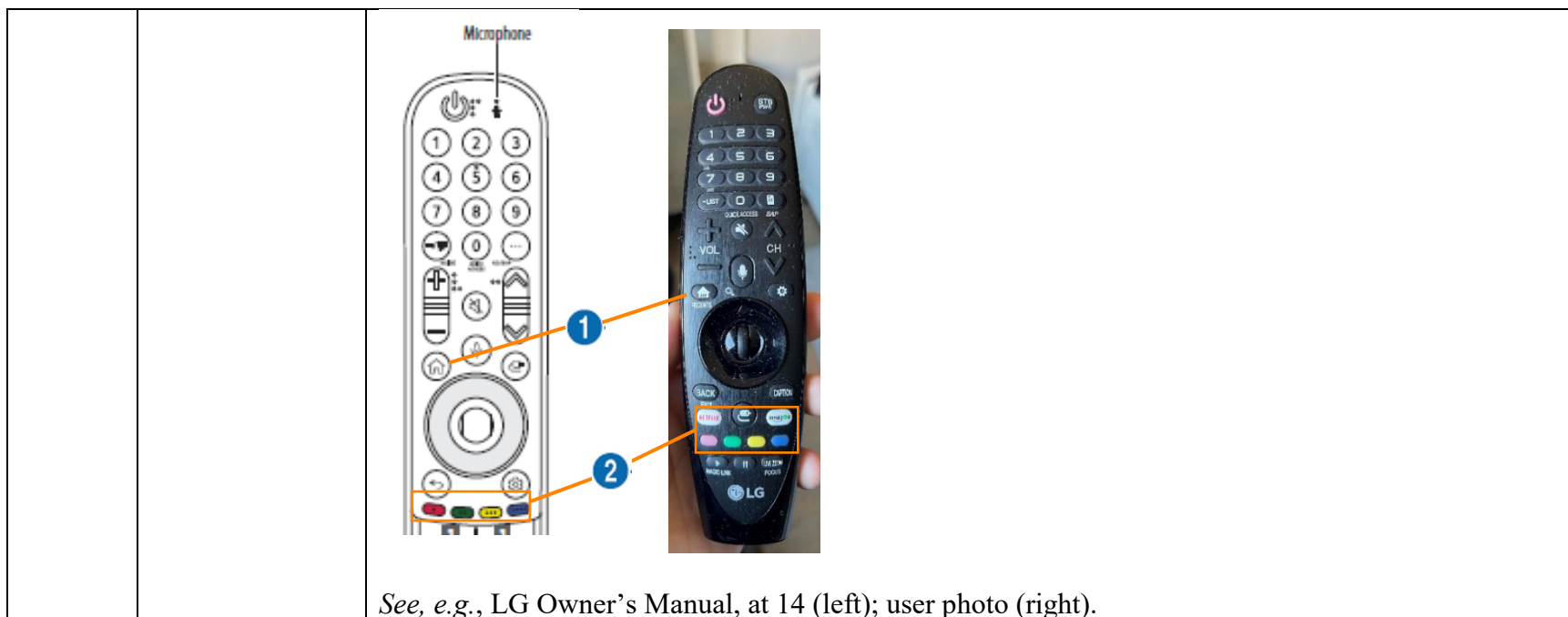


1[h]	an application panel button that, when selected, displays, by the television screen, an application panel, wherein the application panel comprises an information panel regarding a selected (pre-installed or previously downloaded) application icon; and	The Accused Instrumentalities have an application panel button that, when selected, displays, by the television screen, an application panel, wherein the application panel comprises an information panel regarding a selected (pre-installed or previously downloaded) application icon. For example, the LG Smart Remote home button displays an application panel that comprises information about a selected application. For example, when a user scrolls to the applications
------	---	---

associated with the HDMI ports, the icon changes from the HDMI port number to the source of content for the application, “FIOS New York Plus.”



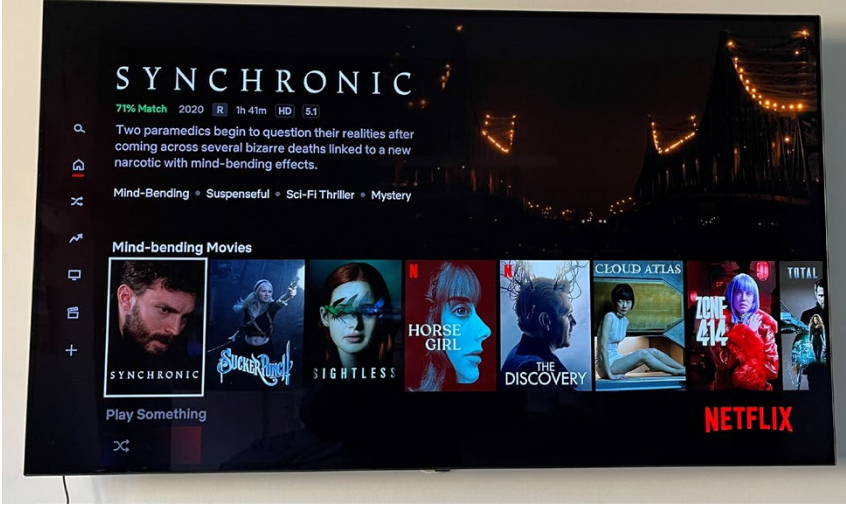
In the alternative, LG Smart Remotes comprise buttons (labeled with a blue “2” below) that launch a pre-installed application, such as Netflix or Prime Video:

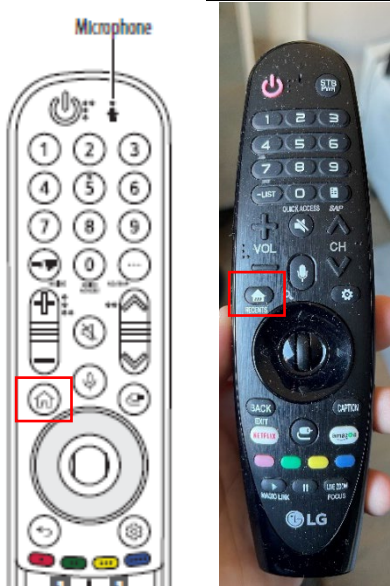


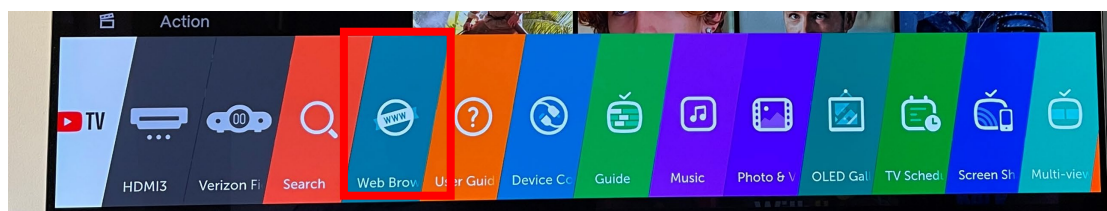
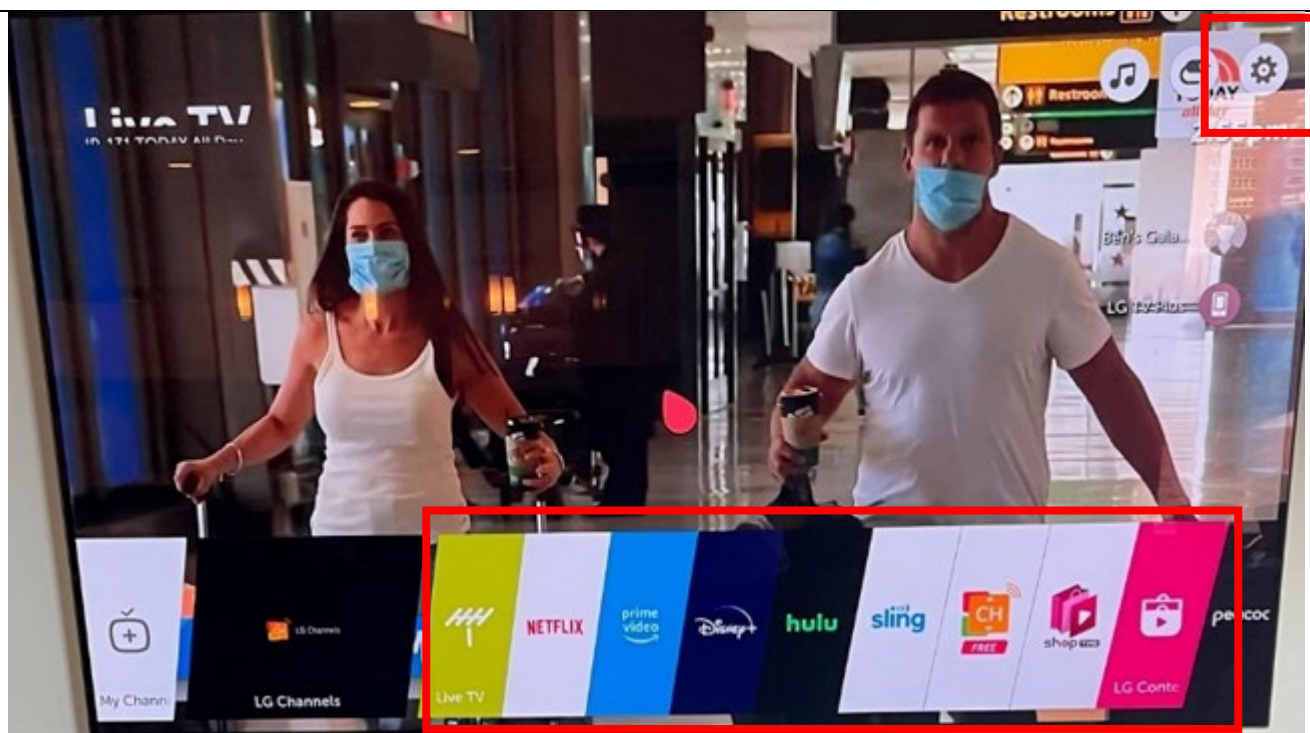
See, e.g., LG Owner's Manual, at 14 (left); user photo (right).

As shown below, for example, when the “Netflix” button is pressed, the Netflix app launches, displaying an information panel about the app that identifies the app via the app icon and includes additional information such as what programs are available to watch:

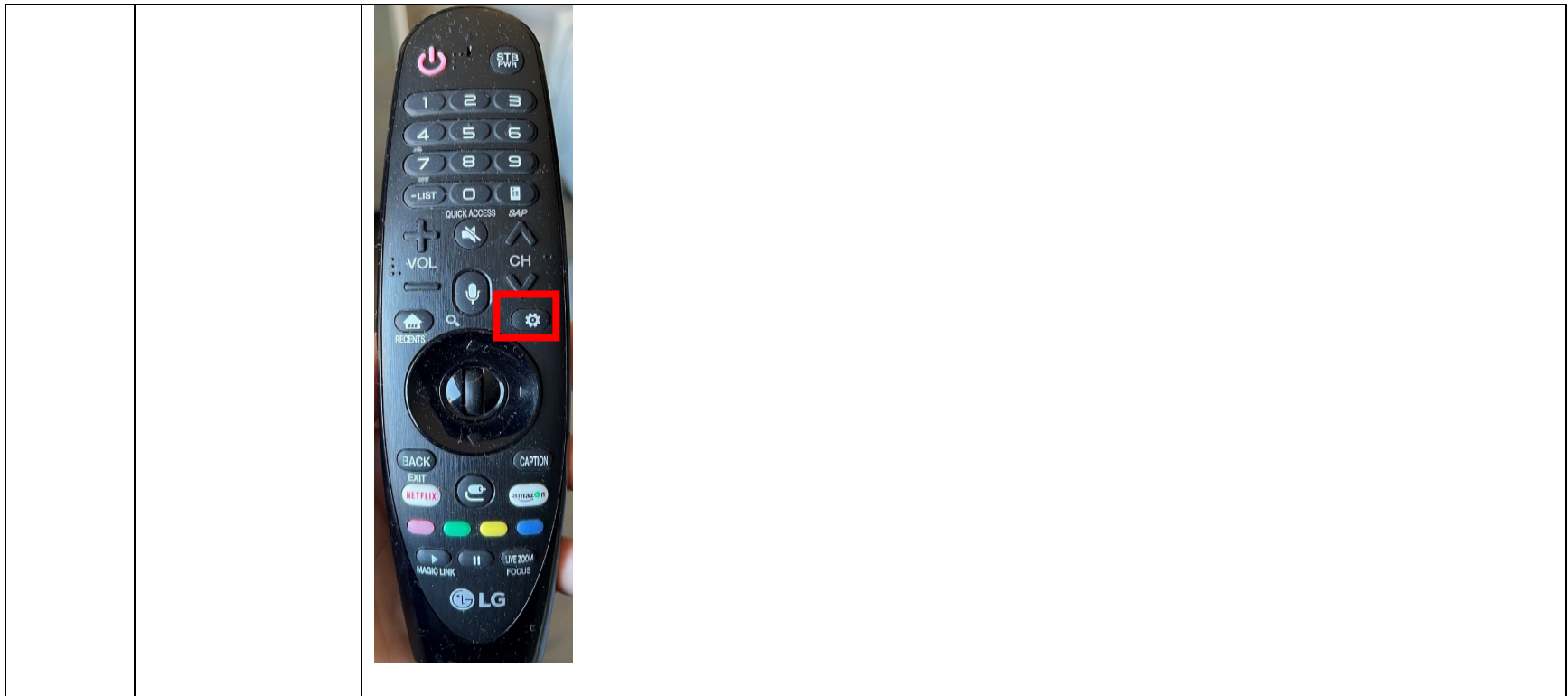


		
1[i]	a global panel button that, when selected, provides the user, via one or more panels or windows displayed by the television screen, with access to one or more of silos, notifications, a web browser[.], system settings, and information associated therewith.	The Accused Instrumentalities have a global panel button that, when selected, provides the user, via one or more panels or windows displayed by the television screen, with access to one or more of silos, notifications, a web browser, system settings, and information associated therewith. LG Smart Remotes comprise a global panel button that, when selected, provides the user, via one or more panels or windows displayed by the television screen, with access to one or more of silos, notifications, a web browser, system settings, and information associated therewith. As one example, LG Smart Remotes contain a “Home” button as shown below on the left side of the remote control.

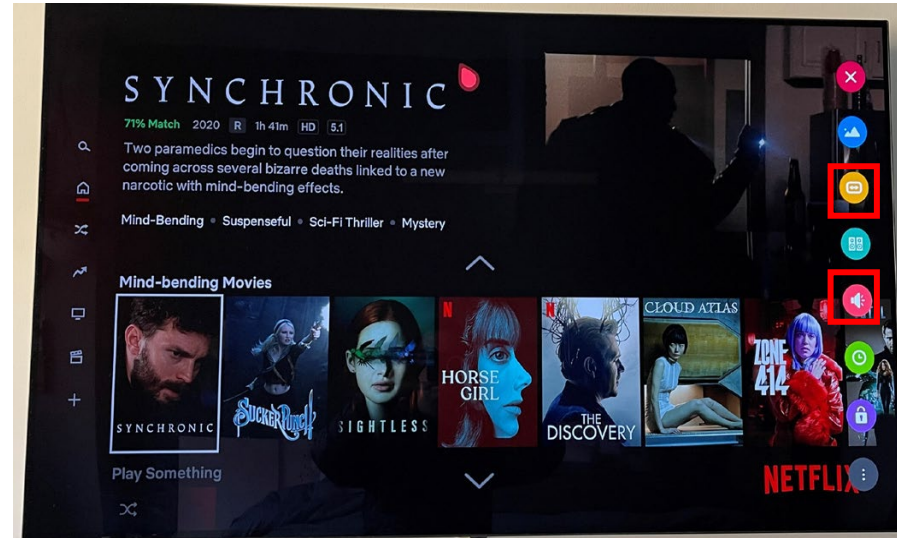
		 See, e.g., LG Owner's Manual, at 14 (left); user photo (right). A short press of the “home” button can launch a digital panel which provides the user access to one or more of silos, notifications, a web browser, system settings, and information associated therewith:  Home Accesses the Home menu.  Home Launches the last used apps. LG Owner's Manual at 14.
--	--	--



In the alternative, LG Smart Remotes contain a “Settings” button that brings up the “Settings” menu.



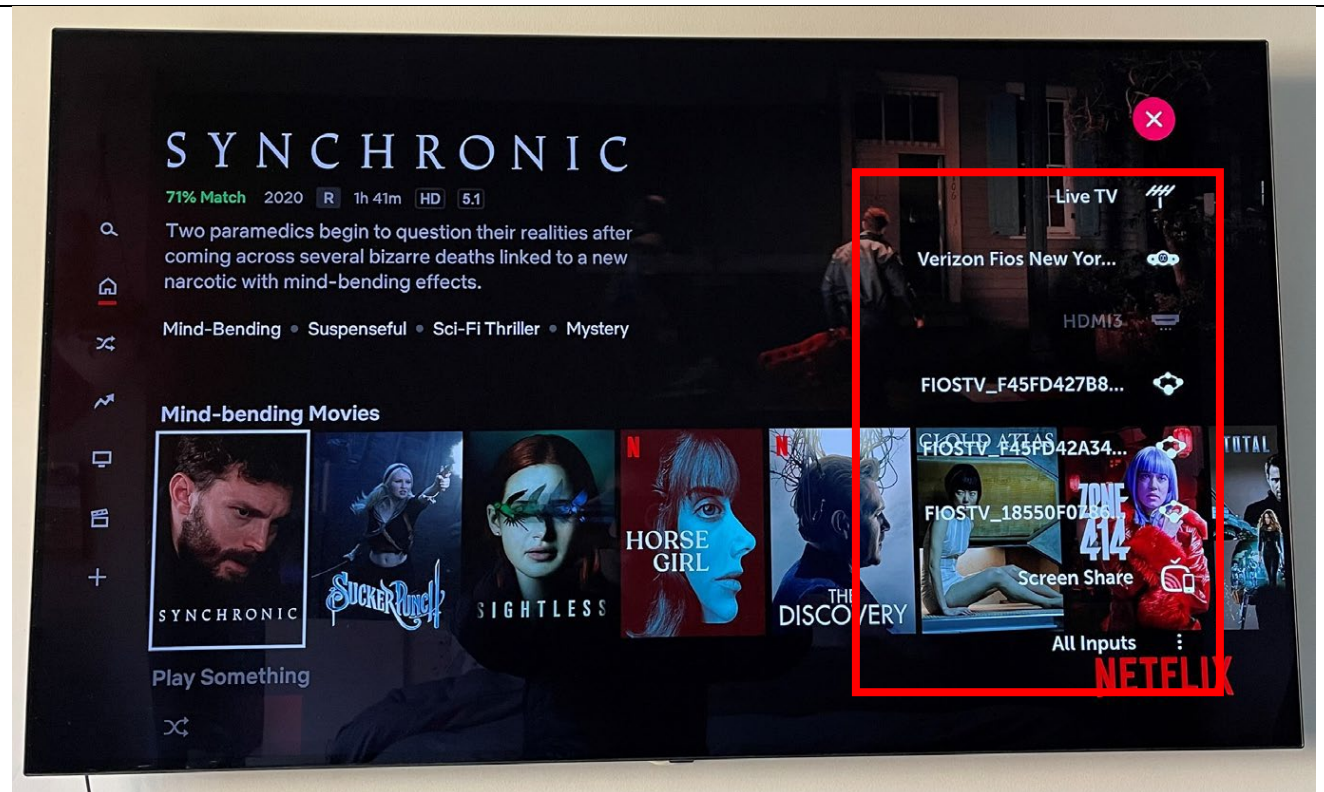
This “home menu” (global panel) that provides the user access to one or more of silos, notifications, a web browser, system settings, and information associated therewith. For example, this panel includes system settings such as “Aspect Ratio” or “Internal TV Speaker,” among others:



As another example, LG Smart Remotes contain a button as shown below in the lower center of the remote control:



Interaction with the button can launch a digital panel which displays one or more panels or windows displayed by the television screen, with access to one or more of silos, notifications, a web browser[,] system settings, and information associated therewith. In particular, it displays at least one “silo,” a “logical representation of an input, source, or application.” *See* ‘254 Patent at 5:56-67.



As noted in footnote 1, *supra*, Multimedia contends, and expects that discovery will show, that other versions of webOS infringe Claim 1 (and all subsequent charted claims below) for substantially the same or identical reasons, at least because, as Multimedia expects discovery to show, the relevant functionality of each version of webOS is substantially the same or identical.² For example, Accused Instrumentalities running webOS 2022 also include a remote control with buttons that correspond to (1) a media center button, (2) application center button, (3) application panel button, and (4) global panel, and the Accused Instrumentalities function in accordance with the claims:

² Again, the identification herein of where each element of the asserted claims of this patent is found is exemplary; each element of the asserted claims of this patent can be found throughout the Accused Instrumentalities, and Multimedia expressly reserves the right to rely on such other applications, features of, and methods of using the Accused Instrumentalities, and on other facts adduced through discovery, in proving its case at trial.



			
3	The method of claim 1, wherein each of the digits are selected using one or more arrow keys and a select button and wherein the information panel comprises one or more of identify the selected application,	The Accused Instrumentalities are capable of having digits that are selected using one or more arrow keys and a select button and wherein the information panel comprises one or more of identify the selected application, provide a description of the functionality of the selected application, user ratings and/or degree of other user downloading of the selected application, an option to launch, remove, update, and add to favorites the selected application, and provide a listing of selectable links of other (not yet downloaded) recommended applications that provide similar functionality to the selected application. For example, the channel may be changed on the Accused Instrumentalities by selecting the digits using one or more arrow keys and a select button. Additionally, the information panel provides at least a description of the identity and functionality of the selected application—<i>i.e.</i> what is plugged into the HDMI port—and an option to launch. Similarly, in the alternative, the application panel related to a pre-installed application, such as Netflix or Prime Video, comprises at least an identification of the application and an option to launch.	

	provide a description of the functionality of the selected application, user ratings and/or degree of other user downloading of the selected application, an option to launch, remove, update, and add to favorites the selected application, and provide a listing of selectable links of other (not yet downloaded) recommended applications that provide similar functionality to the selected application.	
6	The method of claim 1, wherein, as the user selects each digit, the	The Accused Instrumentalities are capable having as the user selects each digit, the application framework updates the EPG information to include only those programs and/or channels selectable from the selected digits and wherein the remote control further comprises a moveable joystick that, when manipulated by the user, causes a displayed image on the screen to be displaced a proportional amount.

	application framework updates the EPG information to include only those programs and/or channels selectable from the selected digits and wherein the remote control further comprises a moveable joystick that, when manipulated by the user, causes a displayed image on the screen to be displaced a proportional amount.	For example, as a user enters digits, as in Claim 1[c], the display updates to include EPG information corresponding to the available channels (<i>e.g.</i> , channel 500 is not displayed after “51” is entered). Additionally, certain LG Smart remotes comprise a joystick itself and/or include a wheel that may be manipulated by the user, causing a displayed image to move proportionally (<i>e.g.</i> scrolling). <i>See, e.g.</i> , Claim 1[b].
8[a]	A television, comprising:	To the extent the preamble is limiting, the Accused Instrumentalities are televisions.
8[b]	a television screen;	The Accused Instrumentalities comprise television screens, as demonstrated by the display on the Accused Instrumentalities.
8[c]	at least one of an infrared and radio frequency module	The Accused Instrumentalities have at least one of an infrared and radio frequency module configured to receive wirelessly requests from a remote control of a user, the requests comprising a selected channel or program from a displayed listing.

	configured to receive wirelessly requests from a remote control of a user, the requests comprising a selected channel or program from a displayed listing; and	See Claim 1[b] - [d].												
8[d]	a microprocessor executable application framework configured to:	The Accused Instrumentalities comprise a microprocessor executable application frameworks. As will be shown after further discovery, the Accused Instrumentalities include a microprocessor that is capable of being used to execute the application framework. For example, the LG OLED evo C3 77 in 4K Smart TV 2023 includes at least the α9 Gen6 AI Processor: PICTURE(PROCESSING) <table><tr><td>AI Picture</td><td>AI Picture Pro</td><td>HDR (High Dynamic Range)</td><td>Dolby Vision / HDR10 / HLG</td></tr><tr><td>Motion</td><td>OLED Motion</td><td>Picture Processor</td><td>α9 AI Processor Gen6</td></tr><tr><td>Upscaling</td><td>AI Super Upscaling 4K</td><td></td><td></td></tr></table> See https://www.lg.com/us/tvs/lg-oled77c3pua; see also https://www.lg.com/us/tvs (linking to specifications for LG TVs). See also Claim 1[c].	AI Picture	AI Picture Pro	HDR (High Dynamic Range)	Dolby Vision / HDR10 / HLG	Motion	OLED Motion	Picture Processor	α9 AI Processor Gen6	Upscaling	AI Super Upscaling 4K		
AI Picture	AI Picture Pro	HDR (High Dynamic Range)	Dolby Vision / HDR10 / HLG											
Motion	OLED Motion	Picture Processor	α9 AI Processor Gen6											
Upscaling	AI Super Upscaling 4K													
8[e]	receive a request to change a programming channel, display,	The Accused Instrumentalities receive requests to change a programming channel, display, on the television screen, an on screen channel changer, the on screen channel changer comprising electronic program guide (“EPG”) information and a number input bar comprising digits, wherein the digits range from 0 to 9.												

	on the television screen, an on screen channel changer, the on screen channel changer comprising electronic program guide (“EPG”) information and a number input bar comprising digits, wherein the digits range from 0 to 9,	<i>See Claim 1[c].</i>
8[f]	receive, from the remote control and using the on screen channel changer, a channel selection of a user based on digits in the number input bar, wherein the user selects the digits from the number input bar using non-numeric keys on the remote control, and	The Accused Instrumentalities receive, from the remote control and using the on screen channel changer, a channel selection of a user based on digits in the number input bar, wherein the user selects the digits from the number input bar using non-numeric keys on the remote control, and change to the selected channel. <i>See Claim 1[d].</i>

8[g]	change to the selected channel, wherein the remote control comprises:	The Accused Instrumentalities change to the selected channel. <i>See Claim 1[e].</i>
8[h]	a media center button that, when selected, provides, by the television screen, displayed information regarding one or more of groupings of music, groupings of videos, groupings of photographs, internal computational devices, and external computational devices, the computational devices comprising one or more of personal computers, laptops, tablet computers, wireless phones, and removable computer readable media.	The Accused Instrumentalities have a media center button that, when selected, provides, by the television screen, displayed information regarding one or more of groupings of music, groupings of videos, groupings of photographs, internal computational devices, and external computational devices, the computational devices comprising one or more of personal computers, laptops, tablet computers, wireless phones, and removable computer readable media. <i>See Claim 1[f].</i>

	wireless phones, and removable computer readable media;	
8[i]	an application center button that, when selected, provides, by the television screen, displayed information regarding pre-installed and downloaded software applications, wherein the downloaded software applications comprise one or more of a web browser, settings control, and content search algorithms;	The Accused Instrumentalities have an application center button that, when selected, provides, by the television screen, displayed information regarding pre-installed and downloaded software applications, wherein the downloaded software applications comprise one or more of a web browser, settings control, and content search algorithms. <i>See Claim 1[g].</i>
8[j]	an application panel button that, when selected, displays, by the television	The Accused Instrumentalities have an application panel button that, when selected, displays, by the television screen, an application panel, wherein the application panel comprises an information panel regarding a selected application icon. <i>See Claim 1[h].</i>

	screen, an application panel, wherein the application panel comprises an information panel regarding a selected application icon; and	
8[k]	a global panel button that, when selected, provides the user, via one or more panels or windows displayed by the television screen, with access to one or more of silos, notifications, a web browser, system settings, and information associated therewith.	The Accused Instrumentalities have a global panel button that, when selected, provides the user, via one or more panels or windows displayed by the television screen, with access to one or more of silos, notifications, a web browser, system settings, and information associated therewith. <i>See Claim 1[i].</i>
9	The television of claim 8, wherein each of the digits are selected using one or	The Accused Instrumentalities have a television wherein each of the digits are selected using one or more arrow keys and a select button, selected is associated with a pre-installed or previously downloaded application icon, and wherein the information panel comprises one or more of identify the selected application, provide a description of the functionality of the selected application, user ratings and/or degree of other user downloading of the selected application, an option to launch,

	more arrow keys and a select button, selected is associated with a pre-installed or previously downloaded application icon, and wherein the information panel comprises one or more of identify the selected application, provide a description of the functionality of the selected application, user ratings and/or degree of other user downloading of the selected application, an option to launch, remove, update, and add to favorites the selected application, and	remove, update, and add to favorites the selected application, and provide a listing of selectable links of other (not yet downloaded) recommended applications that provide similar functionality to the selected application. <i>See Claim 3.</i>
--	--	---

	provide a listing of selectable links of other (not yet downloaded) recommended applications that provide similar functionality to the selected application.	
12	The television of claim 8, wherein, as the user selects each digit, the application framework updates the EPG information to include only those programs and/or channels selectable from the selected digits and wherein the remote control further comprises a moveable joystick that, when	The Accused Instrumentalities have a television wherein, as the user selects each digit, the application framework updates the EPG information to include only those programs and/or channels selectable from the selected digits and wherein the remote control further comprises a moveable joystick that, when manipulated by the user, causes a displayed image on the screen to be displaced a proportional amount. <i>See Claim 6.</i>

	manipulated by the user, causes a displayed image on the screen to be displaced a proportional amount.	
13	The television of claim 8, wherein the EPG information corresponds to multiple programs and/or channels, wherein the EPG information comprises, for each program, airtime, program name, program channel, and program description, wherein the remote control comprises a media center button that, when selected, provides, by the television	The Accused Instrumentalities have a television wherein the EPG information corresponds to multiple programs and/or channels, wherein the EPG information comprises, for each program, airtime, program name, program channel, and program description, wherein the remote control comprises a media center button that, when selected, provides, by the television screen, displayed information regarding groupings of music, videos, and/or photographs, and/or internal and external computational devices, the computational devices comprising one or more of personal computers, laptops, tablet computers, wireless phones, and removable computer readable media. <i>See Claim 1[f] and Claim 7.</i>

	screen, displayed information regarding groupings of music, videos, and/or photographs, and/or internal and external computational devices, the computational devices comprising one or more of personal computers, laptops, tablet computers, wireless phones, and removable computer readable media.	
14[a]	A tangible and non-transient computer readable medium, comprising microprocessor executable instructions that, when executed,	The Accused Instrumentalities have a tangible and non-transient computer readable medium, comprising microprocessor executable instructions that, when executed, are configured to perform operations. As will be shown after further discovery, the Accused Instrumentalities include a microprocessor that is capable of being used to execute instructions from a tangible and non-transient computer readable medium. For example, the LG OLED evo C3 77 in 4K Smart TV 2023 includes at least the α9 Gen6 AI Processor:

	are configured to perform operations comprising:	PICTURE(PROCESSING) <table><tr><td>AI Picture</td><td>AI Picture Pro</td><td>HDR (High Dynamic Range)</td><td>Dolby Vision / HDR10 / HLG</td></tr><tr><td>Motion</td><td>OLED Motion</td><td>Picture Processor</td><td> α9 AI Processor Gen6 </td></tr><tr><td>Upscaling</td><td>AI Super Upscaling 4K</td><td></td><td></td></tr></table> See https://www.lg.com/us/tvs/lg-oled77c3pua; see also https://www.lg.com/us/tvs (linking to specifications for LG TVs). See also Claim 1[c].	AI Picture	AI Picture Pro	HDR (High Dynamic Range)	Dolby Vision / HDR10 / HLG	Motion	OLED Motion	Picture Processor	α9 AI Processor Gen6	Upscaling	AI Super Upscaling 4K		
AI Picture	AI Picture Pro	HDR (High Dynamic Range)	Dolby Vision / HDR10 / HLG											
Motion	OLED Motion	Picture Processor	α9 AI Processor Gen6											
Upscaling	AI Super Upscaling 4K													
14[b]	instructions to receive, from a remote control of a user, a request to change a programming channel;	A tangible and non-transient computer readable medium of the Accused Instrumentalities have instructions to receive, from a remote control of a user, a request to change a programming channel. See Claim 1[b].												
14[c]	instructions to display, on a television screen, an on screen channel changer, the displayed on screen channel changer comprising electronic program guide (“EPG”) information and	A tangible and non-transient computer readable medium of the Accused Instrumentalities have instructions to display, on a television screen, an on screen channel changer, the displayed on screen channel changer comprising electronic program guide (“EPG”) information and a number input bar comprising digits, wherein the digits range from 0 to 9. See Claim 1[c].												

	a number input bar comprising digits, wherein the digits range from 0 to 9;	
14[d]	instructions to receive, from the remote control, a channel selection based on digits selected by a user using the remote control and the number input bar of the on screen channel changer, wherein the user selects the digits using non-numeric keys of the remote control; and	A tangible and non-transient computer readable medium of the Accused Instrumentalities have instructions to receive, from the remote control, a channel selection based on digits selected by a user using the remote control and the number input bar of the on screen channel changer. <i>See Claim 1[d]..</i>
14[e]	instructions to change to the selected channel, wherein the remote control comprises:	A tangible and non-transient computer readable medium of the Accused Instrumentalities have instructions to change to the selected channel. <i>See Claim 1[e]</i>
14[f]	a media center button that, when selected, provides, by the	The Accused Instrumentalities have a media center button that, when selected, provides, by the television screen, displayed information regarding one or more of groupings of music, groupings of videos, groupings of photographs, internal computational devices, and external computational

	television screen, displayed information regarding one or more of groupings of music, groupings of videos, groupings of photographs, internal computational devices, and external computational devices, the computational devices comprising one or more of personal computers, laptops, tablet computers, wireless phones, and removable computer readable media;	devices, the computational devices comprising one or more of personal computers, laptops, tablet computers, wireless phones, and removable computer readable media. <i>See Claim 1[f].</i>
14[g]	an application center button that, when selected, provides, by the	The Accused Instrumentalities have an application center button that, when selected, provides, by the television screen, displayed information regarding pre-installed and downloaded software applications. <i>See Claim 1[g].</i>

	television screen, displayed information regarding pre-installed and downloaded software applications;	
14[h]	an application panel button that, when selected, displays, by the television screen, an application panel; and	The Accused Instrumentalities have an application panel button that, when selected, displays, by the television screen, an application panel. <i>See Claim 1[h].</i>
14[i]	a global panel button that, when selected, provides the user, via one or more panels or windows displayed by the television screen, with access to one or more of silos, notifications, a web browser, system settings, and information	The Accused Instrumentalities have a global panel button that, when selected, provides the user, via one or more panels or windows displayed by the television screen, with access to one or more of silos, notifications, a web browser, system settings, and information associated therewith. <i>See Claim 1[i].</i>

	associated therewith.	
15	The computer readable medium of claim 14, wherein the EPG information corresponds to multiple programs and/or channels, and wherein the EPG information comprises, for each program, airtime, program name, program channel, and program description.	The Accused Instrumentalities have the computer readable medium of claim 14, wherein the EPG information corresponds to multiple programs and/or channels, and wherein the EPG information comprises, for each program, airtime, program name, program channel, and program description. <i>See Claim 2.</i>
16	The computer readable medium of claim 14, wherein the downloaded software applications comprise one or more of a web browser, settings control, and content search algorithms,	The Accused Instrumentalities have the computer readable medium of claim 14, wherein the downloaded software applications comprise one or more of a web browser, settings control, and content search algorithms, wherein the application panel comprises an information panel regarding a selected (pre-installed or previously downloaded) application icon, and wherein the information panel comprises one or more of identify the selected application, provide a description of the functionality of the selected application, user ratings and/or degree of other user downloading of the selected application, an option to launch, remove, update, and add to favorites the selected application, and provide a listing of selectable links of other (not yet downloaded) recommended applications that provide similar functionality to the selected application. <i>See Claim 3.</i>

	wherein the application panel comprises an information panel regarding a selected (pre-installed or previously downloaded) application icon, and wherein the information panel comprises one or more of identify the selected application, provide a description of the functionality of the selected application, user ratings and/or degree of other user downloading of the selected application, an option to launch, remove, update, and add to favorites the selected	
--	--	--

	application, and provide a listing of selectable links of other (not yet downloaded) recommended applications that provide similar functionality to the selected application.	
19	The computer readable medium of claim 14, wherein, as the user selects each digit, the application framework updates the EPG information to include only those programs and/or channels selectable from the selected digits and wherein the remote control further comprises a moveable	The Accused Instrumentalities have a computer readable medium of claim 14, wherein, as the user selects each digit, the application framework updates the EPG information to include only those programs and/or channels selectable from the selected digits and wherein the remote control further comprises a moveable joystick that, when manipulated by the user, causes a displayed image on the screen to be displaced a proportional amount. <i>See Claim 6.</i>

	joystick that, when manipulated by the user, causes a displayed image on the screen to be displaced a proportional amount.	
--	--	--