



Exhibit C-1: Infringement of U.S. Patent validity of U.S. Patent No. 9,911,325
via the Roku TV, Roku Ultra, Roku Premiere (2018), Roku Premiere+ (2018), Roku StreamingStick, Roku StreamingStick+, Roku Express, Roku Express+, Roku Premiere (2016), Roku Premiere+ (2016), Roku 4, Roku 3, Roku 2, Roku LT, Roku XS, and any variations of the same that allow for control of another device via CEC (“the Roku Streaming Products”)

These infringement contentions are provided based on information obtained to date and may not be exhaustive. UEI’s investigation of Roku’s infringement is ongoing. UEI reserves the right to seek to supplement and/or amend these disclosures to identify additional asserted claims, accused instrumentalities, and/or to further identify where each element of each asserted claim is found in each accused instrumentality, including on the basis of discovery obtained from Roku and from third-parties during the course of this litigation.

The accused instrumentalities and associated documents discussed and/or cited herein are representative in all material aspects for all other accused instrumentalities identified in this chart. Based on information presently available to UEI, each of the Roku Streaming Products is understood to operate in the same manner with respect to the contentions provided in this chart. Roku has not yet produced discovery in this action, and UEI reserves the right to amend its contentions as to these products should Roku provide information showing any relevant differences among the products or any additional products containing the same functionality.

US Pat. No. 9,911,325	The Roku Streaming Products
1. A first device for transmitting a command to control a functional operation of a second device, the first device comprising:	The Roku Streaming Products are first devices for transmitting a command to control a functional operation of a second device, such as a TV, audiovisual receiver (“AVR”) or soundbar.

Pat. No. 9,911,325	The Roku Streaming Products
	 <p>(image of a Roku Ultra and remote control, via https://www.roku.com/products/roku-ultra).</p>
ceiver;	<p>The Roku Streaming Products contain a receiver. These products use wireless communications to communicate with a Roku remote control, which requires either an IR or a wireless receiver. <i>See, e.g.,</i> https://support.roku.com/article/115013256808-what-type-of-remote-control-does-my-roku-streaming-device-use-, UEI_001317.</p>
ansmitter;	<p>The Roku Streaming Products contain a transmitter. These products contain circuitry associated with a High-Definition Multimedia Interface (“HDMI”) connection to send data via the connection.</p> <p><i>See, e.g.,</i> UEI_001331 (listing the Roku Express, Roku Express+, Roku Streaming Stick, Roku StreamingStick+, Roku Ultra, and Roku TV products as “Connect to TV via” “HDMI”).</p>

Pat. No. 9,911,325	The Roku Streaming Products
	 <p>(image of a Roku Ultra's HDMI connection, via https://www.roku.com/products/roku-ultra).</p>
<p>rocessing device coupled to the receiver and the transmitter; and</p>	<p>The Roku Streaming Products contain a processing device coupled to the receiver and the transmitter.</p> <p><i>See, e.g.,</i> https://blog.roku.com/new-4k-roku-premiere-updated-roku-ultra (stating that the Roku Premiere (2018) and Roku Premiere+ (2018) include “a powerful quad-core processor”).</p> <p>https://blog.roku.com/introducing-the-roku-streaming-stick-and-the-new-roku-streaming-player-lineup-plus-roku-os-8 (stating that the Roku Streaming Stick and Roku Streaming Stick+ contain a quad-core processor).</p> <p>https://blog.roku.com/new-roku-express-roku-ultra-unboxing-video (stating that the Roku Ultra contains a quad-core processor).</p>
<p>emory storing instructions executable by the processing device,</p>	<p>The Roku Streaming Products contain a memory storing instructions executable by the processing device. Each Roku Streaming Product includes the Roku OS software. <i>See, e.g.,</i></p>

Pat. No. 9,911,325	The Roku Streaming Products
instructions causing the processing device to:	https://blog.roku.com/os-9-release-notes (discussing new Roku OS to be rolled out to existing streaming players and Roku TVs).
<p>generate a key code using a keystroke indicator received from a third device in communication with the second device via use of the receiver, the keystroke indicator having data that indicates an input element of the third device that has been activated;</p>	<p>The Roku Streaming Products generate a key code using a keystroke indicator received from a third device (remote control) in communication with the Roku Streaming Player via use of the receiver, the keystroke indicator having data that indicates an input element of the third device (remote control) that has been activated;</p> <p>The Roku Streaming Products generate a key code in response to a keystroke indicator signal pressed on the Roku remote control.</p> <p>An example of a generated key code is the code that corresponds to a function of an external device, such as volume, power, or switching inputs.</p> <p>The Roku Streaming Products receive the keystroke indicator from the remote control via use of their receiver. The keystroke indicator signal has data indicating that an input element of the remote control has been activated. This can be observed by the fact that the Roku Streaming Products will respond (or not respond) in different ways based on which button is pressed on the remote control.</p>
format the key code for transmission to the second device; and	<p>The Roku Streaming Products format the key code for transmission to the second device.</p> <p>The Roku Streaming Products format a key code for transmission to the second device, such as a TV, AVR, or soundbar via HDMI CEC.</p>
transmit the formatted key code to the second device in a key code signal via use of the transmitter;	The Roku Streaming Products transmit the formatted key code to the second device in a key code signal via use of the transmitter. They transmit a CEC-formatted key code to a second device, such as a TV or audiovisual receiver, via HDMI link.
wherein the generated key code comprises a one of a plurality of key code data stored in a codeset,	The generated key code comprises a one of a plurality of key code data stored in a codeset. Each key code is one of a plurality of key code data stored in the codeset of CEC data.
wherein the one of the plurality of key code data is selected from the codeset as a function of the keystroke indicator received from the third device,	The one of the plurality of key code data is selected from the codeset as a function of the keystroke indicator received from the third device (remote control).

Pat. No. 9,911,325	The Roku Streaming Products
	<p>The Roku Streaming Products will respond (or not respond) based on which button is pressed on the remote control, which demonstrates that they are able to select functions (key code data) based on the data received from the remote as to which button was pressed..</p>
<p>wherein each of the plurality of key code data stored in the codeset comprises a series of digital ones and/or digital zeros,</p>	<p>The Roku Streaming Products include a plurality of key code data stored in the codeset that comprises a series of digital ones and/or digital zeros.</p> <p>The CEC data transmitted by the Roku Streaming Products is made up of a series of digital ones and/or digital zeros.</p>
<p>wherein the codeset further comprises time information that describes how a digital one and/or a digital zero within the selected one of the plurality of key code data is to be represented in the key code signal to be transmitted to the second device.</p>	<p>The codeset further comprises time information that describes how a digital one and/or a digital zero within the selected one of the plurality of key code data is to be represented in the key code signal to be transmitted to the second device (TV, AVR, soundbar, or any other device the Roku Streaming Products can control via CEC).</p> <p>CEC frames include a start bit and header block prior to the data that comprises time information.</p>
<p>The first device as recited in claim 1 wherein the receiver comprises an RF receiver.</p>	<p>The Roku Streaming Products include an RF receiver, e.g., a Wi-Fi, Wi-Fi Direct, or Bluetooth receiver.¹ <i>See, e.g.,</i> https://support.roku.com/article/360004786894-why-is-my-roku-enhanced-remote-not-controlling-volume-and-power-on-my-tv-, UEI_001327 (“Some Roku Enhanced Remotes incorporate both wireless and infrared (IR) technologies to seamlessly control both your Roku streaming player and your TV.”).</p> <p>Wireless signals fall within a radio frequency band (3 KHz and 300 GHz, <i>see, e.g.,</i> https://www.rfpage.com/what-are-radio-frequency-bands-and-its-uses/), therefore a receiver for a wireless signal is an RF receiver.</p>

Roku Products that only communicate with the remote via IR transmissions and are not capable of communicating via Wi-Fi, Wi-Fi Direct, or Bluetooth are not accused of infringing this claim.

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