Appendix A

Invalidity of the Challenged Claims of the '014 Patent in view of the UPnP Standard and Microsoft UPnP

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	1A7. "In most cases, the choice of AVTransport actions that are actually invoked will likely be directed by the end-user as they interact with the Control Point's UI." UPnP Rendering Control pg. 8 1A8. "Step 5 in UPnP networking is presentation. If a device has a URL for presentation, then the control point can retrieve a page from this URL, load the page into a browser, and depending on the capabilities of the page, allow a user to control the device and/or view device status. The degree to which each of these can be accomplished depends on the specific capabilities of the presentation page and device. The section on Presentation below explains the protocol for retrieving a presentation page." UPnP Architecture, pg. 3. 1A9. "Addressing is Step 0 of UPnP networking. Through addressing, devices get a network address. Addressing enables discovery (Step 1) where control points find interesting device(s), description (Step 2) where where control points learn about device capabilities, control (Step 3) where a control point sends commands to device(s), eventing (Step 4) where control points listen to state changes in device(s), and presentation (Step 5) where control points display a user interface for device(s)." UPnP Architecture, pg. 4. 1A10. "Once a device has a valid IP address for the network, it can be located and referenced on that network through that address. There may be situations where the end user needs to locate and identify a device. In these situations, a friendly name for the device is much easier for a human to use than an IP address." UPnP Architecture, pg. 5. 1A11. "friendlyName Required. Short description for end user. Should be localized (cf. ACCEPT-/CONTENT-LANGUAGE headers). Specified by UPnP vendor. String. Should be < 64 characters." UPnP Architecture, pg. 17. 1A12. "Presentation is Step 5 in UPnP networking. Presentation comes after addressing (Step 0) where devices get network addresses, after discovery (Step 1) where control points find interesting device(s), and after description (Step 2) where control points learn about device capabilities. Presentation exposes an HTML-based user interface for controlling and/or viewing device status. Presentation is complementary to control (Step 3) where control points send actions to devices, and eventing (Step 4) where control points listen to state changes in device(s). After a control point has (1) discovered a device and (2) retrieved a description of the device, the

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	control point is ready to begin presentation. If a device has a URL for presentation, then the control point can retrieve a page from this URL, load the page into a browser, and depending on the capabilities of the page, allow a user to control the device and/or view device status. The degree to which each of these can be accomplished depends on the specific capabilities of the presentation page and device." UPnP Architecture, pg. 52. 1A13. "You can now see if any UPnP enabled devices exist on your network by opening My Network Places on the desktop. If there are UPnP devices on your local network, they will appear here with a generic icon based on the device type. You can invoke the device from here through its presentation page." Microsoft UPnP, pg. 4. 1A14. "After checking the local cache for any cached entries matching the search request, the devices returned are added to a list of the found devices." Microsoft UPnP, pg. 11. 1A15. "At the highest layer, the presentation page is specified by a UPnP vendor. Moving down the stack, the UPnP Device Architecture specifies that this page be written in HTML. The page is delivered via HTTP over TCP over IP. For reference, colors in [square brackets] are included for consistency with other sections in this document. To retrieve a presentation page, the control point issues an HTTP GET request to the presentation URL, and the device returns a presentation page. Unlike the UPnP Device and Service Templates, and standard device and service types, the capabilities of the presentation page are completely specified by the UPnP vendor. The presentation page is not under the auspices of a UPnP Forum working committee. The page must be an HTML page; it should be version HTML 3.0 or later. However, other design aspects are left to the vendor to specify. This includes, but is not limited to, all capabilities of the control point's browser, scripting language or browser plug-ins used, and means of interacting with the device. To implement a presentation page, a UPnP vendor may wish to use UPnP mechanisms for control and/or eventing, leveraging the device's existing capabilities but is not constrained to do so. Presentation pages should use mechanisms provided by HTML for localization (e.g., META tag with charset attribute). Control points should use the ACCEPT- / CONTENT-LANGUAGE feature of HTTP to try to retrieve a localized presentation page. Specifically, a control point may include a HTTP ACCEPT-LANGUAGE header in the request for a presentation page; if an ACCEPT-LANGUAGE header is present in the request, the response must include a CONTENT-LANGUAGE header to identify the page's language." UPnP AV, pg. 53.
1B. displaying, when at least one	The UPnP Standard discloses displaying, when at least one of the UPnP Combined Devices (players) (1B1, 1B4) is selected as a zone group head (such as one of the combined devices that is operating as a UPnP Media Server),

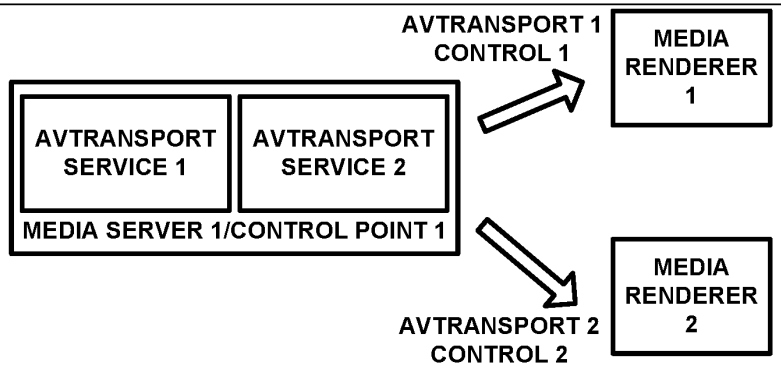
U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
of the players is selected as a zone group head, on the screen a second list showing at least some of the players that are eligible to be grouped with the zone group head;	on a screen of a UPnP Control Point, a second list showing at least some of the UPnP Combined Devices (players) that are eligible to be grouped with the zone group head (UPnP Media Server device), such as a list of icons or URLs of available players. (1B2, 1B3, 1B5) In the concurrent litigation, Sonos has accused the display of icons on a screen as meeting the limitations of the first list and second list. In addition, based on the construction of the term "player" proposed by Sonos in the concurrent litigation, a player can be either a UPnP Media Server or a UPnP Media Renderer. 1B1. "As described in the above scenario, three distinct entities are involved: the Control Point, the source of the media content (called the "MediaServer"), and the sink for the content (called the "MediaRenderer"). Throughout the remainder of the document, all three entities are described as if they were independent devices on the network. Although this configuration may be common (i.e. a remote control, a VCR, and a TV), the AV Architecture supports arbitrary combinations of these entities within a single physical device. For example, a TV can be treated as a rendering device (e.g. a display). However, since most TVs contain a built-in tuner, the TV can also act as a server device because it could tune to a particular channel and send that content to a MediaRenderer (e.g. its local display or some remote device such as a tuner-less display). Similarly, many MediaServers and/or MediaRenderers may also include Control Point functionality. For example, an MP3 Renderer will likely have some UI controls (e.g. a small display and some buttons) that allow the user to control the playback of music." UPnP AV, pg. 5. 1B2. "You can now see if any UPnP enabled devices exist on your network by opening My Network Places on the desktop. If there are UPnP devices on your local network, they will appear here with a generic icon based on the device type. You can invoke the device from here through its presentation page." Microsoft UPnP, pg. 4. 1B3. "After checking the local cache for any cached entries matching the search request, the devices returned are added to a list of the found devices." Microsoft UPnP, pg. 11. 1B4. "As described above, the AV Architecture consists of three distinct components that perform well-defined roles. In some cases, these components will exist as separate, individual UPnP devices. However, this need not be the case. Device manufacturers are free to combine any of these logical entities into a single physical device. In such cases, the individual components of these combo devices may interact with each other using either the standard UPnP control protocols (e.g. SOAP over HTTP) or using some private communication mechanism. In

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	either case, the function of each logical entity remains unchanged. However, in the later case, since the communication between the logical entities is private, the individual components will not be able to communicate with other UPnP AV devices that do not implement the private protocol." UPnP AV, pg. 6. 1B5. "MediaServer devices are used in conjunction with one or more MediaRenderer device(s) to allow a Control Point to discover entertainment (AV) content (e.g. video, music, images, etc) on the MediaServer and to render that content on any appropriate MediaRenderer within the home network. In general terms, the process begins with the Control Points discovering MediaServer and MediaRenderer devices within the home network. The Control Point interacts with a MediaServer(s) to locate a desired piece of content (e.g. a movie, a song, a playlist, a photo album, etc). After the content has been identified, the Control point needs to identify a common transfer protocol and data format that can be used to transfer the content from the MediaServer to the desired MediaRenderer. After these transfer parameters have been established, the Control Point controls the flow of the content (e.g. Play, Pause, Stop, Seek, etc.). (Depending on the selected transfer protocol, these flow control operations are sent either to the MediaServer or MediaRenderer, but not both). The actual transfer of the content is performed directly by the MediaServer and MediaRenderer. The content transfer happens independently from the Control Point and does not involve UPnP itself at all. The Control Point uses UPnP to setup the transfer of the content, but the transfer is performed using a transfer protocol other than UPnP." UPnP Media Server, pg. 7
1C. forming a zone group started with the zone group head, after one or more players from the at least some of the players are selected to join the zone group; and	The UPnP Standard discloses a UPnP Connection Manager that forms a zone group started with the zone group head, such as a first combined UPnP Media Server/UPnP Media Renderer device that is acting as a UPnP Media Server, after one or more players (second or more combined UPnP Media Server/UPnP Media Renderer devices) from the at least some of the players are selected to join the zone group. (1C3, 1C4). As noted above, UPnP discloses the combination of a UPnP Media Server and UPnP Media Renderer into a single device. (1C1, 1C2). As described above, a UPnP Control Point can be used to perform these functions. (1C5, 1C6, 1C7). Combinations of UPnP Media Renderers can be used to provide stereo or surround sound through different speakers. (1C8). 1C1. "As described in the above scenario, three distinct entities are involved: the Control Point, the source of the media content (called the "MediaServer"), and the sink for the content (called the "MediaRenderer"). Throughout the remainder of the document, all three entities are described as if they were independent devices on the network. Although this configuration may be common (i.e. a remote control, a VCR, and a TV), the AV Architecture supports arbitrary combinations of these entities within a single physical device. For example, a TV

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	can be treated as a rendering device (e.g. a display). However, since most TVs contain a built-in tuner, the TV can also act as a server device because it could tune to a particular channel and send that content to a MediaRenderer (e.g. its local display or some remote device such as a tuner-less display). Similarly, many MediaServers and/or MediaRenderers may also include Control Point functionality. For example, an MP3 Renderer will likely have some UI controls (e.g. a small display and some buttons) that allow the user to control the playback of music." UPnP AV, pg. 5. 1C2. "As described above, the AV Architecture consists of three distinct components that perform well-defined roles. In some cases, these components will exist as separate, individual UPnP devices. However, this need not be the case. Device manufacturers are free to combine any of these logical entities into a single physical device. In such cases, the individual components of these combo devices may interact with each other using either the standard UPnP control protocols (e.g. SOAP over HTTP) or using some private communication mechanism. In either case, the function of each logical entity remains unchanged. However, in the later case, since the communication between the logical entities is private, the individual components will not be able to communicate with other UPnP AV devices that do not implement the private protocol." UPnP AV, pg. 6. 1C3. "5.1.2. ConnectionManager Service This service is used to manage the connections associated with a particular device. The primary action of this service (within the context of a MediaServer) is PrepareForConnection(). When implemented, this optional action is invoked by the Control Point to give the Server an opportunity to prepare itself for an upcoming transfer. Depending on the specified transfer protocol and data format, this action may return the InstanceID of an AVTransport service that the Control Point can use to control the flow of this content (e.g. Stop, Pause, Seek, etc). As described below, this InstanceID is used to distinguish multiple (virtual) instances of the AVTransport service, each of which is associated with a particular connection to Renderer. Multiple (virtual) instances of the AVTransport service allow the MediaServer to support multiple Renderers at the same time. When the Control Point wants to terminate this connection, it should invoke the MediaServer's ConnectionComplete() action (if implemented) to release the connection. If the PrepareForConnection() action is not implemented, the Control Point is only able to support a single Renderer at an given time. In this case, the Control Point should use InstanceID=0." UPnP AV, pg. 7.

Appendix A

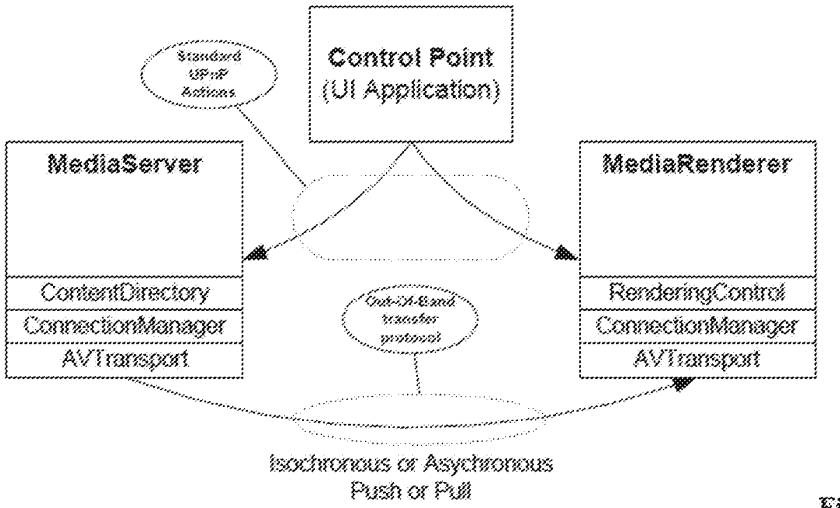
Invalidity of the Challenged Claims of the '014 Patent in view of the UPnP Standard and Microsoft UPnP

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	 Media Server 1 can be associated with the master channel, Media Renderer 1 can be associated with a left channel of the master channel, and Media Renderer 2 can be associated with a right channel of the master channel. Control Point 1 can generate a user interface with HTML that include the master volume, the left channel volume and the right channel volume, such as using the Microsoft UPnP functionality to invoke devices through the presentation page of the device. 1C9, 1C10, 1C11 1C4. "5.2.2. ConnectionManagerService This service is used to manage the connections associated with a device. Within the context of a MediaRenderer, the primary action of this service is the GetProtocolInfo() action. This action allows a Control Point to enumerate the transfer protocols and data formats that are supported by the MediaRenderer. This information is used to predetermine if a MediaRenderer is capable of rendering a specific content item. A MediaRenderer may also implement the optional PrepareForConnection() action. This action is invoked by the Control Point to give the Render an opportunity to prepare itself for an upcoming transfer. Additionally, this action assigns a unique ConnectionID that can be used by a 3rdparty Control Point to obtain information about the connections that the MediaRenderer is using. Also, depending on the specified transfer protocol and data format being used, this action may return a unique AVTransport InstanceID that the Control Point can use to control the flow of the content (e.g. Stop, Pause, Seek, etc). (Refer to the AVTransport section below for additional details). Lastly, PrepareForConnection() also returns a unique Rendering Control InstanceID which can be used by the Control Point to control the rendering characteristics of the associated content as described above. When the Control Point wants to terminate a connection, it should invoke the Renderer's ConnectionComplete() action (if

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	implemented) to release the connection." UPnP AV, pg. 8. 1C5. "5.3. Control Point Control Points coordinate the operation of the MediaServer and the MediaRenderer, usually in response to user interaction with the Control Point's UI. The following describes a generic Control Point algorithm that can be used to interact with a wide variety of MediaServer and MediaRenderer implementations. 1. Discover AV Devices: Using UPnP's Discovery mechanism, MediaServers and MediaRenderers in the home network are discovered. 2. Locate Desired Content: Using the Server's ContentDirectory::Browse() or Search() actions, a desired Content Item is located. The information returned by Browse()/Search() includes the transfer protocols and data formats that the MediaServer supports to transfer the content to the home network. 3. Get Renderer's Supported Protocols/Formats: Using the MediaRenderer's ConnectionManager::GetProtocolInfo() action a list of transfer protocols and data formats supported by the MediaRenderer is returned to the Control Point. 4. Compare/Match Protocols/Formats: The protocol/format information returned by the ContentDirectory for the desired Content Item is matched with the protocol/format information returned by the MediaRenderer's GetProtocolInfo() action. The Control Point selects a transfer protocol and data format that are supported by both the MediaServer and MediaRenderer. 5. Configure Server/Renderer: The device's ConnectionManager::PrepareForConnection() action (if implemented) informs the MediaServer and MediaRenderer that an outgoing/incoming connection is about to be made using the specified transfer protocol and data format that was previously selected. Depending on the selected transfer protocol, either the MediaServer or MediaRenderer will return an AVTransport InstanceID. This InstanceID is used in conjunction with the device's AVTransport Service (i.e. the device returning the AVTransport InstanceID) to control the flow of the content (e.g. Play, Stop, Pause, Seek, etc). Additionally, the Renderer will return a Rendering Control InstanceID that is used by the Control Point to control the Rendering characteristics of the content. Note: Since PrepareForConnection() is an optional action, there may be situations in which either the MediaServer and/or MediaRenderer do not implement PrepareForConnection(). When this occurs and neither MediaServer nor MediaRenderer return an AVTransport InstanceID, the Control Point uses an InstanceID=0 to control the flow of the content. Refer to the ConnectionManager and AVTransport Service Templates for details [?]. 6. Select Desired Content: Using the AVTransport service (whose InstanceID is returned by either the Server or

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	Renderer), invoke the SetAVTransportURI() action to identify the content item that needs to be transferred. 7. Start Content Transfer: Using the AVTransport service, invoke one of the transport control actions as desired by the user (e.g. Play, Stop, Seek, etc). 8. Adjust Rendering Characteristics: Using the MediaRenderer's Rendering Control service, invoke any rendering control actions as desired by the user (e.g. adjust brightness, contrast, volume, mute, etc). 9. Repeat: Select Next Content: Using either the AVTransport::SetAVTransportURI() or AVTransport::SetNextAVTRansportURI() actions, identify the next content item that is to be transferred from the same Server to the same Renderer. Repeat as needed. 10. Cleanup Server/Renderer: When the session is terminated and MediaServer and MediaRenderer are no longer needed in the context of the session, the MediaServer's and MediaRenderer's ConnectionMgr::ConnectionComplete() action is invoked to close the MediaServer's connection. Based on the interaction sequence shown above, the following diagram chronologically illustrates the typical interaction sequence between the three Control Point and the MediaServer and MediaRenderer." UPnP AV pgs. 9-10. 1C6. "2.2.1. Description of Device Requirements Each implementation of the MediaRenderer requires a Rendering Control and ConnectionManager service. The Rendering Control service allows Control Points to control the various rendering capabilities of the device. The Connection Manager is used to enumerate and select a particular transfer protocol and data format to be used for transferring the content. Additionally, the Connection Manager also allows Control Points, such as a home network management application, to discover useful information about the content transfers that the device is actively participating in. Such information could be useful to a Quality Of Service capability, which may be defined in the future." UPnP Media Renderer, pg. 5. 1C7. "2.2.2. Relationships Between Services The Connection Manager's PrepareForConnection() action provides the trigger point for creating new instances of the Rendering Control and AVTransport service. When a new connection is established (one that requires an instance of the AVTransport on the MediaRenderer, which is determined by the selected transfer protocol), the PrepareForConnection() action returns the InstanceId of the Rendering Control and AVTransport services that are bound to that connection. The Rendering Control instance is used by the Control Point to control how the content from that connection is rendered. The AVTransport instance is used by the Control Point to control the flow (e.g. Play, FF, REW, Seek, etc) of the content received via that connection. As described in the

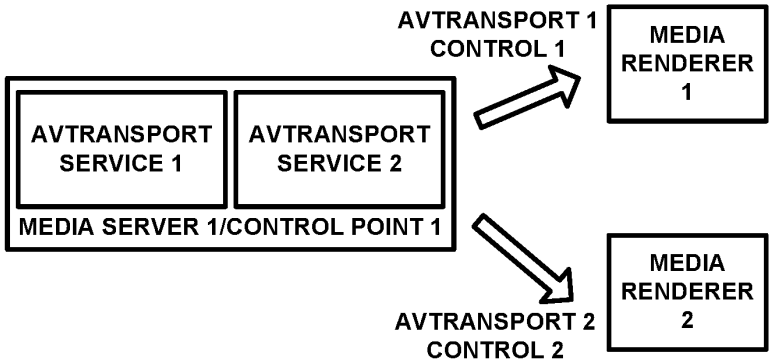
U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	RenderingControl and AVTransport specification, each instance of these services operates independently from all other instances." UPnP Media Renderer, pg. 6. 1C8. "2.2.19. A_ARG_TYPE_Channel This variable is used to identify a particular channel of an audio output stream. A channel, except the Master channel, is associated with the location of the speaker where the audio data stream is to be presented. It is customary to refer a channel using the spatial position of associated speaker as described below. The Master channel is a logical channel and, therefore, has no spatial position associated with it. A one-channel channel cluster does not have spatial position associated with it either and will use the Master channel to control its properties. The following channel spatial positions are defined: • Master (Master) • Left Front (LF) • Right Front (RF) • Center Front (CF) • Low Frequency Enhancement (LFE) [Super woofer] • Left Surround (LS) • Right Surround (RS) • Left of Center (LFC) [in front] • Right of Center (RFC) [in front] • Surround (SD) [rear] • Side Left (SL) [left wall] • Side Right (SR) [right wall] • Top (T) [overhead] • Bottom (B) [bottom] A channel cluster is the collection of all channels, including the Master channel, within an audio stream. A single channel (mono) cluster has only one channel – the Master channel. A two-channel (stereo) cluster has three channels – the Master channel, the Left Front channel, and the Right Front channel. In this specification, only the Master channel is required. All other channels are optional, see Table 2-15 for details." UPnP Rendering Control, pgs. 16-17.

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	1C9. "Windows can also serve as a platform for building and running control point applications to control UPnP connected devices and services." Microsoft UPnP, pg. 2. 1C10. "You can now see if any UPnP enabled devices exist on your network by opening My Network Places on the desktop. If there are UPnP devices on your local network, they will appear here with a generic icon based on the device type. You can invoke the device from here through its presentation page." Microsoft UPnP, pg. 4. 1C11. "After checking the local cache for any cached entries matching the search request, the devices returned are added to a list of the found devices." Microsoft UPnP, pg. 11.
1D synchronizing all players in the zone group;	The UPnP Standard discloses synchronizing all zones in the zone group, such as by using the IEC61883/IEEE1394 isochronous transfer protocols to synchronize UPnP Media Servers and UPnP Media Renderers.  Figure 3 UPnP AV, pg. 5.

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	"6.1. Isochronous-Push Transfer Protocols (IEC61883 /IEEE1394) When using an isochronous transfer protocol (e.g.IEC61883/ IEEE1394), the underlying transfer mechanism provides real-time content transfer between the MediaServer and MediaRenderer. This ensures that individual packets of content are transferred within a certain (relatively small) period of time. This real-time behavior allows the MediaRenderer to provide the user with smooth-flowing rendering of the content without implementing a read-ahead buffer. In this environment, the flow of the content is controlled by the MediaServer. The MediaRenderer immediately renders the content that it receives from the MediaServer. Refer to the diagram below for details." UPnP AV, pgs. 12, 13, 18, 21.
1E. adjusting a volume meter represented by an averaged value of audio volumes of the players in the group, wherein said adjusting of the volume meter includes changing a volume of each of the group of players synchronously in accordance with an adjustment made by a user.	The UPnP Standard discloses multiple audio channels (1E1) and a Rendering Control service that allows "Control Points to control each of these channels independently or as a whole" (1E2). Adjusting the volume of all of the channels as a whole is performed by adjusting a master volume meter represented by an averaged value of audio volumes of the players in the group. (1E3) The averaged value is at least represented when the associated channels, which can each be assigned to a different wireless network-enabled speakers, are first set to the lowest level and then increased by the master as a whole. 1E4, 1E5 Adjusting the master volume meter includes changing a volume of each of the group of players synchronously in accordance with an adjustment made by a user. (1E3). 1E1. "2.2.19. A_ARG_TYPE_Channel This variable is used to identify a particular channel of an audio output stream. A channel, except the Master channel, is associated with the location of the speaker where the audio data stream is to be presented. It is customary to refer a channel using the spatial position of associated speaker as described below. The Master channel is a logical channel and, therefore, has no spatial position associated with it. A one-channel channel cluster does not have spatial position associated with it either and will use the Master channel to control its properties. The following channel spatial positions are defined: • Master (Master) • Left Front (LF) • Right Front (RF) • Center Front (CF) • Low Frequency Enhancement (LFE) [Super woofer] • Left Surround (LS)

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	• Right Surround (RS) • Left of Center (LFC) [in front] • Right of Center (RFC) [in front] • Surround (SD) [rear] • Side Left (SL) [left wall] • Side Right (SR) [right wall] • Top (T) [overhead] • Bottom (B) [bottom] A channel cluster is the collection of all channels, including the Master channel, within an audio stream. A single channel (mono) cluster has only one channel – the Master channel. A two-channel (stereo) cluster has three channels – the Master channel, the Left Front channel, and the Right Front channel. In this specification, only the Master channel is required. All other channels are optional, see Table 2-15 for details." UPnP Rendering Control, pgs. 16-17. 1E2. "2.5.4. Controlling Audio Content The Rendering Control Service exposes a set of state variables that can be used to control the audio output of a device. These include various characteristics such as volume, mute, and loudness. However, unlike most visual content, audio content is typically composed of one or more channels (e.g. a left and right channel). The Rendering Control service allows Control Points to control each of these channels independently or as a whole. In order to accomplish this, it is necessary for the Control Point to identify the channel that is to be controlled. This is accomplished via the 'Channel' parameter included in each action that is associated with the audio portion of an input stream. Each channel is uniquely named as described in Section 2.2.19. The "master" channel allows a Control Point to control the "composite" (post-mixed) audio content as a whole." UPnP Rendering Control, pg, 41. 1E3. "Double the volume of the entire audio content: (Note: Increasing the volume by 6dB doubles the volume level.) • Invoke the GetVolumeDB() action with the Channel parameter set to 'Master'. Based on the previous example, the CurrentVolume out parameter returned a -1280 (increments of 1/256 dB), which indicates that the volume level is at -5dB. • Invoke the SetVolumeDB() action with the Channel parameter set to "Master" (and the DesiredVolume parameter set to 256 (-1280+1536 increments of 1/256dB), which corresponds to 1dB (-5+6)." UPnP Rendering

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	Control, pg, 42. 1E4 "Set the volume of the audio content (as a whole) to the quietest (non-silent) setting: • Invoke the SetVolume() action with the Channel parameter set to 'Master' and the DesiredVolume parameter set to 1. Set the volume of the audio content (as a whole) 20 'notches/steps' higher than the current setting • Invoke the GetVolume() action with the Channel parameter set to 'Master'. As a result of the previous example, the CurrentVolume out parameter returns a value of 1 indicating that the audio content is being rendered at volume position 1 i.e. the quietest non-silence setting supported by the device. • Invoke the SetVolume() action with the Channel parameter set to "Master" and the DesiredVolume parameter set to 21 (1 + 20). This corresponds to the 20th quietest setting supported by the device." UPnP Rendering Control, pgs. 41-42. 1E5. "The MediaRenderer obtains content from a MediaServer via network. Examples of a MediaRenderer include TV, stereo, network-enabled speakers, MP3 players, Electronic Picture Frame (EPF), a musiccontrolled water fountain, etc. The type of content that a MediaRenderer can receive depends on the transfer protocols and data formats that it supports. Some MediaRenderers may only support one type of content (e.g. audio or still images), where as other MediaRenderers may support a wide variety of content including video, audio, still images.The Control Point coordinates and manages the operation of the MediaServer and MediaRenderer as directed by the user (e.g. play, stop, pause) in order to accomplish the desired task (e.g. play "MyFavorite" music). Additionally, the Control Point provides the UI (if any) for the user to interact with in order to control the operation of the device(s) (e.g. to select the desired content). The layout of the Control Point's UI and the functionality that it exposes is implementation dependent and determined solely by the Control Point's manufacturer. Some examples of a Control Point might include a TV with a traditional remote control or a wireless PDA-like device with a small display." UPnP AV pg. 6.
8. The method of claim 1, wherein said synchronizing of all players in the zone group comprises:	

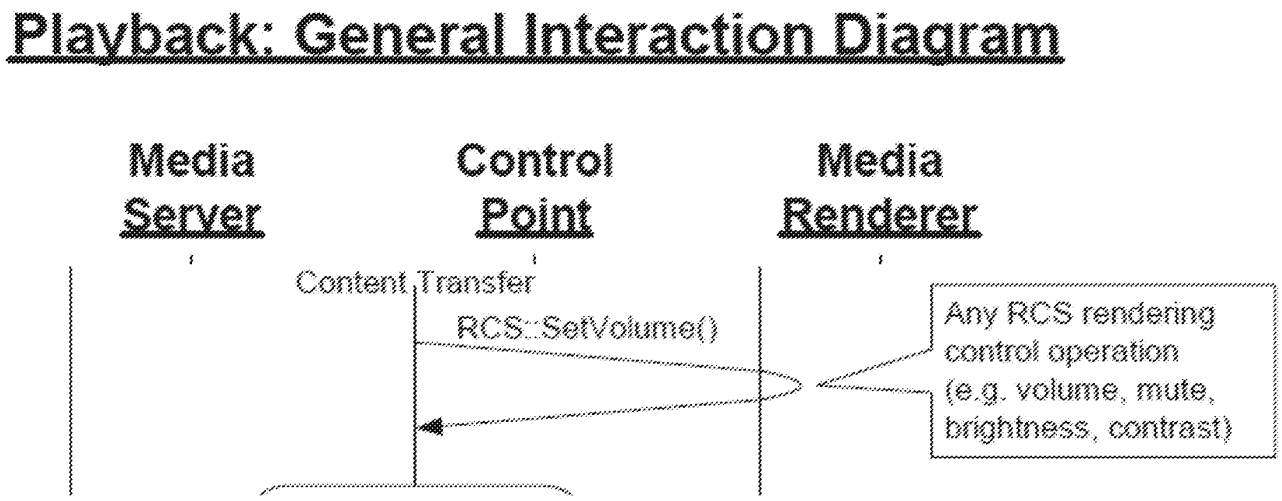
U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
8A. causing all players in the zone group to play an identical audio source; and	The UPnP Standard discloses the use of multiple instances of the AVTransport service to allow a combined UPnP Media Server/UPnP Media Renderer device that is acting as UPnP Media Server to support multiple combined UPnP Media Server/UPnP Media Renderer devices that are action as Media Renderers at the same time, to cause all devices/players in a zone group (a group of UPnP Media Servers associated with a UPnP Media Renderer) to play an identical audio source (media server). (8A1) The claim limitation does not state that the players have to play the same content from the same source, just that they have to have an identical audio source, but UPnP discloses both scenarios. The claim limitation also does not state that the players have to play in synchrony, although as described above, the UPnP Standard discloses the use of isochronous Push Transfer Protocols (IEC61883 /IEEE1394) that results in synchrony. 8A1 "Multiple (virtual) instances of the AVTransport service allow the MediaServer to support multiple Renderers at the same time." UPnP AV, pg. 7.  Media Server 1 can be associated with the master channel, Media Renderer 1 can be associated with a left channel of the master channel, and Media Renderer 2 can be associated with a right channel of the master channel. Control Point 1 can generate a user interface with HTML that include the master volume, the left channel volume and the right channel volume, such as using the Microsoft UPnP functionality to invoke devices through the presentation page of the device. 8A2, 8A3, 8A4 8A2. "Windows can also serve as a platform for building and running control point applications to control UPnP

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	connected devices and services." Microsoft UPnP, pg. 2. 8A3. "You can now see if any UPnP enabled devices exist on your network by opening My Network Places on the desktop. If there are UPnP devices on your local network, they will appear here with a generic icon based on the device type. You can invoke the device from here through its presentation page." Microsoft UPnP, pg. 4. 8A4. "After checking the local cache for any cached entries matching the search request, the devices returned are added to a list of the found devices." Microsoft UPnP, pg. 11.
8B. presenting the zone group in a manner that indicates a grouping.	The UPnP Standard represents the zone group in a manner that represents a grouping, such as by indicating speakers that play different channels for a multi-channel audio device. (8B1) This is referred to as a "channel cluster," and each of the separate speakers in the channel cluster can be a separate network-enabled speakers. (8B2) The channel cluster can also be displayed using the operating system, such as Microsoft Windows XP, which can display icons associated with each combined UPnP media Server/UPnP Media Renderer, with lists of associated services that include the devices that are receiving content from a server device. 8B3, 8B4, 8B5, 8B6, 8B7 8B1. "2.2.19. A_ARG_TYPE_Channel This variable is used to identify a particular channel of an audio output stream. A channel, except the Master channel, is associated with the location of the speaker where the audio data stream is to be presented. It is customary to refer a channel using the spatial position of associated speaker as described below. The Master channel is a logical channel and, therefore, has no spatial position associated with it. A one-channel channel cluster does not have spatial position associated with it either and will use the Master channel to control its properties. The following channel spatial positions are defined: • Master (Master) • Left Front (LF) • Right Front (RF) • Center Front (CF) • Low Frequency Enhancement (LFE) [Super woofer] • Left Surround (LS) • Right Surround (RS)

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	• Left of Center (LFC) [in front] • Right of Center (RFC) [in front] • Surround (SD) [rear] • Side Left (SL) [left wall] • Side Right (SR) [right wall] • Top (T) [overhead] • Bottom (B) [bottom] A channel cluster is the collection of all channels, including the Master channel, within an audio stream. A single channel (mono) cluster has only one channel – the Master channel. A two-channel (stereo) cluster has three channels – the Master channel, the Left Front channel, and the Right Front channel. In this specification, only the Master channel is required. All other channels are optional, see Table 2-15 for details." UPnP Rendering Control, pgs. 16-17. 8B2. "The MediaRenderer obtains content from a MediaServer via network. Examples of a MediaRenderer include TV, stereo, network-enabled speakers, MP3 players, Electronic Picture Frame (EPF), a musiccontrolled water fountain, etc. The type of content that a MediaRenderer can receive depends on the transfer protocols and data formats that it supports. Some MediaRenderers may only support one type of content (e.g. audio or still images), where as other MediaRenderers may support a wide variety of content including video, audio, still images.The Control Point coordinates and manages the operation of the MediaServer and MediaRenderer as directed by the user (e.g. play, stop, pause) in order to accomplish the desired task (e.g. play "MyFavorite" music). Additionally, the Control Point provides the UI (if any) for the user to interact with in order to control the operation of the device(s) (e.g. to select the desired content). The layout of the Control Point's UI and the functionality that it exposes is implementation dependent and determined solely by the Control Point's manufacturer. Some examples of a Control Point might include a TV with a traditional remote control or a wireless PDA-like device with a small display." UPnP AV pg. 6. 8B3. "Devices are logical containers for a service or set of services, and possibly for other devices. Devices and services are identified partially by their type, which defines their minimum capabilities. Windows can participate in the UPnP network and make UPnP enabled devices and services that are connected to the network available to the user of the Windows system. Windows can also serve as a platform for building and running control point applications to control UPnP connected devices and services. The Internet Connection Sharing (ICS) service uses

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	UPnP to announce the availability of the service to other computers on the network, which are running UPnP clients." Microsoft UPnP, pg. 2. 8B4, "When the device tree was parsed and stored by the UPnP client implementation, the services were also enumerated and added to a list attached to the device. The client application can use the Services method on the device object to retrieve this list of services. This service collection can be parsed to locate a particular service and retrieve a service object." Microsoft UPnP, pg. 13. 8B5. "Windows can also serve as a platform for building and running control point applications to control UPnP connected devices and services." Microsoft UPnP, pg. 2. 8B6. "You can now see if any UPnP enabled devices exist on your network by opening My Network Places on the desktop. If there are UPnP devices on your local network, they will appear here with a generic icon based on the device type. You can invoke the device from here through its presentation page." Microsoft UPnP, pg. 4. 8B7. "After checking the local cache for any cached entries matching the search request, the devices returned are added to a list of the found devices." Microsoft UPnP, pg. 11.
16. A method for controlling a plurality of players, the method comprising:	The UPnP Standard discloses a method for controlling a plurality of players, which are combined UPnP Media Servers and UPnP Media Renderers, from a controller that is a UPnP Control Point, as discussed above.
16A. displaying on a screen a list showing a plurality of volume meters, at least one of the volume meters representing an	As discussed above, the UPnP Standard discloses displaying on a screen of a Control Point (such as the screen of a wireless PDA device) a list showing a plurality of volume meters (such as separate volume meters for each device that is a combined UPnP Media Server and UPnP Media Renderer in a channel group that can include stereo or surround channels, and a volume meter for a master channel associated with the channel group), where the volume controls can display a relative volume setting or volume in decibels. (16A4). At least one of the volume meters representing an audio volume of one of the players (the UPnP Media Renderer's Rendering Control Service allows a user to control the volume setting, which requires a volume meter). (16A1). Another one of the volume meters (for the master) represents an audio volume of a group of players, when there is such a

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
audio volume of one of the players, and another one of the volume meters representing an audio volume of a group of players, when there is such a group; and	group (the master volume control represents an audio volume of the group of players, when there is such a group). (16A2). The media renderer's rendering control service of the UPnP Standard allowed a user to invoke any rendering control action, such as adjusting volume, which requires the use of a volume meter that represents the audio volume of the media renderer/player. (16A3). Microsoft UPnP functionality supported the creation of user interfaces from device presentation pages. 16A5, 16A6, 16A7 16A1. "8. Adjust Rendering Characteristics: Using the MediaRenderer's Rendering Control service, invoke any rendering control actions as desired by the user (e.g. adjust brightness, contrast, volume, mute, etc)." UPnP AV pg. 9. 16A2. "2.2.19. A_ARG_TYPE_Channel This variable is used to identify a particular channel of an audio output stream. A channel, except the Master channel, is associated with the location of the speaker where the audio data stream is to be presented. It is customary to refer a channel using the spatial position of associated speaker as described below. The Master channel is a logical channel and, therefore, has no spatial position associated with it. A one-channel channel cluster does not have spatial position associated with it either and will use the Master channel to control its properties. The following channel spatial positions are defined: • Master (Master) • Left Front (LF) • Right Front (RF) • Center Front (CF) • Low Frequency Enhancement (LFE) [Super woofer] • Left Surround (LS) • Right Surround (RS) • Left of Center (LFC) [in front] • Right of Center (RFC) [in front] • Surround (SD) [rear] • Side Left (SL) [left wall] • Side Right (SR) [right wall] • Top (T) [overhead]

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	• Bottom (B) [bottom] A channel cluster is the collection of all channels, including the Master channel, within an audio stream. A single channel (mono) cluster has only one channel – the Master channel. A two-channel (stereo) cluster has three channels – the Master channel, the Left Front channel, and the Right Front channel. In this specification, only the Master channel is required. All other channels are optional, see Table 2-15 for details." UPnP Rendering Control, pgs. 16-17." 16A3. UPnP AV pg. 11 (general interaction diagram showing control of media renderer/player from control point (RCS::SetVolume()):  16A4. "2.5.4. Controlling Audio Content The Rendering Control Service exposes a set of state variables that can be used to control the audio output of a device. These include various characteristics such as volume, mute, and loudness. However, unlike most visual content, audio content is typically composed of one or more channels (e.g. a left and right channel). The Rendering Control service allows Control Points to control each of these channels independently or as a whole. In order to accomplish this, it is necessary for the Control Point to identify the channel that is to be controlled.

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	This is accomplished via the 'Channel' parameter included in each action that is associated with the audio portion of an input stream. Each channel is uniquely named as described in Section 2.2.19. The "master" channel allows a Control Point to control the "composite" (post-mixed) audio content as a whole. When controlling the volume of a particular channel, Control Points can choose between two different representations of the volume setting. One representation uses the Volume state variable and the other representation uses the VolumeDB state variable. As described in Sections 2.2.16 and 2.2.17, the Volume state variable represents volume as a contiguous set of "positions" numbered from 0 to some device-specific maximum, and the VolumeDB state variable represents volume in units of 1/256 of a decibel (dB). Two pair of actions (one pair for each representation) are provided to get and set the volume of a channel." UPnP AV pg. 41 16A5. "Windows can also serve as a platform for building and running control point applications to control UPnP connected devices and services." Microsoft UPnP, pg. 2. 16A6. "You can now see if any UPnP enabled devices exist on your network by opening My Network Places on the desktop. If there are UPnP devices on your local network, they will appear here with a generic icon based on the device type. You can invoke the device from here through its presentation page." Microsoft UPnP, pg. 4. 16A7. "After checking the local cache for any cached entries matching the search request, the devices returned are added to a list of the found devices." Microsoft UPnP, pg. 11.
16B. adjusting one of the volume meters as desired after one of the volume meters from the list is selected, wherein the one of the volume meters is for the group of players, represented by an	As discussed above, the UPnP Standard discloses adjusting one of the volume meters as desired after one of the volume meters from the list is selected. The list can be generated by an operating system such as Windows XP, which can generate icons or a list that represent URLs associated with devices that are combined UPnP Media Servers/UPnP Media Renderers. 16B1. Selection of the URL allows the user to access the volume meters associated with the device. 16B2. One of the volume meters is for the Master channel of the group of players, such as wireless speakers. 16B3, 16B4. The Master channel represents an averaged value of audio volumes of the players in the group when the players are all at the same level as the Master, such as by using the SetVolume control. 16B5. 16B1. "You can now see if any UPnP enabled devices exist on your network by opening My Network Places on the desktop. If there are UPnP devices on your local network, they will appear here with a generic icon based on

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
averaged value of audio volumes of the players in the group, and	the device type. You can invoke the device from here through its presentation page." Microsoft UPnP, pg. 4. 16B2. "After checking the local cache for any cached entries matching the search request, the devices returned are added to a list of the found devices." Microsoft UPnP, pg. 11. 16B3. "2.2.19. A_ARG_TYPE_Channel This variable is used to identify a particular channel of an audio output stream. A channel, except the Master channel, is associated with the location of the speaker where the audio data stream is to be presented. It is customary to refer a channel using the spatial position of associated speaker as described below. The Master channel is a logical channel and, therefore, has no spatial position associated with it. A one-channel channel cluster does not have spatial position associated with it either and will use the Master channel to control its properties. The following channel spatial positions are defined: • Master (Master) • Left Front (LF) • Right Front (RF) • Center Front (CF) • Low Frequency Enhancement (LFE) [Super woofer] • Left Surround (LS) • Right Surround (RS) • Left of Center (LFC) [in front] • Right of Center (RFC) [in front] • Surround (SD) [rear] • Side Left (SL) [left wall] • Side Right (SR) [right wall] • Top (T) [overhead] • Bottom (B) [bottom] A channel cluster is the collection of all channels, including the Master channel, within an audio stream. A single channel (mono) cluster has only one channel – the Master channel. A two-channel (stereo) cluster has three channels – the Master channel, the Left Front channel, and the Right Front channel. In this specification, only the Master channel is required. All other channels are optional, see Table 2-15 for details." UPnP Rendering Control,

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	pgs. 16-17." 16B4. "The MediaRenderer obtains content from a MediaServer via network. Examples of a MediaRenderer include TV, stereo, network-enabled speakers, MP3 players, Electronic Picture Frame (EPF), a music controlled water fountain, etc. The type of content that a MediaRenderer can receive depends on the transfer protocols and data formats that it supports. Some MediaRenderers may only support one type of content (e.g. audio or still images), whereas other MediaRenderers may support a wide variety of content including video, audio, still images. The Control Point coordinates and manages the operation of the MediaServer and MediaRenderer as directed by the user (e.g. play, stop, pause) in order to accomplish the desired task (e.g. play "MyFavorite" music). Additionally, the Control Point provides the UI (if any) for the user to interact with in order to control the operation of the device(s) (e.g. to select the desired content). The layout of the Control Point's UI and the functionality that it exposes is implementation dependent and determined solely by the Control Point's manufacturer. Some examples of a Control Point might include a TV with a traditional remote control or a wireless PDA-like device with a small display." UPnP AV pg. 6. 16B5. "Set the volume of the audio content (as a whole) to the quietest (non-silent) setting: • Invoke the SetVolume() action with the Channel parameter set to 'Master' and the DesiredVolume parameter set to 1. Set the volume of the audio content (as a whole) 20 'notches/steps' higher than the current setting • Invoke the GetVolume() action with the Channel parameter set to 'Master'. As a result of the previous example, the CurrentVolume out parameter returns a value of 1 indicating that the audio content is being rendered at volume position 1 i.e. the quietest non-silence setting supported by the device. • Invoke the SetVolume() action with the Channel parameter set to "Master" and the DesiredVolume parameter set to 21 (1 + 20). This corresponds to the 20th quietest setting supported by the device." UPnP Rendering Control, pgs. 41-42.
16C. said adjusting of the one of the volume meters includes changing a volume of each of	The UPnP Standard discloses that adjustments made to the master volume control are synchronously made by the UPnP Control Point (16C1) to the associated combined UPnP Media Server/UPnP Media Renderer devices, such as wireless network-enabled speakers (16C2) that are associated with each channel of the channel set for stereo or surround sound. (16C3). 16C1. "[T]he Control Point coordinates and synchronizes the behavior of both devices. . . ." UPnP AV, pg. 4.

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
the group of players synchronously in accordance with an adjustment made by a user.	16C2. "The MediaRenderer obtains content from a MediaServer via network. Examples of a MediaRenderer include TV, stereo, network-enabled speakers, MP3 players, Electronic Picture Frame (EPF), a musiccontrolled water fountain, etc. The type of content that a MediaRenderer can receive depends on the transfer protocols and data formats that it supports. Some MediaRenderers may only support one type of content (e.g. audio or still images), where as other MediaRenderers may support a wide variety of content including video, audio, still images.The Control Point coordinates and manages the operation of the MediaServer and MediaRenderer as directed by the user (e.g. play, stop, pause) in order to accomplish the desired task (e.g. play "MyFavorite" music). Additionally, the Control Point provides the UI (if any) for the user to interact with in order to control the operation of the device(s) (e.g. to select the desired content). The layout of the Control Point's UI and the functionality that it exposes is implementation dependent and determined solely by the Control Point's manufacturer. Some examples of a Control Point might include a TV with a traditional remote control or a wireless PDA-like device with a small display." UPnP AV pg. 6.
18. The method of claim 16, further comprising adjusting the one of the volume meters for the group of players in a predetermined manner that appears that the group of players are being adjusted at the same time.	As discussed above, the UPnP Standard discloses adjusting the one of the volume meters for the group of players in a predetermined manner that appears that the group of players are being adjusted at the same time, such as the master volume group which actually adjusts the group of players at the same time. The UPnP Control Points can control each of the channels independently or as a whole, which requires a user interface that identifies the group of players that are being adjusted as a whole. 18A1 The user interface can be generated using Windows UPnP functions for generating presentation pages for listed devices. 18A2, 18A3, 18A4 18A1. "2.5.4. Controlling Audio Content The Rendering Control Service exposes a set of state variables that can be used to control the audio output of a device. These include various characteristics such as volume, mute, and loudness. However, unlike most visual content, audio content is typically composed of one or more channels (e.g. a left and right channel). The Rendering Control service allows Control Points to control each of these channels independently or as a whole. In order to accomplish this, it is necessary for the Control Point to identify the channel that is to be controlled. This is accomplished via the 'Channel' parameter included in each action that is associated with the audio portion of an input stream. Each channel is uniquely named as described in Section 2.2.19. The "master" channel allows a Control Point to control the "composite" (post-mixed) audio content as a whole. When controlling the volume of a particular channel, Control Points can choose between two different representations of the volume setting. One representation uses the Volume state variable and the other representation uses the VolumeDB state

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	variable. As described in Sections 2.2.16 and 2.2.17, the Volume state variable represents volume as a contiguous set of "positions" numbered from 0 to some device-specific maximum, and the VolumeDB state variable represents volume in units of 1/256 of a decibel (dB). Two pair of actions (one pair for each representation) are provided to get and set the volume of a channel." UPnP AV pg. 41 18A2. "Windows can also serve as a platform for building and running control point applications to control UPnP connected devices and services." Microsoft UPnP, pg. 2. 18A3. "You can now see if any UPnP enabled devices exist on your network by opening My Network Places on the desktop. If there are UPnP devices on your local network, they will appear here with a generic icon based on the device type. You can invoke the device from here through its presentation page." Microsoft UPnP, pg. 4. 18A4. "After checking the local cache for any cached entries matching the search request, the devices returned are added to a list of the found devices." Microsoft UPnP, pg. 11.
21. The method of claim 20, wherein the audio source is retrieved in form of audio data packets over the network.	UPnP discloses that the audio source is retrieved in form of audio data packets over the network, such as MP3 audio data. "When using an isochronous transfer protocol (e.g.IEC61883/ IEEE1394), the underlying transfer mechanism provides real-time content transfer between the MediaServer and MediaRenderer. This ensures that individual packets of content are transferred within a certain (relatively small) period of time. This real-time behavior allows the MediaRenderer to provide the user with smooth-flowing rendering of the content without implementing a read-ahead buffer. In this environment, the flow of the content is controlled by the MediaServer. The MediaRenderer immediately renders the content that it receives from the MediaServer. Refer to the diagram below for details." UPnP Av, pg. 12. "The AV Architecture allows devices to support different types of formats for the entertainment content (such as MPEG2, MPEG4, JPEG, MP3, Windows Media Architecture (WMA), bitmaps (BMP), NTSC, PAL, ATSC, etc.) and multiple types of transfer protocols (such as IEC-61883/IEEE-1394, HTTP GET, RTP, HTTP PUT/POST, TCP/IP, etc.)." UPnP AV, pg. 3.
38. An apparatus for manipulating a	As discussed above, the UPnP Standard discloses an apparatus for manipulating a plurality of players, such as a UPnP Control Point that is used for manipulating devices that are combined UPnP Media Servers and UPnP

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
plurality of players, the apparatus comprising:	Media Renderers.
38A. a screen;	The UPnP Control Point includes a screen, such as a wireless PDA-like device with a small display, or a personal computer running Windows XP or other UPnP-compatible operating systems. 38A1. For example, Windows UPnP discloses that the Windows XP operating system for personal computers was UPnP compatible and had extensive UPnP functionality, and generated user interfaces on screens. 38A2, 38A3, 38A4 38A1. "The MediaRenderer obtains content from a MediaServer via network. Examples of a MediaRenderer include TV, stereo, network-enabled speakers, MP3 players, Electronic Picture Frame (EPF), a musiccontrolled water fountain, etc. The type of content that a MediaRenderer can receive depends on the transfer protocols and data formats that it supports. Some MediaRenderers may only support one type of content (e.g. audio or still images), where as other MediaRenderers may support a wide variety of content including video, audio, still images.The Control Point coordinates and manages the operation of the MediaServer and MediaRenderer as directed by the user (e.g. play, stop, pause) in order to accomplish the desired task (e.g. play "MyFavorite" music). Additionally, the Control Point provides the UI (if any) for the user to interact with in order to control the operation of the device(s) (e.g. to select the desired content). The layout of the Control Point's UI and the functionality that it exposes is implementation dependent and determined solely by the Control Point's manufacturer. Some examples of a Control Point might include a TV with a traditional remote control or a wireless PDA-like device with a small display." UPnP AV pg. 6. 38A2. "Windows can also serve as a platform for building and running control point applications to control UPnP connected devices and services." Microsoft UPnP, pg. 2. 38A3. "You can now see if any UPnP enabled devices exist on your network by opening My Network Places on the desktop. If there are UPnP devices on your local network, they will appear here with a generic icon based on the device type. You can invoke the device from here through its presentation page." Microsoft UPnP, pg. 4. 38A4. "After checking the local cache for any cached entries matching the search request, the devices returned are added to a list of the found devices." Microsoft UPnP, pg. 11.

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
38B. a screen driver commanding the screen;	The UPnP Control Point includes a screen driver commanding the screen, such as a screen driver of a wireless PDA-like device with a small display, or a personal computer running Windows XP or other UPnP-compatible operating systems. 38B1. For example, Windows UPnP discloses that the Windows XP operating system for personal computers was UPnP compatible and had extensive UPnP functionality, and generated user interfaces on screens that would require use of a screen driver. 38B2, 38B3, 38B4 "The MediaRenderer obtains content from a MediaServer via network. Examples of a MediaRenderer include TV, stereo, network-enabled speakers, MP3 players, Electronic Picture Frame (EPF), a musiccontrolled water fountain, etc. The type of content that a MediaRenderer can receive depends on the transfer protocols and data formats that it supports. Some MediaRenderers may only support one type of content (e.g. audio or still images), where as other MediaRenderers may support a wide variety of content including video, audio, still images.The Control Point coordinates and manages the operation of the MediaServer and MediaRenderer as directed by the user (e.g. play, stop, pause) in order to accomplish the desired task (e.g. play "MyFavorite" music). Additionally, the Control Point provides the UI (if any) for the user to interact with in order to control the operation of the device(s) (e.g. to select the desired content). The layout of the Control Point's UI and the functionality that it exposes is implementation dependent and determined solely by the Control Point's manufacturer. Some examples of a Control Point might include a TV with a traditional remote control or a wireless PDA-like device with a small display." UPnP AV pg. 6. 38B2. "Windows can also serve as a platform for building and running control point applications to control UPnP connected devices and services." Microsoft UPnP, pg. 2. 38B3. "You can now see if any UPnP enabled devices exist on your network by opening My Network Places on the desktop. If there are UPnP devices on your local network, they will appear here with a generic icon based on the device type. You can invoke the device from here through its presentation page." Microsoft UPnP, pg. 4. 38B4. "After checking the local cache for any cached entries matching the search request, the devices returned are added to a list of the found devices." Microsoft UPnP, pg. 11.
38C. an input interface;	The UPnP Control Point includes an input interface, such as an input interface of a wireless PDA-like device with a small display, or a personal computer running Windows XP or other UPnP-compatible operating systems.

Appendix A

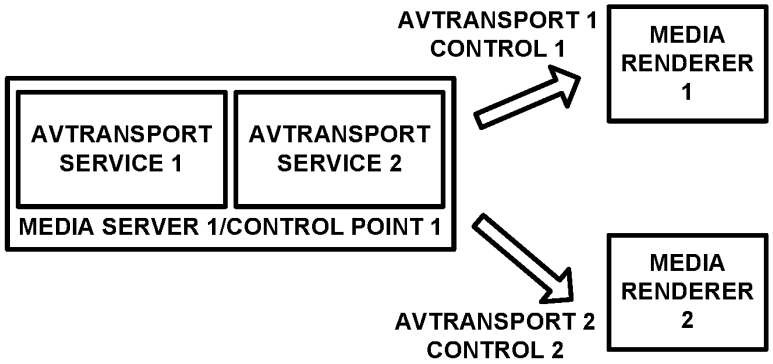
Invalidity of the Challenged Claims of the '014 Patent in view of the UPnP Standard and Microsoft UPnP

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	"The MediaRenderer obtains content from a MediaServer via network. Examples of a MediaRenderer include TV, stereo, network-enabled speakers, MP3 players, Electronic Picture Frame (EPF), a musiccontrolled water fountain, etc. The type of content that a MediaRenderer can receive depends on the transfer protocols and data formats that it supports. Some MediaRenderers may only support one type of content (e.g. audio or still images), where as other MediaRenderers may support a wide variety of content including video, audio, still images.The Control Point coordinates and manages the operation of the MediaServer and MediaRenderer as directed by the user (e.g. play, stop, pause) in order to accomplish the desired task (e.g. play "MyFavorite" music). Additionally, the Control Point provides the UI (if any) for the user to interact with in order to control the operation of the device(s) (e.g. to select the desired content). The layout of the Control Point's UI and the functionality that it exposes is implementation dependent and determined solely by the Control Point's manufacturer. Some examples of a Control Point might include a TV with a traditional remote control or a wireless PDA-like device with a small display." UPnP AV pg. 6. "Windows can also serve as a platform for building and running control point applications to control UPnP connected devices and services." Microsoft UPnP, pg. 2. "You can now see if any UPnP enabled devices exist on your network by opening My Network Places on the desktop. If there are UPnP devices on your local network, they will appear here with a generic icon based on the device type. You can invoke the device from here through its presentation page." Microsoft UPnP, pg. 4. "After checking the local cache for any cached entries matching the search request, the devices returned are added to a list of the found devices." Microsoft UPnP, pg. 11.
38D. a network interface;	The UPnP Control Point includes a network interface, such as a network interface of a wireless PDA-like device with a small display, or a personal computer running Windows XP or other UPnP-compatible operating systems. "The MediaRenderer obtains content from a MediaServer via network. Examples of a MediaRenderer include TV, stereo, network-enabled speakers, MP3 players, Electronic Picture Frame (EPF), a musiccontrolled water fountain, etc. The type of content that a MediaRenderer can receive depends on the transfer protocols and data formats that it supports. Some MediaRenderers may only support one type of content (e.g. audio or still images), where as other MediaRenderers may support a wide variety of content including video, audio, still images.The Control Point coordinates and manages the operation of the MediaServer and MediaRenderer as directed by the

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	user (e.g. play, stop, pause) in order to accomplish the desired task (e.g. play "MyFavorite" music). Additionally, the Control Point provides the UI (if any) for the user to interact with in order to control the operation of the device(s) (e.g. to select the desired content). The layout of the Control Point's UI and the functionality that it exposes is implementation dependent and determined solely by the Control Point's manufacturer. Some examples of a Control Point might include a TV with a traditional remote control or a wireless PDA-like device with a small display." UPnP AV pg. 6.
38E. a memory for storing code for an application module;	The UPnP Control Point includes a memory for storing code for an application module, such as a memory of a wireless PDA-like device with a small display, or a personal computer running Windows XP or other UPnP-compatible operating systems. "The MediaRenderer obtains content from a MediaServer via network. Examples of a MediaRenderer include TV, stereo, network-enabled speakers, MP3 players, Electronic Picture Frame (EPF), a musiccontrolled water fountain, etc. The type of content that a MediaRenderer can receive depends on the transfer protocols and data formats that it supports. Some MediaRenderers may only support one type of content (e.g. audio or still images), where as other MediaRenderers may support a wide variety of content including video, audio, still images.The Control Point coordinates and manages the operation of the MediaServer and MediaRenderer as directed by the user (e.g. play, stop, pause) in order to accomplish the desired task (e.g. play "MyFavorite" music). Additionally, the Control Point provides the UI (if any) for the user to interact with in order to control the operation of the device(s) (e.g. to select the desired content). The layout of the Control Point's UI and the functionality that it exposes is implementation dependent and determined solely by the Control Point's manufacturer. Some examples of a Control Point might include a TV with a traditional remote control or a wireless PDA-like device with a small display." UPnP AV pg. 6. "Windows can also serve as a platform for building and running control point applications to control UPnP connected devices and services." Microsoft UPnP, pg. 2. "You can now see if any UPnP enabled devices exist on your network by opening My Network Places on the desktop. If there are UPnP devices on your local network, they will appear here with a generic icon based on the device type. You can invoke the device from here through its presentation page." Microsoft UPnP, pg. 4. "After checking the local cache for any cached entries matching the search request, the devices returned are

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	added to a list of the found devices." Microsoft UPnP, pg. 11.
38F. a processor coupled to the memory, the input interface, the screen driver and the network interface, the processor executing the code in the memory to cause the application module and the screen driver to perform operations of:	The UPnP Control Point provides a UI for the user to interact with the system, which inherently requires a processor coupled to the memory, the input interface, the screen driver and the network interface, the processor executing the code in the memory to cause the application module and the screen driver to perform operations, such as a processor of a wireless PDA-like device with a small display, or a personal computer running Windows XP or other UPnP-compatible operating systems. "The MediaRenderer obtains content from a MediaServer via network. Examples of a MediaRenderer include TV, stereo, network-enabled speakers, MP3 players, Electronic Picture Frame (EPF), a musiccontrolled water fountain, etc. The type of content that a MediaRenderer can receive depends on the transfer protocols and data formats that it supports. Some MediaRenderers may only support one type of content (e.g. audio or still images), where as other MediaRenderers may support a wide variety of content including video, audio, still images.The Control Point coordinates and manages the operation of the MediaServer and MediaRenderer as directed by the user (e.g. play, stop, pause) in order to accomplish the desired task (e.g. play "MyFavorite" music). Additionally, the Control Point provides the UI (if any) for the user to interact with in order to control the operation of the device(s) (e.g. to select the desired content). The layout of the Control Point's UI and the functionality that it exposes is implementation dependent and determined solely by the Control Point's manufacturer. Some examples of a Control Point might include a TV with a traditional remote control or a wireless PDA-like device with a small display." UPnP AV pg. 6. "Windows can also serve as a platform for building and running control point applications to control UPnP connected devices and services." Microsoft UPnP, pg. 2. "You can now see if any UPnP enabled devices exist on your network by opening My Network Places on the desktop. If there are UPnP devices on your local network, they will appear here with a generic icon based on the device type. You can invoke the device from here through its presentation page." Microsoft UPnP, pg. 4. "After checking the local cache for any cached entries matching the search request, the devices returned are added to a list of the found devices." Microsoft UPnP, pg. 11.
38G. displaying on a screen a list	The UPnP Control Point displays a list on a screen showing a plurality of volume meters, such as by using a UPnP Control Point that receive HTML for each device that includes the volume setting for the device, and a

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
showing a plurality of volume meters, at least one of the volume meters representing an audio volume of one of the players, and another one of the volume meters representing an audio volume of a group of players, if there is such a group; and	master volume level for a master channel associated with the devices. 38G1 The volume meter/control for one of the devices represents an audio volume of one of the players, and the volume meter/control for the Master represents an audio volume of a group of players associated with the master. 38G2, 38G3 38G1. "At the highest layer, the presentation page is specified by a UPnP vendor. Moving down the stack, the UPnP Device Architecture specifies that this page be written in HTML. The page is delivered via HTTP over TCP over IP. For reference, colors in [square brackets] are included for consistency with other sections in this document. To retrieve a presentation page, the control point issues an HTTP GET request to the presentation URL, and the device returns a presentation page. Unlike the UPnP Device and Service Templates, and standard device and service types, the capabilities of the presentation page are completely specified by the UPnP vendor. The presentation page is not under the auspices of a UPnP Forum working committee. The page must be an HTML page; it should be version HTML 3.0 or later. However, other design aspects are left to the vendor to specify. This includes, but is not limited to, all capabilities of the control point's browser, scripting language or browser plug-ins used, and means of interacting with the device. To implement a presentation page, a UPnP vendor may wish to use UPnP mechanisms for control and/or eventing, leveraging the device's existing capabilities but is not constrained to do so. Presentation pages should use mechanisms provided by HTML for localization (e.g., META tag with charset attribute). Control points should use the ACCEPT- / CONTENT-LANGUAGE feature of HTTP to try to retrieve a localized presentation page. Specifically, a control point may include a HTTP ACCEPT-LANGUAGE header in the request for a presentation page; if an ACCEPT-LANGUAGE header is present in the request, the response must include a CONTENT-LANGUAGE header to identify the page's language." UPnP AV, pg. 53. 38G2. "2.5.4. Controlling Audio Content The Rendering Control Service exposes a set of state variables that can be used to control the audio output of a device. These include various characteristics such as volume, mute, and loudness. However, unlike most visual content, audio content is typically composed of one or more channels (e.g. a left and right channel). The Rendering Control service allows Control Points to control each of these channels independently or as a whole. In order to accomplish this, it is necessary for the Control Point to identify the channel that is to be controlled. This is accomplished via the 'Channel' parameter included in each action that is associated with the audio portion of an input stream. Each channel is uniquely named as described in Section 2.2.19. The "master" channel allows a Control Point to control the "composite" (post-mixed) audio content as a whole. When controlling the

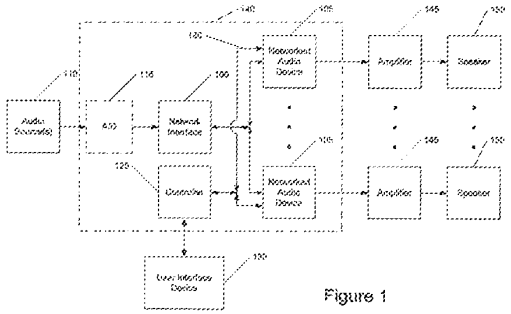
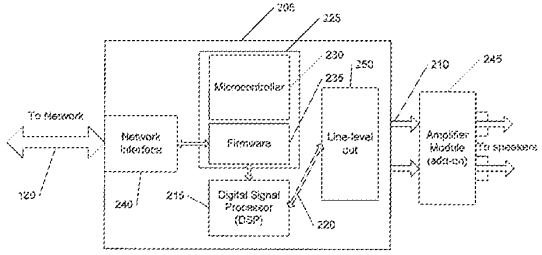
U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	volume of a particular channel, Control Points can choose between two different representations of the volume setting. One representation uses the Volume state variable and the other representation uses the VolumeDB state variable. As described in Sections 2.2.16 and 2.2.17, the Volume state variable represents volume as a contiguous set of "positions" numbered from 0 to some device-specific maximum, and the VolumeDB state variable represents volume in units of 1/256 of a decibel (dB). Two pair of actions (one pair for each representation) are provided to get and set the volume of a channel." UPnP AV pg. 41 38G3. "Double the volume of the entire audio content: (Note: Increasing the volume by 6dB doubles the volume level.) • Invoke the GetVolumeDB() action with the Channel parameter set to 'Master'. Based on the previous example, the CurrentVolume out parameter returned a -1280 (increments of 1/256 dB), which indicates that the volume level is at -5dB. • Invoke the SetVolumeDB() action with the Channel parameter set to "Master" (and the DesiredVolume parameter set to 256 (-1280+1536 increments of 1/256dB), which corresponds to 1dB (-5+6)." UPnP Rendering Control, pg, 42.  Media Server 1 can be associated with the master channel, Media Renderer 1 can be associated with a left channel of the master channel, and Media Renderer 2 can be associated with a right channel of the master channel. Control Point 1 can generate a user interface with HTML that includes a list that has the master volume, the left channel volume and the right channel volume, such as using the Microsoft UPnP functionality to

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	invoke devices through the presentation page of the device. 38G4, 38G5, 38G6 38G4. "Windows can also serve as a platform for building and running control point applications to control UPnP connected devices and services." Microsoft UPnP, pg. 2. 38G5. "You can now see if any UPnP enabled devices exist on your network by opening My Network Places on the desktop. If there are UPnP devices on your local network, they will appear here with a generic icon based on the device type. You can invoke the device from here through its presentation page." Microsoft UPnP, pg. 4. 38G6. "After checking the local cache for any cached entries matching the search request, the devices returned are added to a list of the found devices." Microsoft UPnP, pg. 11.
38H. adjusting one of the volume meters as desired after one of the volume meters from the list is selected, wherein the one of the volume meters is for the group of players, represented by an averaged value of audio volumes of the players in the group,	The user of the UPnP Control Point can adjust one of the volume meters as desired after one of the volume meters from the list is selected, such as the Master channel for a channel group, wherein the volume meter/control for the Master is for the group of players associated with the channels assigned to the Master channel. The volume meter/control is represented by an averaged value of audio volumes of the players in the group, at least when all players are starting from the same minimum level with the Master. Adjusting the Master volume meter/control includes changing a volume of each of the group of players synchronously in accordance with an adjustment made by a user. "2.5.4. Controlling Audio Content The Rendering Control Service exposes a set of state variables that can be used to control the audio output of a device. These include various characteristics such as volume, mute, and loudness. However, unlike most visual content, audio content is typically composed of one or more channels (e.g. a left and right channel). The Rendering Control service allows Control Points to control each of these channels independently or as a whole. In order to accomplish this, it is necessary for the Control Point to identify the channel that is to be controlled. This is accomplished via the 'Channel' parameter included in each action that is associated with the audio portion of an input stream. Each channel is uniquely named as described in Section 2.2.19. The "master" channel allows a Control Point to control the "composite" (post-mixed) audio content as a whole. When controlling the volume of a particular channel, Control Points can choose between two different representations of the volume setting. One representation uses the Volume state variable and the other representation uses the VolumeDB state variable. As described in Sections 2.2.16 and 2.2.17, the Volume state variable represents volume as a contiguous

U.S. 7,571,014	The UPnP Standard and Microsoft UPnP
	set of "positions" numbered from 0 to some device-specific maximum, and the VolumeDB state variable represents volume in units of 1/256 of a decibel (dB). Two pair of actions (one pair for each representation) are provided to get and set the volume of a channel." UPnP AV pg. 41 "Double the volume of the entire audio content: (Note: Increasing the volume by 6dB doubles the volume level.) • Invoke the GetVolumeDB() action with the Channel parameter set to 'Master'. Based on the previous example, the CurrentVolume out parameter returned a -1280 (increments of 1/256 dB), which indicates that the volume level is at -5dB. • Invoke the SetVolumeDB() action with the Channel parameter set to "Master" (and the DesiredVolume parameter set to 256 (-1280+1536 increments of 1/256dB), which corresponds to 1dB (-5+6)." UPnP Rendering Control, pg, 42.
38I. and said adjusting of the one of the volume meters includes changing a volume of each of the group of players synchronously in accordance with an adjustment made by a user.	The UPnP Control Point changes a volume of each of the group of players synchronously in accordance with an adjustment made by a user, such as by invoking the SetVolume() action with the Channel parameter set to "Master" and the Desired Volume parameter set to 1, which sets the volume levels at all associated devices that are assigned to different channels to 1. Subsequent SetVolume() actions for the Channel parameter set to Master result in the devices associated with the Master channel being synchronously adjusted. "[T]he Control Point coordinates and synchronizes the behavior of both devices. . . ." UPnP AV, pg. 4. "Set the volume of the audio content (as a whole) to the quietest (non-silent) setting: • Invoke the SetVolume() action with the Channel parameter set to 'Master' and the DesiredVolume parameter set to 1. Set the volume of the audio content (as a whole) 20 'notches/steps' higher than the current setting • Invoke the GetVolume() action with the Channel parameter set to 'Master'. As a result of the previous example, the CurrentVolume out parameter returns a value of 1 indicating that the audio content is being rendered at volume position 1 i.e. the quietest non-silence setting supported by the device. • Invoke the SetVolume() action with the Channel parameter set to "Master" and the DesiredVolume parameter set to 21 (1 + 20). This corresponds to the 20th quietest setting supported by the device." UPnP Rendering Control, pgs. 41-42.

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
1. A method for controlling a plurality of players, the method comprising:	An example of a player is provided in Fig. 1 of Isely, which shows a networked audio device 105, and in Fig. 2 of Isely, which discloses that the networked audio device 205 includes a network interface 240, a microcontroller 230 and firmware 235, a digital signal processor 215 and an amplifier module 245 for speakers. Isley also discloses audio devices 305 and 405, which are equivalent to audio devices 105 and 205. Isely discloses that UPnP can be used for a salutation protocol, which is another term for a service discovery protocol that requires the use of UPnP Media Servers, UPnP Media Renderers, and UPnP Controls points, such as those disclosed and discussed in Exhibit A, which is hereby incorporated by reference. Isely thus discloses that audio sources 110/33/460, audio devices 105/205/305/405 and user interface devices 130/340/430 should be compliant with UPnP Media Servers, UPnP Media Renderers, and UPnP Control Points, and one of ordinary skill in the art would use the UPnP Standard to implement Isely in accordance with this disclosure.  Figure 1  Figure 2 Isely, [0041] "When the audio devices 105 are powered they may use a salutation protocol (such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the network interface 100, an interface for aggregating and segregating virtual zones and may use

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and
further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	the same salutation protocol to distribute the interface. The audio devices 105 may then be remotely configured using the same salutation protocol to add them to network groups." The chart of Appendix A is hereby incorporated by reference for each element, as further discussed below.
1A. displaying on a screen a first list showing at least available players;	Isely discloses a user interface device 130 (and user interface devices 340 and 430), which provides a user interface to receive user designations of aggregations of audio equipment, including audio sources 110 (and audio sources 330 and 460), to provide dynamic zone aggregation. [0039] The user interface can be implemented using a computer and HTML. [0057] The broadest reasonable construction of player includes audio sources 110, and Sonos has proposed a construction for the term "player" in the concurrent litigation of a "data network device configured to process and output audio" (Sonos Opening Claim Construction Brief, page 3), and has opposed a construction that would require an audio player to output sound, which would encompass audio sources 110/330/460. Isely also discloses that the system of Isely can be compliant with the UPnP Standard, and the UPnP Standard and Microsoft UPnP disclose that UPnP Media Servers and UPnP Media Renderers can be displayed in a list. Isely, [0039] "The user device 130, in combination with the controller 125, provides a user interface configured to receive a user designation of aggregations of the audio equipment 145, 150 located at the site so as to provide dynamic zone aggregation in various embodiments of the present invention. The controller 125 operates to designate the associated identifiers to be received by respective ones of the plurality of network attached audio devices 105. In other words, the controller 125 essentially tells the network audio devices 105 the "channel" to which they should tune. The controller 125 makes this designation based on the user designation from the user device 130 to provide dynamic zone aggregation. Thus, individual ones of the network attached audio devices may be grouped together and instructed to listen to the same channel to provide common audio signals to multiple rooms in a house while

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	other groupings of the network attached audio devices 105 may be assigned a different channel to provide a different audio signal source in another set of rooms within the residence. Groups of the network attached audio devices 105 may be defined which provide a dynamically configurable virtual zone within the house for purposes of providing communication of audio signals over the local network 120." Isely, [0041] "When the audio devices 105 are powered they may use a salutation protocol (such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the network interface 100, an interface for aggregating and segregating virtual zones and may use the same salutation protocol to distribute the interface. The audio devices 105 may then be remotely configured using the same salutation protocol to add them to network groups." Isely, [0057] "The systems 140, 350, 305, 415 along with the user devices 130, 340, 430 provide an audio player as a device or interface, which control the configuration of an "audio network." It can be provided as a true hardware device with knobs and flashing lights or as a software component that presents a user interface via a computer, either directly attached or remote via, for example, a network and HTML or some other markup language. The audio player may be visually configured to select a virtual zone or room/channel and a virtual effect can be associated with the selected channel(s). An audio signal source, such as a CD player, digital content from the Internet, or digital audio files on network storage, is also selected. The audio player then delivers the audio signal to the target virtual zone and/or channel using the proper network group and the proper encapsulation protocol. Channels can be added or removed from the virtual zone in some embodiments of the present invention by dynamically configuring additional audio devices to belong to the same network group."
displaying, when at least one of the players is selected as a zone group	Isely discloses displaying a second list on the screen showing at least some of the players that are eligible to be grouped with the zone group head, such as audio devices 105/205/305/405,

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
head, on the screen a second list showing at least some of the players that are eligible to be grouped with the zone group head;	when at least one of the players is selected as a zone group head, such as one of audio sources 110/330/460. In other words, a user of Isely selects an audio source 110/330/460 to be the zone group head and the audio devices 105/205/305/405 to be grouped with the zone group head. Isely also discloses that the system of Isely can be compliant with the UPnP Standard, and the UPnP Standard and Microsoft UPnP disclose displaying lists of UPnP Media Renderers to be grouped with a UPnP Media Server. Isely, [0037] "Each of the network attached audio devices 105 is associated with a group of audio equipment 145, 150. The respective groupings of audio equipment located at the site may, for example, each be associated with a different room in a residence. As shown in FIG. 1, a separate amplifier 145 and speaker(s) 150 are provided as audio equipment located at the site which equipment is responsive to a signal output from a particular network attached audio device 105. However, it is to be understood that the network attached audio devices 105 may include therein a pre-amplifier circuit and/or a pre-amplifier and amplifier circuits so that the speaker 150 may be driven directly by the audio devices 105 or driven though the amplifier 145 as illustrated in FIG. 1." Isely, [0039] "Thus, individual ones of the network attached audio devices may be grouped together and instructed to listen to the same channel to provide common audio signals to multiple rooms in a house while other groupings of the network attached audio devices 105 may be assigned a different channel to provide a different audio signal source in another set of rooms within the residence. Groups of the network attached audio devices 105 may be defined which provide a dynamically configurable virtual zone within the house for purposes of providing communication of audio signals over the local network 120." Isely, [0040] "One element of various embodiments of the present invention, as described above, is the ability to dynamically define aggregate zones. To accomplish this, the system provides the ability to add or remove audio device 105 to or from groups or virtual zones. Defining virtual zones involves assigning audio devices 105 to a particular network group. This will now be further described with reference to an example using the IP-based UDP

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	protocol over an Ethernet network. However, the present invention is not limited to this protocol. For UDP over Ethernet, a UDP definition may specify the multicast group. The underlying transport for the digital audio streams should also be UDP. The audio source may thus deliver time-stamped packets to the proper multicast group. One such protocol, which defines delivery of audio content using UDP, is the Real-time Transport Protocol (RTP) as defined in request for comments (RFC) 1889." Isely, [0041] "When the audio devices 105 are powered they may use a salutation protocol (such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the network interface 100, an interface for aggregating and segregating virtual zones and may use the same salutation protocol to distribute the interface. The audio devices 105 may then be remotely configured using the same salutation protocol to add them to network groups." Isely, [0048]-[0049] "The characteristic may, for example, be any of a number of audio signal characteristics commonly associated with playing audio signals such as volume, tone, balance and spatialization. In various embodiments of the present invention, the characteristic is an equalization specification for the audio signal to be transmitted to the respective addressed audio devices 305. In such cases, the audio devices 305 further include an equalizer circuit configured to provide the desired equalization specification for delivery of the audio signal to their associated audio equipment. The audio interface 320 receives the digital audio streams and outputs the digital audio streams on a local network 310 addressed (i.e., with an identifier of a particular audio stream which is detectable by the audio devices 305) to selected ones of the audio devices 305 based on the defined zones. The output is further based on the defined relationship between a characteristic of the audio signal for the reference audio device and for others of the audio devices in a zone. The output may also be provided based upon a control input associated with a characteristic, for example, a desired volume input for the kitchen may result in a different volume adjustment for other rooms grouped in a common zone with the

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	kitchen. A user interface 340 is configured to receive a user designation of the control input." Isely, [0060] "A user may, at various times, provide designations of ones of the groups of audio equipment at the site to be aggregated/segregated (block 520). Each group of audio equipment which is designated is associated with one of the addressable audio devices 305 so that, for example, an aggregation of groups of audio equipment may include groups of audio equipment in a plurality of different rooms with each group of audio equipment being associated with a room (or rooms) serviced by a particular addressable audio device 305 and a virtual zone across multiple rooms being provided by the aggregation of groups of audio equipment. The network interface 100 or audio interface 320 may, thus, dynamically designate respective ones of the addressable audio devices for inclusion in an aggregation of groups of audio equipment. (block 525). Furthermore, one of the identifiers associated with a digital audio stream to be received by the respective addressable audio devices in the group may be provided (block 525). The selection of a digital audio stream to which each audio device in a group will "tune" may be provided to the OSGi 350 as part of a received user designation at block 520. The digital audio stream associated with the designated identifier is then received at respective ones of the addressable audio devices over the local network (block 530). The received digital audio stream is then output to the groups of audio equipment associated with the addressable audio devices (block 535)."
forming a zone group started with the zone group head, after one or more players from the at least some of the players are selected to join the zone group; and	Isely discloses forming a zone group started with the zone group head (audio sources 110/330/460), after one or more players from the at least some of the players (audio devices 105/205/305/405) are selected to join the zone group. Isely also discloses that the system of Isely can be compliant with the UPnP Standard, and the UPnP Standard discloses how to form a zone group by grouping a UPnP Media Server with one or more UPnP Media Renderers. Isely, [0037] "Each of the network attached audio devices 105 is associated with a group of audio equipment 145, 150. The respective groupings of audio equipment located at the site

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	may, for example, each be associated with a different room in a residence. As shown in FIG. 1, a separate amplifier 145 and speaker(s) 150 are provided as audio equipment located at the site which equipment is responsive to a signal output from a particular network attached audio device 105. However, it is to be understood that the network attached audio devices 105 may include therein a pre-amplifier circuit and/or a pre-amplifier and amplifier circuits so that the speaker 150 may be driven directly by the audio devices 105 or driven though the amplifier 145 as illustrated in FIG. 1." Isely, [0039] "Thus, individual ones of the network attached audio devices may be grouped together and instructed to listen to the same channel to provide common audio signals to multiple rooms in a house while other groupings of the network attached audio devices 105 may be assigned a different channel to provide a different audio signal source in another set of rooms within the residence. Groups of the network attached audio devices 105 may be defined which provide a dynamically configurable virtual zone within the house for purposes of providing communication of audio signals over the local network 120." Isely, [0040] "One element of various embodiments of the present invention, as described above, is the ability to dynamically define aggregate zones. To accomplish this, the system provides the ability to add or remove audio device 105 to or from groups or virtual zones. Defining virtual zones involves assigning audio devices 105 to a particular network group. This will now be further described with reference to an example using the IP-based UDP protocol over an Ethernet network. However, the present invention is not limited to this protocol. For UDP over Ethernet, a UDP definition may specify the multicast group. The underlying transport for the digital audio streams should also be UDP. The audio source may thus deliver time-stamped packets to the proper multicast group. One such protocol, which defines delivery of audio content using UDP, is the Real-time Transport Protocol (RTP) as defined in request for comments (RFC) 1889." Isely, [0041] "When the audio devices 105 are powered they may use a salutation protocol (such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the network interface 100, an interface for aggregating and segregating virtual zones and may use the same salutation protocol to distribute the interface. The audio devices 105 may then be remotely configured using the same salutation protocol to add them to network groups." Isely, [0048]-[0049] "The characteristic may, for example, be any of a number of audio signal characteristics commonly associated with playing audio signals such as volume, tone, balance and spatialization. In various embodiments of the present invention, the characteristic is an equalization specification for the audio signal to be transmitted to the respective addressed audio devices 305. In such cases, the audio devices 305 further include an equalizer circuit configured to provide the desired equalization specification for delivery of the audio signal to their associated audio equipment. The audio interface 320 receives the digital audio streams and outputs the digital audio streams on a local network 310 addressed (i.e., with an identifier of a particular audio stream which is detectable by the audio devices 305) to selected ones of the audio devices 305 based on the defined zones. The output is further based on the defined relationship between a characteristic of the audio signal for the reference audio device and for others of the audio devices in a zone. The output may also be provided based upon a control input associated with a characteristic, for example, a desired volume input for the kitchen may result in a different volume adjustment for other rooms grouped in a common zone with the kitchen. A user interface 340 is configured to receive a user designation of the control input." Isely, [0060] "A user may, at various times, provide designations of ones of the groups of audio equipment at the site to be aggregated/segregated (block 520). Each group of audio equipment which is designated is associated with one of the addressable audio devices 305 so that, for example, an aggregation of groups of audio equipment may include groups of audio equipment in a plurality of different rooms with each group of audio equipment being associated with a room (or rooms) serviced by a particular addressable audio device 305 and a virtual zone across multiple rooms being provided by the aggregation of groups of audio equipment. The network interface 100 or audio interface 320 may, thus, dynamically

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and
further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	designate respective ones of the addressable audio devices for inclusion in an aggregation of groups of audio equipment. (block 525). Furthermore, one of the identifiers associated with a digital audio stream to be received by the respective addressable audio devices in the group may be provided (block 525). The selection of a digital audio stream to which each audio device in a group will "tune" may be provided to the OSGi 350 as part of a received user designation at block 520. The digital audio stream associated with the designated identifier is then received at respective ones of the addressable audio devices over the local network (block 530). The received digital audio stream is then output to the groups of audio equipment associated with the addressable audio devices (block 535)."
synchronizing all players in the zone group;	Isely discloses synchronizing all players (audio sources 110/330/460 and players 105/205/305/405) in the zone group through the use of the Real Time Protocol and multicasting, and that an audio source 110/330/460 and group of players 105/205/305/405 provide the same audio channels at the same time, which requires synchronization. Isley also discloses the use of time stamped packets, which would only be needed for playing synchronous content. [0018], [0040], [0061]. Isely also references the use of RFC 1889/RTP, which discloses a synchronization source that is used to synchronize playback at multiple devices. Isely also discloses that the system of Isely can be compliant with the UPnP Standard, and the UPnP Standard discloses synchronization of UPnP Media Servers and UPnP Media Renderers through IEC61883/IEEE1394 isochronous transfer protocols, or that other common synchronization protocols can be used. Isely, [0018] "In further embodiments of the present invention, the site is a residence and various of the groups of audio equipment are associated with respective rooms of the residence. The address based protocol may be a User Datagram Protocol (UDP) and may further be a Real-time Transport Protocol (RTP) and the network interface may be an RTP interface. The RTP interface may output the digital audio streams using time-stamped packets using UDP. The plurality of network attached audio devices may be configured to provide a salutation protocol to announce their presence to the controller over the local network.

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	Furthermore, the controller may be configured to assign the associated address to be received by respective ones of the plurality of network attached audio devices to the network attached audio devices over the local network using the salutation protocol so as to group ones of the plurality of network attached audio devices." Isely, [0040] "One element of various embodiments of the present invention, as described above, is the ability to dynamically define aggregate zones. To accomplish this, the system provides the ability to add or remove audio device 105 to or from groups or virtual zones. Defining virtual zones involves assigning audio devices 105 to a particular network group. This will now be further described with reference to an example using the IP-based UDP protocol over an Ethernet network. However, the present invention is not limited to this protocol. For UDP over Ethernet, a UDP definition may specify the multicast group. The underlying transport for the digital audio streams should also be UDP. The audio source may thus deliver time-stamped packets to the proper multicast group. One such protocol, which defines delivery of audio content using UDP, is the Real-time Transport Protocol (RTP) as defined in request for comments (RFC) 1889." Isely, [0041] "When the audio devices 105 are powered they may use a salutation protocol (such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the network interface 100, an interface for aggregating and segregating virtual zones and may use the same salutation protocol to distribute the interface. The audio devices 105 may then be remotely configured using the same salutation protocol to add them to network groups." Isely, [0061] "Dynamic designation may be provided to the audio devices over the local network. The digital audio streams may be provided over the local network based on UDP or based on Transport Control Protocol (TCP). Furthermore, RTP may be used to provide the digital audio streams using time-stamped packets over UDP. Furthermore, the designations provided at block 525 may be provided over the local network using the salutation protocol

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	used by the respective audio devices to announce their presence at block 515." RFC 1889, pg. 7 "Synchronization source (SSRC): The source of a stream of RTP packets, identified by a 32-bit numeric SSRC identifier carried in the RTP header so as not to be dependent upon the network address. All packets from a synchronization source form part of the same timing and sequence number space, so a receiver groups packets by synchronization source for playback. Examples of synchronization sources include the sender of a stream of packets derived from a signal source such as a microphone or a camera, or an RTP mixer (see below). A synchronization source may change its data format, e.g., audio encoding, over time. The SSRC identifier is a randomly chosen value meant to be globally unique within a particular RTP session (see Section 8). A participant need not use the same SSRC identifier for all the RTP sessions in a multimedia session; the binding of the SSRC identifiers is provided through RTCP (see Section 6.4.1). If a participant generates multiple streams in one RTP session, for example from separate video cameras, each must be identified as a different SSRC."
adjusting a volume meter represented by an averaged value of audio volumes of the players in the group, wherein said adjusting of the volume meter includes changing a volume of each of the group of players synchronously in accordance with an adjustment made by a user.	Isely discloses adjusting a control characteristic of a reference audio device 105/205/305/405 that includes a volume meter/control, which can have a complex, proportional, or static relationship to audio volumes of other audio devices 105/205/305/405 in a zone. Adjusting the volume meter/control of the reference audio devices includes changing a volume of each of the other audio devices synchronously in accordance with an adjustment made by a user. All volume changes are synchronized to the change of control level, such as by RFC 1889. Isely also discloses that the system of Isely can be compliant with the UPnP Standard, and the UPnP Standard provides extensive details on adjustment of a volume control that represents an averaged value of audio volumes of players in a group, such as when the volume is increased at startup from a minimum setting using the master channel volume to control all channels. Isely, [0020] "A relationship is defined between a characteristic of the audio signal for a

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	reference audio device and for the selected addressable audio devices. The audio signal is distributed to the selected addressable audio devices based on the defined relationships and a control input associated with the characteristic. An update to the control input is received from a user and the audio signal is distributed to the selected addressable audio devices based on the defined relationships and the update to the control input." Isely, [0041] "When the audio devices 105 are powered they may use a salutation protocol (such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the network interface 100, an interface for aggregating and segregating virtual zones and may use the same salutation protocol to distribute the interface. The audio devices 105 may then be remotely configured using the same salutation protocol to add them to network groups." Isely, [0048]-[0049] "The characteristic may, for example, be any of a number of audio signal characteristics commonly associated with playing audio signals such as volume, tone, balance and spatialization. In various embodiments of the present invention, the characteristic is an equalization specification for the audio signal to be transmitted to the respective addressed audio devices 305. In such cases, the audio devices 305 further include an equalizer circuit configured to provide the desired equalization specification for delivery of the audio signal to their associated audio equipment. The audio interface 320 receives the digital audio streams and outputs the digital audio streams on a local network 310 addressed (i.e., with an identifier of a particular audio stream which is detectable by the audio devices 305) to selected ones of the audio devices 305 based on the defined zones. The output is further based on the defined relationship between a characteristic of the audio signal for the reference audio device and for others of the audio devices in a zone. The output may also be provided based upon a control input associated with a characteristic, for example, a desired volume input for the kitchen may result in a different volume adjustment for other rooms grouped in a common zone with the kitchen. A user interface 340 is configured to receive a user designation of the control input."

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	Isely, [0053] "The effect of volume or equalization changes to each audio device in a virtual zone could also be configured based on the type of room and the purpose of the audio content in each room. Because the main room is likely to be the living room, the living room audio device could be configured to "match" the equalization or volume changes to the reference zone of the virtual zone. For example, a 20 dB volume increase of the virtual zone would cause a 20 dB volume change in the living room (i.e., the living room would be the reference point). On the other hand, the bathroom audio may be intended as more of an ambient effect, and the user would probably not want a 20 dB volume increase in the bathroom. The bathroom audio device could, therefore, be configured to maintain a fixed or "static" volume level. The deck is another audio device "room" that may require a special relationship to the reference zone of the virtual zone. Even though the user is throwing a party, the user may not want to annoy neighbors, so the deck may be configured to maintain a "relative" relationship with the virtual zone. As an example of such a relative relationship, if the reference volume is increased 20 dB or 50%, the volume on the deck (which presumptively started out lower than the rest of the house) will increase by 50%, as well. Other relationships between individual rooms and the reference could also be used. For example, for every 5 dB increase in the reference, a room could increase 1 dB. Furthermore, a maximum decibel limit may be provided for a room or a virtual zone." Isely, [0056] "To provide a virtual reality effect, one or more of the tracks 460 is associated with a reference position in the residence. For example, the waterfall of track 1 460 could be associated with a location serviced by the room 1 audio equipment 450 which is driven by the channel 1 audio device 405. The audio mixer circuit of the zone manager 415 is configured to provide different mixed audio streams for a plurality of the addressable audio devices 405 in which a characteristic of at least one of the plurality of designated digital audio streams included in the mixed audio stream is based on a relative position between the associated equipment receiving the mixed audio stream and the reference position. In other words, for example, the volume of the track 1 waterfall could be maintained at a loud level in its designated reference location at the room 1 audio equipment 450 with a proportionally

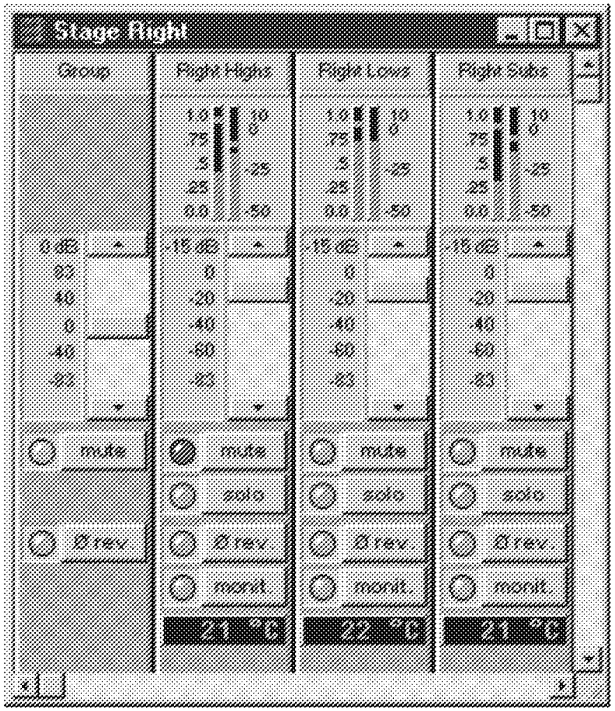
APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	reduced volume in each of the remaining rooms 2-4 based upon their distance within the residence from room 1. Other of the tracks 460 could be associated with different rooms. So, for example, a babbling brook (track 4) could be loud in room 3 and quieter in room 1, while the waterfall of track 1 would be louder in room 1 and quieter in room 3. Each output channel from the respective audio devices 405 may, thus, be a combination of one or more of the respective tracks 460 at different volumes to create the illusion of proximity to a respective sound source, thereby providing a virtual reality effect. Furthermore, some of the tracks included in the mix could be purely ambient tracks that provided no indication of proximity. The level of the respective tracks for each channel and which tracks to include in the mix for each channel may be pre-set by a manufacturer or configurable dynamic through a user interface 430." Isely, [0062] "Referring now to the flowchart diagram of FIG. 6, operations for dynamic distribution of an audio signal in a zoned environment will now be further described for various embodiments of the present invention. More particularly, the description with reference to FIG. 6 will be directed to what may be referred to as the tone by zone or virtual effect aspects of the present invention. Operations in FIG. 6, begin at block 600 with defining a plurality of zones in the zoned environment. One or more of the defined zones may include a plurality of addressable audio devices 305, 405. An audio signal, such as a digital audio stream, is subsequently received (block 610). A relationship between a characteristic of the audio signal for a reference audio device and for a plurality of the addressable audio devices 305, 405 is defined (block 620). Such a relationship may be related to relative volume, equalization or other audio characteristics as described previously herein. Furthermore, such a relationship may be complex, proportional, or static as described previously herein." To the extent that Isely is not considered to disclose this limitation, NexSys discloses a group volume control with a master volume control and independent channels, which represents an averaged value of audio volumes at least at startup, when all volumes are set to zero and any increase in the master volume would result in a synchronous increase in the average at all remote locations, as shown in the exemplary diagram below from page 7.4 of NexSys:

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	 As can be seen above, the group control increases or decreases the separate channels (right highs, right lows, right subs) by the same magnitude in every channel, which have the same average setting within the 2 digit accuracy of the meter (21, 22 and 21). It would be obvious to one of ordinary skill in the art to combine the group/individual volume control of NexSys with the Isely, because Isely explicitly discloses volume control for groups of channels, and one of skill in the art would use a well-known display such as the one shown in NexSys for providing a user interface for such controls. The user interface of NexSys could also be combined with the UPnP channel controls.

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and
further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	NexSys, page 9.3 - "the fader ranges from +83dB to -83dB. It is a relative level to the amplifiers in its group. Positive changes here will have the same magnitude increase for every amplifier channel in the group. A negative change here will decrease each amplifier channel level in the group by the same amount. For instance, if the amp is set to -10, and the group level is raised +5, the amp level will increase by 5dB to a level of -5." UPnP Rendering Control, pages 41-42: "Set the volume of the audio content (as a whole) to the quietest (non-silent) setting: • Invoke the SetVolume() action with the Channel parameter set to 'Master' and the DesiredVolume parameter set to 1. Set the volume of the audio content (as a whole) 20 'notches/steps' higher than the current setting • Invoke the GetVolume() action with the Channel parameter set to 'Master'. As a result of the previous example, the CurrentVolume out parameter returns a value of 1 indicating that the audio content is being rendered at volume position 1 i.e. the quietest non-silence setting supported by the device. • Invoke the SetVolume() action with the Channel parameter set to "Master" and the DesiredVolume parameter set to 21 (1 + 20). This corresponds to the 20th quietest setting supported by the device."
Claim: 8	**Claim: 8**
8. The method of claim 1, wherein said synchronizing of all players in the zone group comprises:	
causing all players in the zone group	Isely discloses causing all players 105/205/305/405 in the zone group to play an identical

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
to play an identical audio source; and	audio source 110/330/460, such as by assigning each player 105/205/305/405 in a group to the same audio source 110/330/460. For example, a user can merge audio devices to form a single party zone. [0052] Isely also discloses that the system of Isely can be compliant with the UPnP Standard, [0041], and the UPnP Standard discloses that a UPnP Media Server can provide an identical source to multiple UPnP Media Renderers. Isely [0037] "Each of the network attached audio devices 105 is associated with a group of audio equipment 145, 150. The respective groupings of audio equipment located at the site may, for example, each be associated with a different room in a residence. As shown in FIG. 1, a separate amplifier 145 and speaker(s) 150 are provided as audio equipment located at the site which equipment is responsive to a signal output from a particular network attached audio device 105. However, it is to be understood that the network attached audio devices 105 may include therein a pre-amplifier circuit and/or a pre-amplifier and amplifier circuits so that the speaker 150 may be driven directly by the audio devices 105 or driven though the amplifier 145 as illustrated in FIG. 1." Isely [0039] "Thus, individual ones of the network attached audio devices may be grouped together and instructed to listen to the same channel to provide common audio signals to multiple rooms in a house while other groupings of the network attached audio devices 105 may be assigned a different channel to provide a different audio signal source in another set of rooms within the residence. Groups of the network attached audio devices 105 may be defined which provide a dynamically configurable virtual zone within the house for purposes of providing communication of audio signals over the local network 120." Isely [0040] "One element of various embodiments of the present invention, as described above, is the ability to dynamically define aggregate zones. To accomplish this, the system provides the ability to add or remove audio device 105 to or from groups or virtual zones. Defining virtual zones involves assigning audio devices 105 to a particular network group. This will now be further described with reference to an example using the IP-based UDP protocol over an Ethernet network. However, the present invention is not limited to this

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	protocol. For UDP over Ethernet, a UDP definition may specify the multicast group. The underlying transport for the digital audio streams should also be UDP. The audio source may thus deliver time-stamped packets to the proper multicast group. One such protocol, which defines delivery of audio content using UDP, is the Real-time Transport Protocol (RTP) as defined in request for comments (RFC) 1889." Isely [0041] "When the audio devices 105 are powered they may use a salutation protocol (such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the network interface 100, an interface for aggregating and segregating virtual zones and may use the same salutation protocol to distribute the interface. The audio devices 105 may then be remotely configured using the same salutation protocol to add them to network groups." Isely [0048]-[0049] "The characteristic may, for example, be any of a number of audio signal characteristics commonly associated with playing audio signals such as volume, tone, balance and spatialization. In various embodiments of the present invention, the characteristic is an equalization specification for the audio signal to be transmitted to the respective addressed audio devices 305. In such cases, the audio devices 305 further include an equalizer circuit configured to provide the desired equalization specification for delivery of the audio signal to their associated audio equipment. The audio interface 320 receives the digital audio streams and outputs the digital audio streams on a local network 310 addressed (i.e., with an identifier of a particular audio stream which is detectable by the audio devices 305) to selected ones of the audio devices 305 based on the defined zones. The output is further based on the defined relationship between a characteristic of the audio signal for the reference audio device and for others of the audio devices in a zone. The output may also be provided based upon a control input associated with a characteristic, for example, a desired volume input for the kitchen may result in a different volume adjustment for other rooms grouped in a common zone with the kitchen. A user interface 340 is configured to receive a user designation of the control input."

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	Isely [0052] "The virtual zone aspects of the present invention will now be further described by way of example where each audio device is associated with a room in a residence. To create a Party virtual zone, a user might merge the living room, kitchen, deck, and main floor bathroom audio devices. By default, built-in virtual effects, like "Concert Hall" could be used with the Party virtual zone, which could cause all rooms to switch to their individual "Concert Hall" effects. The virtual effects could have different equalization and processing settings as characteristics of the audio signal for each room, but as a virtual effect, "Concert Hall" could be controlled as if it were a single effect. In addition, the user could define a virtual effect called "Party" which could be associated with the Party virtual zone. The Party virtual effect could in turn define a "Concert Hall" virtual effect for the living room, a "Low Key" virtual effect for the kitchen, a low-volume "Rock" virtual effect for the deck, and a "Muzak®" virtual effect for the bathroom." Isely [0060] "A user may, at various times, provide designations of ones of the groups of audio equipment at the site to be aggregated/segregated (block 520). Each group of audio equipment which is designated is associated with one of the addressable audio devices 305 so that, for example, an aggregation of groups of audio equipment may include groups of audio equipment in a plurality of different rooms with each group of audio equipment being associated with a room (or rooms) serviced by a particular addressable audio device 305 and a virtual zone across multiple rooms being provided by the aggregation of groups of audio equipment. The network interface 100 or audio interface 320 may, thus, dynamically designate respective ones of the addressable audio devices for inclusion in an aggregation of groups of audio equipment. (block 525). Furthermore, one of the identifiers associated with a digital audio stream to be received by the respective addressable audio devices in the group may be provided (block 525). The selection of a digital audio stream to which each audio device in a group will "tune" may be provided to the OSGi 350 as part of a received user designation at block 520. The digital audio stream associated with the designated identifier is then received at respective ones of the addressable audio devices over the local network (block 530). The received digital audio stream is then output to the groups of audio equipment

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	associated with the addressable audio devices (block 535)."
presenting the zone group in a manner that indicates a grouping.	Isely discloses presenting the zone group in a manner that indicates a grouping. For example, Isely discloses a "defined relationship between a characteristic of the audio signal for the reference audio device and for others of the audio devices in a zone," where "a desired volume input for the kitchen may result in a different volume adjustment for other rooms grouped in a common zone with the kitchen." [0049] A user device 130 allows a user to group players 105/205/305/405 and to control the grouping. [0039], [0057] This is a "manner that indicates a grouping." Isely also discloses that the system of Isely can be compliant with the UPnP Standard, [0041], and the UPnP Standard and Microsoft UPnP discloses presenting a zone group in a manner that indicates a grouping, such as surround sound channels or stereo channels. NexSys also presents the zone group channels in a manner that indicates a grouping (such as where the channel bands shown above are replaced by the separate channels in the UPnP channel group). Isely [0037] "Each of the network attached audio devices 105 is associated with a group of audio equipment 145, 150. The respective groupings of audio equipment located at the site may, for example, each be associated with a different room in a residence. As shown in FIG. 1, a separate amplifier 145 and speaker(s) 150 are provided as audio equipment located at the site which equipment is responsive to a signal output from a particular network attached audio device 105. However, it is to be understood that the network attached audio devices 105 may include therein a pre-amplifier circuit and/or a pre-amplifier and amplifier circuits so that the speaker 150 may be driven directly by the audio devices 105 or driven though the amplifier 145 as illustrated in FIG. 1." Isely [0039] "Thus, individual ones of the network attached audio devices may be grouped together and instructed to listen to the same channel to provide common audio signals to multiple rooms in a house while other groupings of the network attached audio devices 105 may be assigned a different channel to provide a different audio signal source in another set of

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	rooms within the residence. Groups of the network attached audio devices 105 may be defined which provide a dynamically configurable virtual zone within the house for purposes of providing communication of audio signals over the local network 120." Isely [0040] "One element of various embodiments of the present invention, as described above, is the ability to dynamically define aggregate zones. To accomplish this, the system provides the ability to add or remove audio device 105 to or from groups or virtual zones. Defining virtual zones involves assigning audio devices 105 to a particular network group. This will now be further described with reference to an example using the IP-based UDP protocol over an Ethernet network. However, the present invention is not limited to this protocol. For UDP over Ethernet, a UDP definition may specify the multicast group. The underlying transport for the digital audio streams should also be UDP. The audio source may thus deliver time-stamped packets to the proper multicast group. One such protocol, which defines delivery of audio content using UDP, is the Real-time Transport Protocol (RTP) as defined in request for comments (RFC) 1889." Isely [0041] "When the audio devices 105 are powered they may use a salutation protocol (such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the network interface 100, an interface for aggregating and segregating virtual zones and may use the same salutation protocol to distribute the interface. The audio devices 105 may then be remotely configured using the same salutation protocol to add them to network groups." Isely [0048]-[0049] "The characteristic may, for example, be any of a number of audio signal characteristics commonly associated with playing audio signals such as volume, tone, balance and spatialization. In various embodiments of the present invention, the characteristic is an equalization specification for the audio signal to be transmitted to the respective addressed audio devices 305. In such cases, the audio devices 305 further include an equalizer circuit configured to provide the desired equalization specification for delivery of the audio signal to

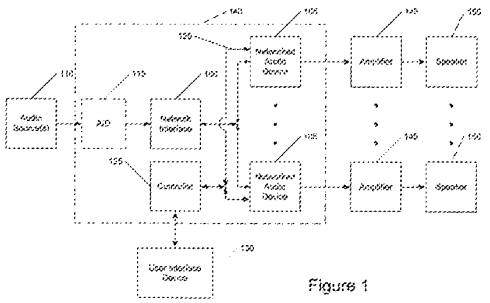
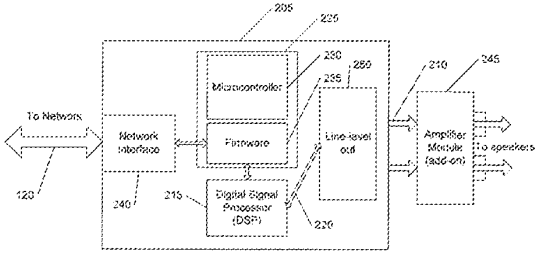
APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	their associated audio equipment. The audio interface 320 receives the digital audio streams and outputs the digital audio streams on a local network 310 addressed (i.e., with an identifier of a particular audio stream which is detectable by the audio devices 305) to selected ones of the audio devices 305 based on the defined zones. The output is further based on the defined relationship between a characteristic of the audio signal for the reference audio device and for others of the audio devices in a zone. The output may also be provided based upon a control input associated with a characteristic, for example, a desired volume input for the kitchen may result in a different volume adjustment for other rooms grouped in a common zone with the kitchen. A user interface 340 is configured to receive a user designation of the control input." Isely [0057] "The systems 140, 350, 305, 415 along with the user devices 130, 340, 430 provide an audio player as a device or interface, which control the configuration of an "audio network." It can be provided as a true hardware device with knobs and flashing lights or as a software component that presents a user interface via a computer, either directly attached or remote via, for example, a network and HTML or some other markup language. The audio player may be visually configured to select a virtual zone or room/channel and a virtual effect can be associated with the selected channel(s). An audio signal source, such as a CD player, digital content from the Internet, or digital audio files on network storage, is also selected. The audio player then delivers the audio signal to the target virtual zone and/or channel using the proper network group and the proper encapsulation protocol. Channels can be added or removed from the virtual zone in some embodiments of the present invention by dynamically configuring additional audio devices to belong to the same network group." Isely [0060] "A user may, at various times, provide designations of ones of the groups of audio equipment at the site to be aggregated/segregated (block 520). Each group of audio equipment which is designated is associated with one of the addressable audio devices 305 so that, for example, an aggregation of groups of audio equipment may include groups of audio equipment in a plurality of different rooms with each group of audio equipment being associated with a room (or rooms) serviced by a particular addressable audio device 305 and a virtual zone across multiple rooms being provided by the aggregation of groups of audio

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and
further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	equipment. The network interface 100 or audio interface 320 may, thus, dynamically designate respective ones of the addressable audio devices for inclusion in an aggregation of groups of audio equipment. (block 525). Furthermore, one of the identifiers associated with a digital audio stream to be received by the respective addressable audio devices in the group may be provided (block 525). The selection of a digital audio stream to which each audio device in a group will "tune" may be provided to the OSGi 350 as part of a received user designation at block 520. The digital audio stream associated with the designated identifier is then received at respective ones of the addressable audio devices over the local network (block 530). The received digital audio stream is then output to the groups of audio equipment associated with the addressable audio devices (block 535)."
Claim: 16	**Claim: 16**
16. A method for controlling a plurality of players, the method comprising:	Isely discloses a method for controlling a plurality of players 105/205/305/405.  Figure 1  Figure 2
displaying on a screen a list showing a plurality of volume meters, at least one of the volume meters	Isely discloses displaying on a screen, such as using HTML in conjunction with user interface device 130/340/430 a list showing a plurality of volume meters. [0057]. At least one of the volume meters represents an audio volume of one of the players (a zone can include one or a

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
representing an audio volume of one of the players, and another one of the volume meters representing an audio volume of a group of players, when there is such a group; and	plurality of players 105/205/305/405 [0045], [0047]), and another one of the volume meters represents an audio volume of a group of players, when there is such a group. [0039] Isely also discloses that the system of Isely can be compliant with the UPnP Standard, [0041], and the UPnP Standard and Microsoft UPnP discloses displaying on a screen a list showing a plurality of volume meters, such as a master volume control and separate channel volume controls. At least one of the channel volume meters in that configuration represents an audio volume of one of the players, and the master volume meters represents an audio volume of a group of players. Isely [0039] "Thus, individual ones of the network attached audio devices may be grouped together and instructed to listen to the same channel to provide common audio signals to multiple rooms in a house while other groupings of the network attached audio devices 105 may be assigned a different channel to provide a different audio signal source in another set of rooms within the residence. Groups of the network attached audio devices 105 may be defined which provide a dynamically configurable virtual zone within the house for purposes of providing communication of audio signals over the local network 120." Isely [0041] "When the audio devices 105 are powered they may use a salutation protocol (such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the network interface 100, an interface for aggregating and segregating virtual zones and may use the same salutation protocol to distribute the interface. The audio devices 105 may then be remotely configured using the same salutation protocol to add them to network groups." Isely [0045] "A plurality of these audio devices 105, 205, such as six or more, may be bundled in a single component, to provide a Network Architectural Preamplifier (NetPreAmp). The NetPreAmp may include a single network interface and a network switch which routes network traffic to the proper self-contained audio device. One or more network audio streams can be directed to one or more of the contained audio devices, providing the

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	basic architectural amplifier structure." Isely [0047] "The zone manager 315 defines a plurality of zones for the site. The zones may include one or a plurality of the individual addressable audio devices included in the illustrated block of network audio devices 305. For ease of understanding in connection with the remainder of the description of FIG. 3, references to audio devices 305 refer to individual ones of the plurality of networked audio devices unless specified otherwise. The zone manager 315 defines a relationship between a characteristic of an audio signal being distributed for a reference audio device and for ones of the addressable audio devices 305 in respective zones. For example, the reference audio device may be an individual one of the provided addressable audio devices 305 associated with a specific room and a relationship may be provided between the characteristics for the audio signal in that room and other rooms included in a common zone with the base audio device room." Isely [0048]-[0049] "The characteristic may, for example, be any of a number of audio signal characteristics commonly associated with playing audio signals such as volume, tone, balance and spatialization. In various embodiments of the present invention, the characteristic is an equalization specification for the audio signal to be transmitted to the respective addressed audio devices 305. In such cases, the audio devices 305 further include an equalizer circuit configured to provide the desired equalization specification for delivery of the audio signal to their associated audio equipment. The audio interface 320 receives the digital audio streams and outputs the digital audio streams on a local network 310 addressed (i.e., with an identifier of a particular audio stream which is detectable by the audio devices 305) to selected ones of the audio devices 305 based on the defined zones. The output is further based on the defined relationship between a characteristic of the audio signal for the reference audio device and for others of the audio devices in a zone. The output may also be provided based upon a control input associated with a characteristic, for example, a desired volume input for the kitchen may result in a different volume adjustment for other rooms grouped in a common zone with the kitchen. A user interface 340 is configured to receive a user designation of the control input."

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	Isely [0053] "The effect of volume or equalization changes to each audio device in a virtual zone could also be configured based on the type of room and the purpose of the audio content in each room. Because the main room is likely to be the living room, the living room audio device could be configured to "match" the equalization or volume changes to the reference zone of the virtual zone. For example, a 20 dB volume increase of the virtual zone would cause a 20 dB volume change in the living room (i.e., the living room would be the reference point). On the other hand, the bathroom audio may be intended as more of an ambient effect, and the user would probably not want a 20 dB volume increase in the bathroom. The bathroom audio device could, therefore, be configured to maintain a fixed or "static" volume level. The deck is another audio device "room" that may require a special relationship to the reference zone of the virtual zone. Even though the user is throwing a party, the user may not want to annoy neighbors, so the deck may be configured to maintain a "relative" relationship with the virtual zone. As an example of such a relative relationship, if the reference volume is increased 20 dB or 50%, the volume on the deck (which presumptively started out lower than the rest of the house) will increase by 50%, as well. Other relationships between individual rooms and the reference could also be used. For example, for every 5 dB increase in the reference, a room could increase 1 dB. Furthermore, a maximum decibel limit may be provided for a room or a virtual zone." Isely [0056] "To provide a virtual reality effect, one or more of the tracks 460 is associated with a reference position in the residence. For example, the waterfall of track 1 460 could be associated with a location serviced by the room 1 audio equipment 450 which is driven by the channel 1 audio device 405. The audio mixer circuit of the zone manager 415 is configured to provide different mixed audio streams for a plurality of the addressable audio devices 405 in which a characteristic of at least one of the plurality of designated digital audio streams included in the mixed audio stream is based on a relative position between the associated equipment receiving the mixed audio stream and the reference position. In other words, for example, the volume of the track 1 waterfall could be maintained at a loud level in its designated reference location at the room 1 audio equipment 450 with a proportionally

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	reduced volume in each of the remaining rooms 2-4 based upon their distance within the residence from room 1. Other of the tracks 460 could be associated with different rooms. So, for example, a babbling brook (track 4) could be loud in room 3 and quieter in room 1, while the waterfall of track 1 would be louder in room 1 and quieter in room 3. Each output channel from the respective audio devices 405 may, thus, be a combination of one or more of the respective tracks 460 at different volumes to create the illusion of proximity to a respective sound source, thereby providing a virtual reality effect. Furthermore, some of the tracks included in the mix could be purely ambient tracks that provided no indication of proximity. The level of the respective tracks for each channel and which tracks to include in the mix for each channel may be pre-set by a manufacturer or configurable dynamic through a user interface 430." Isely [0057] "The systems 140, 350, 305, 415 along with the user devices 130, 340, 430 provide an audio player as a device or interface, which control the configuration of an "audio network." It can be provided as a true hardware device with knobs and flashing lights or as a software component that presents a user interface via a computer, either directly attached or remote via, for example, a network and HTML or some other markup language. The audio player may be visually configured to select a virtual zone or room/channel and a virtual effect can be associated with the selected channel(s). An audio signal source, such as a CD player, digital content from the Internet, or digital audio files on network storage, is also selected. The audio player then delivers the audio signal to the target virtual zone and/or channel using the proper network group and the proper encapsulation protocol. Channels can be added or removed from the virtual zone in some embodiments of the present invention by dynamically configuring additional audio devices to belong to the same network group." Isely [0062] "Referring now to the flowchart diagram of FIG. 6, operations for dynamic distribution of an audio signal in a zoned environment will now be further described for various embodiments of the present invention. More particularly, the description with reference to FIG. 6 will be directed to what may be referred to as the tone by zone or virtual effect aspects of the present invention. Operations in FIG. 6, begin at block 600 with defining

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and
further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	a plurality of zones in the zoned environment. One or more of the defined zones may include a plurality of addressable audio devices 305, 405. An audio signal, such as a digital audio stream, is subsequently received (block 610). A relationship between a characteristic of the audio signal for a reference audio device and for a plurality of the addressable audio devices 305, 405 is defined (block 620). Such a relationship may be related to relative volume, equalization or other audio characteristics as described previously herein. Furthermore, such a relationship may be complex, proportional, or static as described previously herein."
adjusting one of the volume meters as desired after one of the volume meters from the list is selected, wherein the one of the volume meters is for the group of players, represented by an averaged value of audio volumes of the players in the group, and said adjusting of the one of the volume meters includes changing a volume of each of the group of players synchronously in accordance with an adjustment made by a user.	Isely discloses adjusting a control characteristic of one of the volume meters/controls as desired after one of the volume meters from the list is selected, wherein the one of the volume meters is for the group of players (such as the reference audio device), represented by an averaged value of audio volumes of the players in the group (such as when there is a complex, proportional or static relationship with the other audio devices). Adjusting the volume meter/control of the reference audio device changes a volume of each of the group of players synchronously in accordance with an adjustment (complex, proportional or static) made by a user. For example, Isely discloses that relative relationship between devices can be provided, where a change in volume for one device results in a different change in volume for the other device. [0053] The relationship between volume levels of different players 105/205/305/405 in a zone can be "complex, proportional, or static," which covers every possible manner of adjusting and representing volume levels, and which explicitly discloses changing each of the volume of the group of players synchronously in accordance with an adjustment made by a user. [0062] Isely also discloses that the system of Isely can be compliant with the UPnP Standard, [0041], and the UPnP Standard discloses that one of the volume meters can be adjusted as desired with a UPnP Control Point after one of the volume meters from the list is selected, wherein the one of the volume meters is the master channel for the group of players. The master volume represents an averaged value of audio volumes of the players in the group at startup, when all volume settings are at the lowest level and when the master increases all volume levels by the same amount. Adjusting the master channel volume of adjusts the volume of each of the group of players synchronously in accordance with the adjustment

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	made by a user. Isely, [0020] "A relationship is defined between a characteristic of the audio signal for a reference audio device and for the selected addressable audio devices. The audio signal is distributed to the selected addressable audio devices based on the defined relationships and a control input associated with the characteristic. An update to the control input is received from a user and the audio signal is distributed to the selected addressable audio devices based on the defined relationships and the update to the control input." Isely [0041] "When the audio devices 105 are powered they may use a salutation protocol (such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the network interface 100, an interface for aggregating and segregating virtual zones and may use the same salutation protocol to distribute the interface. The audio devices 105 may then be remotely configured using the same salutation protocol to add them to network groups." Isely [0048]-[0049] "The characteristic may, for example, be any of a number of audio signal characteristics commonly associated with playing audio signals such as volume, tone, balance and spatialization. In various embodiments of the present invention, the characteristic is an equalization specification for the audio signal to be transmitted to the respective addressed audio devices 305. In such cases, the audio devices 305 further include an equalizer circuit configured to provide the desired equalization specification for delivery of the audio signal to their associated audio equipment. The audio interface 320 receives the digital audio streams and outputs the digital audio streams on a local network 310 addressed (i.e., with an identifier of a particular audio stream which is detectable by the audio devices 305) to selected ones of the audio devices 305 based on the defined zones. The output is further based on the defined relationship between a characteristic of the audio signal for the reference audio device and for others of the audio devices in a zone. The output may also be provided based upon a control input associated with a characteristic, for example, a desired volume input for the kitchen may

APPENDIX B

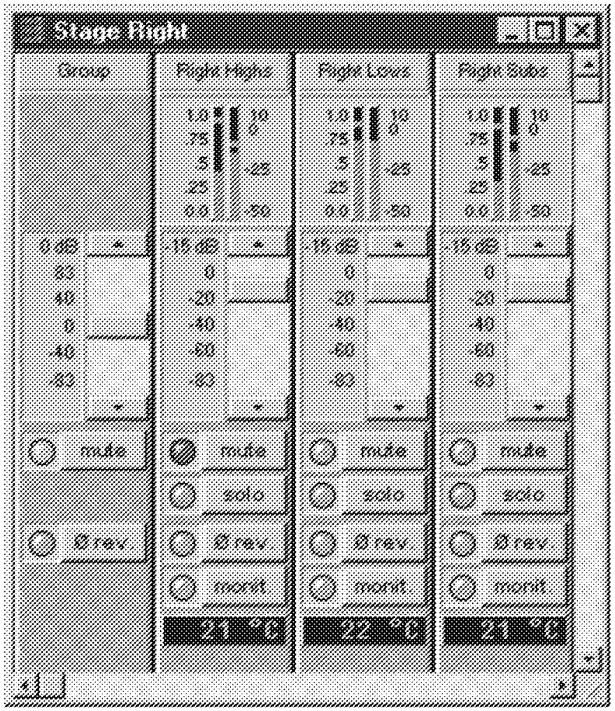
Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	result in a different volume adjustment for other rooms grouped in a common zone with the kitchen. A user interface 340 is configured to receive a user designation of the control input." Isely [0053] "The effect of volume or equalization changes to each audio device in a virtual zone could also be configured based on the type of room and the purpose of the audio content in each room. Because the main room is likely to be the living room, the living room audio device could be configured to "match" the equalization or volume changes to the reference zone of the virtual zone. For example, a 20 dB volume increase of the virtual zone would cause a 20 dB volume change in the living room (i.e., the living room would be the reference point). On the other hand, the bathroom audio may be intended as more of an ambient effect, and the user would probably not want a 20 dB volume increase in the bathroom. The bathroom audio device could, therefore, be configured to maintain a fixed or "static" volume level. The deck is another audio device "room" that may require a special relationship to the reference zone of the virtual zone. Even though the user is throwing a party, the user may not want to annoy neighbors, so the deck may be configured to maintain a "relative" relationship with the virtual zone. As an example of such a relative relationship, if the reference volume is increased 20 dB or 50%, the volume on the deck (which presumptively started out lower than the rest of the house) will increase by 50%, as well. Other relationships between individual rooms and the reference could also be used. For example, for every 5 dB increase in the reference, a room could increase 1 dB. Furthermore, a maximum decibel limit may be provided for a room or a virtual zone." Isely [0056] "To provide a virtual reality effect, one or more of the tracks 460 is associated with a reference position in the residence. For example, the waterfall of track 1 460 could be associated with a location serviced by the room 1 audio equipment 450 which is driven by the channel 1 audio device 405. The audio mixer circuit of the zone manager 415 is configured to provide different mixed audio streams for a plurality of the addressable audio devices 405 in which a characteristic of at least one of the plurality of designated digital audio streams included in the mixed audio stream is based on a relative position between the associated equipment receiving the mixed audio stream and the reference position. In other words, for

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	example, the volume of the track 1 waterfall could be maintained at a loud level in its designated reference location at the room 1 audio equipment 450 with a proportionally reduced volume in each of the remaining rooms 2-4 based upon their distance within the residence from room 1. Other of the tracks 460 could be associated with different rooms. So, for example, a babbling brook (track 4) could be loud in room 3 and quieter in room 1, while the waterfall of track 1 would be louder in room 1 and quieter in room 3. Each output channel from the respective audio devices 405 may, thus, be a combination of one or more of the respective tracks 460 at different volumes to create the illusion of proximity to a respective sound source, thereby providing a virtual reality effect. Furthermore, some of the tracks included in the mix could be purely ambient tracks that provided no indication of proximity. The level of the respective tracks for each channel and which tracks to include in the mix for each channel may be pre-set by a manufacturer or configurable dynamic through a user interface 430." Isely [0062] "Referring now to the flowchart diagram of FIG. 6, operations for dynamic distribution of an audio signal in a zoned environment will now be further described for various embodiments of the present invention. More particularly, the description with reference to FIG. 6 will be directed to what may be referred to as the tone by zone or virtual effect aspects of the present invention. Operations in FIG. 6, begin at block 600 with defining a plurality of zones in the zoned environment. One or more of the defined zones may include a plurality of addressable audio devices 305, 405. An audio signal, such as a digital audio stream, is subsequently received (block 610). A relationship between a characteristic of the audio signal for a reference audio device and for a plurality of the addressable audio devices 305, 405 is defined (block 620). Such a relationship may be related to relative volume, equalization or other audio characteristics as described previously herein. Furthermore, such a relationship may be complex, proportional, or static as described previously herein." To the extent that Isely is not considered to disclose this limitation, NexSys discloses a group volume control with a master volume control and independent channels, which represents an averaged value of audio volumes at least at startup, when all volumes are set to zero and any

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	increase in the master volume would result in a synchronous increase in the average at all remote locations, as shown in the exemplary diagram below from page 7.4 of NexSys:  As can be seen above, the group control increases or decreases the separate channels (right highs, right lows, right subs) by the same magnitude in every channel, which have the same average setting within the 2 digit accuracy of the meter (21, 22 and 21). It would be obvious to combine the group/individual volume control of NexSys with Isely, Isely explicitly discloses volume control for groups of channels, and one of skill in the art would use a well-known display such as the one shown in NexSys for providing a user interface for such

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and
further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	controls. NexSys, page 9.3 - "the fader ranges from +83dB to -83dB. It is a relative level to the amplifiers in its group. Positive changes here will have the same magnitude increase for every amplifier channel in the group. A negative change here will decrease each amplifier channel level in the group by the same amount. For instance, if the amp is set to -10, and the group level is raised +5, the amp level will increase by 5dB to a level of -5." UPnP Rendering Control, pages 41-42: "Set the volume of the audio content (as a whole) to the quietest (non-silent) setting: • Invoke the SetVolume() action with the Channel parameter set to 'Master' and the DesiredVolume parameter set to 1. Set the volume of the audio content (as a whole) 20 'notches/steps' higher than the current setting • Invoke the GetVolume() action with the Channel parameter set to 'Master'. As a result of the previous example, the CurrentVolume out parameter returns a value of 1 indicating that the audio content is being rendered at volume position 1 i.e. the quietest non-silence setting supported by the device. • Invoke the SetVolume() action with the Channel parameter set to "Master" and the DesiredVolume parameter set to 21 (1 + 20). This corresponds to the 20th quietest setting supported by the device."
Claim: 18	**Claim: 18**
18. The method of claim 16, further comprising adjusting the one of the volume meters for the group of players in a predetermined manner that appears that the group of players	Isely discloses adjusting the one of the volume meters for the group of players/audio devices 105/205/306/405 in a predetermined manner that appears that the group of players are being adjusted at the same time, such as in a "complex, proportional, or static" manner. [0062] Isely also discloses that the system of Isely can be compliant with the UPnP Standard, [0041], and the UPnP Standard discloses that the master channel is adjusted in a predetermined

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
are being adjusted at the same time.	manner that both appears and actually causes the volume of the group of associated channels (which can each have separate UPnP Media Renderers or audio device 105/205/305/405) to be adjusted at the same time. Isely [0040] "One element of various embodiments of the present invention, as described above, is the ability to dynamically define aggregate zones. To accomplish this, the system provides the ability to add or remove audio device 105 to or from groups or virtual zones. Defining virtual zones involves assigning audio devices 105 to a particular network group. This will now be further described with reference to an example using the IP-based UDP protocol over an Ethernet network. However, the present invention is not limited to this protocol. For UDP over Ethernet, a UDP definition may specify the multicast group. The underlying transport for the digital audio streams should also be UDP. The audio source may thus deliver time-stamped packets to the proper multicast group. One such protocol, which defines delivery of audio content using UDP, is the Real-time Transport Protocol (RTP) as defined in request for comments (RFC) 1889." Isely [0041] "When the audio devices 105 are powered they may use a salutation protocol (such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the network interface 100, an interface for aggregating and segregating virtual zones and may use the same salutation protocol to distribute the interface. The audio devices 105 may then be remotely configured using the same salutation protocol to add them to network groups." Isely [0048]-[0049] "The characteristic may, for example, be any of a number of audio signal characteristics commonly associated with playing audio signals such as volume, tone, balance and spatialization. In various embodiments of the present invention, the characteristic is an equalization specification for the audio signal to be transmitted to the respective addressed audio devices 305. In such cases, the audio devices 305 further include an equalizer circuit configured to provide the desired equalization specification for delivery of the audio signal to

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	their associated audio equipment. The audio interface 320 receives the digital audio streams and outputs the digital audio streams on a local network 310 addressed (i.e., with an identifier of a particular audio stream which is detectable by the audio devices 305) to selected ones of the audio devices 305 based on the defined zones. The output is further based on the defined relationship between a characteristic of the audio signal for the reference audio device and for others of the audio devices in a zone. The output may also be provided based upon a control input associated with a characteristic, for example, a desired volume input for the kitchen may result in a different volume adjustment for other rooms grouped in a common zone with the kitchen. A user interface 340 is configured to receive a user designation of the control input." Isely [0057] "The systems 140, 350, 305, 415 along with the user devices 130, 340, 430 provide an audio player as a device or interface, which control the configuration of an "audio network." It can be provided as a true hardware device with knobs and flashing lights or as a software component that presents a user interface via a computer, either directly attached or remote via, for example, a network and HTML or some other markup language. The audio player may be visually configured to select a virtual zone or room/channel and a virtual effect can be associated with the selected channel(s). An audio signal source, such as a CD player, digital content from the Internet, or digital audio files on network storage, is also selected. The audio player then delivers the audio signal to the target virtual zone and/or channel using the proper network group and the proper encapsulation protocol. Channels can be added or removed from the virtual zone in some embodiments of the present invention by dynamically configuring additional audio devices to belong to the same network group."
Claim: 20	**Claim: 20**
20. The method of claim 16, further comprising playing an identical audio source in the group of players.	Isely discloses playing an identical audio source in the group of players 105/205/305/405, such as from one of sources 110, 340 or 460, where "individual ones of the network attached audio devices may be grouped together and instructed to listen to the same channel to provide common audio signals to multiple rooms in a house while other groupings of the network

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	attached audio devices 105 may be assigned a different channel to provide a different audio signal source in another set of rooms within the residence." [0039] Isely also discloses that the system of Isely can be compliant with the UPnP Standard, [0041], and the UPnP Standard discloses that a UPnP Media Server can provide an identical audio source to multiple UPnP Media Renderers. Isely [0039] "Thus, individual ones of the network attached audio devices may be grouped together and instructed to listen to the same channel to provide common audio signals to multiple rooms in a house while other groupings of the network attached audio devices 105 may be assigned a different channel to provide a different audio signal source in another set of rooms within the residence. Groups of the network attached audio devices 105 may be defined which provide a dynamically configurable virtual zone within the house for purposes of providing communication of audio signals over the local network 120." Isely [0041] "When the audio devices 105 are powered they may use a salutation protocol (such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the network interface 100, an interface for aggregating and segregating virtual zones and may use the same salutation protocol to distribute the interface. The audio devices 105 may then be remotely configured using the same salutation protocol to add them to network groups." Isely [0062] "Referring now to the flowchart diagram of FIG. 6, operations for dynamic distribution of an audio signal in a zoned environment will now be further described for various embodiments of the present invention. More particularly, the description with reference to FIG. 6 will be directed to what may be referred to as the tone by zone or virtual effect aspects of the present invention. Operations in FIG. 6, begin at block 600 with defining a plurality of zones in the zoned environment. One or more of the defined zones may include a plurality of addressable audio devices 305, 405. An audio signal, such as a digital audio stream, is subsequently received (block 610). A relationship between a characteristic of the

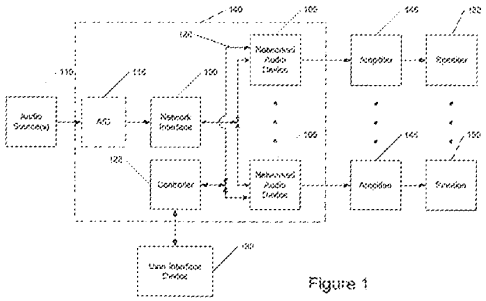
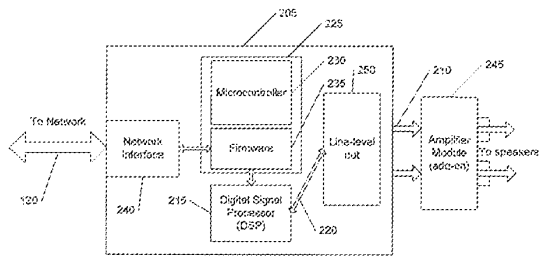
APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and
further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	audio signal for a reference audio device and for a plurality of the addressable audio devices 305, 405 is defined (block 620). Such a relationship may be related to relative volume, equalization or other audio characteristics as described previously herein. Furthermore, such a relationship may be complex, proportional, or static as described previously herein."
Claim: 21	**Claim: 21**
21. The method of claim 20, wherein the audio source is retrieved in form of audio data packets over the network.	Isely discloses the audio source is retrieved in form of audio data packets over the network. [0018] Isely also discloses that the system of Isely can be compliant with the UPnP Standard, [0041], and the UPnP Standard discloses the use of networked audio data. Isely [0018] "In further embodiments of the present invention, the site is a residence and various of the groups of audio equipment are associated with respective rooms of the residence. The address based protocol may be a User Datagram Protocol (UDP) and may further be a Real-time Transport Protocol (RTP) and the network interface may be an RTP interface. The RTP interface may output the digital audio streams using time-stamped packets using UDP. The plurality of network attached audio devices may be configured to provide a salutation protocol to announce their presence to the controller over the local network. Furthermore, the controller may be configured to assign the associated address to be received by respective ones of the plurality of network attached audio devices to the network attached audio devices over the local network using the salutation protocol so as to group ones of the plurality of network attached audio devices." Isely [0041] "When the audio devices 105 are powered they may use a salutation protocol (such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the network interface 100, an interface for aggregating and segregating virtual zones and may use the same salutation protocol to distribute the interface. The audio devices 105 may then be

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	remotely configured using the same salutation protocol to add them to network groups."
Claim: 38	**Claim: 38**
38. An apparatus for manipulating a plurality of players, the apparatus comprising:	Isely discloses an apparatus (user interfaces 130, 340, 430) for manipulating a plurality of players 105/205/305/405.  Figure 1  Figure 2
a screen;	Isely discloses that user interfaces 130/340/430 can be implemented using a PC, which would inherently include a screen. [0031, 0039, 0057] Isely also discloses that the system of Isely can be compliant with the UPnP Standard, [0041], and the UPnP Standard discloses a user interface that requires a screen and is implemented in HTML. Isely [0031] "Computer program code for carrying out operations of the present invention may be written in an object oriented programming language such as Java®), Smalltalk or C++. However, the computer program code for carrying out operations of the present invention may also be written in conventional procedural programming languages, such as the "C" programming language or assembly language. The program code may execute entirely on the user's computer, partly on the user's computer, as a stand-alone software package, partly

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	on the user's computer and partly on a remote computer or entirely on the remote computer. In the latter scenario, the remote computer may be connected to the user's computer through a local area network (LAN) or a wide area network (WAN), or the connection may be made to an external computer (for example, through the Internet using an Internet Service Provider)." Isely [0039] "The user device 130, in combination with the controller 125, provides a user interface configured to receive a user designation of aggregations of the audio equipment 145, 150 located at the site so as to provide dynamic zone aggregation in various embodiments of the present invention. The controller 125 operates to designate the associated identifiers to be received by respective ones of the plurality of network attached audio devices 105. In other words, the controller 125 essentially tells the network audio devices 105 the "channel" to which they should tune. The controller 125 makes this designation based on the user designation from the user device 130 to provide dynamic zone aggregation. Thus, individual ones of the network attached audio devices may be grouped together and instructed to listen to the same channel to provide common audio signals to multiple rooms in a house while other groupings of the network attached audio devices 105 may be assigned a different channel to provide a different audio signal source in another set of rooms within the residence. Groups of the network attached audio devices 105 may be defined which provide a dynamically configurable virtual zone within the house for purposes of providing communication of audio signals over the local network 120." Isely [0041] "When the audio devices 105 are powered they may use a salutation protocol (such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the network interface 100, an interface for aggregating and segregating virtual zones and may use the same salutation protocol to distribute the interface. The audio devices 105 may then be remotely configured using the same salutation protocol to add them to network groups." Isely [0057] "The systems 140, 350, 305, 415 along with the user devices 130, 340, 430

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	provide an audio player as a device or interface, which control the configuration of an "audio network." It can be provided as a true hardware device with knobs and flashing lights or as a software component that presents a user interface via a computer, either directly attached or remote via, for example, a network and HTML or some other markup language. The audio player may be visually configured to select a virtual zone or room/channel and a virtual effect can be associated with the selected channel(s). An audio signal source, such as a CD player, digital content from the Internet, or digital audio files on network storage, is also selected. The audio player then delivers the audio signal to the target virtual zone and/or channel using the proper network group and the proper encapsulation protocol. Channels can be added or removed from the virtual zone in some embodiments of the present invention by dynamically configuring additional audio devices to belong to the same network group."
a screen driver commanding the screen;	Isely discloses a screen driver commanding the screen, which is inherent in the disclosure of a PC or other device with a screen as shown above. Isely also discloses that the system of Isely can be compliant with the UPnP Standard, [0041], and the UPnP Standard discloses the use of HTML, which requires a screen and screen driver. Isely [0031] "Computer program code for carrying out operations of the present invention may be written in an object oriented programming language such as Java®), Smalltalk or C++. However, the computer program code for carrying out operations of the present invention may also be written in conventional procedural programming languages, such as the "C" programming language or assembly language. The program code may execute entirely on the user's computer, partly on the user's computer, as a stand-alone software package, partly on the user's computer and partly on a remote computer or entirely on the remote computer. In the latter scenario, the remote computer may be connected to the user's computer through a local area network (LAN) or a wide area network (WAN), or the connection may be made to an external computer (for example, through the Internet using an Internet Service Provider)." [Isely 0041] "When the audio devices 105 are powered they may use a salutation protocol

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and
further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	(such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the network interface 100, an interface for aggregating and segregating virtual zones and may use the same salutation protocol to distribute the interface. The audio devices 105 may then be remotely configured using the same salutation protocol to add them to network groups."
an input interface;	Isely discloses an input interface, such as one that can be implemented in HTML, to provide the user interface screens shown above. [0057] Isely also discloses that the system of Isely can be compliant with the UPnP Standard, [0041], and the UPnP Standard discloses the use of HTML as an input interface. Isely [0031] "Computer program code for carrying out operations of the present invention may be written in an object oriented programming language such as Java®), Smalltalk or C++. However, the computer program code for carrying out operations of the present invention may also be written in conventional procedural programming languages, such as the "C" programming language or assembly language. The program code may execute entirely on the user's computer, partly on the user's computer, as a stand-alone software package, partly on the user's computer and partly on a remote computer or entirely on the remote computer. In the latter scenario, the remote computer may be connected to the user's computer through a local area network (LAN) or a wide area network (WAN), or the connection may be made to an external computer (for example, through the Internet using an Internet Service Provider)." Isely [0041] "When the audio devices 105 are powered they may use a salutation protocol (such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the network interface 100, an interface for aggregating and segregating virtual zones and may use the same salutation protocol to distribute the interface. The audio devices 105 may then be

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	remotely configured using the same salutation protocol to add them to network groups." Isely [0057] "The systems 140, 350, 305, 415 along with the user devices 130, 340, 430 provide an audio player as a device or interface, which control the configuration of an "audio network." It can be provided as a true hardware device with knobs and flashing lights or as a software component that presents a user interface via a computer, either directly attached or remote via, for example, a network and HTML or some other markup language. The audio player may be visually configured to select a virtual zone or room/channel and a virtual effect can be associated with the selected channel(s). An audio signal source, such as a CD player, digital content from the Internet, or digital audio files on network storage, is also selected. The audio player then delivers the audio signal to the target virtual zone and/or channel using the proper network group and the proper encapsulation protocol. Channels can be added or removed from the virtual zone in some embodiments of the present invention by dynamically configuring additional audio devices to belong to the same network group."
a network interface;	Isely discloses a network interface 240 for each networked audio device player 105/205/305/405, plus a network interface 100 for the interface to audio sources. [0035], [0043] Isely also discloses that the system of Isely can be compliant with the UPnP Standard, [0041], and the UPnP Standard discloses networked data communications between the UPnP Control Point, the UPnP Media Server and the UPnP Media Renderer. Isely [0018] "In further embodiments of the present invention, the site is a residence and various of the groups of audio equipment are associated with respective rooms of the residence. The address based protocol may be a User Datagram Protocol (UDP) and may further be a Real-time Transport Protocol (RTP) and the network interface may be an RTP interface. The RTP interface may output the digital audio streams using time-stamped packets using UDP. The plurality of network attached audio devices may be configured to provide a salutation protocol to announce their presence to the controller over the local network. Furthermore, the controller may be configured to assign the associated address to be received

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	by respective ones of the plurality of network attached audio devices to the network attached audio devices over the local network using the salutation protocol so as to group ones of the plurality of network attached audio devices." Isely [0035] "The present invention will now be described with reference to the embodiments illustrated in the figures. Referring first to FIG. 1, embodiments of site based dynamic distribution systems according to the present invention will be further described. As shown in FIG. 1, a site based dynamic distribution system for distributing an audio signal over a local network for the site includes a network interface 100 coupled to a plurality of network attached audio devices 105. An audio signal is received by the network interface 100 from an audio source 110. The audio source 110 may be a digital audio stream source such as, for example, a digital audio stream from the Internet or an outside device providing a digital audio stream in a format, for example, MP3. The audio source 110 may also be an analog audio source, in which case, an analog to digital converter 115 may convert a received analog signal to a digital audio stream and pass the digital audio stream to the network interface 100. A plurality of different types of audio sources 110 may be coupled by the network interface 100 to the local network 120 at the site." Isely [0038] "The network interface 100 receives digital audio streams and outputs the digital audio streams on the local network 120 using an address based protocol with each of the digital audio streams having a different associated identifier. The plurality of network attached audio devices 105 are configured to receive a selected one of the digital audio streams over the network 120 based on a designated one of the associated identifiers. The network attached audio devices 105 are further configured to output the received digital audio stream to the audio equipment 145, 150." Isely [0041] "When the audio devices 105 are powered they may use a salutation protocol (such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	network interface 100, an interface for aggregating and segregating virtual zones and may use the same salutation protocol to distribute the interface. The audio devices 105 may then be remotely configured using the same salutation protocol to add them to network groups." Isely [0043] "As shown in the embodiments of FIG. 2, the audio device 205 includes a digital signal processor (DSP) 215 which converts the incoming digital audio stream to a line-level output 220. The DSP 215 may further include equalization functions and/or audio mixing function circuitry. The DSP 215 operates in cooperation with a control device 225 which includes a microcontroller 220 and firmware 235. The control device 225 provides protocol support for obtaining the digital audio stream from the local network 120 through a network interface 240 and providing the audio signal to the DSP 215 for further processing. The output signal from the DSP 215 is provided through the line-level output circuit 250 to the amplifier module 245." Isely [0060] "A user may, at various times, provide designations of ones of the groups of audio equipment at the site to be aggregated/segregated (block 520). Each group of audio equipment which is designated is associated with one of the addressable audio devices 305 so that, for example, an aggregation of groups of audio equipment may include groups of audio equipment in a plurality of different rooms with each group of audio equipment being associated with a room (or rooms) serviced by a particular addressable audio device 305 and a virtual zone across multiple rooms being provided by the aggregation of groups of audio equipment. The network interface 100 or audio interface 320 may, thus, dynamically designate respective ones of the addressable audio devices for inclusion in an aggregation of groups of audio equipment. (block 525). Furthermore, one of the identifiers associated with a digital audio stream to be received by the respective addressable audio devices in the group may be provided (block 525). The selection of a digital audio stream to which each audio device in a group will "tune" may be provided to the OSGi 350 as part of a received user designation at block 520. The digital audio stream associated with the designated identifier is then received at respective ones of the addressable audio devices over the local network (block 530). The received digital audio stream is then output to the groups of audio equipment

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and
further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	associated with the addressable audio devices (block 535)."
a memory for storing code for an application module;	Isely inherently discloses a memory for storing code for an application module, because the operations disclosed in Isely can be carried out using computer program code [0031] on a computer [0057]. Isely also discloses that the system of Isely can be compliant with the UPnP Standard, [0041], and the UPnP Standard discloses numerous application modules that inherently require memory. Isely [0031] "Computer program code for carrying out operations of the present invention may be written in an object oriented programming language such as Java®), Smalltalk or C++. However, the computer program code for carrying out operations of the present invention may also be written in conventional procedural programming languages, such as the "C" programming language or assembly language. The program code may execute entirely on the user's computer, partly on the user's computer, as a stand-alone software package, partly on the user's computer and partly on a remote computer or entirely on the remote computer. In the latter scenario, the remote computer may be connected to the user's computer through a local area network (LAN) or a wide area network (WAN), or the connection may be made to an external computer (for example, through the Internet using an Internet Service Provider)." Isely [0041] "When the audio devices 105 are powered they may use a salutation protocol (such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the network interface 100, an interface for aggregating and segregating virtual zones and may use the same salutation protocol to distribute the interface. The audio devices 105 may then be remotely configured using the same salutation protocol to add them to network groups." Isely [0057] "The systems 140, 350, 305, 415 along with the user devices 130, 340, 430 provide an audio player as a device or interface, which control the configuration of an "audio

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	network." It can be provided as a true hardware device with knobs and flashing lights or as a software component that presents a user interface via a computer, either directly attached or remote via, for example, a network and HTML or some other markup language. The audio player may be visually configured to select a virtual zone or room/channel and a virtual effect can be associated with the selected channel(s). An audio signal source, such as a CD player, digital content from the Internet, or digital audio files on network storage, is also selected. The audio player then delivers the audio signal to the target virtual zone and/or channel using the proper network group and the proper encapsulation protocol. Channels can be added or removed from the virtual zone in some embodiments of the present invention by dynamically configuring additional audio devices to belong to the same network group."
a processor coupled to the memory, the input interface, the screen driver and the network interface, the processor executing the code in the memory to cause the application module and the screen driver to perform operations of:	Isely inherently discloses a processor coupled to the memory, the input interface, the screen driver and the network interface, the processor executing the code in the memory to cause the application module and the screen driver to perform operations, because of the disclosure of user interface devices 130/340/430 that are implemented on a computer. [0057] Isely also discloses that the system of Isely can be compliant with the UPnP Standard, [0041], and the UPnP Standard discloses processor-driven UPnP Control Points, UPnP Media Renderers and UPnP Media Servers. Isely [0031] "Computer program code for carrying out operations of the present invention may be written in an object oriented programming language such as Java®), Smalltalk or C++. However, the computer program code for carrying out operations of the present invention may also be written in conventional procedural programming languages, such as the "C" programming language or assembly language. The program code may execute entirely on the user's computer, partly on the user's computer, as a stand-alone software package, partly on the user's computer and partly on a remote computer or entirely on the remote computer. In the latter scenario, the remote computer may be connected to the user's computer through a local area network (LAN) or a wide area network (WAN), or the connection may be made to

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	an external computer (for example, through the Internet using an Internet Service Provider)." Isely [0041] "When the audio devices 105 are powered they may use a salutation protocol (such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the network interface 100, an interface for aggregating and segregating virtual zones and may use the same salutation protocol to distribute the interface. The audio devices 105 may then be remotely configured using the same salutation protocol to add them to network groups." Isely [0057] "The systems 140, 350, 305, 415 along with the user devices 130, 340, 430 provide an audio player as a device or interface, which control the configuration of an "audio network." It can be provided as a true hardware device with knobs and flashing lights or as a software component that presents a user interface via a computer, either directly attached or remote via, for example, a network and HTML or some other markup language. The audio player may be visually configured to select a virtual zone or room/channel and a virtual effect can be associated with the selected channel(s). An audio signal source, such as a CD player, digital content from the Internet, or digital audio files on network storage, is also selected. The audio player then delivers the audio signal to the target virtual zone and/or channel using the proper network group and the proper encapsulation protocol. Channels can be added or removed from the virtual zone in some embodiments of the present invention by dynamically configuring additional audio devices to belong to the same network group."
displaying on a screen a list showing a plurality of volume meters, at least one of the volume meters representing an audio volume of one of the players, and another one of the volume meters representing an audio	Isely discloses displaying on a screen, such as using HTML in conjunction with user interface device 130/340/430 a list showing a plurality of volume meters. [0057]. At least one of the volume meters represents an audio volume of one of the players (a zone can include one or a plurality of players 105/205/305/405 [0045], [0047]), and another one of the volume meters represents an audio volume of a group of players, when there is such a group. [0039] Isely also discloses that the system of Isely can be compliant with the UPnP Standard, [0041], and

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
volume of a group of players, if there is such a group; and	the UPnP Standard and Microsoft UPnP discloses displaying on a screen a list showing a plurality of volume meters, such as a master volume control and separate channel volume controls. At least one of the channel volume meters in that configuration represents an audio volume of one of the players, and the master volume meters represents an audio volume of a group of players. Isely [0039] "Thus, individual ones of the network attached audio devices may be grouped together and instructed to listen to the same channel to provide common audio signals to multiple rooms in a house while other groupings of the network attached audio devices 105 may be assigned a different channel to provide a different audio signal source in another set of rooms within the residence. Groups of the network attached audio devices 105 may be defined which provide a dynamically configurable virtual zone within the house for purposes of providing communication of audio signals over the local network 120." Isely [0041] "When the audio devices 105 are powered they may use a salutation protocol (such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the network interface 100, an interface for aggregating and segregating virtual zones and may use the same salutation protocol to distribute the interface. The audio devices 105 may then be remotely configured using the same salutation protocol to add them to network groups." Isely [0045] "A plurality of these audio devices 105, 205, such as six or more, may be bundled in a single component, to provide a Network Architectural Preamplifier (NetPreAmp). The NetPreAmp may include a single network interface and a network switch which routes network traffic to the proper self-contained audio device. One or more network audio streams can be directed to one or more of the contained audio devices, providing the basic architectural amplifier structure." Isely [0047] "The zone manager 315 defines a plurality of zones for the site. The zones may

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	include one or a plurality of the individual addressable audio devices included in the illustrated block of network audio devices 305. For ease of understanding in connection with the remainder of the description of FIG. 3, references to audio devices 305 refer to individual ones of the plurality of networked audio devices unless specified otherwise. The zone manager 315 defines a relationship between a characteristic of an audio signal being distributed for a reference audio device and for ones of the addressable audio devices 305 in respective zones. For example, the reference audio device may be an individual one of the provided addressable audio devices 305 associated with a specific room and a relationship may be provided between the characteristics for the audio signal in that room and other rooms included in a common zone with the base audio device room." Isely [0048]-[0049] "The characteristic may, for example, be any of a number of audio signal characteristics commonly associated with playing audio signals such as volume, tone, balance and spatialization. In various embodiments of the present invention, the characteristic is an equalization specification for the audio signal to be transmitted to the respective addressed audio devices 305. In such cases, the audio devices 305 further include an equalizer circuit configured to provide the desired equalization specification for delivery of the audio signal to their associated audio equipment. The audio interface 320 receives the digital audio streams and outputs the digital audio streams on a local network 310 addressed (i.e., with an identifier of a particular audio stream which is detectable by the audio devices 305) to selected ones of the audio devices 305 based on the defined zones. The output is further based on the defined relationship between a characteristic of the audio signal for the reference audio device and for others of the audio devices in a zone. The output may also be provided based upon a control input associated with a characteristic, for example, a desired volume input for the kitchen may result in a different volume adjustment for other rooms grouped in a common zone with the kitchen. A user interface 340 is configured to receive a user designation of the control input." Isely [0053] "The effect of volume or equalization changes to each audio device in a virtual zone could also be configured based on the type of room and the purpose of the audio content in each room. Because the main room is likely to be the living room, the living room audio

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	device could be configured to "match" the equalization or volume changes to the reference zone of the virtual zone. For example, a 20 dB volume increase of the virtual zone would cause a 20 dB volume change in the living room (i.e., the living room would be the reference point). On the other hand, the bathroom audio may be intended as more of an ambient effect, and the user would probably not want a 20 dB volume increase in the bathroom. The bathroom audio device could, therefore, be configured to maintain a fixed or "static" volume level. The deck is another audio device "room" that may require a special relationship to the reference zone of the virtual zone. Even though the user is throwing a party, the user may not want to annoy neighbors, so the deck may be configured to maintain a "relative" relationship with the virtual zone. As an example of such a relative relationship, if the reference volume is increased 20 dB or 50%, the volume on the deck (which presumptively started out lower than the rest of the house) will increase by 50%, as well. Other relationships between individual rooms and the reference could also be used. For example, for every 5 dB increase in the reference, a room could increase 1 dB. Furthermore, a maximum decibel limit may be provided for a room or a virtual zone." Isely [0056] "To provide a virtual reality effect, one or more of the tracks 460 is associated with a reference position in the residence. For example, the waterfall of track 1 460 could be associated with a location serviced by the room 1 audio equipment 450 which is driven by the channel 1 audio device 405. The audio mixer circuit of the zone manager 415 is configured to provide different mixed audio streams for a plurality of the addressable audio devices 405 in which a characteristic of at least one of the plurality of designated digital audio streams included in the mixed audio stream is based on a relative position between the associated equipment receiving the mixed audio stream and the reference position. In other words, for example, the volume of the track 1 waterfall could be maintained at a loud level in its designated reference location at the room 1 audio equipment 450 with a proportionally reduced volume in each of the remaining rooms 2-4 based upon their distance within the residence from room 1. Other of the tracks 460 could be associated with different rooms. So, for example, a babbling brook (track 4) could be loud in room 3 and quieter in room 1, while

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	the waterfall of track 1 would be louder in room 1 and quieter in room 3. Each output channel from the respective audio devices 405 may, thus, be a combination of one or more of the respective tracks 460 at different volumes to create the illusion of proximity to a respective sound source, thereby providing a virtual reality effect. Furthermore, some of the tracks included in the mix could be purely ambient tracks that provided no indication of proximity. The level of the respective tracks for each channel and which tracks to include in the mix for each channel may be pre-set by a manufacturer or configurable dynamic through a user interface 430." Isely [0057] "The systems 140, 350, 305, 415 along with the user devices 130, 340, 430 provide an audio player as a device or interface, which control the configuration of an "audio network." It can be provided as a true hardware device with knobs and flashing lights or as a software component that presents a user interface via a computer, either directly attached or remote via, for example, a network and HTML or some other markup language. The audio player may be visually configured to select a virtual zone or room/channel and a virtual effect can be associated with the selected channel(s). An audio signal source, such as a CD player, digital content from the Internet, or digital audio files on network storage, is also selected. The audio player then delivers the audio signal to the target virtual zone and/or channel using the proper network group and the proper encapsulation protocol. Channels can be added or removed from the virtual zone in some embodiments of the present invention by dynamically configuring additional audio devices to belong to the same network group." Isely [0062] "Referring now to the flowchart diagram of FIG. 6, operations for dynamic distribution of an audio signal in a zoned environment will now be further described for various embodiments of the present invention. More particularly, the description with reference to FIG. 6 will be directed to what may be referred to as the tone by zone or virtual effect aspects of the present invention. Operations in FIG. 6, begin at block 600 with defining a plurality of zones in the zoned environment. One or more of the defined zones may include a plurality of addressable audio devices 305, 405. An audio signal, such as a digital audio stream, is subsequently received (block 610). A relationship between a characteristic of the

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	audio signal for a reference audio device and for a plurality of the addressable audio devices 305, 405 is defined (block 620). Such a relationship may be related to relative volume, equalization or other audio characteristics as described previously herein. Furthermore, such a relationship may be complex, proportional, or static as described previously herein."
adjusting one of the volume meters as desired after one of the volume meters from the list is selected, wherein the one of the volume meters is for the group of players, represented by an averaged value of audio volumes of the players in the group, and said adjusting of the one of the volume meters includes changing a volume of each of the group of players synchronously in accordance with an adjustment made by a user.	Isely discloses adjusting one of the volume meters as desired after one of the volume meters from the list is selected, wherein the one of the volume meters is for the group of players, represented by an averaged value of audio volumes of the players in the group, and said adjusting of the one of the volume meters includes changing a volume of each of the group of players synchronously in accordance with an adjustment made by a user. For example, Isely discloses that relative relationship between devices can be provided, where a change in volume for one device results in a different change in volume for the other device. [0053] The relationship between volume levels of different players 105/205/305/405 in a zone can be "complex, proportional, or static," which covers every possible manner of adjusting and representing volume levels, and which explicitly discloses changing each of the volume of the group of players synchronously in accordance with an adjustment made by a user. [0062] Isely also discloses that the system of Isely can be compliant with the UPnP Standard, [0041], and the UPnP Standard discloses that one of the volume meters can be adjusted as desired with a UPnP Control Point after one of the volume meters from the list is selected, wherein the one of the volume meters is the master channel for the group of players. The master volume represents an averaged value of audio volumes of the players in the group at startup, when all volume settings are at the lowest level and when the master increases all volume levels by the same amount. Adjusting the master channel volume of adjusts the volume of each of the group of players synchronously in accordance with the adjustment made by a user. Isely, [0020] "A relationship is defined between a characteristic of the audio signal for a reference audio device and for the selected addressable audio devices. The audio signal is distributed to the selected addressable audio devices based on the defined relationships and a control input associated with the characteristic. An update to the control input is received

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	from a user and the audio signal is distributed to the selected addressable audio devices based on the defined relationships and the update to the control input." Isely [0041] "When the audio devices 105 are powered they may use a salutation protocol (such as Universal Plug and Play (UPnP), Jini from Sun Microsystems or Salutation) to announce their presence on the network 120. The controller 125 with audio configuration capability collects a list of all the audio devices 105 and provides, in cooperation with the network interface 100, an interface for aggregating and segregating virtual zones and may use the same salutation protocol to distribute the interface. The audio devices 105 may then be remotely configured using the same salutation protocol to add them to network groups." Isely [0048]-[0049] "The characteristic may, for example, be any of a number of audio signal characteristics commonly associated with playing audio signals such as volume, tone, balance and spatialization. In various embodiments of the present invention, the characteristic is an equalization specification for the audio signal to be transmitted to the respective addressed audio devices 305. In such cases, the audio devices 305 further include an equalizer circuit configured to provide the desired equalization specification for delivery of the audio signal to their associated audio equipment. The audio interface 320 receives the digital audio streams and outputs the digital audio streams on a local network 310 addressed (i.e., with an identifier of a particular audio stream which is detectable by the audio devices 305) to selected ones of the audio devices 305 based on the defined zones. The output is further based on the defined relationship between a characteristic of the audio signal for the reference audio device and for others of the audio devices in a zone. The output may also be provided based upon a control input associated with a characteristic, for example, a desired volume input for the kitchen may result in a different volume adjustment for other rooms grouped in a common zone with the kitchen. A user interface 340 is configured to receive a user designation of the control input." Isely [0053] "The effect of volume or equalization changes to each audio device in a virtual zone could also be configured based on the type of room and the purpose of the audio content in each room. Because the main room is likely to be the living room, the living room audio

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	device could be configured to "match" the equalization or volume changes to the reference zone of the virtual zone. For example, a 20 dB volume increase of the virtual zone would cause a 20 dB volume change in the living room (i.e., the living room would be the reference point). On the other hand, the bathroom audio may be intended as more of an ambient effect, and the user would probably not want a 20 dB volume increase in the bathroom. The bathroom audio device could, therefore, be configured to maintain a fixed or "static" volume level. The deck is another audio device "room" that may require a special relationship to the reference zone of the virtual zone. Even though the user is throwing a party, the user may not want to annoy neighbors, so the deck may be configured to maintain a "relative" relationship with the virtual zone. As an example of such a relative relationship, if the reference volume is increased 20 dB or 50%, the volume on the deck (which presumptively started out lower than the rest of the house) will increase by 50%, as well. Other relationships between individual rooms and the reference could also be used. For example, for every 5 dB increase in the reference, a room could increase 1 dB. Furthermore, a maximum decibel limit may be provided for a room or a virtual zone." Isely [0056] "To provide a virtual reality effect, one or more of the tracks 460 is associated with a reference position in the residence. For example, the waterfall of track 1 460 could be associated with a location serviced by the room 1 audio equipment 450 which is driven by the channel 1 audio device 405. The audio mixer circuit of the zone manager 415 is configured to provide different mixed audio streams for a plurality of the addressable audio devices 405 in which a characteristic of at least one of the plurality of designated digital audio streams included in the mixed audio stream is based on a relative position between the associated equipment receiving the mixed audio stream and the reference position. In other words, for example, the volume of the track 1 waterfall could be maintained at a loud level in its designated reference location at the room 1 audio equipment 450 with a proportionally reduced volume in each of the remaining rooms 2-4 based upon their distance within the residence from room 1. Other of the tracks 460 could be associated with different rooms. So, for example, a babbling brook (track 4) could be loud in room 3 and quieter in room 1, while

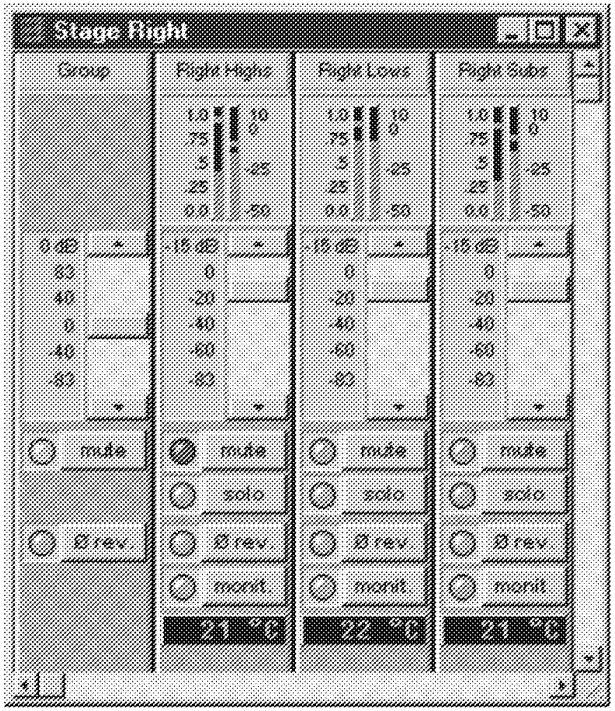
APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	the waterfall of track 1 would be louder in room 1 and quieter in room 3. Each output channel from the respective audio devices 405 may, thus, be a combination of one or more of the respective tracks 460 at different volumes to create the illusion of proximity to a respective sound source, thereby providing a virtual reality effect. Furthermore, some of the tracks included in the mix could be purely ambient tracks that provided no indication of proximity. The level of the respective tracks for each channel and which tracks to include in the mix for each channel may be pre-set by a manufacturer or configurable dynamic through a user interface 430." Isely [0062] "Referring now to the flowchart diagram of FIG. 6, operations for dynamic distribution of an audio signal in a zoned environment will now be further described for various embodiments of the present invention. More particularly, the description with reference to FIG. 6 will be directed to what may be referred to as the tone by zone or virtual effect aspects of the present invention. Operations in FIG. 6, begin at block 600 with defining a plurality of zones in the zoned environment. One or more of the defined zones may include a plurality of addressable audio devices 305, 405. An audio signal, such as a digital audio stream, is subsequently received (block 610). A relationship between a characteristic of the audio signal for a reference audio device and for a plurality of the addressable audio devices 305, 405 is defined (block 620). Such a relationship may be related to relative volume, equalization or other audio characteristics as described previously herein. Furthermore, such a relationship may be complex, proportional, or static as described previously herein." Isely, [0063] "The audio signal is distributed to a plurality of the audio devices 305, 405 based on the defined relationships and the control input associated with the characteristic(s) on which the defined relationship is based (block 630). An update to the control input specifying the characteristic(s) may be periodically received from a user (block 640). Where such an update is received (block 640), the relationship may be redefined if such a change is specified in the control input or may be simply applied to respective streams for different ones of the audio devices 305, 405 based on the existing relationships for distribution to the devices at block 630. Thus, the audio signal after receipt of a control input change is

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	distributed to the plurality of audio devices 305, 405 based on the defined relationships and the update to the control input specifying the characteristic (block 630)." To the extent that Isely is not considered to disclose this limitation, NexSys discloses a group volume control with a master volume control and independent channels, which represents an averaged value of audio volumes at least at startup, when all volumes are set to zero and any increase in the master volume would result in a synchronous increase in the average at all remote locations, as shown in the exemplary diagram below from page 7.4 of NexSys: 

APPENDIX B

Invalidity of the Challenged Claims of the '014 Patent in view of Isely, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

Claim	Isely, the UPnP Standard, Microsoft UPnP and NexSys
	As can be seen above, the group control increases or decreases the separate channels (right highs, right lows, right subs) by the same magnitude in every channel, which have the same average setting within the 2 digit accuracy of the meter (21, 22 and 21). It would be obvious to combine the group/individual volume control of NexSys with Isely, because Isely explicitly discloses volume control for groups of channels, and one of skill in the art would use a well-known display such as the one shown in NexSys for providing a user interface for such controls. NexSys, page 9.3 - "the fader ranges from +83dB to -83dB. It is a relative level to the amplifiers in its group. Positive changes here will have the same magnitude increase for every amplifier channel in the group. A negative change here will decrease each amplifier channel level in the group by the same amount. For instance, if the amp is set to -10, and the group level is raised +5, the amp level will increase by 5dB to a level of -5." UPnP Rendering Control, pages 41-42: "Set the volume of the audio content (as a whole) to the quietest (non-silent) setting: • Invoke the SetVolume() action with the Channel parameter set to 'Master' and the DesiredVolume parameter set to 1. Set the volume of the audio content (as a whole) 20 'notches/steps' higher than the current setting • Invoke the GetVolume() action with the Channel parameter set to 'Master'. As a result of the previous example, the CurrentVolume out parameter returns a value of 1 indicating that the audio content is being rendered at volume position 1 i.e. the quietest non-silence setting supported by the device. • Invoke the SetVolume() action with the Channel parameter set to "Master" and the DesiredVolume parameter set to 21 (1 + 20). This corresponds to the 20th quietest setting supported by the device."

APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
1. A method for controlling a plurality of players, the method comprising:	The arguments and exemplary citations from Appendices A and B are hereby incorporated for each corresponding element of this chart, as further described below.
displaying on a screen a first list showing at least available players;	Office Action from U.S. patent application 10/861,653, mailed February 18, 2009 ("OA"), page 3 - "Regarding claim 1, Berezowski teaches a method for controlling a plurality of players, the method comprising: displaying on a screen a first list showing at least available players (see column 5, line 57 - column 6, line 13 teaches a screen displaying a list of available players previously entered) . . . "
displaying, when at least one of the players is selected as a zone group head, on the screen a second list showing at least some of the players that are eligible to be grouped with the zone group head;	OA, page 3 - "Regarding claim 1, Berezowski teaches a method for controlling a plurality of players, the method comprising: . . . displaying, when at least one of the players is selected as a zone group head, on the screen a second list showing at least some of the players that are eligible to be grouped with the zone group head . . . " OA, page 3 – "Berezowski teaches a source node to communicate to a group or zone (see column 2, line 49 - column 3, line 7, column 3, lines 44-49, and column 4, lines 7-43). Berezowski teaches a paging system employing different groups or zones, wherein at least some of the destinations (i.e. players) that are eligible to be grouped with a source node (i.e. zone group head) can be selected on a display (see column 6, lines 5-13 and figures 8-9)."
forming a zone group started with the zone group head, after one or more players from the at least some of the players are selected to join the zone group; and	OA, page 3 - "Regarding claim 1, Berezowski teaches a method for controlling a plurality of players, the method comprising: . . . forming a zone group started with the zone group head, after one or more players from the at least some of the players are selected to join the zone group . . . " OA, page 3-4 – "Berezowski teaches a zone group started with the source node, after one or more players from at least some of the destinations, or players, are selected to join the zone group (see column 5, line 66 - column 6, line 13 implies that a zone is created by at least one player being added as a destination)."
synchronizing all players in the zone group;	OA, pages 3-4 - "Regarding claim 1, Berezowski teaches a method for controlling a plurality of players, the method comprising: . . . synchronizing all players in the zone group. . . . Berezowski does not appear to teach the selection of a zone group head or synchronization. Tomassetti teaches a multi-zone entertainment network (see abstract). Specifically, Tomassetti teaches that any node can become a source or a destination (see ¶ 0019). Therefore, it would have been obvious for one of ordinary skill at

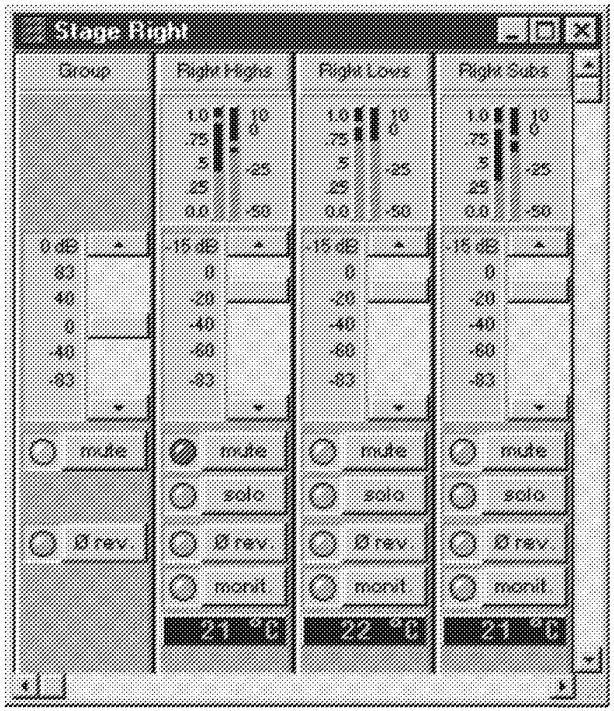
APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
	the time to select one of the players as a zone group head. Tomassetti also teaches synchronization of an audio within a zone (see ¶ 0005, 0009-0012, and 0016-0019), so it would have been obvious to synchronize all the players in a zone group. It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Berezowski and Tomassetti for the purpose of reducing echoes. It is obvious to one of ordinary skill in the art that the same audio stream played in adjacent rooms, or rooms that are not acoustically separate, can create a slightly disturbing echo when the audio is not synchronized."
adjusting a volume meter represented by an averaged value of audio volumes of the players in the group, wherein said adjusting of the volume meter includes changing a volume of each of the group of players synchronously in accordance with an adjustment made by a user.	Isely discloses a control relationship between a characteristic of an audio signal for a reference device and selected addressable audio devices. The controllable characteristic includes volume, and the relationship between the reference device volume and the addressable audio device volumes can be "complex, proportional, or static." For example, if the reference device and addressable audio devices all start from a zero volume setting at start-up, then a static relationship between the volume levels would maintain the average volume level at the addressable audio device as the volume level for the reference device is increased. The invalidity chart of Appendix B is hereby incorporated by reference for each element of this claim chart. Tomassetti also discloses a central receiver that controls all local and remote volume settings, which would inherently include a master volume setting that represents an averaged value of audio volumes at least at startup, when all volumes are set to zero and any increase in the master volume would result in a synchronous increase in the average at all remote locations. To the extent that Isely is not considered to disclose this limitation, Isely discloses that the UPnP Standard can be used to implement functions of the system of Isely. One of ordinary skill in the art would consider the UPnP Standard for guidance on how to implement volume controls, because the UPnP Standard provides specifications for implementing individual and group volume controls. For example, UPnP Rendering Control discloses at pages 41-42 a process whereby the master volume control is used to set all channels to the lowest setting, which is a representation of an average value of audio volumes of players, and where the player volumes are then changed synchronously in accordance with an adjustment made by the user. Further details on the UPnP Standard as they are relevant to the Challenged Claims of the '014 Patent are provided in Appendix A, which is hereby incorporated by

APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
	reference for each element of this claim chart. To the extent that Isely and/or Tomassetti are not considered to disclose this limitation, NexSys discloses a Windows-based group volume control with a master volume control and independent channels, which represents an averaged value of audio volumes at least at startup, when all volumes are set to zero and any increase in the master volume would result in a synchronous increase in the average at all remote locations, as shown in the exemplary diagram below from page 7.4 of NexSys:  As can be seen above, the group control increases or decreases the separate channels (right highs, right

APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
	lows, right subs) by the same magnitude in every channel, which have the same average setting within the 2 digit accuracy of the meter (21, 22 and 21). It would be obvious to one of ordinary skill in the art to combine the group/individual volume control of NexSys with the combination of Berezowski, Tomassetti and Isely, because at least Tomassetti and Isely explicitly disclose volume control for groups of channels, and one of skill in the art would use a well-known display such as the one shown in NexSys for providing a user interface for such controls. The user interface of NexSys could also be combined with the UPnP channel controls, such as for the Master channel and associated channels such as a left stereo and right stereo channel, either by using Microsoft UPnP functionality to emulate the NexSys control window, or by recreating the NexSys user interface functionality in HTML. Isely, [0020] "A relationship is defined between a characteristic of the audio signal for a reference audio device and for the selected addressable audio devices. The audio signal is distributed to the selected addressable audio devices based on the defined relationships and a control input associated with the characteristic. An update to the control input is received from a user and the audio signal is distributed to the selected addressable audio devices based on the defined relationships and the update to the control input." Isely, [0062] "A relationship between a characteristic of the audio signal for a reference audio device and for a plurality of the addressable audio devices 305, 405 is defined (block 620). Such a relationship may be related to relative volume, equalization or other audio characteristics as described previously herein. Furthermore, such a relationship may be complex, proportional, or static as described previously herein." Isely, [0063] "The audio signal is distributed to a plurality of the audio devices 305, 405 based on the defined relationships and the control input associated with the characteristic(s) on which the defined relationship is based (block 630). An update to the control input specifying the characteristic(s) may be periodically received from a user (block 640). Where such an update is received (block 640), the relationship may be redefined if such a change is specified in the control input or may be simply applied to respective streams for different ones of the audio devices 305, 405 based on the existing relationships for distribution to the devices at block 630. Thus, the audio signal after receipt of a control input change is distributed to the plurality of audio devices 305, 405 based on the defined relationships and the update

APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
	to the control input specifying the characteristic (block 630)." Tomassetti, [0004] "The centralized receiver controls the volume at all speaker sets, i.e., on both the local speaker set and on the remote speakers." NexSys, page 9.3 - "the fader ranges from +83dB to -83dB. It is a relative level to the amplifiers in its group. Positive changes here will have the same magnitude increase for every amplifier channel in the group. A negative change here will decrease each amplifier channel level in the group by the same amount. For instance, if the amp is set to -10, and the group level is raised +5, the amp level will increase by 5dB to a level of -5." UPnP Rendering Control, pages 41-42: "Set the volume of the audio content (as a whole) to the quietest (non-silent) setting: • Invoke the SetVolume() action with the Channel parameter set to 'Master' and the DesiredVolume parameter set to 1. Set the volume of the audio content (as a whole) 20 'notches/steps' higher than the current setting • Invoke the GetVolume() action with the Channel parameter set to 'Master'. As a result of the previous example, the CurrentVolume out parameter returns a value of 1 indicating that the audio content is being rendered at volume position 1 i.e. the quietest non-silence setting supported by the device. • Invoke the SetVolume() action with the Channel parameter set to "Master" and the DesiredVolume parameter set to 21 (1 + 20). This corresponds to the 20th quietest setting supported by the device."
8. The method of claim 1, wherein said synchronizing of all players in the zone group comprises:	
causing all players in the zone group to play an identical audio source; and	OA, page 6 "Regarding claim 8, see the preceding argument with respect to claim 1. The combination teaches the method of claim 1, wherein said synchronizing all players in the zone group comprises: causing all players in the zone group to play an identical audio source (see Tomassetti, ¶ 0067, wherein "The home theater system 226 may be capable ... of sending ... audio files ... to individual room stations

APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
	202-212 .... " and ¶ 0074, wherein " ... each remote station itself can broadcast or receive independent of and simultaneous with other remote stations."); and presenting the zone group in a manner that indicates a grouping (see Berezowski, figures 8- 10 and column 6, lines 5-13)."
presenting the zone group in a manner that indicates a grouping.	OA, page 6 "Regarding claim 8, see the preceding argument with respect to claim 1. The combination teaches the method of claim 1, wherein said synchronizing all players in the zone group comprises: causing all players in the zone group to play an identical audio source (see Tomassetti, ¶ 0067, wherein "The home theater system 226 may be capable ... of sending ... audio files ... to individual room stations 202-212 .... " and ¶ 0074, wherein " ... each remote station itself can broadcast or receive independent of and simultaneous with other remote stations."); and presenting the zone group in a manner that indicates a grouping (see Berezowski, figures 8- 10 and column 6, lines 5-13)."
16. A method for controlling a plurality of players, the method comprising:	OA, pages 10 – "Regarding claim 16, see the preceding argument with respect to claim 1. The combination of Berezowski and Tomassetti teaches a method for controlling a plurality of players, the method comprising: displaying on a screen a list showing a plurality of volume meters, at least one of the volume meters representing an audio volume of one of the players, and another one of the volume meters representing an audio volume of a group of players, if there is such a group; and adjusting one of the volume meters as desired after one of the volume meters from the list is selected (see Tomassetti, ¶ 0004 and 0068)."
displaying on a screen a list showing a plurality of volume meters, at least one of the volume meters representing an audio volume of one of the players, and another one of the volume meters representing an audio volume of a group of players, when there is such a group; and	OA, pages 10-11 – "Regarding claim 16, see the preceding argument with respect to claim 1. The combination of Berezowski and Tomassetti teaches a method for controlling a plurality of players, the method comprising: displaying on a screen a list showing a plurality of volume meters, at least one of the volume meters representing an audio volume of one of the players, and another one of the volume meters representing an audio volume of a group of players, if there is such a group . . . (see Tomassetti, ¶ 0004 and 0068). The prior combination of Berezowski and Tomassetti teaches the features shown above, wherein Tomassetti makes it obvious to control the audio for each individual player in a group. However, it does not appear to teach a display listing a plurality of volume meters, where one volume level represents a group of players. Isely teaches a zone audio player (see abstract). Specifically, Isely teaches a volume level to represent each player in a designated zone (see ¶ 0011-0012). Isely also teaches volume levels with unique relationships associated with a zone (see ¶ 0047-0049, 0053, 0056, and 0057). It would have been obvious to display on a screen (such as the LCD taught by Tomassetti) the volume meters representing one of the unique relationships in the zone for the purpose of providing better

APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
	ambiance. Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Berezowski, Tomassetti, and Isely for the purpose of providing better ambiance."
adjusting one of the volume meters as desired after one of the volume meters from the list is selected, wherein the one of the volume meters is for the group of players, represented by an averaged value of audio volumes of the players in the group, and	OA, pages 10-11 – "Regarding claim 16, see the preceding argument with respect to claim 1. The combination of Berezowski and Tomassetti teaches a method for controlling a plurality of players, the method comprising: . . . adjusting one of the volume meters as desired after one of the volume meters from the list is selected (see Tomassetti, ¶ 0004 and 0068). The prior combination of Berezowski and Tomassetti teaches the features shown above, wherein Tomassetti makes it obvious to control the audio for each individual player in a group. However, it does not appear to teach a display listing a plurality of volume meters, where one volume level represents a group of players. Isely teaches a zone audio player (see abstract). Specifically, Isely teaches a volume level to represent each player in a designated zone (see ¶ 0011-0012). Isely also teaches volume levels with unique relationships associated with a zone (see ¶ 0047-0049, 0053, 0056, and 0057). It would have been obvious to display on a screen (such as the LCD taught by Tomassetti) the volume meters representing one of the unique relationships in the zone for the purpose of providing better ambiance. Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Berezowski, Tomassetti, and Isely for the purpose of providing better ambiance." OA, page 4 - "Tomassetti also teaches synchronization of an audio within a zone (see ¶ 0005, 0009-0012, and 0016-0019), so it would have been obvious to synchronize all the players in a zone group."
said adjusting of the one of the volume meters includes changing a volume of each of the group of players synchronously in accordance with an adjustment made by a user.	OA, page 4 - "Tomassetti also teaches synchronization of an audio within a zone (see ¶ 0005, 0009-0012, and 0016-0019), so it would have been obvious to synchronize all the players in a zone group." Isely discloses a control relationship between a characteristic of an audio signal for a reference device and selected addressable audio devices. The controllable characteristic includes volume, and the relationship between the reference device volume and the addressable audio device volumes can be "complex, proportional, or static." For example, if the reference device and addressable audio devices all start from a zero volume setting at start-up, then a static relationship between the volume levels would maintain the average volume level at the addressable audio device as the volume level for the reference device is increased, and the change would be synchronous in accordance with an adjustment made by the

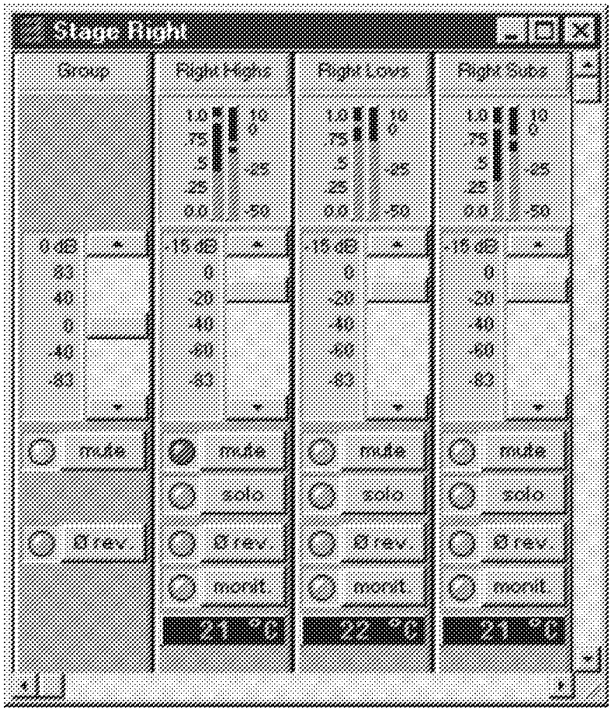
APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
	user. To the extent that Isely is not considered to disclose this limitation, Isely discloses that the UPnP Standard can be used to implement functions of the system of Isely. One of ordinary skill in the art would consider the UPnP Standard for guidance on how to implement volume controls, because the UPnP Standard provides specifications for implementing individual and group volume controls. For example, UPnP Rendering Control discloses at pages 41-42 a process whereby the master volume control is used to set all channels to the lowest setting, which is a representation of an average value of audio volumes of players, and where the player volumes are then changed synchronously in accordance with an adjustment made by the user. Further details on the UPnP Standard as they are relevant to the Challenged Claims of the '014 Patent are provided in Appendix A, which is hereby incorporated by reference for all purposes. Tomassetti also discloses a central receiver that controls all local and remote volume settings, which would inherently include a master volume setting that represents an averaged value of audio volumes at least at startup, when all volumes are set to zero and any increase in the master volume would result in a synchronous increase in the average at all remote locations. To the extent that Isely and/or Tomassetti are not considered to disclose this limitation, NexSys discloses a group volume control with a master volume control and independent channels, which represents an averaged value of audio volumes at least at startup, when all volumes are set to zero and any increase in the master volume would result in a synchronous increase in the average at all remote locations, as shown in the exemplary diagram below from page 7.4 of NexSys:

APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
	 As can be seen above, the group control increases or decreases the separate channels (right highs, right lows, right subs) by the same magnitude in every channel, which have the same average setting within the 2 digit accuracy of the meter (21, 22 and 21). It would be obvious to combine the group/individual volume control of NexSys with the combination of Berezowski, Tomassetti and Isely, because at least Tomassetti and Isely explicitly disclose volume control for groups of channels, and one of skill in the art would use a well-known display such as the one shown in NexSys for providing a user interface for such controls. The user interface of NexSys could also be combined with the UPnP channel controls, such as for the Master channel and associated channels such as a left stereo and right stereo channel, either by

APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
	using Microsoft UPnP functionality to emulate the NexSys control window, or by recreating the NexSys user interface functionality in HTML. Isely, [0020] "A relationship is defined between a characteristic of the audio signal for a reference audio device and for the selected addressable audio devices. The audio signal is distributed to the selected addressable audio devices based on the defined relationships and a control input associated with the characteristic. An update to the control input is received from a user and the audio signal is distributed to the selected addressable audio devices based on the defined relationships and the update to the control input." Isely, [0062] "A relationship between a characteristic of the audio signal for a reference audio device and for a plurality of the addressable audio devices 305, 405 is defined (block 620). Such a relationship may be related to relative volume, equalization or other audio characteristics as described previously herein. Furthermore, such a relationship may be complex, proportional, or static as described previously herein." Isely, [0063] "The audio signal is distributed to a plurality of the audio devices 305, 405 based on the defined relationships and the control input associated with the characteristic(s) on which the defined relationship is based (block 630). An update to the control input specifying the characteristic(s) may be periodically received from a user (block 640). Where such an update is received (block 640), the relationship may be redefined if such a change is specified in the control input or may be simply applied to respective streams for different ones of the audio devices 305, 405 based on the existing relationships for distribution to the devices at block 630. Thus, the audio signal after receipt of a control input change is distributed to the plurality of audio devices 305, 405 based on the defined relationships and the update to the control input specifying the characteristic (block 630)." Tomassetti, [0004] "The centralized receiver controls the volume at all speaker sets, i.e., on both the local speaker set and on the remote speakers." NexSys, page 9.3 - "the fader ranges from +83dB to -83dB. It is a relative level to the amplifiers in its group. Positive changes here will have the same magnitude increase for every amplifier channel in the

APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
	group. A negative change here will decrease each amplifier channel level in the group by the same amount. For instance, if the amp is set to -10, and the group level is raised +5, the amp level will increase by 5dB to a level of -5." UPnP Rendering Control, pages 41-42: "Set the volume of the audio content (as a whole) to the quietest (non-silent) setting: • Invoke the SetVolume() action with the Channel parameter set to 'Master' and the DesiredVolume parameter set to 1. Set the volume of the audio content (as a whole) 20 'notches/steps' higher than the current setting • Invoke the GetVolume() action with the Channel parameter set to 'Master'. As a result of the previous example, the CurrentVolume out parameter returns a value of 1 indicating that the audio content is being rendered at volume position 1 i.e. the quietest non-silence setting supported by the device. • Invoke the SetVolume() action with the Channel parameter set to "Master" and the DesiredVolume parameter set to 21 (1 + 20). This corresponds to the 20th quietest setting supported by the device."
18. The method of claim 16, further comprising adjusting the one of the volume meters for the group of players in a predetermined manner that appears that the group of players are being adjusted at the same time.	Claim 18 was originally presented as claim 19 during prosecution. OA, page 11 – "Regarding claim 18, see the preceding argument with respect to claim 16. The combination teaches the method of claim 16, wherein the one of the volume meters from the list selected is for the group of players, and wherein said adjusting the one of the volume meters includes: changing a volume of each of the group of players synchronously in accordance with an adjustment made by a user (see Tomassetti, ¶ 0004, 0005, 0009-0012, 0016-0019, and 0068, and Isely, ¶ 0053). It would have been obvious to synchronize the change in volume due to linking the volume changes according to the unique relationships defined in Isely. **Regarding claim 19**, see the preceding argument with respect to claim 18. The combination teaches the method of claim 18, further comprising adjusting the one of the volume meters for the group of players in a predetermined manner that appears that the group of players is being adjusted at the same time." (emphasis added)
20. The method of claim 16, further comprising playing an identical audio source in the group of	Claim 20 was originally presented as claim 22. OA, pages 11-12 – "Regarding claim 22, see the preceding argument with respect to claim 16. The combination teaches the method of claim 16, further comprising playing an identical audio source in the

APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
players.	group of players (see Tomassetti, ¶ 0067, wherein "The home theater system 226 may be capable ... of sending ... audio files ... to individual room stations 202-212 .... " and ¶ 0074, wherein " ... each remote station itself can broadcast or receive independent of and simultaneous with other remote stations.").”
21. The method of claim 20, wherein the audio source is retrieved in form of audio data packets over the network.	Claim 21 was originally presented as claim 23 OA, page 12 – “Regarding claim 23, see the preceding argument with respect to claim 22. The combination teaches the method of claim 22, wherein the audio source is retrieved in form of audio data packets over the network (see Tomassetti, ¶ 0016).”
38. An apparatus for manipulating a plurality of players, the apparatus comprising:	Claim 38 was originally presented as claim 40. OA, page 13 “Regarding claim 40, see the preceding argument with respect to claims 16 and 27. The combination teaches these features like the method of claim 16, wherein it is performed on an apparatus with the features of claim 27.”
a screen;	OA, page 7 – “Regarding claim 27, the combination teaches an apparatus for controlling a plurality of players, the apparatus comprising: a screen (see Berezowski, figure 8 and column 5, lines 57-59)”
a screen driver commanding the screen;	OA, page 7 – “Regarding claim 27, the combination teaches an apparatus for controlling a plurality of players, the apparatus comprising: . . . a screen driver commanding the screen (inherent)”
an input interface;	OA, page 7 – “Regarding claim 27, the combination teaches an apparatus for controlling a plurality of players, the apparatus comprising: . . . n input interface (id., column 5, lines 59-65)”
a network interface;	OA, page 7 – “Regarding claim 27, the combination teaches an apparatus for controlling a plurality of players, the apparatus comprising: . . . a network interface (id., column 4, lines 7-22)”
a memory for storing code for an application module;	OA, pages 7-8 – “Regarding claim 27, the combination teaches an apparatus for controlling a plurality of players, the apparatus comprising: . . . a memory for storing code for an application module (id., column 2, line 49 - column 3, line 7)”
a processor coupled to the memory, the input interface, the screen driver and the network interface, the processor executing	OA, pages 7-8 – “Regarding claim 27, the combination teaches an apparatus for controlling a plurality of players, the apparatus comprising: . . . a processor coupled to the memory, the input interface, the screen driver and the network interface, the processor executing the code in the memory to cause the application module and the screen driver (inherent) to perform operations of:”

APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
the code in the memory to cause the application module and the screen driver to perform operations of:	
displaying on a screen a list showing a plurality of volume meters, at least one of the volume meters representing an audio volume of one of the players, and another one of the volume meters representing an audio volume of a group of players, if there is such a group; and	OA, pages 7-8 – "Regarding claim 27, the combination teaches an apparatus for controlling a plurality of players, the apparatus comprising: . . . displaying on a screen a first list showing at least available players (id., column 5, line 57 - column 6, line 13 and figures 8-1 O); displaying a zone group including players from the available players when at least two of the available players are selected to form the zone group, wherein any one of the players in the group serves as a zone group head (id., column 5, line 66 - column 6, line 13 in view of Tomassetti, ¶ 0074); and synchronizing all players in the zone group in accordance with the zone group head (see Tomassetti, ¶ 0005, 0009-0012, and 0016-0019). The combination of claim 1, teaches the features above, wherein it is inherent there must be a screen driver to display an output and a processor to execute the software."
adjusting one of the volume meters as desired after one of the volume meters from the list is selected, wherein the one of the volume meters is for the group of players, represented by an averaged value of audio volumes of the players in the group, and	Isely discloses a control relationship between a characteristic of an audio signal for a reference device and selected addressable audio devices that provides for adjusting one volume meter/control as desired after one of the volume meters/controls from the list is selected, wherein the one of the volume meters/controls is for the group of players, represented by an averaged value of audio volumes of the players in the group. The controllable characteristic of Isely includes volume, and the relationship between the reference device volume and the addressable audio device volumes can be "complex, proportional, or static." For example, if the reference device and addressable audio devices all start from a zero volume setting at start-up, then a static relationship between the volume levels would maintain the average volume level at the addressable audio device as the volume level for the reference device is increased, and the change would be synchronous in accordance with an adjustment made by the user. To the extent that Isely is not considered to disclose this limitation, Isely discloses that the UPnP Standard can be used to implement functions of the system of Isely. One of ordinary skill in the art

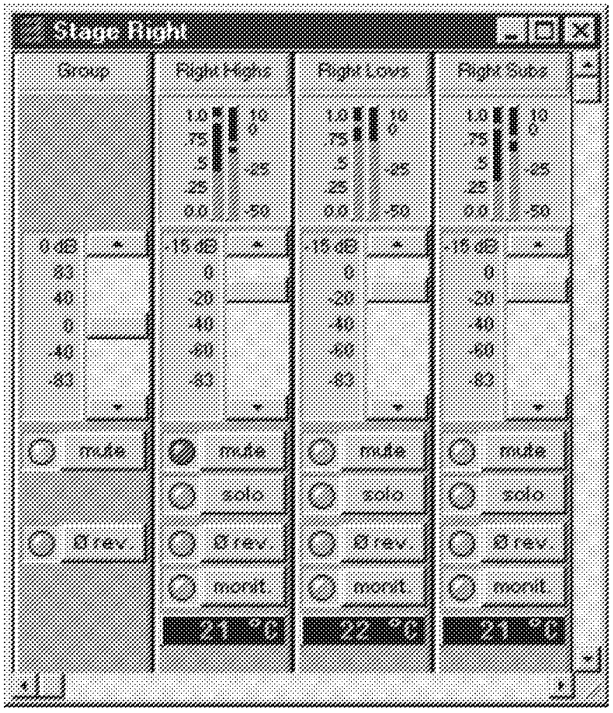
APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
	would consider the UPnP Standard for guidance on how to implement volume controls, because the UPnP Standard provides specifications for implementing individual and group volume controls. For example, UPnP Rendering Control discloses at pages 41-42 a process whereby the master volume control is used to set all channels to the lowest setting, which is a representation of an average value of audio volumes of players, and where the player volumes are then changed synchronously in accordance with an adjustment made by the user. Further details on the UPnP Standard as they are relevant to the Challenged Claims of the '014 Patent are provided in Appendix A, which is hereby incorporated by reference for all purposes. Tomassetti also discloses a central receiver that controls all local and remote volume settings, which would inherently include a master volume setting that represents an averaged value of audio volumes at least at startup, when all volumes are set to zero and any increase in the master volume would result in a synchronous increase in the average at all remote locations. To the extent that Isely and/or Tomassetti are not considered to disclose this limitation, NexSys discloses a group volume control with a master volume control and independent channels. The group volume meter/control represents an averaged value of audio volumes of the players in the group when all players in the group start from the same volume, such as at start-up. This is shown in the exemplary diagram below from page 7.4 of NexSys:

APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
	 As can be seen above, the group control increases or decreases the separate channels (right highs, right lows, right subs) by the same magnitude in every channel, which have the same average setting within the 2 digit accuracy of the meter (21, 22 and 21). The group volume control thus represents "an averaged value of audio volumes of the players in the group," where the audio volumes are the changes to the current audio volume settings. The claim does not require a specific averaged value of specific audio volumes, so a representation of an average change value of audio volumes" satisfies the claim limitation. It would be obvious to combine the group/individual volume control of NexSys with the combination of Berezowski, Tomassetti and Isely, because at least Tomassetti and Isely explicitly

APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
	disclose volume control for groups of channels, and one of skill in the art would use a well-known display such as the one shown in NexSys for providing a user interface for such controls. The user interface of NexSys could also be combined with the UPnP channel controls, such as for the Master channel and associated channels such as a left stereo and right stereo channel, either by using Microsoft UPnP functionality to emulate the NexSys control window, or by recreating the NexSys user interface functionality in HTML. Isely, [0020] "A relationship is defined between a characteristic of the audio signal for a reference audio device and for the selected addressable audio devices. The audio signal is distributed to the selected addressable audio devices based on the defined relationships and a control input associated with the characteristic. An update to the control input is received from a user and the audio signal is distributed to the selected addressable audio devices based on the defined relationships and the update to the control input." Isely, [0062] "A relationship between a characteristic of the audio signal for a reference audio device and for a plurality of the addressable audio devices 305, 405 is defined (block 620). Such a relationship may be related to relative volume, equalization or other audio characteristics as described previously herein. Furthermore, such a relationship may be complex, proportional, or static as described previously herein." Isely, [0063] "The audio signal is distributed to a plurality of the audio devices 305, 405 based on the defined relationships and the control input associated with the characteristic(s) on which the defined relationship is based (block 630). An update to the control input specifying the characteristic(s) may be periodically received from a user (block 640). Where such an update is received (block 640), the relationship may be redefined if such a change is specified in the control input or may be simply applied to respective streams for different ones of the audio devices 305, 405 based on the existing relationships for distribution to the devices at block 630. Thus, the audio signal after receipt of a control input change is distributed to the plurality of audio devices 305, 405 based on the defined relationships and the update to the control input specifying the characteristic (block 630)." Tomassetti, [0004] "The centralized receiver controls the volume at all speaker sets, i.e., on both the

APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
	local speaker set and on the remote speakers." NexSys, page 9.3 - "the fader ranges from +83dB to -83dB. It is a relative level to the amplifiers in its group. Positive changes here will have the same magnitude increase for every amplifier channel in the group. A negative change here will decrease each amplifier channel level in the group by the same amount. For instance, if the amp is set to -10, and the group level is raised +5, the amp level will increase by 5dB to a level of -5." UPnP Rendering Control, pages 41-42: "Set the volume of the audio content (as a whole) to the quietest (non-silent) setting: • Invoke the SetVolume() action with the Channel parameter set to 'Master' and the DesiredVolume parameter set to 1. Set the volume of the audio content (as a whole) 20 'notches/steps' higher than the current setting • Invoke the GetVolume() action with the Channel parameter set to 'Master'. As a result of the previous example, the CurrentVolume out parameter returns a value of 1 indicating that the audio content is being rendered at volume position 1 i.e. the quietest non-silence setting supported by the device. • Invoke the SetVolume() action with the Channel parameter set to "Master" and the DesiredVolume parameter set to 21 (1 + 20). This corresponds to the 20th quietest setting supported by the device."
said adjusting of the one of the volume meters includes changing a volume of each of the group of players synchronously in accordance with an adjustment made by a user.	OA, pages 7-8 – "Regarding claim 27, the combination teaches an apparatus for controlling a plurality of players, the apparatus comprising: . . . synchronizing all players in the zone group in accordance with the zone group head (see Tomassetti, ¶ 0005, 0009-0012, and 0016-0019)." Isely discloses a control relationship between a characteristic of an audio signal for a reference device and selected addressable audio devices. The controllable characteristic includes volume, and the relationship between the reference device volume and the addressable audio device volumes can be "complex, proportional, or static." For example, if the reference device and addressable audio devices all start from a zero volume setting at start-up, then a static relationship between the volume levels would maintain the average volume level at the addressable audio device as the volume level for the reference device is increased, and the change would be synchronous in accordance with an adjustment made by the user.

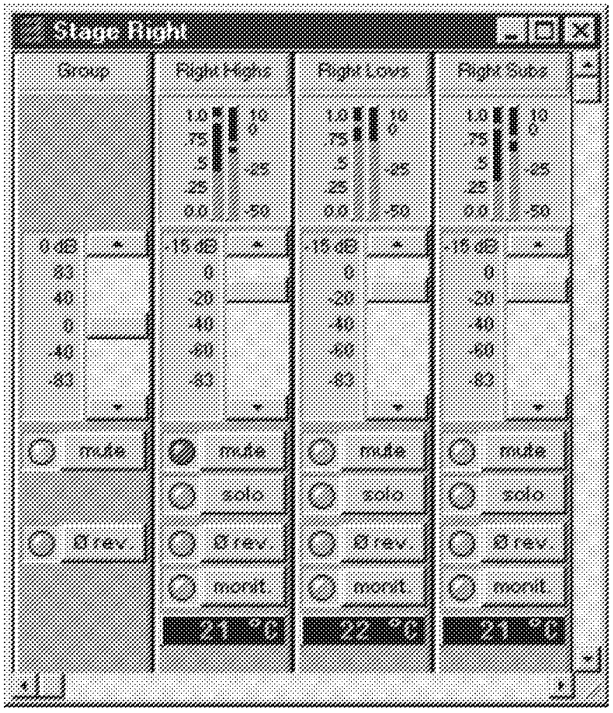
APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
	To the extent that Isely is not considered to disclose this limitation, Isely discloses that the UPnP Standard can be used to implement functions of the system of Isely. One of ordinary skill in the art would consider the UPnP Standard for guidance on how to implement volume controls, because the UPnP Standard provides specifications for implementing individual and group volume controls. For example, UPnP Rendering Control discloses at pages 41-42 a process whereby the master volume control is used to set all channels to the lowest setting, which is a representation of an average value of audio volumes of players, and where the player volumes are then changed synchronously in accordance with an adjustment made by the user. Further details on the UPnP Standard as they are relevant to the Challenged Claims of the '014 Patent are provided in Appendix A, which is hereby incorporated by reference for all purposes. Tomassetti also discloses a central receiver that controls all local and remote volume settings, which would inherently include a master volume setting that represents an averaged value of audio volumes at least at startup, when all volumes are set to zero and any increase in the master volume would result in a synchronous increase in the average at all remote locations. To the extent that Isely and/or Tomassetti are not considered to disclose this limitation, NexSys discloses a group volume control with a master volume control and independent channels, which represents an averaged value of audio volumes at least at startup, when all volumes are set to zero and any increase in the master volume would result in a synchronous increase in the average at all remote locations, as shown in the exemplary diagram below from page 7.4 of NexSys:

APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
	 As can be seen above, the group control increases or decreases the separate channels (right highs, right lows, right subs) by the same magnitude in every channel, which have the same average setting within the 2 digit accuracy of the meter (21, 22 and 21). It would be obvious to combine the group/individual volume control of NexSys with the combination of Berezowski, Tomassetti and Isely, because at least Tomassetti and Isely explicitly disclose volume control for groups of channels, and one of skill in the art would use a well-known display such as the one shown in NexSys for providing a user interface for such controls. The user interface of NexSys could also be combined with the UPnP channel controls, such as for the Master channel and associated channels such as a left stereo and right stereo channel, either by

APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
	using Microsoft UPnP functionality to emulate the NexSys control window, or by recreating the NexSys user interface functionality in HTML. Isely, [0020] "A relationship is defined between a characteristic of the audio signal for a reference audio device and for the selected addressable audio devices. The audio signal is distributed to the selected addressable audio devices based on the defined relationships and a control input associated with the characteristic. An update to the control input is received from a user and the audio signal is distributed to the selected addressable audio devices based on the defined relationships and the update to the control input." Isely, [0062] "A relationship between a characteristic of the audio signal for a reference audio device and for a plurality of the addressable audio devices 305, 405 is defined (block 620). Such a relationship may be related to relative volume, equalization or other audio characteristics as described previously herein. Furthermore, such a relationship may be complex, proportional, or static as described previously herein." Isely, [0063] "The audio signal is distributed to a plurality of the audio devices 305, 405 based on the defined relationships and the control input associated with the characteristic(s) on which the defined relationship is based (block 630). An update to the control input specifying the characteristic(s) may be periodically received from a user (block 640). Where such an update is received (block 640), the relationship may be redefined if such a change is specified in the control input or may be simply applied to respective streams for different ones of the audio devices 305, 405 based on the existing relationships for distribution to the devices at block 630. Thus, the audio signal after receipt of a control input change is distributed to the plurality of audio devices 305, 405 based on the defined relationships and the update to the control input specifying the characteristic (block 630)." Tomassetti, [0004] "The centralized receiver controls the volume at all speaker sets, i.e., on both the local speaker set and on the remote speakers." NexSys, page 9.3 - "the fader ranges from +83dB to -83dB. It is a relative level to the amplifiers in its group. Positive changes here will have the same magnitude increase for every amplifier channel in the

APPENDIX C

Invalidity of the Challenged Claims of the '014 Patent in view of Berezowski in view of Tomassetti and Isely, as applied in the Office Action mailed February 18, 2009 and acquiesced to by Sonos, and further in view of the UPnP Standard, Microsoft UPnP and NexSys

U.S. 7,571,014	Berezowski, Tomassetti, Isely, UPnP, Microsoft UPnP and NexSys
	group. A negative change here will decrease each amplifier channel level in the group by the same amount. For instance, if the amp is set to -10, and the group level is raised +5, the amp level will increase by 5dB to a level of -5." UPnP Rendering Control, pages 41-42: "Set the volume of the audio content (as a whole) to the quietest (non-silent) setting: • Invoke the SetVolume() action with the Channel parameter set to 'Master' and the DesiredVolume parameter set to 1. Set the volume of the audio content (as a whole) 20 'notches/steps' higher than the current setting • Invoke the GetVolume() action with the Channel parameter set to 'Master'. As a result of the previous example, the CurrentVolume out parameter returns a value of 1 indicating that the audio content is being rendered at volume position 1 i.e. the quietest non-silence setting supported by the device. • Invoke the SetVolume() action with the Channel parameter set to "Master" and the DesiredVolume parameter set to 21 (1 + 20). This corresponds to the 20th quietest setting supported by the device."

Doc Code: IDS
Document Description: Information Disclosure Statement filed

PTO/SB/42 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U. S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

37 CFR 1.501 INFORMATION DISCLOSURE CITATION IN A PATENT (Sheet 1 of 3)	Docket Number (Optional) 131131.00049.004	Patent Number 7,571,014
	Applicant Sonos, Inc.	
	Issue Date August 4, 2009	Art Unit 2614

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	2002/0124097	2002/0	Isely et al.			
	7,218,708	2007/0	Berezowski et al.			
	2002/0188762	2002/1	Tomassetti et al.			
	2007/0038999	2007/0	Millington			
	5,239,458	1993/0	Suzuki			
	5,751,819	1998/0	Dorrough			
	2005/0047605	2005/0	Lee et al.			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES	TRANSLATION NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

		Universal Plug and Play ("UPnP") AV Architecture:1 For UPnP™ Version 1.0, June 25, 2002
		RenderingControl:1 Service Template Version 1.01 For UPnP™ Version 1.0, June 25, 2002
		MediaServer:1 Device Template Version 1.01 For UPnP™ Version 1.0, June 25, 2002
		Universal Plug and Play Device Architecture V. 1.0, June 8, 2000
		MediaRenderer:1 Device Template Version 1.01 For UPnP™ Version 1.0, June 25, 2002
		Microsoft, Universal Plug and Play (UPnP) Client Support, August 2001 at pg. 11

EXAMINER	DATE CONSIDERED

This collection of information is required by 37 CFR 1.501. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Doc Code: IDS
Document Description: Information Disclosure Statement filed

PTO/SB/42 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U. S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

37 CFR 1.501 INFORMATION DISCLOSURE CITATION IN A PATENT (Sheet 2 of 3)	Docket Number (Optional) 131131.00049.004	Patent Number 7,571,014
	Applicant Sonos, Inc.	
	Issue Date August 4, 2009	Art Unit 2614

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES	TRANSLATION NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

		Crest Audio, NexSys version 3.0 Software Manual, August 13, 1997
		Schulzrinne et al., RTP: A Transport Protocol for Real-Time Applications, January 1996
		XILINX, Wireless Home Networks, March 21, 2001
		PLAINTIFF SONOS, INC.'S OPENING CLAIM CONSTRUCTION BRIEF, September 9, 2016
		Linux SDK for UPnP Devices vl.2, January 17, 2003
		Pascoe, Salutation Architectures and the newly defined service discovery protocols from Microsoft

EXAMINER	DATE CONSIDERED

This collection of information is required by 37 CFR 1.501. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Doc Code: IDS
Document Description: Information Disclosure Statement filed

PTO/SB/42 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U. S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

37 CFR 1.501 INFORMATION DISCLOSURE CITATION IN A PATENT (Sheet 3 of 3)	Docket Number (Optional) 131131.00049.004	Patent Number 7,571,014
	Applicant Sonos, Inc.	
	Issue Date August 4, 2009	Art Unit 2614

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES	TRANSLATION NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

		UPnP and Sonos Questions Sonos Community, December 2006

EXAMINER	DATE CONSIDERED

This collection of information is required by 37 CFR 1.501. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re *Ex Parte* Reexamination Control No.: Filed: December 21, 2016 Title: METHOD AND APPARATUS FOR CONTROLLING MULTIMEDIA PLAYERS IN A MULTI-ZONE SYSTEM	U.S. Patent No. 7,571,014 CERTIFICATE OF SERVICE UNDER 37 C.F.R. § 1.510(B)(5) AND MPEP § 2220

CERTIFICATE OF SERVICE

It is hereby certified that the attached Request for Ex Parte Reexamination is being served by first class mail on the patent owner at the correspondence address provided in the USPTO PAIR system:

McDonnell Boehnen Hulbert & Berghoff LLP
c/o Sonos, Inc.
300 South Wacker Drive
Chicago, IL 60606

Date: December 21, 2016

Respectfully submitted,

By: /Christopher J. Rourk/
Christopher J. Rourk
Reg. No. 39,348

Jackson Walker LLP
2323 Ross Avenue, Suite 600
Dallas, Texas 75201
Telephone: (214) 953-5990
Facsimile: (214) 661-6604
E-Mail: crourk@jw.com

17542450v.1 131131/00049

PTO/SB/57 (09-16)
Approved for use through 09/30/2018. OMB 0651-0064
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

(Also referred to as FORM PTO-1465)

REQUEST FOR *EX PARTE* REEXAMINATION TRANSMITTAL FORM

Address to:
Mail Stop *Ex Parte* Reexam
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Attorney Docket No.: 131131.00049.004

Date: December 21, 2016

1. ☑ This is a request for *ex parte* reexamination pursuant to 37 CFR 1.510 of patent number 7,571,014 issued August 4, 2009. The request is made by:
   ☐ patent owner. ☑ third party requester.
2. ☑ The name and address of the person requesting reexamination is:
   Christopher J. Rourk, Reg. No. 39,348
   2323 Ross Avenue, Suite 600
   Dallas, TX 75201
3. Requester asserts ☐ small entity status (37 CFR 1.27) or ☐ certifies micro entity status (37 CFR 1.29). Only a patent owner requester can certify micro entity status. Form PTO/SB/15A or B must be attached to certify micro entity status.
4. ☐ a. A check in the amount of $_____ is enclosed to cover the reexamination fee, 37 CFR 1.20(c)(1);
   ☑ b. The Director is hereby authorized to charge the fee as set forth in 37 CFR 1.20(c)(1) to Deposit Account No. 10-0096;
   ☐ c. Payment by credit card. Form PTO-2038 is attached; **or**
   ☑ d. Payment made via EFS-Web.
5. ☑ Any refund should be made by ☐ check or ☑ credit to Deposit Account No. 10-0096. 37 CFR 1.26(c). If payment is made by credit card, refund must be to credit card account.
6. ☑ A copy of the patent to be reexamined having a double column format on one side of a separate paper is enclosed. 37 CFR 1.510(b)(4).
7. ☐ CD-ROM or CD-R in duplicate, Computer Program (Appendix) or large table
   ☐ Landscape Table on CD
8. ☐ Nucleotide and/or Amino Acid Sequence Submission
   If applicable, items a. – c. are required.
   a. ☐ Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. ☐ CD-ROM (2 copies) or CD-R (2 copies); **or**
      ii. ☐ paper
   c. ☐ Statements verifying identity of above copies
9. ☐ A copy of any disclaimer, certificate of correction or reexamination certificate issued in the patent is included.
10. ☑ Reexamination of claim(s) 1, 8, 16, 18, 21 and 38 is requested.
11. ☑ A copy of every patent or printed publication relied upon is submitted herewith including a listing thereof on Form PTO/SB/08, PTO-1449, or equivalent.
12. ☐ An English language translation of all necessary and pertinent non-English language patents and/or printed publications is included.

13. ☑ The attached detailed request includes at least the following items:

a. A statement identifying each substantial new question of patentability based on prior patents and printed publications. 37 CFR 1.510(b)(1).

b. An identification of every claim for which reexamination is requested, and a detailed explanation of the pertinency and manner of applying the cited art to every claim for which reexamination is requested. 37 CFR 1.510(b)(2).

14. ☐ A proposed amendment is included (only where the patent owner is the requester). 37 CFR 1.510(e).

15. ☑ It is certified that the statutory estoppel provisions of 35 U.S.C. 315(e)(1) or 35 U.S.C. 325(e)(1) do not prohibit requester from filing this *ex parte* reexamination request. 37 CFR 1.510(b)(6).

16. ☑ a. It is certified that a copy of this request (if filed by other than the patent owner) has been served in its entirety on the patent owner as provided in 37 CFR 1.33(c).

The name and address of the party served and the date of service are:

McDonnell Boehnen Hulbert & Berghoff LLP

Sonos, Inc. , 300 South Wacker Drive, Chicago IL 60606

Date of Service: December 21, 2016; **or**

☐ b. A duplicate copy is enclosed since service on patent owner was not possible. An explanation of the efforts made to serve patent owner **is attached**. See MPEP 2220.

17. Correspondence Address: Direct all communication about the reexamination to:

☑ The address associated with Customer Number: 33649

OR

☐ Firm or Individual Name

Address

City	State	Zip
Country		
Telephone	Email	

18. ☑ The patent is currently the subject of the following concurrent proceeding(s):

☐ a. Copending reissue Application No.

☐ b. Copending reexamination Control No.

☐ c. Copending Interference No.

☑ d. Copending litigation styled:

Sonos Inc. v. D&M Holdings, Inc., United States District Court, District of Delaware, C.A. NO. 14-1330(RGA)

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

/Christopher J. Rourk/ — Authorized Signature

December 21, 2016 — Date

Christopher J. Rourk — Typed/Printed Name

39,348 — Registration No.

☐ For Patent Owner Requester

☑ For Third Party Requester

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	Method and apparatus for controlling multimedia players in a multi-zone system
First Named Inventor/Applicant Name:	Robert A. Lambourne
Filer:	Christopher Rourk/Akiko Cline
Attorney Docket Number:	131131.00049.004

Filed as Large Entity

Filing Fees for ex parte reexam

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
REQUEST FOR EX PARTE REEXAMINATION	1812	1	12000	12000
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**12000**

Electronic Acknowledgement Receipt	
EFS ID:	27870679
Application Number:	90013882
International Application Number:	
Confirmation Number:	8704
Title of Invention:	Method and apparatus for controlling multimedia players in a multi-zone system
First Named Inventor/Applicant Name:	Robert A. Lambourne
Customer Number:	33649
Filer:	Christopher Rourk/Akiko Cline
Filer Authorized By:	Christopher Rourk
Attorney Docket Number:	131131.00049.004
Receipt Date:	21-DEC-2016
Filing Date:	
Time Stamp:	18:06:56
Application Type:	Reexam (Third Party)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$12000
RAM confirmation Number	122216INTEFSW00018974100096
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Copy of patent for which reexamination is requested	us7571014.pdf	1682076 0c61d4af9a34185c80eea6e4afa9b021a41cd5b1	no	25
Warnings:					
Information:					
2	Receipt of Original Ex Parte Reexam Request	request.pdf	1823104 f7b9d9594e93e51360e5a05ca7f79653ef17ec92	no	45
Warnings:					
Information:					
3	Reexam - Affidavit/Decl/Exhibit Filed by 3rd Party	appendixa.pdf	1254603 773a879a98fbbf2ca69ff26613e28435e5275678	no	40
Warnings:					
Information:					
4	Reexam - Affidavit/Decl/Exhibit Filed by 3rd Party	appendixb.pdf	1920775 98c58f644c4d523acc2cb709f57f35a00294bc28	no	57
Warnings:					
Information:					
5	Reexam - Affidavit/Decl/Exhibit Filed by 3rd Party	appendixc.pdf	1097143 b074e7207706cb3bef6a0676a19547421c85095c	no	21
Warnings:					
Information:					
6	Reexam - Info Disclosure Statement Filed by 3rd Party	ids1.pdf	268983 3abd5a42601d707cff3285eb0da82fc85977bb5d	no	2
Warnings:					
Information:					

7	Reexam - Info Disclosure Statement Filed by 3rd Party	ids2.pdf	261885 ef147d0cc3012a6f6807a023cf1378cd15d57011	no	2
Warnings:					
Information:					
8	Reexam - Info Disclosure Statement Filed by 3rd Party	ids3.pdf	259343 cf6d31f936badabfe689af47951e0970169bdae0	no	2
Warnings:					
Information:					
9	Non Patent Literature	1av2002.pdf	9146710 2a4dae74f8807e4f840c7d23c332146fc605c3e5	no	22
Warnings:					
Information:					
10	Non Patent Literature	2rencon2002.pdf	6528616 9667e052f3136fab2df159707ac67dee5469ad3a	no	63
Warnings:					
Information:					
11	Non Patent Literature	3media2002.pdf	5136221 9a6a1044a5baf7648dc940e050ecd4a977ba00bc	no	12
Warnings:					
Information:					
12	Non Patent Literature	4archi.pdf	9811764 9baf2e189c557a017a387a5546ae96c1f3059d96	no	54
Warnings:					
Information:					
13	Non Patent Literature	5mediarender.pdf	5162732 fa1e10f842160e51b31988ec73de3e7fd3729b5c	no	12
Warnings:					
Information:					

14	Non Patent Literature	6microsoft.pdf	3909824 491c59b9fa248430f781b8ecbf890c63aee45323	no	18
Warnings:					
Information:					
15	Non Patent Literature	7nexsys.pdf	7179554 14d334686a233345d35c003c2242e6faa95b4ca5	no	76
Warnings:					
Information:					
16	Non Patent Literature	8rtp.pdf	7470430 58d2fc37b14c5ef4ba7ab90c3c9eaf1f10e7fe0f	no	75
Warnings:					
Information:					
17	Non Patent Literature	9wp.pdf	7384021 8de442bdbe39160398f13c055256e6b867a27a56	no	18
Warnings:					
Information:					
18	Non Patent Literature	sonobrief.pdf	3004044 0bc206b617fba1b6e10ffac212d915ef43c757c2	no	25
Warnings:					
Information:					
19	Non Patent Literature	11linux.pdf	11443022 913938e6884361dc967584a2fdb0768c4f701369	no	102
Warnings:					
Information:					
20	Non Patent Literature	12jini.pdf	470280 a1f5a19041e2630c53a6528bb6aba37bab61f1ee	no	5
Warnings:					
Information:					

21	Non Patent Literature	13exhibitx.pdf	549410 1d6f58610cc11ee4a613e18ec532ae6f5af1ca83	no	5
Warnings:					
Information:					
22	Reexam Certificate of Service	certificate.pdf	87190 3f6c01691649f9783a572d72996f265de0c59f99	no	1
Warnings:					
Information:					
23	Reexam Miscellaneous Incoming Letter	req.pdf	338259 aca2c9cadac9f61d90701722baf712f690c32814	no	3
Warnings:					
Information:					
24	Fee Worksheet (SB06)	fee-info.pdf	30028 15bbfb1a549d3222a82f31c5627e8c2d4f62a8e7	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	86220017		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

BIB DATA SHEET

CONFIRMATION NO. 8704

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
90/013,882	12/21/2016 RULE	700	3992	131131.00049.004

APPLICANTS

INVENTORS

7571014, Residence Not Provided;
GORDON BROTHERS FINANCE COMPANY (PATENT OWNER), BOSTON, MA;
CHRISTOPHER J. ROURK (3RD PTY REQ.), DALLAS, TX;
JACKSON WALKER LLP, DALLAS, TX

**** CONTINUING DATA ***************************

This application is a REX of 10/861,653 06/05/2004 PAT 7571014
which is a CIP of 10/816,217 04/01/2004 PAT 8234395

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****

Foreign Priority claimed ☐ Yes ☐ No 35 USC 119(a-d) conditions met ☐ Yes ☐ No Verified and Acknowledged _____ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
				44	4

ADDRESS

McDonnell Boehnen Hulbert & Berghoff LLP
Sonos, Inc.
300 South Wacker Drive
Chicago, IL 60606
UNITED STATES

TITLE

Method and apparatus for controlling multimedia players in a multi-zone system

FILING FEE RECEIVED		
12000	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

BIB (Rev. 05/07).