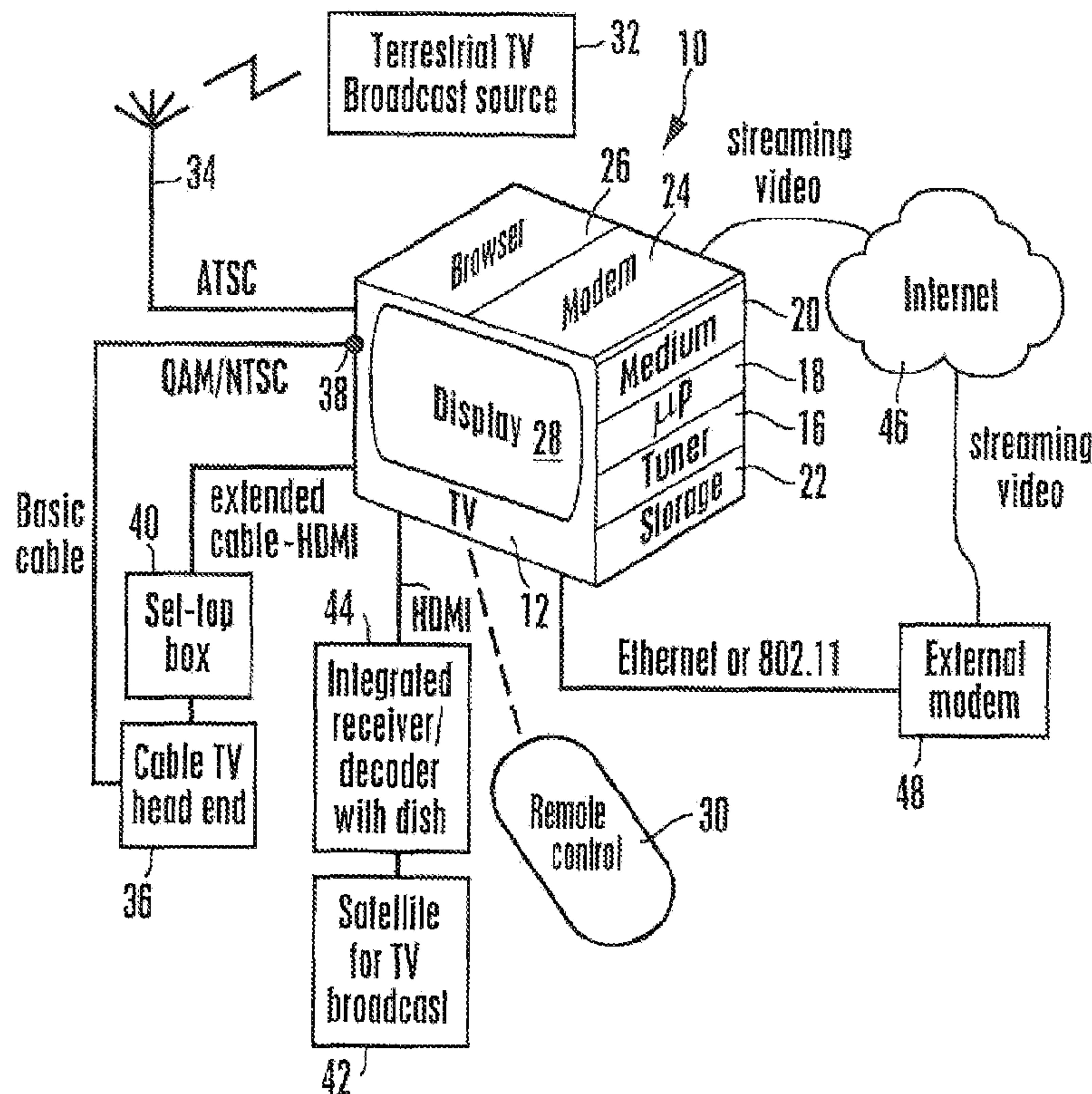




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 (72) **Inventeurs/Inventors:**
 SHINTANI, PETER, US;
 DOUILLET, LUDOVIC ETIENNE, US
 (73) **Propriétaire/Owner:**
 SONY CORPORATION, JP
 (74) **Agent:** GOWLING WLG (CANADA) LLP

(54) **Titre : ACTIVATION DE COMPOSANT POUVANT FAIRE L'OBJET D'UNE LICENCE A L'AIDE D'UN DISPOSITIF D'AGREGATION DANS UN RESEAU DOMESTIQUE**
 (54) **Title: ACTIVATING LICENSABLE COMPONENT USING AGGREGATING DEVICE IN HOME NETWORK**



(57) **Abrégé/Abstract:**

An aggregation device (e.g., 12, 200, 208, 202, 210, 212) in a home network accumulates information from audio video apparatuses (e.g., 12, 200, 208, 202, 210, 212) in the network that the apparatuses require enablement of respective licensable components for which no license event has yet occurred. The aggregation device sends an indication of the license events to a server (206) so that appropriate royalties may be paid post-sale of the various devices.

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- (71) Applicant (for all designated States except US): **SONY CORPORATION** [JP/JP]; 1-7-1 Konan, Minato-Ku, Tokyo 108-0075 (JP).
- (72) Inventors; and
(75) Inventors/Applicants (for US only): **SHINTANI, Peter** [CA/US]; 15760 Camino Codorniz, San Diego, California 92172 (US). **DOUILLET, Ludovic Etienne** [FR/US]; 3381 Holly Oak Lane, Escondido, California 92027 (US).
- (74) Agent: **ROGITZ, John L.**; Rogitz & Associates, 750 B Street, Suite 3120, San Diego, California 92101 (US).
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(54) Title: ACTIVATING LICENSABLE COMPONENT USING AGGREGATING DEVICE IN HOME NETWORK

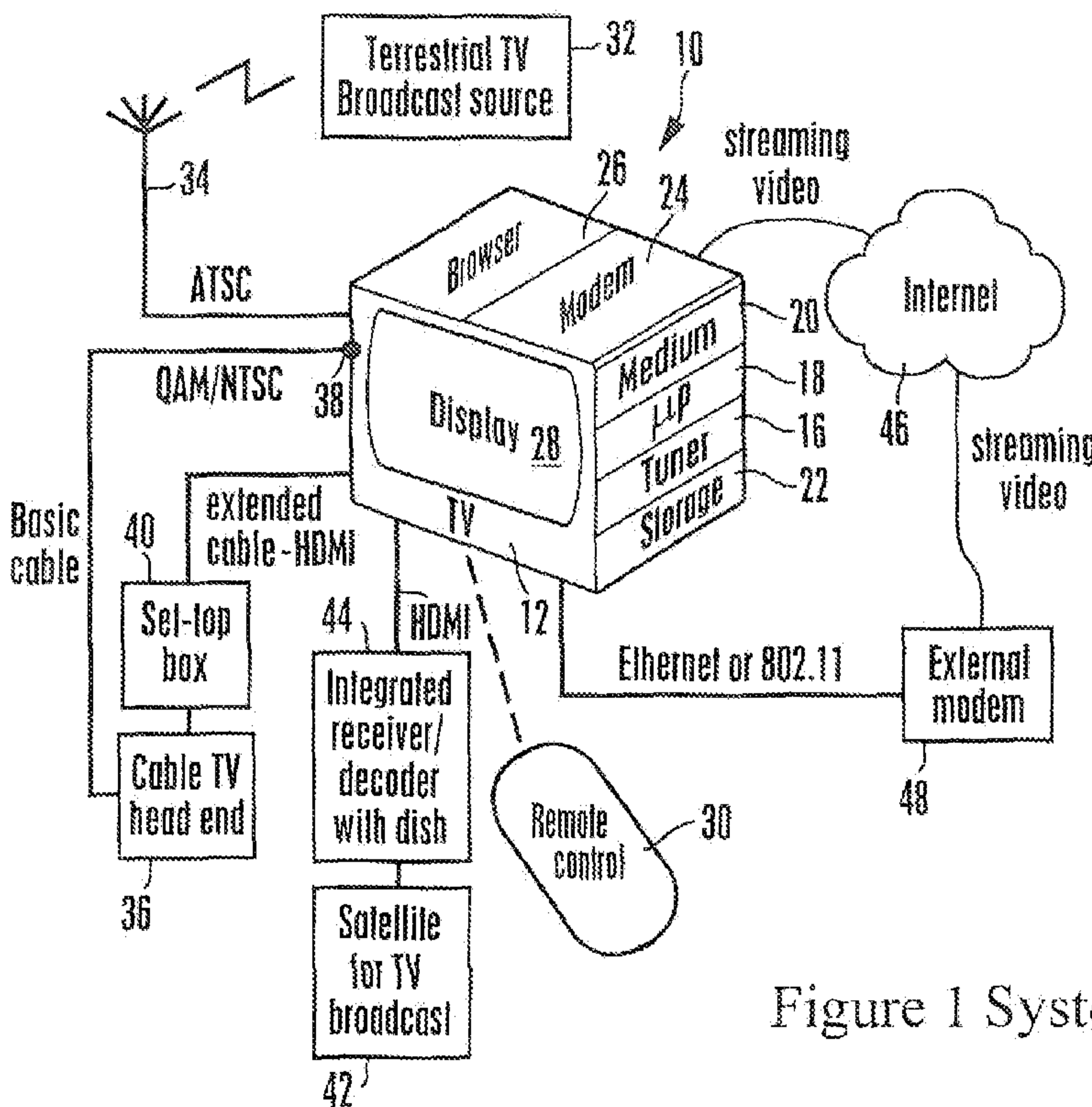


Figure 1 System

(57) Abstract: An aggregation device (e.g., 12, 200, 208, 202, 210, 212) in a home network accumulates information from audio video apparatuses (e.g., 12, 200, 208, 202, 210, 212) in the network that the apparatuses require enablement of respective licensable components for which no license event has yet occurred. The aggregation device sends an indication of the license events to a server (206) so that appropriate royalties may be paid post-sale of the various devices.

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ACTIVATING LICENSABLE COMPONENT USING AGGREGATING DEVICE IN HOME NETWORK

I. FIELD OF THE INVENTION

The present application relates generally to activating a licensable component using an aggregating device in a home network.

II. BACKGROUND OF THE INVENTION

Televisions incorporate a host of technologies to enable a viewer to watch programming from a variety of sources. These sources include terrestrial broadcast sources of analog (using National Television System Committee, or NTSC, format) and digital (using Advanced Television System Committee, or ATSC, format) TV signals. ATSC signals typically use video compression known as Motion Picture Experts Group (MPEG-2) and TVs must consequently support MPEG-2 decompression if they support ATSC programming.

Cable-provided "basic" television programming can also be provided in NTSC or quadrature amplitude modulation (QAM) format. Cable-provided "enhanced" programming may also be provided using high definition multimedia interface (HDMI) principles. Likewise, satellite-provided TV signals may be received in HDMI. As well, video from the Internet can be displayed on many modern TVs in a variety of formats, including data over cable service Internet specification (DOCSIS) format. Furthermore, TVs are often configured to support multiple audio formats, including advanced audio coding (AAC), Audio code 3 (AC3), digital theater system (DTS), and so on. And as contemporary viewers know, TVs are expected to support the presentation of electronic program guides (EPGs).

SUMMARY OF THE INVENTION

As understood herein, various TV technologies require license fees to be paid. As further understood herein, many technologies that must be built in to modern TVs to support various program sources may not be used. Nonetheless, license fees for the unused technologies are still paid, unnecessarily cascading cost. This can be complicated when a client device may be part of a home network and may not have wide area network connectivity, instead communicating with other components in the network using Bluetooth or other network that might not employ Internet Protocol.

Accordingly, an aggregation device for a system which includes the aggregation device and at least one other audio video apparatus communicating with the aggregation device is provided. The aggregation device includes a processor and a computer readable storage medium bearing instructions executable by the processor to determine that a licensable component of the audio video apparatus requires activation. Responsive to the determination that the licensable component requires activation, the processor communicates to a server using a wide area network that a license event has occurred.

In some embodiments the processor can determine that at least one licensable component of the audio video apparatus requires activation by receiving from the audio video apparatus an identification of the licensable component. In other embodiments the processor determines that at least one licensable component of the audio video apparatus requires activation by inference based on a format of data received from the audio video apparatus.

If desired, the aggregation device can receive information from the audio video apparatus indicating the audio video apparatus has already enabled the licensable component and based thereon, can inform the server of the license event. Or, the

aggregation device can receive information from the audio video apparatus indicating that the audio video apparatus requests activation of the licensable component and based thereon informs the server of the license event.

The aggregation device may inform the server of the license event immediately upon establishing a network connection with the wide area network, or after a predetermined period of quiescent time. In example embodiments the aggregation device communicates to the server using the wide area network that the license event has occurred along with an identification of the aggregation device only. In other embodiments the aggregation device communicates to the server using the wide area network that the license event has occurred along with an identification of the audio video apparatus.

In another aspect, a TV in a home network includes a TV tuner and one or more of an ATSC demodulator, NTSC demodulator, QAM demodulator, MPEG decoder. No licenses are been obtained on behalf of the TV for the tuner or demodulator(s). A display presents audio video content thereon in accordance with high definition content protection (HDCP), with a license for HDCP having been obtained on behalf of the TV.

In another aspect, a method includes establishing a device in a home network as an aggregation device. The home network also includes at least one audio video component communicating audio video data with the aggregation device. Information is received at the aggregation device that the audio video component has enabled or desires to enable a licensable component, and the aggregation device communicates that a license event has occurred to a server based at least in part on the information that the audio video component has enabled or desires to enable a licensable component.

The details of the present invention, both as to its structure and operation, can best be understood in reference to the accompanying drawings, in which like reference numerals refer to like parts, and in which:

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a block diagram of a non-limiting example system in accordance with present principles;

Figure 2 is a block diagram of an example TV;

Figure 3 is a flow chart of non-limiting TV set up logic in accordance with present principles;

Figure 4 is a flow chart of non-limiting logic for automatically detecting whether an ATSC demodulator is required to be activated;

Figures 5-7 are schematic diagrams illustrating alternate methods for activating an ATSC demodulator;

Figure 8 is a flow chart of non-limiting logic for licensing a component in a TV;

Figure 9 is a block diagram showing a home network with a license information aggregating device; and

Figure 10 is a flow chart of example logic used to coordinate licensable feature activation.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring initially to the non-limiting example embodiment show in Figure 1, a system 10 includes an audio video device 12 such as a TV including a TV tuner 16 communicating with a TV processor 18 accessing a tangible computer readable storage medium 20 such as disk-based or solid state storage. The TV 12 can output audio on one or more speakers 22. The TV 12 can receive streaming video from the Internet using a

built-in wired or wireless modem 24 communicating with the processor 18 which may execute a software-implemented browser 26. Video is presented under control of the TV processor 18 on a TV display 28 such as but not limited to a high definition TV (HDTV) flat panel display. User commands to the processor 18 may be wirelessly received from a remote control (RC) 30 using, e.g., rf or infrared. Audio-video display devices other than a TV may be used, e.g., smart phones, game consoles, personal digital organizers, notebook computers and other types of computers, etc.

TV programming from one or more terrestrial TV broadcast sources 32 as received by a terrestrial broadcast antenna 34 which communicates with the TV 12 may be presented on the display 28 and speakers 22. The terrestrial broadcast programming may conform to digital ATSC standards and may carry within it a terrestrial broadcast EPG, although the terrestrial broadcast EPG may be received from alternate sources, e.g., the Internet via Ethernet, or cable communication link, or satellite communication link.

TV programming from a cable TV head end 36 may also be received at the TV for presentation of TV signals on the display 28 and speakers 22. When basic cable only is desired, the cable from the wall typically carries TV signals in QAM or NTSC format and is plugged directly into the "F-type connector" 38 on the TV chassis in the U.S., although the connector used for this purpose in other countries may vary. In contrast, when the user has an extended cable subscription for instance, the signals from the head end 36 are typically sent through a STB 40 which may be separate from or integrated within the TV chassis but in any case which sends HDMI baseband signals to the TV. Other types of connections may be used, e.g., MOCA, USB, 1394 protocols, DLNA.

Similarly, HDMI baseband signals transmitted from a satellite source 42 of TV broadcast signals received by an integrated receiver/decoder (IRD) 44 associated with a

home satellite dish may be input to the TV 12 for presentation on the display 28 and speakers 22. Also, streaming video may be received from the Internet 46 for presentation on the display 28 and speakers 22. The streaming video may be received at the computer modem 24 or it may be received at an in-home modem 48 that is external to the TV 12 and conveyed to the TV 12 over a wired or wireless Ethernet link and received at an RJ45 or 802.11x antenna on the TV chassis.

Figure 2 shows details of an example TV 12. As shown, the terrestrial signal in ATSC format is input to the TV tuner 16, as is basic cable in NTSC or QAM format in the event that basic cable is used and the wall cable plugged into the F-type connector 38. On the other hand, streaming Internet video may be received at a DOCSIS tuner 50 and demodulated/decoded at a DOCSIS decoder/demodulator 52. Typically, the DOCSIS components are housed separately from the TV 12 but in some embodiments may be included in the chassis of the TV 12.

The output of the tuner 16, depending on the signal format received, may be sent to an NTSC decoder/demodulator 54, or a QAM decoder/demodulator 56, or an ATSC decoder/demodulator 58. The output from the NTSC decoder/demodulator 54 can be sent directly to the display 28 and speakers 22 for presentation. On the other hand, the output from the digital decoder/demodulators 56, 58 typically is sent to a transport stream demultiplexer 60, which separates the desired program from other programs in the selected stream and sends the desired program to an MPEG video decoder 62, which in turn uncompresses the MPEG desired program and sends the uncompressed program to the TV display 28 for presentation. Audio from the demultiplexer 60 may be sent to an audio decoder 64 which in turn sends the decoded audio to the speakers 22 for presentation.

In contrast to the sequence of decoder/demodulators, demultiplexer, and MPEG decoders discussed above, video from either the STB 40 or IRD 44 is in baseband HDMI when it is received by the TV 12. Accordingly, the signals from the STB 40 or IRD 44 are sent directly to the TV display 28 for presentation without further video decompression between the STB 40 or IRD 44 and TV display 28. Audio from the STB 40 or IRD 44 may still be in a format, e.g., AC3, that requires decoding prior to play on the speakers 22 so the audio may be sent through the audio decoder 64 as shown. Likewise, audio from the ATSC terrestrial source 32 may be in AC3 format and so may be sent through the audio decoder 64. Internet video from the DOCSIS decoder/demodulator 52 may be sent through the demultiplexer 60 and decoders 62, 64 as shown.

Now referring to Figure 3, at block 66 a user of the TV 12 can be conducted, using onscreen user interfaces (UI), through a set-up routine upon first power on or thereafter from a menu to set up various features of the TV. As an example, the user may be asked, for one or more licensable components within the TV, if the user desires to use that component. This may be done implicitly, e.g., by asking the user if the user wishes to automatically scan the broadcast spectrum to detect channels, in which case it may be inferred that the ATSC decoder/demodulator 58 and MPEG decoder 62 will be required and, hence, that licenses to use those components will be needed. Also, in this latter case it may be inferred that a license to the terrestrial broadcast EPG may be required, whereas such a license would not be required if terrestrial broadcast were not being used as an input source.

Or again, the user may be given the choice to receive Internet video through the built-in modem 24 or from an external modem 48 and if the latter is chosen, no license

need be obtained for the internal browser 26; otherwise, a license may be required to use the internal browser 26.

Proceeding to block 68, for each license that is inferred to be required based on the user set-up selections at block 66, the TV 12 uploads a request for the license over the Internet, for example, or back through a two-way cable system, etc. Or, as explained further below the request may be made by telephone. Regardless of how made, the request typically identifies the component for which a license is required based on user input at block 66 along with a unique identification of the TV, e.g., a hash of the TV model number and serial number, in some embodiments encrypted if desired. Or, the unique identifier may be a high definition content protect (HDCP) key selection vector (KSV) of the device 12, or a media access control (MAC) address, or a digital transmission content protect (DTCP) certificate, one or more of which may be hashed with the serial number and/or model name of the device 12. This hashed result can be sent to the server. The server can now uniquely identify the device. In the event the device needs to be repaired and the unique ID contained in the device is changed, the device's previous identity advantageously can be migrated to a new hashed ID. To simplify this migration of the ID, the server can generate a unique key, and send it to the repaired device after receiving the initial hashed ID and notification (e.g., from the device 12) that the device was repaired and requires a new unique ID. In some implementations the user of the device 12 can manually recall the original ID, send it to the server, and the server, using the original ID, migrates records of the licenses previously enabled by the device 12 to the new ID.

The request may be made at set-up time. Alternatively, the request may be cached for later upload when, e.g., an appropriate broadband connection is sensed. In any case,

the request may be sent to an Internet server at a prestored Internet address or to a cable head end or to another appropriate licensing entity or agent.

Block 70 indicates that assuming it passes authentication the TV 12 receives back the license in the form of licensing information, typically a code that must be input to the TV processor 18 to enable or unlock the associated component. Or the associated component may require software code to function and a critical piece of the code which is related to the licensable feature may be omitted when the device is vended, with this critical piece of code being supplied at block 70 to enable the licensable feature of the component. Prior to provision of the critical piece of code, the licensable feature of the component in effect is not merely locked out, but rather is effectively missing altogether, even though other parts of software code needed to execute the licensable feature are vended with the device.

The code may be automatically input to the appropriate internal components of the TV at block 72 or the code may be displayed on the TV and the user prompted by means of an onscreen UI to enter the code using, e.g., the RC 30. Proper input of the code activates the related component within the TV. Block 74 simply indicates that license fee data is maintained and used to generate billing information from the licensing agency to the manufacturer of the TV, and may also be used to generate marketing data as discussed further below. The data may be kept in the TV until uploaded to a licensing entity/agent by means noted above.

Figure 4 shows that automatic license determinations may be made outside of a user set-up routine if desired. In the example shown in Figure 4, commencing at decision diamond 76 it is determined whether a predetermined physical condition exists in the TV, e.g., a particular kind of connection, from which it may be inferred what licensable

components will be required. In the example of Figure 4, the physical condition is the presence of a voltage in the automatic gain control (AGC) circuitry of the tuner 16, which would occur when, for instance, a connection is made at the TV chassis to the terrestrial antenna 34 or when a cable from the wall is connected to the F-type connector 38.

When the tested-for physical condition exists, the logic flows to block 78, in this example to activate the NTSC demodulator 54. This is done recognizing that NTSC demodulators typically require no licenses, so to avoid unnecessarily requesting licenses, the signal at the tuner 16 is first tested to determine if it is an NTSC signal. PAL or SECAM can also be used. Decision diamond 80 indicates that the test may be whether "noise", is present in the signal.

If the test indicates that NTSC signals only are present the logic ends, but otherwise the logic flows to block 82 to activate the QAM decoder/demodulator 56. If QAM only is detected (by the QAM decoder/demodulator 56 recognizing QAM signals and/or no noise) the logic ends, but if the QAM decoder/demodulator 56 does not recognize the signal, this indicates that the signal is neither QAM nor (from decision diamond 80) NTSC, with the inference thus being that the signal is ATSC requiring use of the ATSC decoder/demodulator 58, which is activated at block 86 to process the signal. At block 88 an uplink is obtained by the TV processor 18 to the above-described licensing entity/agent to obtain the license code discussed above using the unique ID of the TV, and at block 90 the code is received and used as necessary to permit use of the ATSC decoder/demodulator 58.

Or, the step at block 90 can be omitted and the ATSC decoder/demodulator 58 immediately activated on the assumption that the processor 18 is programmed to send a

message to the licensing entity/agent that licensing accounting is to be generated after activation of the ATSC decoder/demodulator 58.

Yet again, as shown in dashed lines in Figure 4 the logic may flow first from decision diamond 84 to blocks 88 and 90 to obtain the licensing "unlock" code and then back to block 86 to activate the ATSC decoder/demodulator 58 using the code, to ensure that no use may be made of the ATSC decoder/demodulator 58 until such time as the licensing entity/agent has been informed of its use, has authenticated the TV for the necessary ATSC license, and has determined that under business rules the license code should be downloaded to fulfill the request.

Additional example inference rules that may be employed pursuant to automatically obtaining needed component licenses after vending the TV to avoid paying for unnecessary licenses prior to sale of the TV include, if there is ATSC present, it is less likely that QAM will be found; if ATSC is present, the total number of ATSC channels will be much smaller than the number for QAM channels. Also, when signals are received from an external modem 48, audio video programming does not require use of the built-in browser 26 and so receipt of video over an Ethernet link without receipt of signals at the internal modem 24 may be inferred to mean that the browser 26 is not in use.

Figures 5-7 illustrate logic that may be used during setup to obtain licenses. Using, e.g., the RC 30, a person may input 92 a request to conduct auto-scan of available terrestrial or cable or satellite channels from, e.g., an onscreen setup menu presented on an audio video display product 94 (which may be implemented by the TV 12). In response, the AV display product sends an activation request for, e.g., the ATSC decoder/demodulator 58 which may include the tuner ID and product 94 ID and/or the decoder/demodulator 58 ID/product 94 ID. Activation of the ATSC decoder/demodulator

58 is executed at 96 using activation codes from one or more licensing entities/agents such as server 98, provided the licensing entities/agents determine, based on the information received from the product 94, that the product is entitled to a license for the requested component.

A log may be kept by the licensing entities/agents indicating what products and what components in those products have been activated and based on that log, licensing accounting data may be generated for purposes of presenting licensing invoices for activated components to the manufacturer of the product 94. In any case, 100 indicates that the product 94 receives the activation response, e.g., activation codes, to activate the demodulator/decoder 58 at 101, which converts the product 94 to an ATSC-capable device. The user may be notified using onscreen notification that ATSC programming may now be viewed using the product 94.

Figure 6 shows an alternative embodiment. Using, e.g., the RC 30, a person may input 102 a request to conduct auto-scan of available terrestrial or cable or satellite channels from, e.g., an onscreen setup menu presented on an audio video display product 94 (which may be implemented by the TV 12). In response, at 104 telephone information including a phone number to a licensing entity/agent is prepared and the user notified 106 of the information by means of, e.g., a user interface or prompt presented on the product 94. The user enters 108 the information into a telephone, either by speaking the number or by holding the telephone adjacent a speaker on the product 94 for receiving dual tone multifrequency (DTMF) tones from the product that are detected by the telephone and used to automatically dial the number using, e.g., a voice response unit (VRU) 110.

Other alternate embodiments involve sending short message service (SMS) messages to a server to send the above information or scanning bar-type codes on the TV

or component to send the requisite information to the server to obtain the license. In any case, determining what licenses are needed may be accomplished upon start up and/or periodically during operation.

Tuner activation is generated at 112 by licensing entities/agents 114 such as Internet servers and the activation code discussed above sent 116 to the VRU 110, which presents the code to the user to complete the activation process at 120. Activation of the licensable component, e.g., the ATSC decoder/demodulator 58, is executed at 101, which converts the product 94 to an ATSC-capable device. The user may be notified using onscreen notification that ATSC programming may now be viewed using the product 94.

Figure 7 shows another alternative embodiment. Using, e.g., the RC 30, a person may input 122 a request to conduct auto-scan of available terrestrial or cable or satellite channels from, e.g., an onscreen setup menu presented on an audio video display product 94 (which may be implemented by the TV 12). In response, at 124 Internet information including an Internet address of a licensing entity/agent is prepared and the user notified 126 of the information by means of, e.g., a user interface or prompt presented on the product 94. The user enters 128 the information into, e.g., a home computer 127. Tuner activation is generated at 130 by licensing entities/agents 132 such as Internet servers and the activation code discussed above sent 134 to the computer, which presents 136 the code to the user by means of, e.g., a web page or telephone to complete the activation process at 138. Activation of the licensable component, e.g., the ATSC decoder/demodulator 58, is executed at 101, which converts the product 94 to an ATSC-capable device. The user may be notified using onscreen notification that ATSC programming may now be viewed using the product 94.

Alternatively, licensing information may be exchanged using short message

service (SMS) codes or by using bar codes. To use bar codes the TV can include a camera that images the bar codes on various components, which are interpreted by the processor 18 as identifying information.

In some instances, if only a limited number (e.g., two) NTSC channels are needed, a limited and less expensive license may be requested and granted to permit access to only those two channels through the NTSC demodulator with a license being requested and granted to any component such as a stereo audio decoder should the legacy device (typically, a VCR) use such audio.

Figure 8 shows logic that may be executed by a licensing entity/agent computer. Commencing at block 140, a license request from, e.g., the TV 12 is received at, e.g., any of the above-described servers or head ends, which are programmed with software to execute the logic shown in Figure 8. The unique ID discussed above is looked up at block 142 and the requesting device is authenticated at decision diamond 144 by, e.g., determining if the device is on a list of approved devices. If desired, it may be further determined whether a license for the particular licensable component that is the subject of the request has already been granted and if so, authentication fails. If the requesting device is approved and a license for the licensable component that is the subject of the request has not already been granted, the logic moves to block 146 to send license information, e.g., activation codes, to the requesting device.

Block 148 indicates that license accounting data is generated pursuant to sending the activation code to the requesting device. This accounting data can be used to effect remuneration from the manufacturer of the requesting device to the licensing authority for the component that is the subject of the request. At block 150 the authorized device database is modified to record the grant of the license.

Marketing data may be generated at block 152 based on the license grant. As an example, the total number of devices vended with the licensable component may be compared against the number of licenses granted to requesting devices to ascertain usage of the component compared to other components within the requesting device. For instance, it might be noted that 30% of vended devices of a particular TV model ever request activation of the ATSC tuner. This data can moreover be correlated to demographic data obtained during device registration so that, as an example, of the 30% of devices requesting activation of the TV tuner, it can be known which geographic region was more likely to request such activation, or which demographic age group, etc. It may be further ascertained, using device registration information submitted by purchasers, that of the devices requesting activation of the ATSC tuner, for example, 90% of those devices were second or third home TVs that consequently can be inferred to lack a cable or satellite hookup.

It is preferred that once a licensable component has been activated by obtaining a license for it, it cannot subsequently be deactivated by the user, to avoid multiple license payments for the same component. Accordingly, the TV processor 18 may be programmed to refuse deactivation commands from the user if any are input for any component that has been activated and licensed, at least insofar as deactivation would require another license to reactivate.

Verification of license may also be provided by the TV processor so that, for example, if a component license is requested by the TV but the corresponding feature never used within some period of time, the TV can retract the license request and any license fees refunded as a result.

Figure 9 shows that the above-described CE device 12 may be embodied as a TV 200 and in another implementation as a game console 202 that communicates with the TV 200. The game console 202 and/or TV 200 may communicate through a wide area network such as the Internet 204 with a license activation server 206, which can function similarly to the above-described servers.

The TV 200 may receive HDMI video from the game console 202 for display thereof on the TV. Also, the TV 200 may receive HDMI video through, e.g., an audio video amplifier 208 from a cable set top box 210 and a video disk player 212 such as but not limited to a Blu-Ray disk player.

In accordance with principles above, in the arrangement shown in Figure 9, some licensable components may require activation and others may not. For instance, since the TV 200 in the embodiment shown does not receive input from a terrestrial antenna, and instead receives TV signals from the set top box 210, no license for an internal TV tuner or ATSC demodulator or NTSC demodulator or QAM demodulator or MPEG decoder is required. However, HDCP capability is required by the TV to properly display HDMI form the set top box 210, disk player 212, and game console 202. Furthermore, some licensable components in, e.g., the disk player 212 may require activation but unless those components are pre-activated, the disk player 212, which does not communicate with the Internet but only with the TV 200 (through the amplifier 208 in the example arrangement shown), cannot directly communicate with the server 206 in accordance with principles above to activate licensable components post-vending. Also, if the location of a TV changes to another location/region where the activated features are not utilized or not covered by a license agreement, the device can prompt the owner to allow deactivation. For example the device is moved from the USA to Mexico (as sensed by the processor

using, e.g., GPS input) where there is no Rovi EPG service, or if the TV suffers an internal failure which renders a licensable feature to become unavailable (as sensed by the processor pursuant to, e.g., diagnostic testing), the processor may present a prompt on the TV display requesting the user to enter a deactivate command for the relevant component.

The logic of Figure 10 thus assumes that various components in Figure 9 such as the TV 200 and disk player 212 are vended without all licensable components being enabled or activated, e.g., HDMI/HDCP-related licenses only activated, and thus without the manufacturer having paid license fees related to those components in some cases under an agreement to pay license fees on a single per-household basis for all components in the house once one or more licensable components are activated or under an agreement to pay license fees on a per-device basis for each device enabling a licensable component in accordance with principles herein.

Accordingly, at block 214 one of the devices in the household system shown in Figure 9 is established as an aggregation device. This can be done by predetermined device type, e.g., the TV 200 is always designated as the aggregation device, or by device-to-device negotiation, e.g., two devices can negotiate with each other by exchanging capabilities and the device with the appropriate capabilities for an aggregation device, e.g., an Internet connection, can be mutually designated as the aggregation device.

Moving to block 216, other devices in the household system shown in Figure 9 inform the aggregation device of what licensable features or components it either has enabled, thereby potentially triggering a royalty payment event, or requires a key to enable in accordance with prior discussion. In some cases the aggregation device infers what licensable features or components another device requires by, e.g., receiving data in a format such as HDMI from a sending device that requires a license. In other cases the

aggregation device demands of the other device(s) to know the identity of any licensable components requiring activation, along with the device(s) identification(s) according to above principles.

At block 218, upon establishing a network connection with the server 206 or after a predetermined period of quiescent time, the aggregation device uploads to the server 206 license information for component activations that have occurred since the prior report sent to the server 206 by the aggregation device. The information may include a list of device IDs in the household and corresponding licensable features by device ID that have been enabled. Or, the information may include only the ID of the aggregation device as a proxy for the household system along with the identity of any licensable component that has been activated in the household system, with or without an indication of how many different devices activated any particular component. When only a single activation is indicated of a component that may have been activated by plural devices in the household, a per-household royalty arrangement typically is in force. The necessary royalty payments are determined at block 220 on a per-device basis or per-household basis depending on the business model being used.

Without limitation, the need for paying for licenses for the following technologies may be determined during TV set-up or subsequently by automatically detecting whether the technologies are being used:

- Video decoders such as: MPEG-2 video, MPEG-2 video with optical disk, MPEG4 advanced video coding (AVC), MPEG4 Visual, MPEG video codec (VC) 1
- Audio decoders such as: unified AAC (MPEG 2&4 AAC) 2ch, unified AAC (MPEG 2&4 AAC) 3ch, Dolby Digital AC3 2ch, Dolby Digital AC3 5.1ch, Dolby Digital Plus (DD+) 2ch, ProLogic2 (Surround Sound), MPEG audio 1&2 layer 1, 2, 3) MP3, DTS_Blueray disk (BD) (2CH/2CH+ Digital Out), BBE Sound, sound retrieval system (SRS) sound
- EPGs such as: Gemstar Guide EPG, non-Gemstar EPG (SI-EPG)
- Demodulators such as: Association of Radio Industries and Businesses (ARIB) (D+BS+CS), ATSC, digital video broadcasting (terrestrial) (DVB-T)
- Other components including digital rights management (DRM) such as: Joint Photographic Expert Group (JPEG), digital transmission content protection (DTCP)/AACP/Open MG, HDMI, System Synchronized Brightness Control (contrast enhancement), Inverter controller integrated circuit (IC), IEEE 802.11 wireless license, IEEE 802.11(n), BD Pool (player), BD Pool (recorder), digital video disk (DVD) format, IEEE 802.11/16, IEEE 1394
- Software such as: JAVA™, MHP/Ginga™ interactive TV software, JAVA-BD™ combination, DivX™ codec software, Windows Media Audio, Windows Media Video, Windows Media Network read,

Windows Media digital rights management (DRM), audio watermark, Netfront, web browser software.

Additionally, production encryption keys and test encryption keys may be used to permit testing a licensable component in production, pre-sale, without triggering the above-described license request mechanisms. A TV may be placed in a test activation mode used only in the manufacturing or test phase, and if desired the test mode may have a hardwired time out. A test key or keys can be used to activate licensable components and the license request algorithm recognizes a test key and responsive to the recognition does not request a license. The test activation mode may be hardwired to deactivate after a single power cycle and the TV processor may not permit reactivation of the test mode thereafter. Activation of a licensable component thereafter requires a production key which is associated with a license request.

While the particular ACTIVATING LICENSABLE COMPONENT USING AGGREGATING DEVICE IN HOME NETWORK is herein shown and described in detail, it is to be understood that the subject matter which is encompassed by the present invention is limited only by the claims.

WHAT IS CLAIMED IS:

1. Aggregation device for a system comprising the aggregation device and at least one other audio video apparatus communicating with the aggregation device, the aggregation device comprising:
 - a processor;
 - a computer readable storage medium bearing instructions executable by the processor to:
 - determine that at least one licensable component of the audio video apparatus requires activation; and
 - responsive to the determination that the licensable component requires activation, communicate to a server using a network that a license event has occurred.
2. The aggregation device of Claim 1, wherein the processor determines that at least one licensable component of the audio video apparatus requires activation at least in part by receiving from the audio video apparatus an identification of the licensable component.
3. The aggregation device of Claim 1, wherein the processor determines that at least one licensable component of the audio video apparatus requires activation by inference based on a format of data received from the audio video apparatus.
4. The aggregation device of Claim 1, wherein the aggregation device receives information from the audio video apparatus indicating the audio video apparatus has already enabled the licensable component and based thereon, informs the server of the license event
5. The aggregation device of Claim 1, wherein the aggregation device receives information from the audio video apparatus indicating that the audio video apparatus requests activation of the licensable component and based thereon informs the server of

the license event

6. The aggregation device of Claim 1, wherein the aggregation device informs the server of the license event immediately upon establishing a network connection with the network.
7. The aggregation device of Claim 1, wherein the aggregation device informs the server of the license event after a predetermined period of quiescent time.
8. The aggregation device of Claim 1, wherein the aggregation device communicates to the server using the network that the license event has occurred along with an identification of the aggregation device only.
9. The aggregation device of Claim 1, wherein the aggregation device communicates to the server using the network that the license event has occurred along with an identification of the audio video apparatus.
10. The aggregation device of any one of Claims 1-9, wherein the license event includes that the audio video apparatus has enabled the license component.
11. The aggregation device of any one of Claims 1-10, wherein the activation includes provision of code that activates the licensable component of the audio video apparatus.
12. Aggregation device for a system comprising the aggregation device and at least one other audio video apparatus communicating with the aggregation device, the aggregation device comprising:
 - a processor;
 - a computer readable storage medium bearing instructions executable by the processor to:
 - determine that at least one licensable component of the audio video

apparatus requires activation; and

responsive to the determination that the licensable component requires activation, communicate to a server using a network that a license event has occurred, the license event includes that the audio video apparatus has enabled the license component, wherein the processor is configured by the instructions to communicate to the server using the network that the license event has occurred along with the identification of the aggregation device only.

13. The aggregation device of Claim 12, wherein the processor determines that at least one licensable component of the audio video apparatus requires activation at least in part by receiving from the audio video apparatus an identification of the licensable component.

14. The aggregation device of Claim 12, wherein the processor determines that at least one licensable component of the audio video apparatus requires activation by inference based on a format of data received from the audio video apparatus.

15. The aggregation device of Claim 12, wherein the aggregation device receives information from the audio video apparatus indicating the audio video apparatus has already enabled the licensable component and based thereon, informs the server of the license event

16. The aggregation device of Claim 12, wherein the aggregation device receives information from the audio video apparatus indicating that the audio video apparatus requests activation of the licensable component and based thereon informs the server of the license event

17. The aggregation device of Claim 12, wherein the aggregation device informs the server of the license event immediately upon establishing a network connection with the network.

18. The aggregation device of Claim 12, wherein the aggregation device informs the server of the license event after a predetermined period of quiescent time.

19. The aggregation device of Claim 12, wherein the aggregation device communicates to the server using the network that the license event has occurred along with an identification of the audio video apparatus.

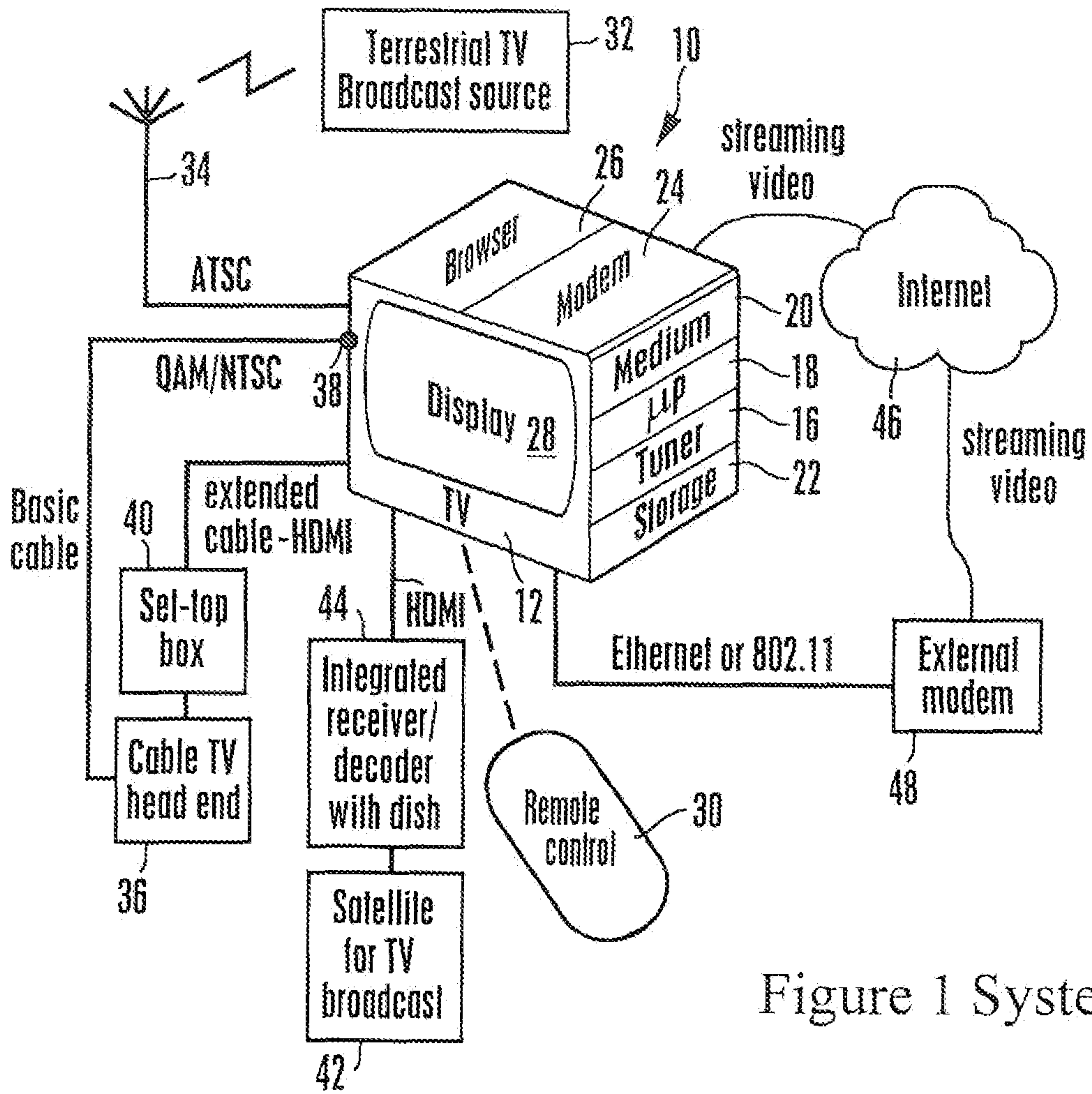


Figure 1 System

Figure 2 TV

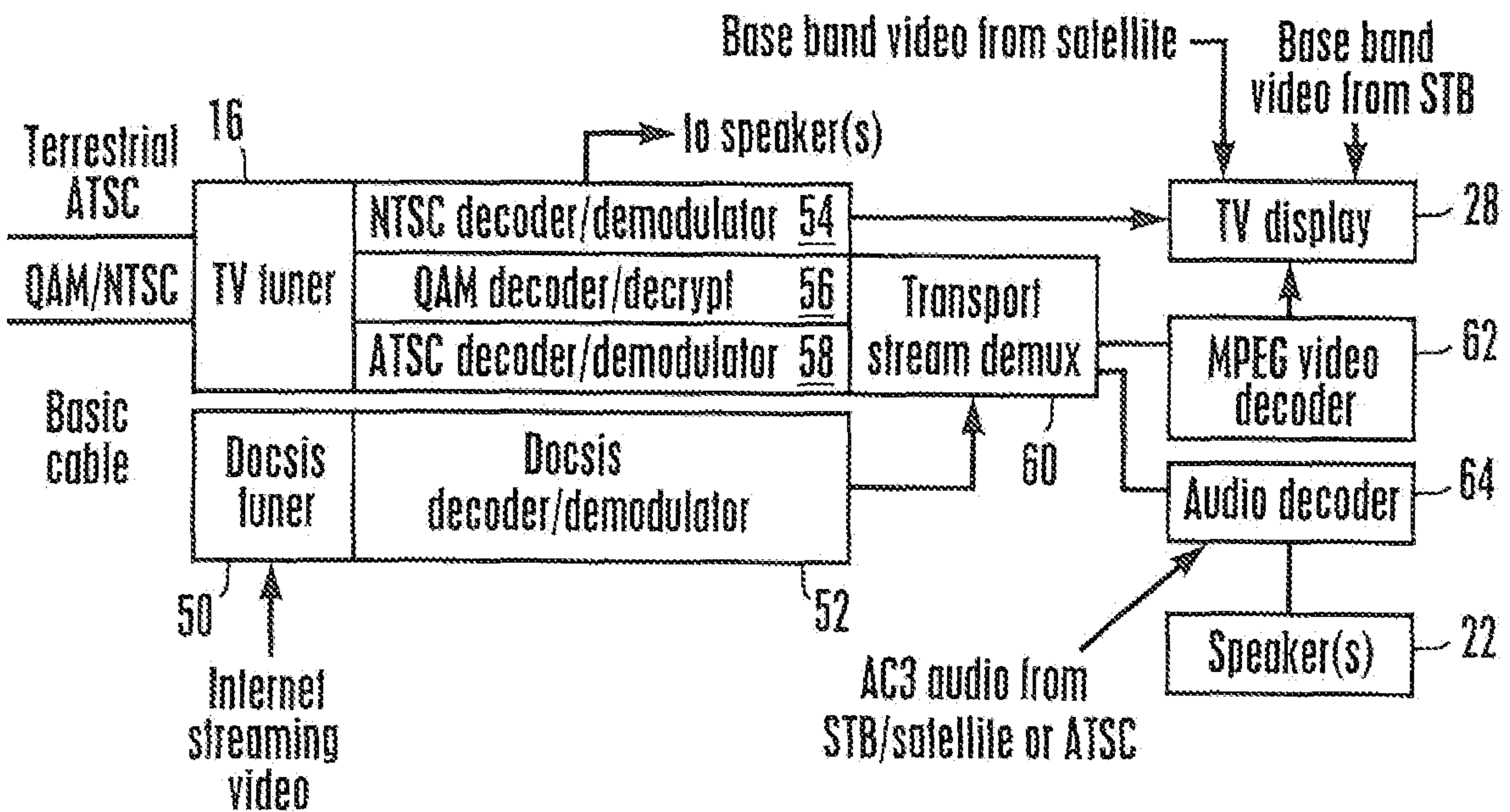


Figure 3
Setup logic

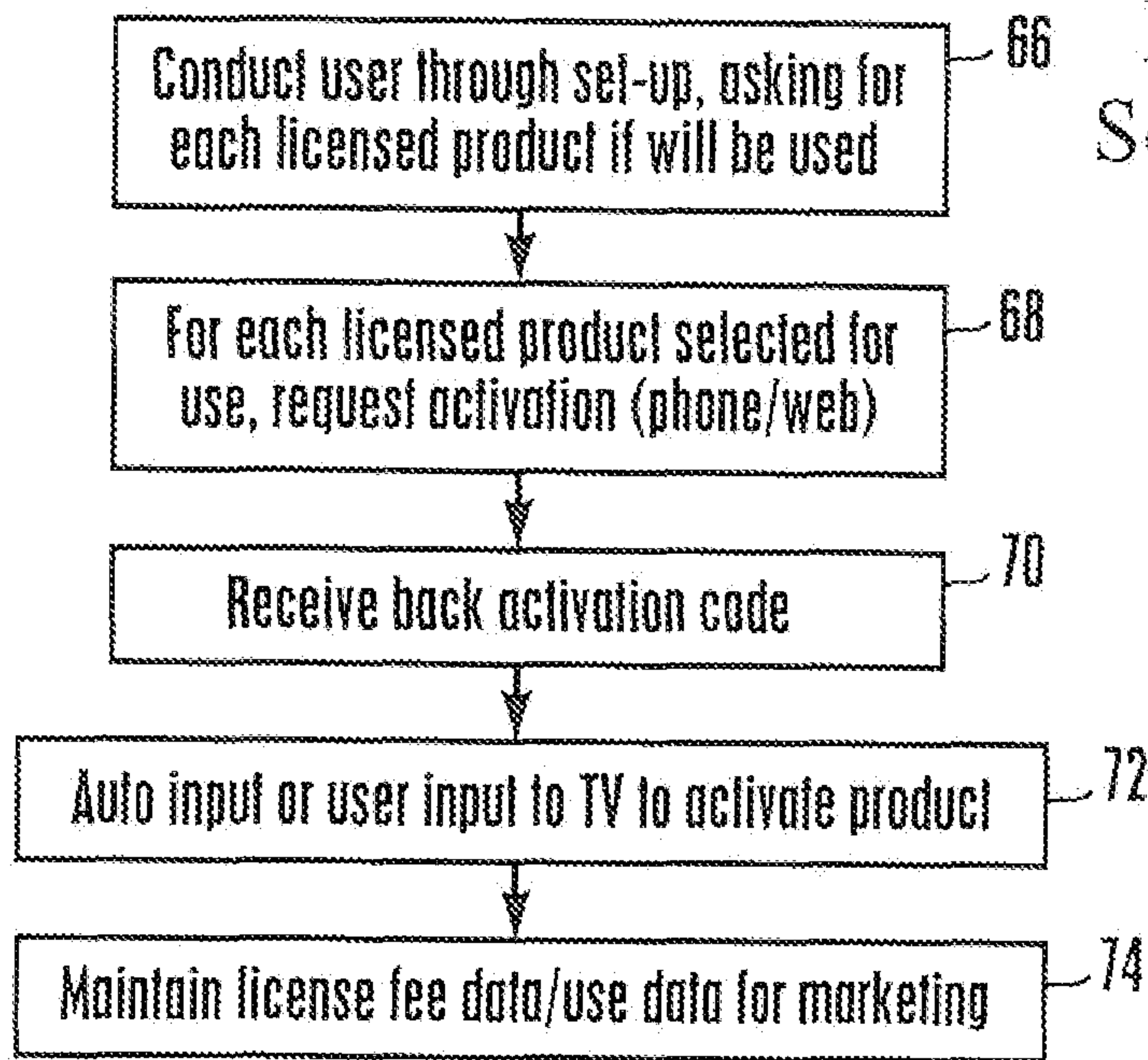


Figure 4
auto license logic

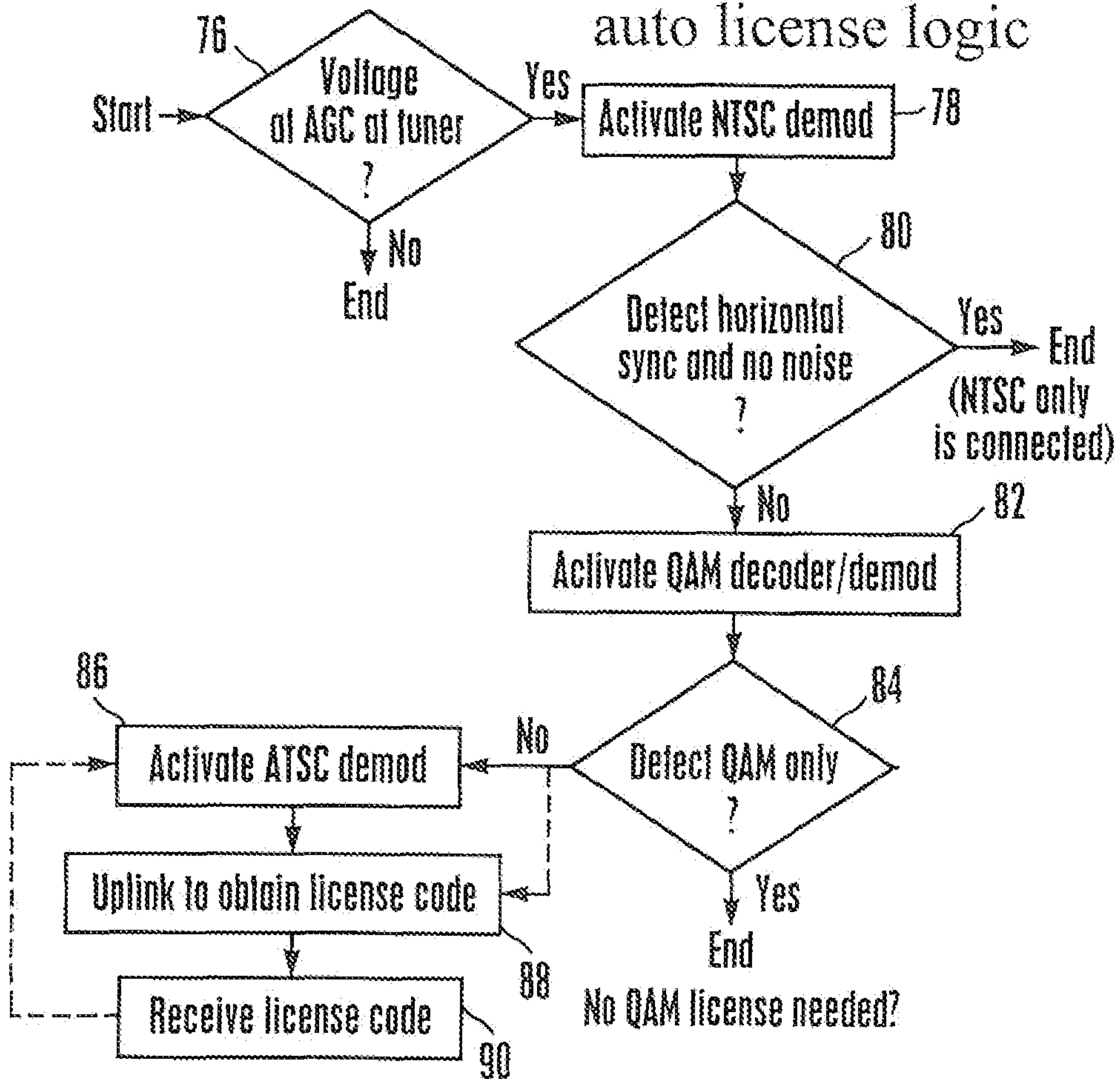
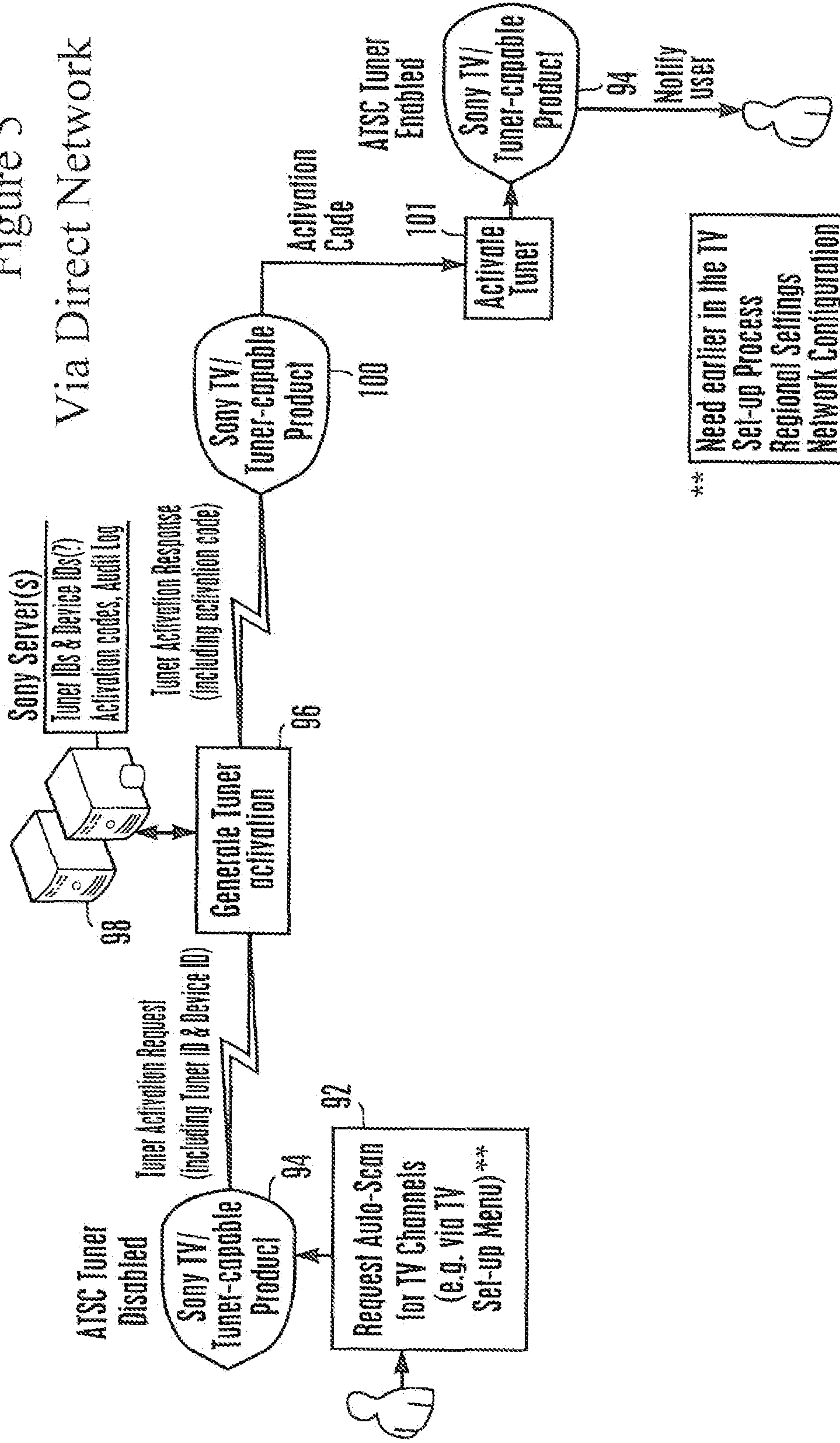
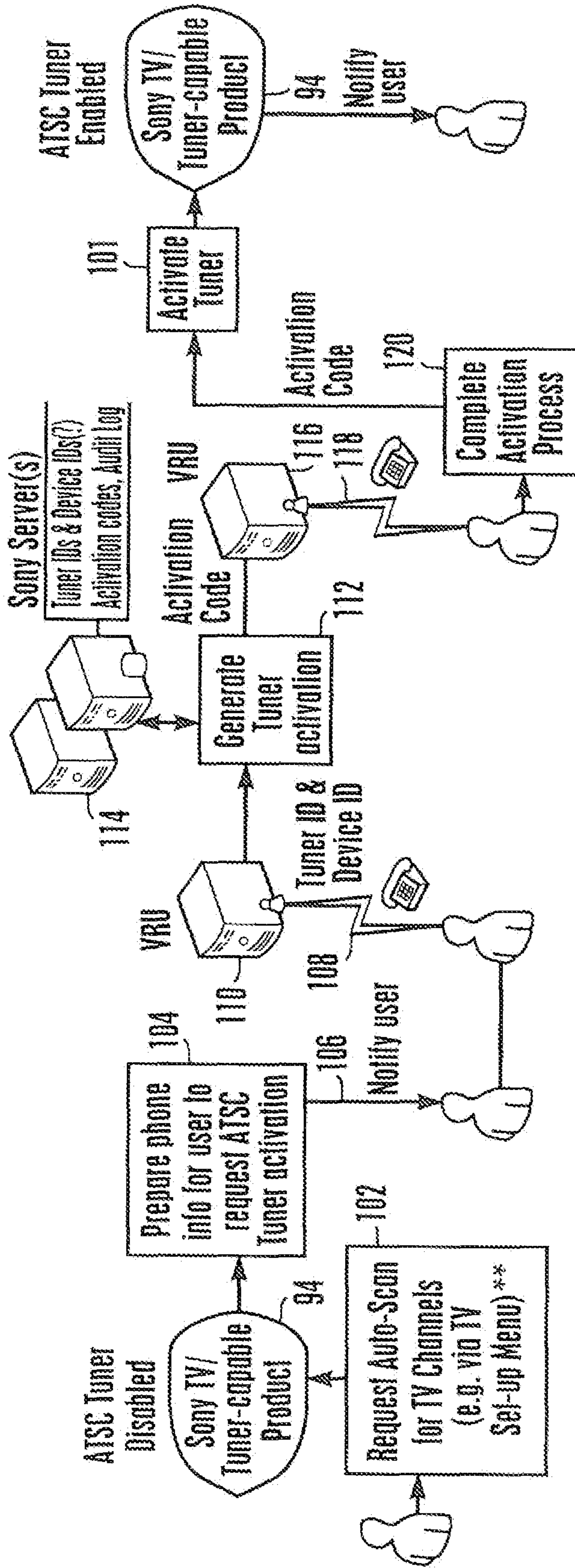


Figure 5
Via Direct Network



**
Need earlier in the TV
Set-up Process
Regional Settings
Network Configuration

Figure 6
Via Automated Phone Support



**
Need earlier in the TV
Set-up Process
Regional Settings
Network Configuration

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Figure 8 licensing logic

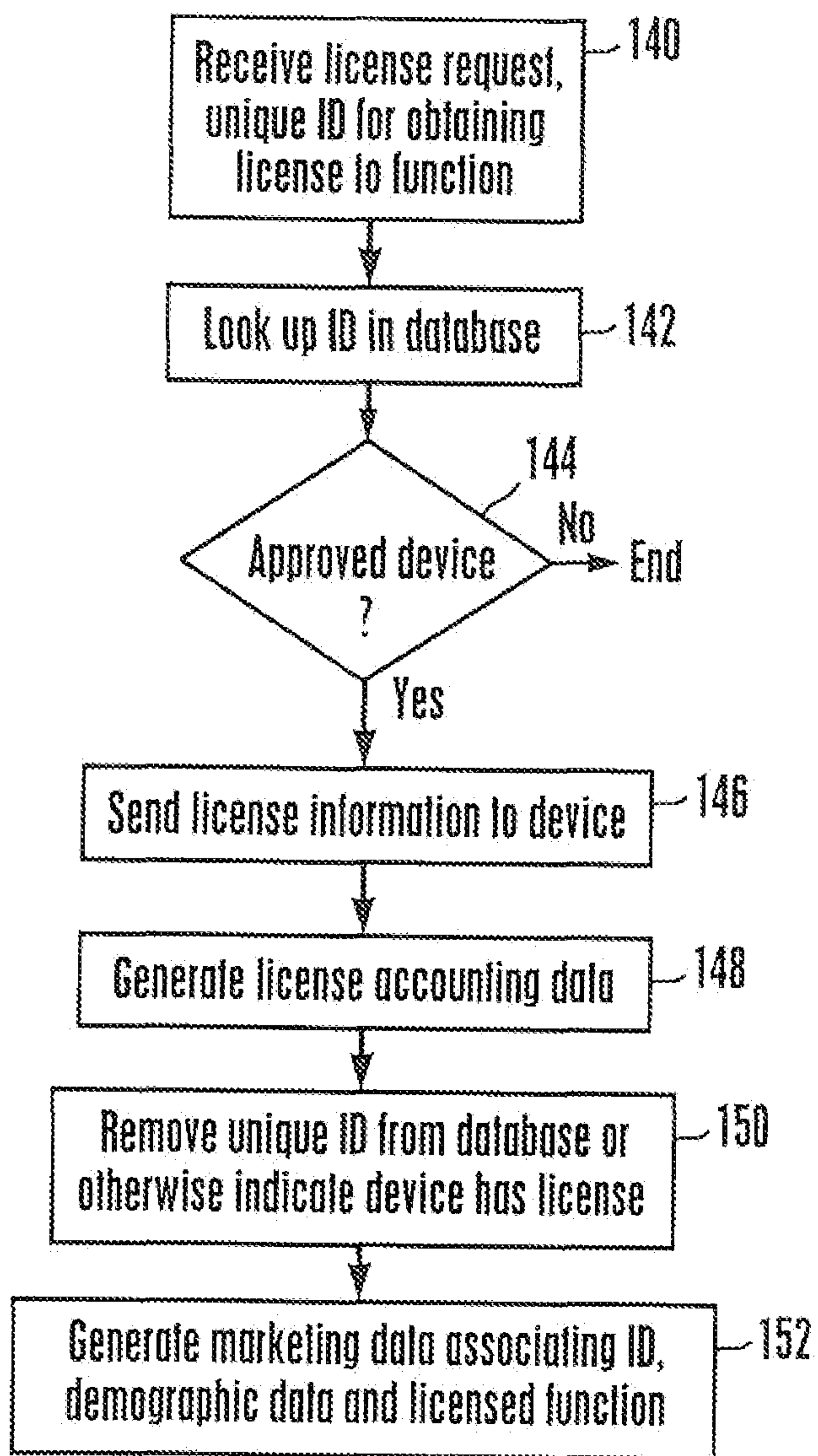


Figure 9

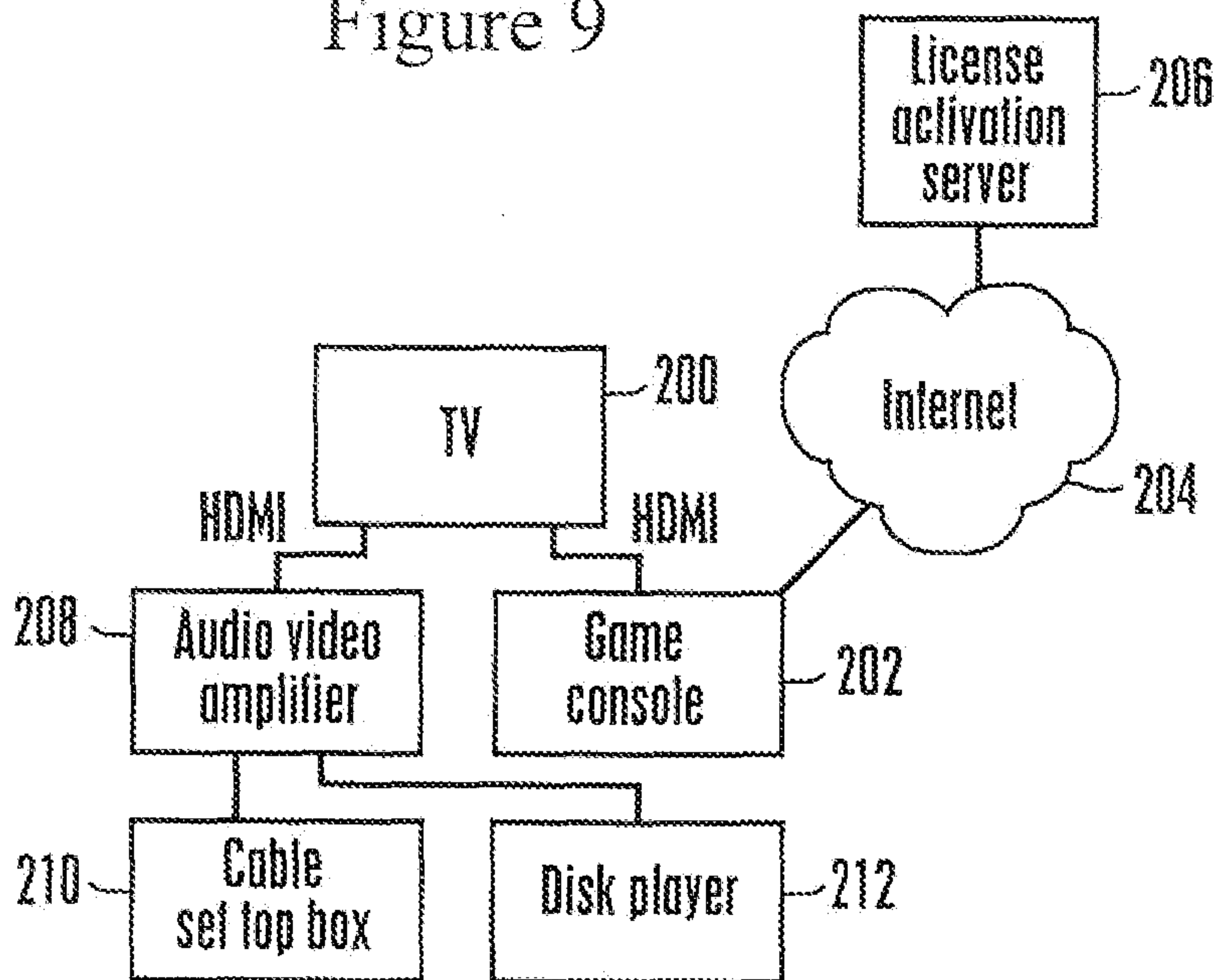


Figure 10

