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(54) Title: APPARATUS AND METHOD FOR RETRIEVING AND UTILIZING SOFTWARE AND DATA RECEIVED THROUGH A DIGITAL RECEIVER

(57) Abstract: A system retrieves and/or utilizes software and/or data which is received through a digital receiver. A digital broadcast signal containing programming material and data is received by the digital receiver. The received data is stored on a memory which is separate from the digital receiver. The memory can be a portable memory device such as a smart card. The data can include coupons and/or account information or other identifying information.



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**APPARATUS AND METHOD FOR RETRIEVING AND UTILIZING
SOFTWARE AND DATA RECEIVED THROUGH A DIGITAL RECEIVER**

Technical Field of the Invention

5 The present invention relates to an apparatus that enables a user to download, retrieve, utilize, and/or store software and data received through a digital receiver.

Background of the Invention and Prior Art

10 The ATSC digital broadcast standard for digital television allows for the transmission of 19 Mbits/sec in an RF channel having a 6 MHz bandwidth. Although this allocated bandwidth is adequate for a single analog NTSC television channel, the ATSC bit rate permits the same channel to support the concurrent transmission of several
15 standard definition television (SDTV) programs (i.e., programs displayable with a resolution comparable to that of the NTSC analog program). Alternatively, the allocated bandwidth at the ATSC bit rate permits a channel to support the transmission of a single high
20 definition television (HDTV) program at a time. Moreover, the ATSC digital broadcast standard permits data to be transmitted in the channel along with digital programming. Therefore, data packets may be multiplexed in the channel with video and audio program packets.

25 Various receivers, such as digital televisions, digital VCRs, and computers equipped with digital television tuners and demodulator cards, may receive the digital programming. Because data may be transmitted along with one or more programs in a digital RF channel,
30 it is possible to transmit program content that includes data. Such program content, for example, may be a

commercial with an embedded uniform resource locator (URL) associated with a website containing additional information about the product or service being advertised, or may include a coupon for the advertised product or application software adapted to access the embedded URL or to manipulate other data transmitted therewith.

Because the program content that includes the Internet or website address is broadcast in a digital RF channel, it is also receivable by digital receivers other than computers, such as digital televisions. However, typical digital televisions are not web enabled. Therefore, the user of such a digital television has no access to the additional information linked to the Internet or website address, or to any software transmitted with the received program. Moreover, if the digital television is not web enabled, the user also has no ability to transmit data responsive to the received data.

The present invention is directed to a device which permits remote access to data, such as an Internet address, embedded in a program, which permits retrieval of software and other data transmitted in a digital broadcast signal and received by a digital receiver, which permits utilization of the software in association with data transmitted therewith, and/or which permits transmission of data in response to the received data.

Summary of the Invention

In accordance with the present invention, a data retrieval system retrieves data from a digital broadcast signal. The digital broadcast signal includes at least one television packet and at least one data packet containing the data. A digital receiver is adapted to receive the digital broadcast signal with the

at least one television packet and the at least one data packet. The data retrieval system includes a memory that stores the data from the at least one data packet, and the memory is separate from the digital receiver.

5 Brief Description of the Drawings

These and other aspects and features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

10 FIG. 1 is a block diagram of a data retrieval system according to one embodiment of the invention;

FIG. 2 is a block diagram of a personal digital assistant linked to a personal computer according to another embodiment of the invention;

15 FIG. 3 is a block diagram of a data retrieval system according to a third embodiment of the invention;

FIG. 4 is a flow chart indicating a sequence of operation according to the third embodiment of the invention;

20 FIG. 5 is a block diagram of a data exchange system according to a fourth embodiment of the invention; and,

FIG. 6 is a flow chart indicating a sequence of operation according to the fourth embodiment of the invention.

25 While the invention is susceptible to various modifications and alternative constructions, certain illustrative embodiments thereof have been shown in the drawings and will be described below in detail. It should be understood, however, that there is no intention to limit the invention to the specific forms disclosed, but on the contrary, the intention is to cover all
30 modifications, alternative constructions and equivalents

falling within the spirit and scope of the invention as defined by the appended claims.

Detailed Description of the Preferred Embodiments

As shown in FIG. 1, a data retrieval system 10 includes a digital receiver 12, and a personal digital assistant (PDA) 14. The digital receiver 12 is assumed to be a digital television. However, as noted below, the digital receiver 12 may be other types of digital equipment. Assuming that the digital receiver 12 is a digital television, the digital receiver 12 includes a tuner 16 for tuning to one of a plurality of RF channels. The output of the tuner 16 is demodulated by a digital VSB demodulator 18 in order to recover the baseband digital signal which includes digital television (DTV) programming packets multiplexed with data packets. The portion of the baseband digital signal comprising the DTV programming packets is supplied by the digital VSB demodulator 18 to a set of video/audio processors 20 such that the video portion of the baseband digital signal is suitably decoded, processed, and supplied to a display screen [not shown], and such that the audio portion of the baseband digital signal is suitably decoded, processed, and supplied to speakers [not shown]. The tuner 16, the digital VSB demodulator 18, and the video/audio processors 20 are controlled by a television controller 22 as is conventional. The digital VSB demodulator 18, as controlled by the television controller 22, supplies the portion of the digital baseband signal comprising the data packets to a memory 24 for storage. For the purpose of separating video packets, audio packets, and data packets, the television controller 22 may read the packet codes transmitted with the video, audio, and data packets in the digital signal received by the digital receiver 12.

The data packets transmitted in the digital VSB signal and stored in the memory 24 may or may not be related to the DTV programming transmitted via the DTV programming packets and being displayed by the digital television 12. For example, in one embodiment, the DTV programming includes a television commercial for advertising a product [not shown] and the data packets transmitted therewith include Internet data containing, for example, a URL for a website sponsored by the manufacturer of the product.

In another embodiment, the data transmitted with the television commercial further includes either data for generating a coupon for the product advertised in the commercial, or application software, such as that of an Internet service provider enabling access to the Internet and thus, ultimately, access to the specific website of the manufacturer of the product, or both. Preferably, but not necessarily, the television commercial prompts the user to download the data for the purpose of retrieving the website URL, or the television commercial prompts the user to generate the coupon, and/or the television commercial prompts the user to download the application software associated therewith.

In a still further embodiment, the data transmitted may include a list of merchandise offered by a manufacturer. The list could be likened to an electronic catalog. The data could further include application software in the form of a search engine enabling the user to search the electronic catalog for a particular item or items.

To enable access to the stored data, the digital television 12 includes an IR transceiver 26 that communicates with an IR transceiver 28 disposed in the PDA 14. The PDA 14 further includes an input device, such as a button pad 30 which includes a set of buttons

used to enter, for example, a download command. The download command is thereafter routed to a processor 32 also residing within the PDA 14. In response to the download command, the processor 32 causes the IR transceiver 28 to transmit a download command signal to the transceiver 26 in the digital television 12. The television controller 22 residing within the digital television 12 responds to the download command signal received by the transceiver 26 by causing the data stored in the memory 24 to be transmitted in a data signal by the transceiver 26 to the transceiver 28 of the PDA 14.

When the data signal is received at the PDA 14, the processor 32 of the PDA 14 causes the transceiver 28 to transfer the data in the data signal to a memory 34 coupled to the transceiver 28. Preferably, after the data signal has been received by the transceiver 28 and the data transmitted therein has been stored in the memory 34, the processor 32 causes a sound generating circuit 36 to generate a tone or beep that alerts the user that the data has been successfully retrieved from the digital television 12. Alternatively, the PDA 14 may generate any other notification signal to alert the user that the data has been stored, including, for example, causing a light emitting diode (LED) [not shown] to flash, to remain lit or to change from a flashing state indicating that the data transfer is taking place to a steady on state indicating that data transfer is complete.

A prompt may be included in the program content and may be displayed by the digital receiver 12 either visually or audibly to the user in order to notify the user that Internet content is available for retrieval by the PDA 14. When the prompt is present, the user operates the button pad 30 as described above in order to retrieve the data and software content if data retrieval

is desired. Alternatively, no prompt need be given so that the user operates the PDA 14 on the chance that data and software may be available for retrieval. In this case, the notification signal provided by the PDA 14 indicates to the user whether the data and software has been retrieved. As a further alternative, when data and software is detected by the television controller 22 and stored in the memory 24, the television controller 22 may be arranged to provide a prompt to the user. Such a prompt may be an on-screen prompt, an audible prompt, or a signal transmitted by the transceiver 26 to the PDA 14 in order to initiate a local prompt by the PDA 14.

Referring also to FIG. 2, to enable the transfer of the data stored in the memory 34 to a micro-processor based device, such as, for example, a personal computer 40, the PDA 14 further includes a data port 38 by which the data is transferred to a data port 42 associated with the personal computer 40. The data ports 38 and 42 may both be serial data ports, such as RS-232 data ports, that are interconnected by a cable 44. Alternatively, the data ports 38 and 42 may instead be wireless transceivers capable of infra-red, radio frequency, or ultrasonic signal transmission/reception and/or the like.

In an embodiment in which the data includes Internet data containing a URL website address and software that enables web-browsing, the personal computer 40 may immediately launch the web-browsing software program and further cause the personal computer to seek the URL website address provided at the data port 42.

In another embodiment in which the data includes Internet data containing a URL website address, the personal computer 40 preferably includes a software program [not shown] that enables web-browsing and may further be programmed such that the supply of the data

stored in the PDA 14 to the data port 42 causes the personal computer 40 to launch the web-browsing software program and further causes the personal computer to seek the URL website address provided at the data port 42.

5 In a further embodiment, additional data codes that designate the URL website address as having been downloaded from a digital VSB broadcast signal and/or that identify the user could also be included with the website URL data. By reading these additional codes, the
10 website provider could determine which users accessing the website have actually viewed the television commercial. Thus, the present invention offers advertisers a mechanism for indicating the viewership and possibly the success of a given television commercial. Additionally, these codes could be used to enable the
15 user to download a coupon from the website that would not otherwise be accessible.

 If the data stored in the PDA 14 contains coupon generating data instead of Internet data, then the
20 data, upon being transferred to the personal computer 40, may be used by the personal computer 40 to print the coupon [not shown]. Alternatively, the coupon provided in the data signal may be an electronic coupon that is redeemable by bringing the PDA 14 to a retailer having
25 the capability to download the data from the PDA 14. The coupon information could also be down-loaded to a device that stores the data on a smart card [not shown] that is scanned for redemption by a retailer. In a still further embodiment, instead of generating a coupon, the data
30 downloaded from the PDA 14 may be used by the personal computer 40 to generate an advertisement that lists, for example, retailers that carry the advertised product, the location of such retailers and sale information for the advertised product.

The data transmitted via the digital VSB broadcast signal may include a variety of information that may be of varying degrees of interest to the user. For example, the data may include both an electronic coupon and a website URL. However, the user may only be interested in obtaining the electronic coupon. To enable download of the electronic coupon exclusively, the processor 32 of the PDA 14 is programmed to be able to analyze the data received by the transceiver 28 for the purpose of identifying the desired portions of the data for subsequent storage in the memory 34. Moreover, the keypad 30 of the PDA 14 preferably includes buttons that enable the user to specify which portions of the data signal are desired. Alternatively, the processor 32 may simply be programmed to store all of the received data in the memory 34 and in response to a user-entered command the processor 32 may cause all of the data to be transmitted to the personal computer 40 which may be programmed to be able to identify the data selected by the user. For example, upon linking the PDA 14 to the personal computer 40 with the cable 44, the personal computer 40 may be programmed to launch a data guide program [not shown] that causes a listing of the various data sets stored in the PDA memory 34 to be displayed. Or, the television controller 22 (see FIG. 1) may be programmed to be able to analyze the data transmitted in the digital VSB broadcast signal and may further be programmed to respond to a request from the PDA 14 for a specific set of data by transmitting only the specific set of requested data to the PDA 14.

The PDA 14, in addition to having the data transfer and storage capabilities described herein may further include features that enable, for example, the organization and storage of a daily calendar, and/or the storage and retrieval of data such as telephone numbers

and/or addresses. The PDA 14 may additionally include other features such as, for example, telephone signal reception/processing in order to facilitate retrieval of telephone messages and/or to notify the user of an incoming telephone call, as is performed by a conventional telephone paging system. Of course, the PDA 14 could additionally include a display and other conventional componentry necessary to support these features.

In a yet further embodiment shown in FIG. 3, the data retrieval system 10 further includes a data writer 50, through which the electronic coupon, URL data, or other received data can be downloaded from the PDA 14, the personal computer 40, or directly from the digital television 12. The data writer 50 can be any one of a number of commercially available units capable of writing data to a portable memory device 52. As used herein, "portable memory device" is defined as any form of smart card, including a credit card or debit card having a magnetic strip 54 thereon and/or an embedded microprocessor 56 and associated memory 58. Accordingly, the data writer 50 is capable of writing information to the magnetic strip 54 and/or the memory 58. The smart card 52, containing the downloaded coupon for example, can then be taken to, and electronically read by, a retailer for redemption of the coupon.

The data writer 50 may be positioned within the data retrieval system 10 in a number of convenient locations including, but not limited to, in the digital television 12, in the PDA 14, in the PC 40, in an external module 60 connected to the digital television, or in a remote control unit 62 for the digital television.

FIG. 4 shows a typical sequence of steps conducted in connection with such a data retrieval system

10. As shown therein, the digital broadcast signal is received by the digital receiver 12, as indicated by step 64. The data contained within the digital broadcast signal is then separated from the television programming signal as indicated by step 66, and more fully described above. In step 68, the processor of the digital receiver monitors the received data to determine if a coupon, URL, or other downloadable data of interest is available in the received data. If such data is available, the user is prompted, as by an on screen display, to download the data (step 70). If the user wishes to download the data (step 72), the system 10 verifies that the smart card 52 is present in the data writer 50 (step 74). If the user does not wish to download the data, the system 10 returns to normal operation (step 76).

The verification step 74 will be affirmative (step 78) in the event that a smart card 52 of the type having the magnetic strip 54 and/or the embedded processor 56 and memory 58 is being used and is temporarily loaded into the data writer 50. If the smart card 52 is not present (step 80), the system 10 prompts the user to enter the smart card 52 into the data writer 50 (step 82). When the smart card 52 is placed in the data writer 50, the data may be downloaded as indicated by step 84. Alternatively, the data may be sent to the data writer 50 for automatic downloading without such a prompt on the chance that the card 52 is present.

Once the smart card 52 is present, the system 10 may further identify the type of card 52 present (step 86). This may entail determining if the card 52 is a credit card, debit card, preferred card, or the like. For example, if it is a preferred card, the downloaded coupon may be doubled or otherwise increased in value, or a number of frequency flier miles may be accredited to the account. After such identification, the data is

downloaded in step 84. The smart card 52, containing the downloaded data, may then be taken to a retailer or other provided of goods and services for redemption of the coupon, or to a personal computer, kiosk, or the like for access to the designated URL (step 88).

In other embodiments, not only can data be retrieved from the digital broadcast, but data can be transmitted upstream such as in response to the received downstream data. As shown in FIG. 5, a data exchange system 90 is provided wherein information may be transmitted by the user such as in response to data received by the digital receiver 12. For example, financial account numbers and other identifying information may be read from the smart card 52 for transmission to a source 92 of the digital broadcast signal, or to a related website 94, to purchase goods or services related to the data received by the digital receiver 12.

In order to enter such upstream data into the data exchange system 90, a data reader/writer 96 is provided. The data reader/writer 96 can be any one of a number of commercially available units having the writing capabilities referenced above, as well as the capability of reading data from the portable memory device 52. For example, upon viewing a television advertisement or website offering a product for sale, a user could scan a credit card through the reader/writer 96 to pay for the product.

In addition to the data reader/writer 96, the data exchange system 90 may include a bar code reader, such as an infrared reader 98. Such an embodiment may be used in the situation where a user is in possession of a bar code 100, another form of portable memory device, known to be the designation for the product of interest. For example, the bar code may be provided in a printed

advertisement for the product, a company catalog, a package already in possession, or the like.

Once the bar code reader 98 is used to scan the bar code 100, the system 90 scans the data received by the digital television in search of matching bar codes related to a product, price, and source and/or the like. If the data is not received, the system 90 may conduct a search of the Internet to identify the product, price, and source. If the product is identified, a suitable display screen depicting the product, price and source may be provided. The data reader/writer 96 may then be used to purchase the product as indicated above. If the product is not immediately identified, the system 90 may continue to monitor the received data for a set length of time, e.g., two days, for a match and inform the user when received.

The bar code reader 98 may be positioned in a number of convenient locations including, but not limited to, in the digital receiver 12, in the personal digital assistant 14, in the personal computer 40, in the external module 60, or in the remote control unit 62. Alternatively or additionally, the bar code reader 98 may be provided in the same structure with the data reader/writer 96.

Once the data is read into the data exchange system 90, the data is transmitted by the transmitter 102 associated with the digital television 12 to the source 92 of the digital broadcast, and/or a website 94 associated with the goods or services, for purchase of the goods.

FIG. 6 depicts a possible sequence of steps performed by the data exchange system 90. Starting with step 104, the digital broadcast signal is received by the digital television 12 and the data contained therein is

separated from television programming as indicated by step 106.

While the data is being received, a user may scan a bar code into the system 90 as indicated by step 108. The system 90 searches the received data to identify the product associated with the bar code as indicated by step 110. If the bar code 100 is identified in the received data (step 112), the system may prompt the user to purchase the product identified, as indicated by step 114.

If the bar code 100 is not referenced in the received data (step 116), the system 90 may conduct a search of the Internet to identify the bar code 100 (step 118). If found (step 120), the system prompts the user to purchase the product as indicated by step 114. If not found immediately (step 122), the system 90 may continue searching for a number of days, possibly dictated by the user, as indicated by step 124. If the bar code 1200 is identified in the continued search (step 126), the user is prompted to purchase the product (114). If not (step 128), the search may be aborted as indicated by step 130.

As indicated above, a number of avenues can lead to prompting the user to purchase the product identified by the bar code 100. If the user wishes to purchase (step 132), the system 90 determines if the smart card 52 is present as indicated by step 134. If the user does not wish to purchase, the system 90 returns to normal operation as indicated by step 136.

If the card is not present (step 138), the user is prompted to enter the card 52 as indicated by step 140. If the card 52 is present (step 142), the system 90 identifies the type of card, as indicated by step 144, and explained above. Data from the smart card 52 is then uploaded to the system 90 as shown by step 148. Such data may include financial account information, personal

identification, and the like. The uploaded data is then transmitted (step 150) to the source of the digital broadcast signal 92, and/or a website 94, to purchase the product. In addition, further information such as shipping address, quantity, and the like may be transmitted after being entered through the PDA 14 or PC 40.

Certain modifications of the present invention have been discussed above. Other modifications will occur to those practicing in the art of the present invention. For example, according to the description above, the IR transceivers 26 and 28 enable communication between the digital television 12 and the PDA 14. However, the IR transceivers 26 and 28 may instead be any other type of wireless link such as an RF or ultrasonic link. Alternatively, the IR transceiver 26 and 28 may instead be replaced with a set of serial data ports that are coupled by a data transmission cable.

Also, it is suggested above that the digital receiver 12 may be a tunable receiver such as a digital television. Alternatively, the digital receiver 12 may be any receiver capable of receiving digital data. For example, the digital receiver 12 may be a radio, a VCR, or a game.

Moreover, as described above, data is stored in the memory 24 for instantaneous or later retrieval by the PDA 14. Instead, however, the data need not be stored in the memory 24, in which case the PDA 14 must retrieve the data from the digital receiver 12 when it is received by the digital receiver 12 or not at all.

Still further, the present invention has been described above at least in part in relation to downloading data transmitted in a digital vestigial sideband (VSB) broadcast signal. However, it should be noted that the present invention also is applicable to

downloading data transmitted in other types of digital broadcast signals such as COFDM signals, QAM signals, QPSK signals, and/or the like.

5 Accordingly, the description of the present invention is to be construed as illustrative only and is for the purpose of teaching those skilled in the art the best mode of carrying out the invention. The details may be varied substantially without departing from the spirit of the invention, and the exclusive use of all
10 modifications which are within the scope of the appended claims is reserved.

WHAT IS CLAIMED IS:

1 1. A data retrieval system for retrieving
2 data from a digital broadcast signal, wherein the digital
3 broadcast signal includes at least one television packet
4 and at least one data packet containing the data, wherein
5 a digital receiver is adapted to receive the digital
6 broadcast signal with the at least one television packet
7 and the at least one data packet, the data retrieval
8 system BEING CHARACTERIZED in that:

9 a memory stores the data from the at least one
10 data packet, wherein the memory is separate from the
11 digital receiver.

1 2. The data retrieval system of claim 1
2 wherein the digital receiver is a television.

1 3. The data retrieval system of claim 1
2 further comprising a data writer that writes the data to
3 the memory, wherein the data writer is provided in a
4 television remote control unit.

1 4. The data retrieval system of claim 1
2 wherein the memory is a smart card.

1 5. The data retrieval system of claim 4
2 wherein the smart card includes a microprocessor.

1 6. The data retrieval system of claim 1
2 wherein the data includes an electronic coupon.

1 7. The data retrieval system of claim 1
2 wherein the data includes website location information.

1 8. The data retrieval system of claim 1
2 wherein the data is software.

1 9. The data retrieval system of claim 1
2 wherein the memory is a portable memory.

1 10. The data retrieval system of claim 1
2 further including a communication port adapted to
3 transfer the data from the digital receiver to the
4 memory.

5 11. The data retrieval system of claim 10
6 wherein the communication port is provided in a
7 television.

1 12. The data retrieval system of claim 10
2 wherein the communication port is provided in a structure
3 external to a television.

1 13. The data retrieval system of claim 12
2 wherein the structure includes a television remote
3 control unit.

1 14. The data retrieval system of claim 10
2 further including a personal digital assistant adapted to
3 interact with the communication port.

1 15. The data retrieval system of claim 1
2 wherein the digital broadcast signal further includes
3 software, and wherein the software is adapted to utilize
4 the data.

1 16. The data retrieval system of claim 15
2 wherein the software is adapted to display the data on an
3 output device of a computer.

1 17. The data retrieval system of claim 15
2 wherein the software is adapted to search the data.

1 18. The data retrieval system of claim 15
2 wherein the data includes a website address, and wherein
3 the software is adapted to locate and access the website
4 address.

1 19. The data retrieval system of claim 1
2 wherein the memory is part of a personal digital
3 assistant.

1 20. The data retrieval system of claim 19
2 wherein the data is software, and wherein the personal
3 digital assistant is arranged to execute the software.

1 21. The data retrieval system of claim 1
2 wherein the memory is part of a personal computer.

1 22. The data retrieval system of claim 21
2 wherein the data is software, and wherein the personal
3 computer is arranged to execute the software.

1 23. The data retrieval system of claim 1
2 wherein the digital receiver is a television, and wherein
3 the memory is part of a personal digital assistant.

1 24. The data retrieval system of claim 1
2 wherein the data is downstream data, and wherein the data
3 retrieval system further includes a digital transmitter
4 adapted to transmit upstream data in response to the
5 downstream data.

1 25. The system of claim 24 wherein the
2 upstream data includes identification information.

1 26. The system of claim 25 wherein the
2 identification information is product identification
3 information.

1 27. The system of claim 25 wherein the
2 identification information is source identification
3 information.

1 28. The data retrieval system of claim 1
2 wherein the digital receiver comprises:
3 a tuner that is adapted to tune to the digital
4 broadcast signal;
5 a demodulator coupled to the tuner and adapted
6 to demodulate the digital broadcast signal;
7 a controller arranged to acquire the data; and
8 a transceiver coupled to the controller,
9 wherein the controller causes the data to be supplied to
10 the transceiver for transmission to the memory.

1 29. The data retrieval system of claim 28
2 wherein the transceiver comprises a first transceiver,
3 and wherein the data retrieval system further comprises:
4 a second transceiver that receives the data
5 transmitted by the first transceiver;
6 a processor that causes the data received by
7 the second transceiver to be stored in the memory,
8 wherein the processor is adapted to generate a data
9 request signal for transmission by the second transceiver
10 to the first transceiver; and,
11 an input device coupled to the processor that
12 accepts input by a user, wherein the input causes the
13 processor to generate the data request signal.

1 30. The data retrieval system of claim 29
2 wherein the first transceiver receives the data request
3 signal from the second transceiver and transfers the data
4 request signal to the controller, and wherein the
5 controller responds to the data request signal by causing
6 the data to be transmitted to the second transceiver.

1 31. The data retrieval system of claim 29
2 further comprising a sound generating circuit coupled to
3 the processor, wherein the processor causes the sound
4 generating circuit to generate a tone that signals when
5 the data has been stored.

1 32. The data retrieval system of claim 29
2 wherein the processor comprises a data communication port
3 that transfers the data from the memory to a personal
4 computer.

1 33. The data retrieval system of claim 29
2 wherein the first and second transceivers are infra-red
3 signal transceivers.

1 34. The data retrieval system of claim 29
2 wherein the first and second transceivers are radio
3 frequency signal transceivers.

1 35. The data retrieval system of claim 1
2 wherein the data includes a website URL.

1 36. The data retrieval system of claim 1
2 wherein the data comprises information related to a
3 product advertised in a television commercial received by
4 the digital receiver.

1 37. The data retrieval system of claim 36
2 wherein the data includes a URL for locating a website,
3 and wherein the website includes further information
4 related to the product.

1 38. The data retrieval system of claim 37
2 wherein the data includes a list of retailers that sell
3 the product.

1 39. The data retrieval system of claim 37
2 wherein the data includes pricing information for the
3 product.

1 40. The data retrieval system of claim 37
2 wherein the data includes a coupon for the product.

1 41. The data retrieval system of claim 1
2 wherein the memory is part of a personal digital
3 assistant, and wherein the personal digital assistant
4 further comprises:
5 an input device and an output device;
6 a memory; and
7 a controller, wherein the controller is
8 arranged to read data at the input device, wherein the
9 data at the input device is acquired from the digital
10 receiver, and wherein the controller is arranged to cause
11 the data to be stored in the memory and to cause the data
12 to be transferred from the memory to the output device.

1 42. The data retrieval system of claim 1
2 wherein the memory includes a bar code.

3 43. The data retrieval system of claim 1
4 further including a magnetic strip reader.

1 44. The data retrieval system of claim 1
2 further including an infrared reader.

1 45. The data retrieval system of claim 1
2 wherein the data includes identifying financial account
3 information.

1 46. The data retrieval system of claim 1
2 wherein the data is downstream data and relates to goods
3 and/or services, wherein the data retrieval system
4 further comprises a data reader that uploads upstream
5 data from the memory to the digital receiver, and wherein
6 the upstream data pertains to purchase of the goods
7 and/or services.

1 47. The data retrieval system of claim 1
2 wherein the data is downstream data and relates to goods
3 and/or services, wherein the data retrieval system
4 further comprises a transmitter that uploads transmits
5 upstream data, and wherein the upstream data pertains to
6 purchase of the goods and/or services.

1 48. The data retrieval system of claim 1
2 wherein the data is downstream data and relates to goods
3 and/or services, wherein the data retrieval system
4 further comprises a bar code reader, wherein the bar code
5 reader uploads upstream data from a bar code to the
6 digital receiver, and wherein the upstream data pertains
7 to purchase to purchase of the goods and/or services.

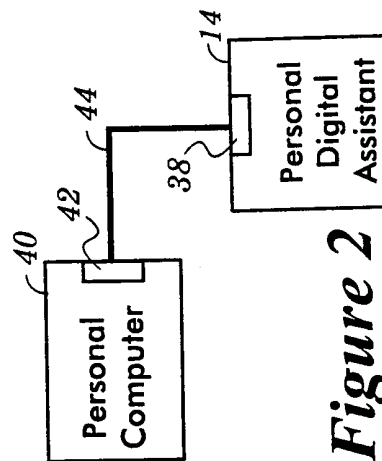
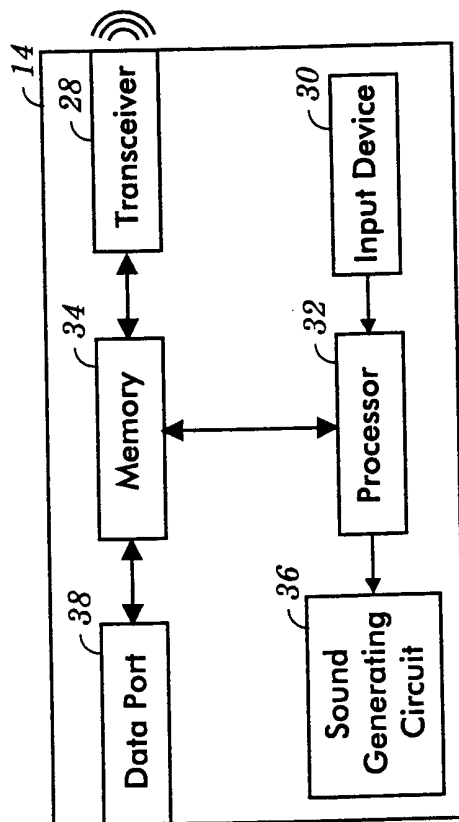
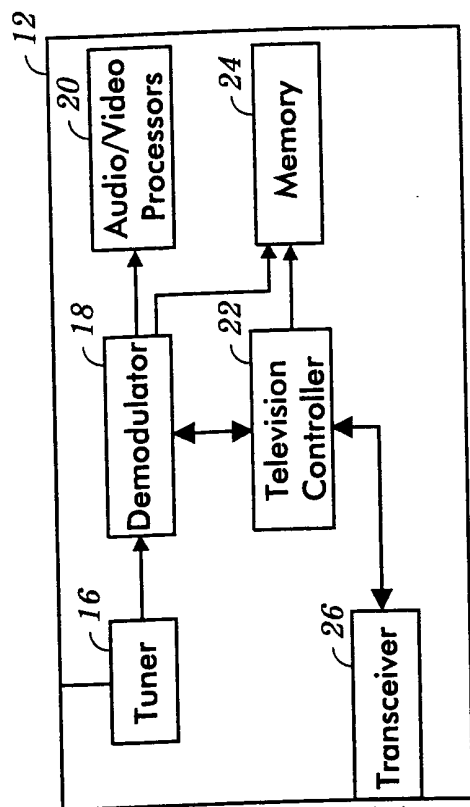
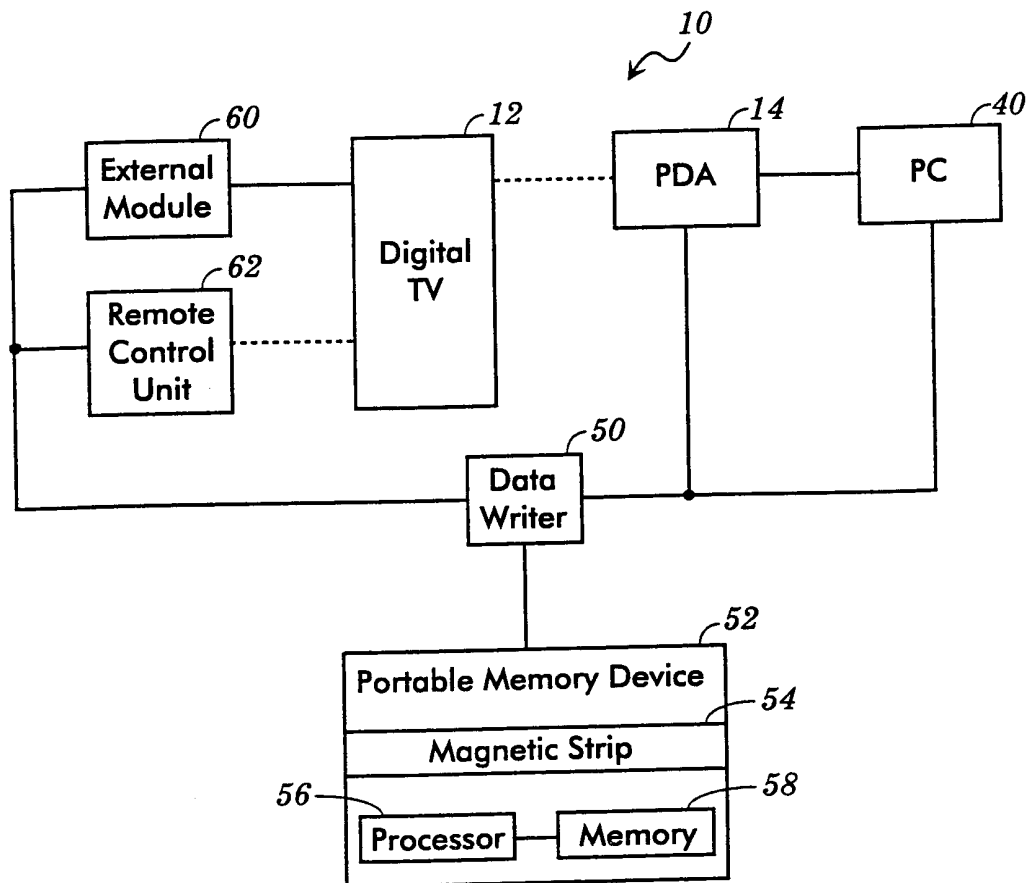
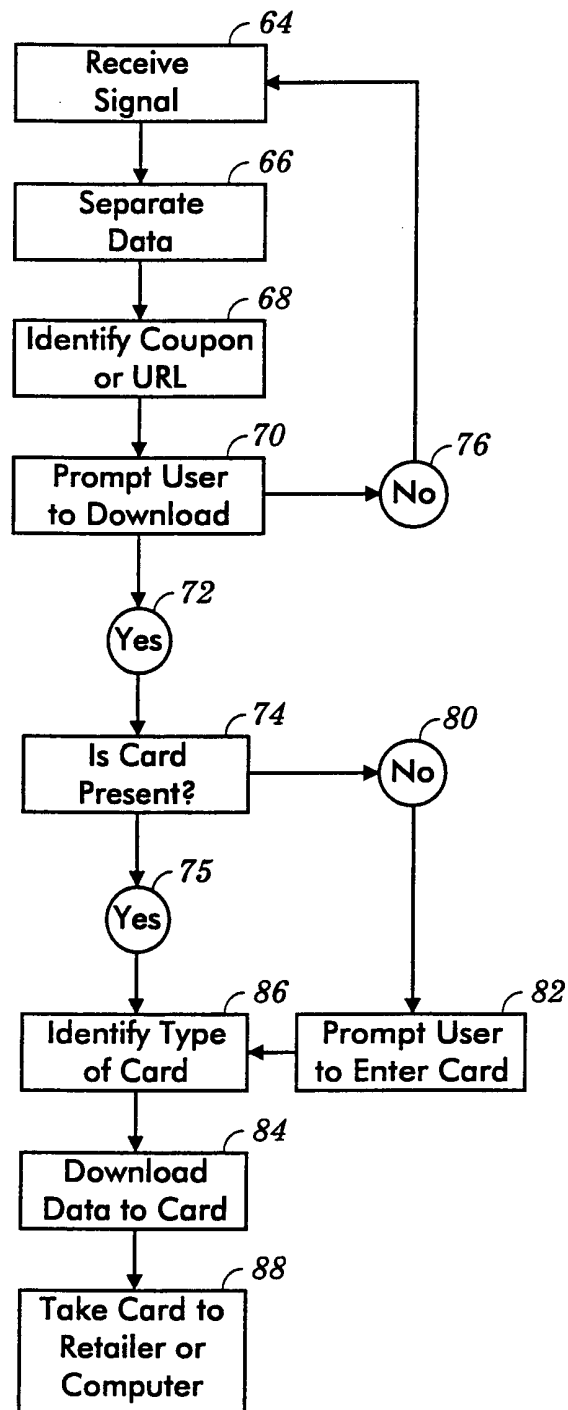
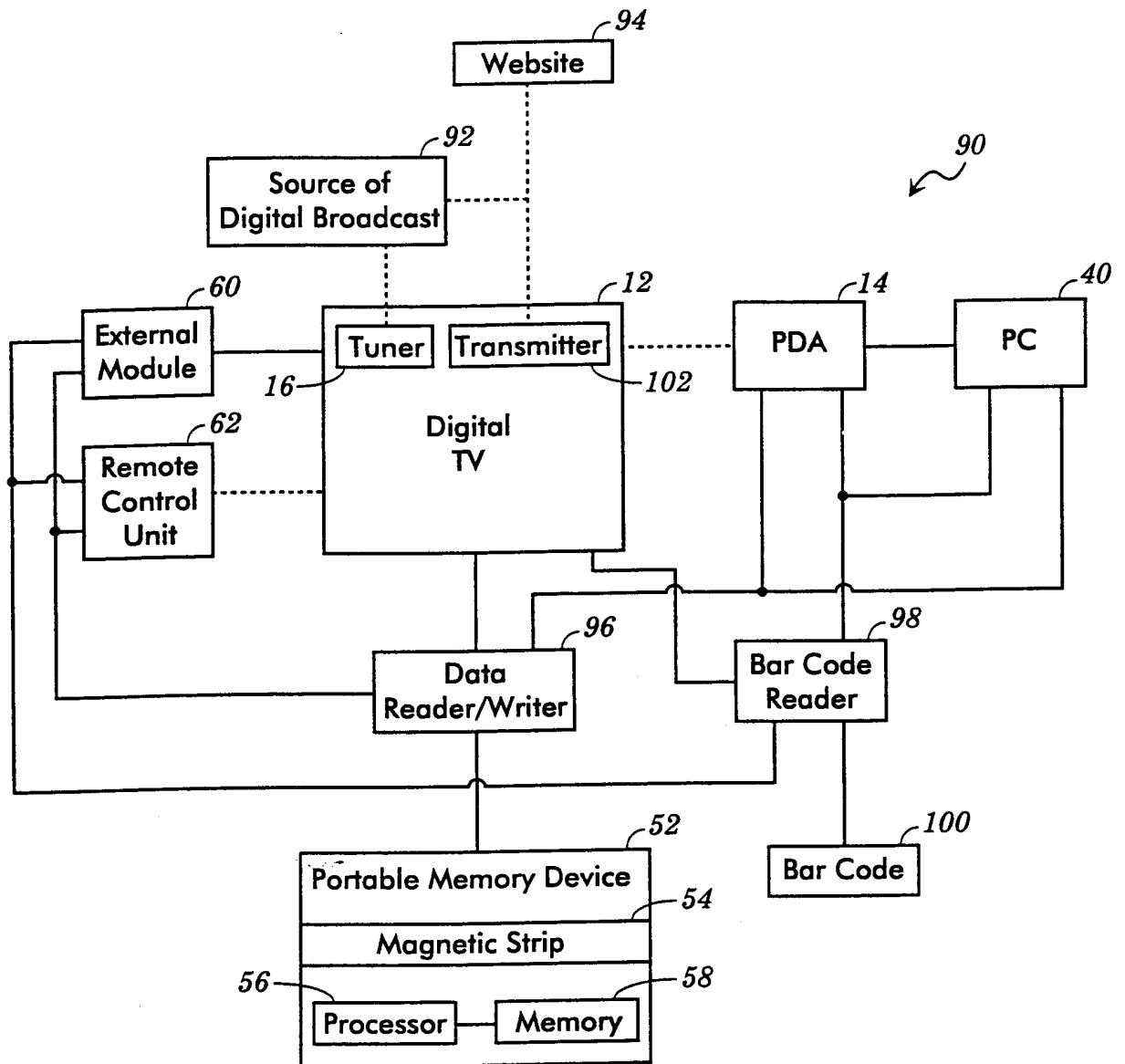


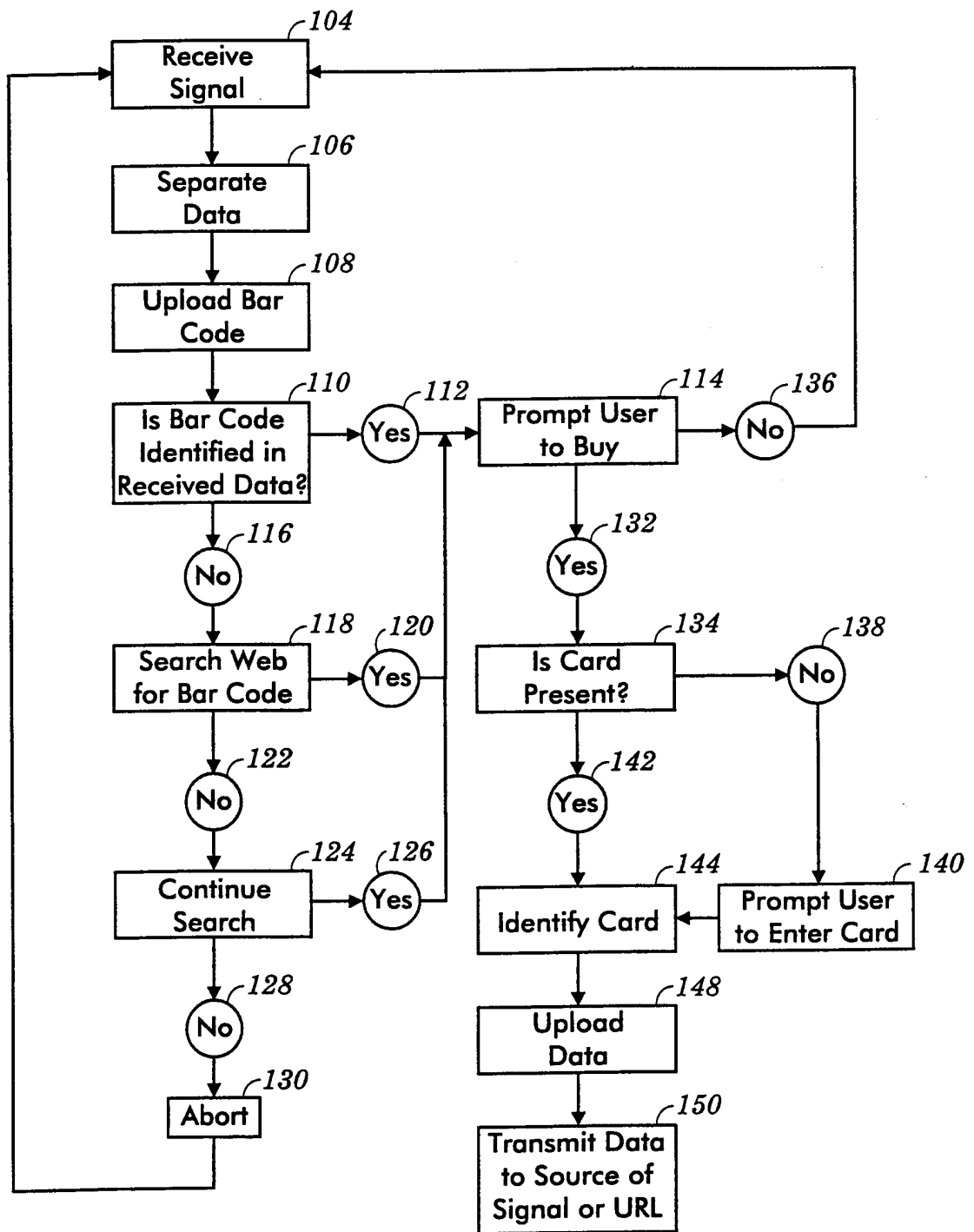
Figure 1

Figure 2

*Figure 3*

*Figure 4*

*Figure 5*

*Figure 6*

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/41255

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04N5/44 H04N7/24

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

WPI Data, PAJ, EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	WO 98 47286 A (JOHNSON MICHAEL WAYNE ;HAILEY JAMES EDWIN (US); THOMSON CONSUMER E) 22 October 1998 (1998-10-22) page 4, line 14 -page 6, line 34; figure 1 abstract ----	1,2,7, 10,14, 19,23,35 8,10,12, 13,15, 23,28,29
Y A	EP 0 710 017 A (PLESSEY SEMICONDUCTORS LTD) 1 May 1996 (1996-05-01) column 1, line 19 - line 55 column 2, line 19 - line 52; figure ----- -/--	1,2,7, 10,14, 19,23,35 3,8, 11-13, 15,16, 28,41

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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& document member of the same patent family

Date of the actual completion of the international search

19 February 2001

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INTERNATIONAL SEARCH REPORT

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PCT/US 00/41255

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>WO 99 13644 A (CAMPANELLA S JOSEPH ;WORLDSPACE MANAGEMENT CORP (US)) 18 March 1999 (1999-03-18) page 3, line 4 -page 4, line 14 page 7, line 13 - line 25 page 21, line 5 -page 23, line 28; figure 6</p> <p style="text-align: center;">---</p>	<p>1,2,7,8, 16,18, 21,28,35</p>
A	<p>US 5 929 849 A (KIKINIS DAN) 27 July 1999 (1999-07-27)</p> <p>column 3, line 10 - line 53 column 5, line 15 - line 32</p> <p style="text-align: center;">---</p>	<p>1,2,7,8, 10,11, 13,24, 28,35</p>
A	<p>WO 96 37996 A (WEBBER ALUN DAVID ;CROSSLEY ROBIN (GB); HOLLIDAY DAVID (GB); BRITI) 28 November 1996 (1996-11-28) abstract page 5, line 19 - line 27 page 8, line 2 - line 13 page 10, line 9 -page 11, line 26; figures 1,2</p> <p style="text-align: center;">---</p>	<p>1,2,13, 16,24,28</p>
A	<p>US 5 880 769 A (MORRIS JOHN C ET AL) 9 March 1999 (1999-03-09)</p> <p>column 1, line 63 -column 2, line 9 column 7, line 5 - line 52; figures 1,4</p> <p style="text-align: center;">-----</p>	<p>1,2,6, 13,28, 46-48</p>

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/41255

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9847286	A	22-10-1998	AU 4496597 A	11-11-1998
			AU 4496797 A	11-11-1998
			AU 4496897 A	11-11-1998
			AU 4590397 A	11-11-1998
			AU 4590497 A	11-11-1998
			AU 4650297 A	11-11-1998
			AU 5601398 A	11-11-1998
			BR 9714607 A	23-05-2000
			BR 9714608 A	23-05-2000
			BR 9714609 A	23-05-2000
			BR 9714684 A	25-07-2000
			BR 9714685 A	25-07-2000
			CN 1253697 A	17-05-2000
			CN 1255210 A	31-05-2000
			CN 1256840 A	14-06-2000
			CN 1256841 A	14-06-2000
			CN 1256842 A	14-06-2000
			CN 1256843 A	14-06-2000
			CN 1269101 A	04-10-2000
			EP 0976244 A	02-02-2000
			EP 0976245 A	02-02-2000
			EP 0976246 A	02-02-2000
			EP 1040664 A	04-10-2000
			EP 0976247 A	02-02-2000
			EP 0976248 A	02-02-2000
			EP 0976023 A	02-02-2000
			GB 2340690 A	23-02-2000
			TR 9902422 T	21-03-2000
			TR 9902429 T	21-03-2000
			TR 9902511 T	21-03-2000
			WO 9847283 A	22-10-1998
			WO 9847284 A	22-10-1998
			WO 9847285 A	22-10-1998
			WO 9847287 A	22-10-1998
			WO 9847288 A	22-10-1998
			WO 9847063 A	22-10-1998
EP 0710017	A	01-05-1996	GB 2294563 A	01-05-1996
			JP 8228317 A	03-09-1996
WO 9913644	A	18-03-1999	AU 9107098 A	29-03-1999
			CN 1273743 T	15-11-2000
			EP 1010322 A	21-06-2000
			PL 338984 A	04-12-2000
			ZA 9807179 A	23-04-1999
US 5929849	A	27-07-1999	CN 1221538 A	30-06-1999
			EP 0896774 A	17-02-1999
			JP 11510978 T	21-09-1999
			WO 9741690 A	06-11-1997
WO 9637996	A	28-11-1996	AU 5774296 A	11-12-1996
			CA 2221754 A	28-11-1996
			EP 0999702 A	10-05-2000
			EP 0999703 A	10-05-2000
			EP 0999704 A	10-05-2000
			EP 0827668 A	11-03-1998
			JP 11505978 T	25-05-1999

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/41255

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9637996 A		NO 975290 A	21-01-1998
US 5880769 A	09-03-1999	US 5594493 A	14-01-1997
		AU 5449796 A	30-10-1996
		CA 2218067 A	17-10-1996
		EP 0958557 A	24-11-1999
		JP 11503587 T	26-03-1999
		WO 9632702 A	17-10-1996
		AU 683352 B	06-11-1997
		AU 1684395 A	08-08-1995
		CA 2181705 A	27-07-1995
		EP 0761063 A	12-03-1997
		JP 9508993 T	09-09-1997
		WO 9520294 A	27-07-1995
		US 5767896 A	16-06-1998
		US 5953047 A	14-09-1999
		US 5907350 A	25-05-1999