(FF 150) (emphasis omitted from original and emphasis added). In this statement, Young only mentions logical "OR" combining as occurring within individual selection criterion (i.e., within the list of acceptable channels or the list of acceptable themes) and not occurring between the selection criteria.

Claim 67, which was added during the reexamination in an Amendment dated February 23, 1993, explicitly requires logical "OR" combining. However, Young used specific language to so claim logical "OR" combining. Thus, while claim 67 requires "supplying user program selection criteria to the data processor" (CX-1 at col. 12, lns. 22-23), it does not further define the "user program selection criteria" to include a plurality of "independent user chosen program selection criteria." Claim 67 later specifies, "wherein a group of said selection criteria are combined by the date processor as logical alternatives so that the combination of said group of selection criteria is satisfied whenever any one of said selection criteria of said group is met." (Id. at col. 12, lns. 30-34). Hence, claim 67 describes the process of setting up selection criteria, which are then combined as logical alternatives, before being used to select programs meeting the combined criteria.

This interpretation of claim 67 and its use of the language "logical alternatives" is consistent with the reexamination proceedings, where Young explained in a Proposed Supplemental Amendment After Final faxed on February 23, 1993:

> Independent claims 65 and 68 [which became claims 64 and 67] now require that at least some of the selection criteria are combined as alternatives. This is supported, for example, at column 14, in the discussion of the Channel Restriction selection criteria. Multiple channels may be specified, and the combined of selection criteria by the present invention versus the 'combining' of paging commands or other selections by the cited prior art systems.

(FF 141). Therefore, as Young stated, multiple channels are combined as alternatives (i.e., in a logical "OR" manner) to form the "channel criteria." However, Young gave no indication that the "theme", "channel" and "prime time" criteria, each one defined by a separate buffer, could be combined together in a logical "OR" fashion.

Hence, in light of the plain language of the claim, the specification of the '121 patent, and complainants' own representations to the patent examiner during the '121 patent's reexamination proceedings, the "said user selection criteria" are to be combined in a logical "AND" fashion, while lists of channels and themes comprising the channel and theme criteria are to be combined in a logical "OR" manner.

iv. Whether the combining step could be performed through multiple sequential searches or has to be performed prior to any search

Complainants argued that the "combining" step can be performed through multiple sequential and hierarchal searches, as long as these searches each use independent criterion. Thus, it was argued that the limitation would be satisfied by a system that allows a user to select a selection criterion, such as a particular title or theme, causing the system to find the programs with the selected theme or title. Complainants argued that the system then would display the programs satisfying the first selection criterion, at which point the user could choose another selection criterion, causing the system to display only those programs satisfying both the first and second selection criterion. (CRRFF 817.3). Respondents and the staff argued that for the "combining" step to be satisfied, the system had to combine the selection criteria and then conduct a single search instead of multiple searches. (RFF 817).

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The parties are in agreement that the applicant disclaimed "dependent, hierarchal" entry of search data during the prosecution history. (CRRFF 817). Complainants argued, however, that the applicant did not disclaim "combining user selection criteria in a 'hierarchal' fashion when the user selection criteria are 'independent."' (CRRFF 805.14). Thus, complainants contended that a system that allows a user to select one "independent" selection criterion and displays the programs meeting that criterion, then allows the user to select another "independent" selection criterion and then displays only those programs satisfying the first selection criterion and the second selection criterion would satisfy the "combining" limitation because it involves hierarchal entry of independent user selection criteria. (See CRRFF 805 et seq.).

The administrative law judge rejects complainants' argument. In support of their argument, complainants relied upon the testimony of their expert witness, Faillace, in an attempt to distinguish a "dependent hierarchial" search from a mere "hierarchial" search. (CRRFF 805.13). Faillace testified as follows:

> In the context of the teletext art, this refers to the combination of criteria for which the satisfaction of any one is entirely dependent on the satisfaction of another, such as, for example, when soccer programs can only be requested if sports programs have previously been requested.

(Faillace, Tr. at 5654). The administrative law judge finds that, Faillace's testimony fails to make any distinguishment between mere "hierarchal" searches at issue and "dependent, hierarchal" searches.

According to complainants, the ability of some of the accused systems to allow a user to select a criterion, conduct a search, display the search results and allow the user to choose a second selection criterion, and then conduct a search for programs meeting both selection criteria is somehow different than Faillace's sport programs/soccer example. However, in both systems the second selection criterion is "determined by and dependent upon the previous choice[]." For example, in Faillace's example, sports programs is selected as the first selection criterion, and soccer is selected as the second criterion, causing the system to select only those sports programs relating to soccer. If movies were chosen as the first selection criterion, and soccer were chosen as the second criterion, the system would find and display an entirely different list of results, i.e., movies relating to soccer. Similarly, with some of the accused devices, a user can, for example, select a particular theme, view a list of programs with that theme, and then select a particular date, causing the system to display programs of the selected theme scheduled to be broadcast on the selected date. The second criterion is completely dependent upon the first criterion, because if the user selects a different first selection criterion the search results will differ even though the user chose the same second selection criterion.

In a February 26, 1993 Amendment, Young clearly disclaimed hierarchal entry of data to distinguish his invention from prior art teletext devices:

> The user selection criteria may be entered and activated independently under different categories (theme, channel, prime time) and are maintained by the data processor whether currently activated or not. This is disclosed, for example, from column 12 line 12 to column 15 line 17 (wherein it is stated that buttons can be pressed independently activate the THEME, PRIME-TIME, and CHANNEL selection criteria) and from column 18 line 11 to column 20 line 38.... This is far different from even the cited teletext art, where search criteria are entered and combined in a dependent, hierarchical fashion. At each stage in the cited teletext art, the available search choices are determined by and dependent upon the previous choices made....

(FF 150) (Emphasis in original).

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Thus, the administrative law judge finds that the selection criteria must be combined prior to any search.

d. The language "storing information identifying the selected programs, said stored information identifying broadcast schedule times, channels, and program titles"

Complainants argued that "storing" means to place in an apparatus in which information can be retained; that "information identifying" means data sufficient "to serve as a means of identification for;" and that "the selected programs" refers to the programs that were chosen by the data processor using the combined user program selection criteria. (CFF 503). It was argued that the language in issue requires information to be stored (i.e., placed or retained) in the system's memory, and that such information be sufficient to allow the system to distinguish the selected programs from the remaining programs so that the selected programs can be tuned in. Complainants further argued that such information can include, for example, an address or a pointer or a link to an address in memory for the specified data or some other type of information, such as program times and channels. (CPost at 69). Respondents argued that the language "storing information identifying the selected programs" refers to "storing times, titles, and channels for the programs that the user has selected. (RFF 875, 876).

The plain language of the claim clearly indicates that "information identifying the selected programs" consists of the broadcast schedule times, channels, and program titles of the selected programs, and that this information is stored after the data processor selects the programs on the basis of combined user selection criteria. The prosecution history is consistent with this interpretation.

In the June 8, 1992 Office Action, the Examiner found that original claim 18, inter alia, of the '121 patent was subject to reexamination and rejected original claim 18 as being anticipated or rendered obvious in light of several pieces of prior art, including Yarbrough et al., U.S. Letters Patent 4, 305,101 (Yarbrough). (FF 94). In the August 10, 1992 Amendment, responsive to this Office Action, applicant Young, in an attempt to distinguish claim 18 from Yarbrough, made the following argument:

Independent process claims 18 and 32-38 all recite the process steps of providing schedule information to a data processor, selecting programs from the schedule information based on user inputs, storing schedule information for the selected programs, and using the stored schedule information to tune a television to receive the selected programs.

It should be noted that the term "schedule information", both as used in the present patent and as commonly understood, refers to a television schedule, i.e., a list of programs to be shown over a range of times, with at least program titles, program times, and, if for a plurality of channels, program channels. This usage is consistent with the dictionary meaning, wherein a schedule is defined as "a list of times of recurring events...; a timetable".
(FF 102).

Original claim 18 did not recite the "storing [of] schedule information for the selected programs," only the "storing [of] information identifying the selected programs." Therefore the applicant was clearly equating "information identifying the selected programs" with "schedule information," which is properly construed so as to include title. See supra. The applicant also makes clear that the "schedule information" of the selected programs is to be stored after the data processor has selected the programs, not before. Thus the Examiner, in the September 22, 1992 Office Action, again rejected the original claim 18, but this time as being anticipated by or obvious in light of Levine, U.S. Letters Patent, 4,963,994 (Levine) either alone or in view of Monteath et al., U.S. Letters Patent 4, 329,

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684 and Wright, U.K. published application 2,034, 995. (FF 109, 112). The Examiner made no mention of Yarbrough.

In a November 23, 1992 Amendment responsive to the Office Action of September 22, 1992, the applicant stated that

These rejections are based on a failure to recognize the fundamental distinction between "schedule information" as used in, e.g., Claim 1 or "information identifying the selected programs" as used in, e.g. Claim 18, and the program data used in the prior art, i.e., sufficient data such as time, day and channel to program a VCR or television set.

* * * *

Additionally, Applicant notes that Levine stores only conventional programming data, not schedule information as presently claimed. As discussed in the previous Amendment, the storage of schedule information as opposed to mere programming data significantly enhances the user's ability to verify and later identify the selected programs, and also enables the data processor to perform additional functions, such as linking and tracking programs, i.e., allowing the user to review a list of programs selected for future viewing or taping by presenting a calendar as disclosed, rather than simple programming data for controlling a video recorder. Some of the Examiner's current remarks appear to recognize the distinction between these two types of information, but the relevance of this distinction to the analysis of the claim language was not explicitly discussed. Applicant respectfully submits that this distinction is an important one separating the claimed invention from the prior art, and is sufficient to distinguish the claimed invention from the prior art.
(FF 116) (Emphasis in original).

Young also represented that:

Claim 18 further requires "storing information identifying the selected programs." It is respectfully submitted that data, channel and time data do not sufficiently identify the selected programs. Date, channel and time data identify time slots and channels without any identification of programs broadcast in the time slots on the channels. Again, the distinction between identifying selected programs and identifying only time slots and channels is critical for achieving many benefits" tracking programs that have been selected with the system, i.e., allowing the user to review a list of programs selected for future viewing or taping by presenting identifying information on the program, rather than just an indication of when recordings will be made; linking related programs with the schedule information; and, automatically updating the stored schedule information for the selected program when the schedule time for a previously selected program is changed, as described in the '121 patent. Because the prior art does not combine user selection criteria, use such combined user selection criteria to select programs meeting the combined user selection criteria in the data processor, or store information identifying the selected programs, the Levine, Wright and Monteath prior art fails to teach or suggest the subject matter of Claim 18 or its dependent claims 19-31.
(FF 118) (Emphasis in original). Therefore, again Young distinguished the prior art from claim 18 on the basis that "information identifying the selected programs" included the programs title.

In the January 5, 1993 Office Action the Examiner maintained his rejection of claim 18 stating, inter alia:

1) The examiner notes that applicant does not appear to dispute the receipt and display of "schedule information" in Levine [see lines 1-4 in the last paragraph on page 8 of the arguments filed 11/23/92]. Nor does applicant appear to dispute that

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a user may enter codes into the system of Levine, wherein said codes are obtained from the displayed "schedule information", such that the entered information directs the processor to control a video recorder to receive and record the selected programs [see the paragraph which starts on page 8 and extends to page 9 in the arguments filed 11/23/92].

As disclosed, applicant's claimed invention also displays schedule information from which a user also selects the desired program to be recorded. The user then also enters data into the system which directs the processor to control a video recorder to receive and record the selected programs. Applicant's disclosed system differs from Levine in that the user inputs of applicant are used by the processor to actually access the stored information while the user inputs in Levine actually represent the stored information. The examiner maintains that the recitation that the processor is "configured to select programs from the schedule information based on user inputs" does not distinguish two systems. Specifically, the processors of both systems are directed to record selected programs based on user inputs [see applicant's arguments on page 9 and the first 7 lines of page 10].

2) In the first full paragraph on page 10 of the argument's [sic], applicant argues that Levine stores only "conventional programming data" and not "schedule information" as claimed. This argument seems only to be directed to terminology (i.e. labels) and appears to be inconsistent with applicant's discussion in the last paragraph on page 8 in which applicant has acknowledged thestored [sic] data to be schedule information [see lines 52-59 in column 2 of Levine].
(FF 123). Lines 1-4 of last paragraph on page 8 of the argument filed on November 23, 1992 read:

Levine discloses a system which can prompt the user through the steps of programming the VCR and which in some embodiments can display schedule information on the television screen.
(FF 115) (Emphasis added).

Therefore the Examiner rejected applicant's attempt to distinguish Levine from claim 18, because by the applicant's own admission Levine could utilize schedule information, rendering the distinction between schedule information and programming data made with respect to Yarbrough irrelevant.

Applicant Young, next, in interviews with the Examiner and in submissions of proposed amendments for the Examiner's evaluation, attempted to distinguish claim 18 from the prior art by specifying an "electronic memory" for the storage means. See, supra. This attempt to define the "storage means" as an "electronic memory" ultimately failed. See, supra. While attempting to so define "storage means," applicant Young also, in the February 23, 1993 Proposed Supplemental Amendment, added the phrase "said stored information identifying broadcast schedule times, channels, and program titles" and explained that amendment accordingly:

I. Clarifying Schedule Information: Independent claims 1, 12, 14-15, 18, 33-34, 36-38, and 54 have been amended, in addition to the earlier clarifications agreed upon by the Examiner, to further clarify that the schedule information stored for the selected programs identifies not only program channels and times, but also program titles. New claim 57 also contains this recitation. As previously noted, prior art systems simply program the VCR with the channels and times for selected programs; information identifying the title was not stored.
(FF 141).

The phrase "said stored information identifying broadcast schedule times, channels, and program titles" was retained in a February 26, 1993 Supplemental Amendment After Final, as was the attempt to define storage means as an electronic memory. (FF 144 to 151). In a March 26, 1993 Office Action, the Examiner rejected claim 18 as modified, because of the attempt to define storage means as an "electronic memory." (FF 152 to 155). The Examiner did not object to the addition

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of the phrase "said stored information identifying broadcast schedule times, channels, and program titles." Id. In the April 6, 1993 Amendment, Young submitted claim 18 with language referring to an electronic memory removed, but still with the phrase "said stored information identifying broadcast schedule times, channels, and program titles." (FF 156, 157). Claim 18 as modified was ultimately approved for inclusion in the issuance of the reexamination certificate. (FF 158, 161, 162, 163, 164).

Therefore, the prosecution history and the plain language of the claim, clearly support the administrative law judge's interpretation of this language as meaning that the "information identifying the selected programs" consists of the broadcast schedule times, channels, and program titles of the selected programs, and that this information is stored after the data processor selects the programs on the basis of combined user selection criteria.

e. The language "and using the stored information to tune the television receiver to the selected programs"

Complainants argued that the language means the data processor must use some of the stored information about the selected programs to cause a programmable tuner for the television receiver to tune in the selected programs. It was further argued that "tun[ing] the television receiver" means isolating a desired signal for a selected program from among a group of signals being received. (CPost at 74, 75).

Respondents argued that "tun[ing] the television receiver" requires "conventional tuning, i.e., the tuning to analog channels that was done by the analog television in 1985 and 1990." (RFF 958). It was also argued that "tuning the television receiver" excludes tuning a tuner that is external to the television set. (RFF 981).

There is nothing in the claim language, patent specification, or file history, to limit the "programmable tuner" to an analog or digital tuner or evinces any need or intent to limit the invention to analog tuning. There is no language in the claim that limits "tuning" to analog tuning or which excludes digital tuning. On the contrary, the only kind of tuning that the claims require is tuning to selected programs. The administrative law judge finds no language in the claims which defines or limits tuning to the selection of a frequency. Indeed, the express language of claim 18 states that tuning means "tun[ing] the television receiver to the selected programs."

The administrative law judge also finds no statement in the specification that tuning means selecting frequencies. Indeed, there is no reference at all in the patent specification to selecting a frequency or frequencies or to tuning to a frequency or frequencies and the '121 patent's specification does not expressly or implicitly require analog broadcasts or an analog tuning process. Respondents have failed to cite a single part of the specification that discusses tuning to a frequency or equates tuning with selecting a frequency. [FN10] The administrative law judge finds that the only requirement ascribed by the specification to the invention's tuner is that it be "programmable." (CX-1, col. 4, lns. 46-48; col. 7, lns. 60-61; col. 8, lns. 48- 56). A "programmable tuner" is a tuner "that is capable of programmatic control, as control via control signals, as opposed to control signals." (RFF 986). The specification clearly shows that the control signals controlling the programmable tuner are generated by the data processor. ('121 patent, col. 7, lns. 60-61; col. 8, lns. 35-40). Likewise the administrative law judge finds that the two places that specifically discuss tuning, state that the television receiver must be "tuned" to selected programs or "channels for selected programs," ('121 patent, col. 4, lns. 53-60; col. 11, lns. 60-65) without

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any indication of how the tuning is to be achieved. He also finds that the term "channel" has not been used in the specification of file history to refer to a band of frequencies. Rather, the '121 patent's specification repeatedly uses the term "channel" to mean "service provider." Equating "channels" with service providers is consistent with digital tuning because the tuner would be used to find a particular provider not necessarily a particular frequency. The administrative law judge notes that the patent specification uses the word "channel" synonymously with service provider no fewer than 10 times, each underscored below:

"In most metropolitan areas, a large variety of cable programming is available. Since a cable channel will provide its signal on different numbered channels in different areas, depending on which channels are otherwise unused, programming for the cable channels is disseminated on a national or regional basis by the name of the channel, rather than the particular channel number on which the signal is supplied, while the television set must be tuned by the channel number. In the San Francisco metropolitan area, for example, there are presently 15 different cable channels that are listed by name, not channel number. A viewer will often not remember the channel number on which a given cable service is furnished, especially if that service is only watched occasionally. U.S. Pat. No. 4,405,946, issued Sept. 20, 1983 to Knight, discloses a system for providing an on-screen display of channel numbers or an indication that a signal is coming from a recording device, but with no teaching or suggestion of displaying a cable channel by name rather than number."
(CX-1, col. 2, lns. 36-55).

The administrative law judge finds, consistent with the way "channel" is used throughout the specification ('121 patent, col. 2, lns. 36-35, col. 5, lns. 21-24, col. 4., lns. 13-18, col. 10, lns. 24-37), channel refers to a programming source typically identified by a number or a service name, such as Channel 2 or Channel 5 or HBO. Indeed, the '121 patent's specification, in the Summary of the Invention section equates channel selection with program selection ('121 patent, col. 3, lns. 21-24). In fact, the specification expressly disclaims that it is providing any novel teachings in the area of broadcast systems or processes. ('121 patent, col. 6, lns. 55-59, col. 7, lns. 24-30). Furthermore, the patent itself contemplated that program schedule information could be supplied to the system of the invention in digital form over the internet, from internet service providers such as Compuserve ('121 patent, col. 21, ln. 65-col. 22, ln. 9). Such information could not have been used by the patented system unless the techniques for isolating the desired digital data was known in the art.

Similarly, the administrative law judge rejects respondents' arguments that the tuner being tuned to the selected channel must be within the television receiver. Figures 3, 4a and 4b, the only depictions of embodiments of the '121 invention, clearly depict the programmable tuner as being separate (i.e., outside) of the television receiver.

2. Other Claims In Issue

Remaining claims 19-24, 26-28, 31-33, 36, 42, 43, 48-51, 54, 57-61 and 66 in issue are set forth in the section titled "ADDITIONAL FINDINGS." See FF 34 to 58. There follows interpretation of disputed language of those claims.

a. Independent Claim 32

Independent claim 32 reads:

A process for controlling the presentation of broadcast programs to a television receiver, which comprises supplying program schedule information to a data processor, supplying user program selection criteria to the data processor,

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using the user selection criteria to select programs for viewing from the program schedule information in the data processor, storing information identifying the selected programs, using the stored information to tune the television receiver to the selected programs, using the television receiver as a display by the data processor for presenting messages to the user during the process, including time remaining for a program being broadcast.
(FF 44). Much of the language in claim 32 is found in claim 18; and hence the interpretation of that language controls the interpretation of the same language in claim 32. However, based on the plain language of claim 32, the specification of the '121 patent and the reexamination proceedings, and the arguments of the parties, the following claimed language is in issue for interpretation: "program schedule information," "user program selection criteria," "supplying program schedule information to a data processor," and "during the process."

i. The language "program schedule information"

Claim 32 recites, after the preamble, "comprises supplying program schedule information to the data processor." In issue is the meaning of "program schedule information." Complainants argued that "program schedule information" or "schedule information" should be given its ordinary meaning. i.e., "information concerning scheduled television programs." (CFF 282). In support of their argument complainants asserted that the specification does not, explicitly or implicitly, require that "schedule information" or "program schedule information" include the time, channel or title of a program (CFF 287(a)) and that the specification's use of the terms is consistent with the meaning urged by complainants. (CFF 287(b)). Each of respondents and the staff argued that the phrase should be interpreted in the same way as the identical phrase was interpreted in claim 18 and therefore that the term includes the titles of programs, as well as the scheduled broadcast time, and the channels.

The language of claim 32, with respect to the term "program schedule information," differs significantly from the language of claim 18. Thus, while claim 18 contains the phrase "said stored information identifying broadcast schedule times, channels and program titles," which the administrative law judge found applicant specifically included in claim 18 due to rejections of claim 18 by the Examiner, claim 32 does not have said phrase. See supra. Moreover, the Examiner in finding that claim 32 avoided the art of record did not rely on the fact that the art of record does not show or suggest a process for controlling the presentation of broadcast programs to a television receiver which comprises storing information identifying the selected programs and identifying broadcast schedule times, channels and titles as he did for claim 18. As was found, supra, it was not until February 26, 1993 that applicant amended claim 18 during reexamination to include "titles" and represented that "[s]everal claims have been amended to specify the storage of program title for the selected programs and are thus believed to be allowable." (FF 150). However claim 32 in issue was never amended in the reexamination proceeding.

In the reexamination proceedings original claim 32 was rejected over certain prior art in the Office Action of June 8, 1992. (FF 94). However in the next Office Action of September 22, 1992, the Examiner specifically found that claim 32, which does not recite "titles," avoided the art of record in that it at least recites displaying data indicating the time remaining in a broadcast signal and that such a display is not taught or suggested by the art of record. (FF 112). Moreover in the next Office Action of January 5, 1993, the Examiner again stated that claim 32 avoids the art of record "as was set forth in paragraph 9 of paper #12 [viz., the Office Action of September 22, 1992] (FF 128). Also in the supplemental notice of intent to issue the reexamination certificate, mailed August 26, 1993, titles were

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absent from the specific reasons the Examiner found claim 32 avoided the art of record. See FF 164. The Examiner never required that claim 32 include titles to avoid the art of record. While respondents relied on arguments of applicant made in a November 23, 1992 amendment, the Examiner in his Office Action of September 22, 1992 had already determined that claim 32 avoided the art of record. Hence the administrative law judge rejects the argument of respondents and the staff that "program schedule information" of claim 32 must include broadcast schedule times, channels and program titles.

As to how "program schedule information" in claim 32 should be interpreted, the specification states:

> This invention relates to an electronic system and a process which allows the user to make broadcast selection using selection criteria that can be combined in different ways. Most especially, the invention relates to such an electronic system and process which receives the schedule information in broadcast form and then processes the schedule information to make the selections.

(col. 1, lns. 11-21) (Emphasis added). Therefore, "schedule information," pursuant to the specification, is the information that is used by the system or process to select programs satisfying the selection criteria chosen by the user. As already found, see supra, the selection criteria are prime time, channels, and theme. Hence the "program information" must at least include: information concerning a program's time of scheduled broadcast to satisfy the prime time criterion, the channel on which it is to be broadcast to satisfy the channels criterion, and the theme of the program to satisfy the theme criterion. This is the only information which is required for the system or process to be able to conduct a search based on the selection criteria.

This finding is consistent with the following portion of the specification:

> The process of this invention includes the following steps. Program schedule information is supplied to a data processor. User program selection criteria are supplied to the data processor. The user selection criteria are used to select programs for viewing from program schedule information in the data processor. The stored information is used to tune the television receiver to the selected programs.

(col. 4, lns. 53-60). Thus, in this section of the specification, "program schedule information" must be sufficient so as to allow the system or process to search the "program schedule information" and select those programs satisfying the "user selection criteria." Therefore according to said section, the "program schedule information" must consist of information about a program's broadcast time, the channel on which it is to be broadcast, and its theme.

Furthermore, in a subsequent portion of the specification, said portion under "Broadcast Format," specifies that "[e]ach program listing is framed with the following information[:]" "[s]tart time," "[d]uration of program," "[c]hannel number," "[t]heme classification number," "[t]heme subclassification number," "[l]inking number (only for serial shows)," "[o]ptional expanded listing," "[e]nd of program," "[s]atellite symbol," "[s]atellite name," and "[e]ncrypted and any special broadcast indicators." (col. 20, ln. 65 - col. 21, ln. 15). Therefore, of the information that is to frame the program listing, most of it is related to either the program's time of broadcast ("[s]tart time," "[d]uration of program," and "[e]nd of program"), the program's theme ("[t]heme classification number" and "[t]heme subclassification number"), or the channel on which it is to be broadcast ("[c]hannel number," "[s]atellite symbol," and "[s]atellite name"). The remaining information which does not fall under any of three selection criteria is not transmitted for every program, but rather for only certain programs. The "[l]inking number' is "only for serial shows," while the "expanded listing" is "[o]ptional," and the "[e]ncrypted and any special broadcast indicators" are for those shows that

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are broadcast encrypted or deserving of a "special broadcast indicator[]." Therefore, all program listings are to be broadcast with information relating to the program's theme, time of broadcast, and the channel on which it is to be broadcast, while certain programs may contain additional information.

Based on the foregoing, the administrative law judge finds that "program schedule information", as used in claim 32, includes a program's theme information, the channel on which it is scheduled to be broadcast, the time when it is to be broadcast, and may, but does not have to, include other information relating to a program, such as the program's title.

ii. The language "user program selection criteria"

According to the plain language of claim 32, which differs from the language of claim 18, in that claim 32 does not recite "independent user chosen program selection criteria" or "program choice," "user selection criteria" refers to "user program selection criteria." [FN11] Insofar as claim 32 calls for the "user selection criteria to select programs for viewing from the program schedule information in the data processor," where the only method disclosed in the specification for using "user selection criteria" to select programs is to combine theme, channel and prime time selection criteria, and search for programs that satisfy all of the combined criteria in a user program selection criteria see supra, "user program selection criteria" as used in claim 32 is found to be the "theme," "channel" and "prime time" selection criteria.

iii. The language "supplying program schedule information to the data processor"

The administrative law judge interprets "data processor" the same way he interpreted it in claim 18, viz., a CPU. See supra. The administrative law judge finds that the "program schedule information" must, as with the claim 18 invention, be stored inside the data schedule processor. Unlike claim 18 there is no explicit disclosure of a storage means in the data processor in claim 32. However claim 32 does recite that the "program schedule information" is "supplied to" the data processor, such that the "program schedule information" is "in the data processor." (col. 27, ln. 2). Therefore, the administrative law judge finds that claim 32 requires the "program schedule information" be supplied to and stored in the CPU.

iv. The language "during the process"

Claim 32 requires the television receiver be used "as a display by the data processor for presenting messages to the user during the process, including time remaining for a program being broadcast." Respondents argued that such messages had to be displayed "before the television set is tuned to a program that the CPU selected." (EPost at 114). This argument is based on the contention that the process in claim 32 ends when the television set is tuned to the program. However, the process in claim 32 includes "supplying program schedule information to a data processor." The claim does not indicate when this "supplying" begins or ends. Moreover, as the specification states, the program schedule information is repeatedly broadcast:

> The microcomputer 22 of FIGS. 1 and 2 is programmed to repeat transmissions of the program list for a number of times to allow for correction of uncorrectable errors at the receiver 90 or 160 (FIGS. 3 and 4).

(col. 17, lns. 5-9). Also, the data processor is sent new program schedule information to update the existing program schedule information:

> As each block of data is received, the data integrity is verified by error checking logic at 302. If no error exists, the received data is stored in the program list buffer 303, replacing the previous program list data.

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(col. 16., lns. 60-63).

Therefore, based on the '121 patent's specification, the process in claim 32 does not have an "end," but rather it is always continuing. The administrative law judge finds that claim 32 does not require that the television receiver be used as a display before the selected program is tuned to.

b. Independent Claim 33

Independent claim 33 reads:

A process for controlling the presentation of broadcast programs to a television receiver, which comprises supplying program schedule information to storage means in a data processor, supplying user program selection criteria to the data processor, the data processor combining said user program selection criteria with automatic criteria according to at least one of a current time and a current channel, using the combination of user program selection criteria and automatic criteria to select programs for viewing from the program schedule information in said storage means in the data processor, storing information identifying the selected programs, using the stored information to tune the television receiver to the selected programs, turning on a broadcast program recording device for a selected broadcast program, recording the selected broadcast program, and supplying a different program broadcast signal to the television receiver than the broadcast signal for the selected program supplied to the program recording device. (FF 45). Much of the language in claim 33 is found in claim 18 and hence, the interpretation of that language controls the interpretation of the same language in claim 33. Moreover, the parties are in agreement that the plain meaning of the phrase "supplying a different program broadcast signal to the television receiver than the broadcast signal data processor" is that while one signal for a selected program is being supplied to a recording device, such as a VCR, the data processor causes a different signal to be supplied to the television set. (Faillace, Tr. at 1499-00). This feature is referred to in the industry as the "watch one/record another" capability. (Faillace, Tr. at 1500). The parties are also in agreement that the '121 specification does not define said phrase in a manner that is unconventional or inconsistent with the ordinary meaning of these terms. (CFF 741).

The parties further do not dispute that "automatic criteria" are criteria provided by the system and not the user. (CFF 700). Furthermore, as indicated by the plain claim language "the data processor combining said user selection criteria with automatic criteria according to at least one of a current time period and a current channel," the parties are in agreement that the system must supply certain program information for a given time interval. This program information must include at least the current time or the program information for a set of channels, which includes the currently tuned channel. (CFF 702). However, the phrase "turning on" is in dispute.

i. The language "turning on"

Complainants contend that this limitation means that the system causes a "program recording device" to begin recording and to in fact record the selected program, but does not mean that the system has to cause the provision of electricity to the "recording device." (CPost at 109). Respondents and the staff argued that the limitation requires the system to turn on the recording device's power, so that it will be able to record the selected program. (SPost at 22).

The administrative law judge finds that the ordinary meaning of "turn on" requires that the system disclosed in claim 33 turn on the recording device's power so that it will be able to record the selected program. "Turn on" means "to

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activate or cause to flow, operate, or function by or as if by turning a control <turn the water on full> <turn on the power>." (Mirriam-Webster's Collegiate Dictionary Online available at http://www.m-w.com/) (Emphasis in original). Furthermore, one of the express objects of the '121 patent's invention was "to provide such a system and process in which the user is not required to leave the VCR powered on for unattended recording." (col. 3, lns. 66-68). Similarly,

[i]n one form of this invention, the system is connected to the remote control facilities of a VCR to turn on its power, start the recording, and stop recording of programs on the VCR. The user therefore not required to leave the VCR powered on for unattended recording.

(col. 5, lns. 48-53). Pursuant to this objective, the preferred embodiment of the '121 patent's invention turns on the power to a connected VCR:

Figure 4b is a block diagram of a modified form of the receiver 160, which may also be used with the transmitter system 50 shown in Figure 2. In the Figure 4b receiver 160, a remote VCR 216 and its wireless remote controller 1010, so that the remote VCR 216 need not be powered up in advance of unattended recording. The remote controller 1010 is connected by lines 1000 and 1002 to CPU 178. In response to the CPU 178, the remote controller 1010 transmits control signals to the remote VCR 216 in a conventional manner, as indicated at 1004. The remote controller 1010 can either be a unit designed for the VCR, but modified to be electrically operated from the TV scheduler, or it can be an equivalent design of the remote controller with direct connections to the CPU 178. Instead of enabling the VCR from pause line 214, when the CPU 178 determines that a program is to be recorded (see, e.g., block 501 of FIG. 13) according to the selected programs, it issues a control signal to power up the VCR on control line 1000. This control signal generates a contact closure across the switch matrix of the remote controller 1010 power-on key. The contact closure may be obtained with a relay or an PET transistor switch. The control signal on line 1000 also generates a contact closure across the play key and the record key of the of the controller 1010 to initiate recording of the program. When the program ends, CPU 178 will issue a control signal on line 1002. Line 1002 generates a contact closure across the remote controller power-off key. When the CPU 178 determines another program is to be recorded, the above process is repeated.

(col. 9, lns. 5-35) (Emphasis added). Therefore, as the above language of the specification of the '121 patent describes the operation of the '121 patent's invention's unattended recording feature, the administrative law judge finds that the VCR is powered on by the invention through a signal causing a closure in the VCR's remote control's power on switch, which signal activates the remote control's "play" and "record" buttons causing the powered on VCR to record the scheduled program; and that when the scheduled program is over, the VCR's power is turned off by a signal to the VCR's remote control's "power off" switch. The administrative law judge finds nothing in the '121 patent that suggests that the invention of the '121 patent can cause a VCR to record a selected program, without the VCR first being powered on by the invention.

Moreover, the administrative law judge finds that the specification disclosed that the "turn-on"command to a VCR is different than the "record" command. In Fig. 13, box 506 is labeled "Turn On VCR & Record." (Emphasis added). The finding that the "turn-on"command to a VCR is different than the "record" command is further reinforced by the following section of the specification, which lists "turn-on" and "record" as different operations:

For unattended recording with the TV scheduler 160 of FIG. 4B, turn on of the remote VCR 216 is accomplished by means of the remote controller 1010 connected to the TV scheduler 160. Turn-on, record and turn-off are all actuated remotely as described above in connection with FIG. 4B.

(col. 20, lns. 59-64) (Emphasis added). Also, this difference between the "turn on" and "record" functions is reflected in the plain language of the claim itself, as

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the system must be capable of both "turning on a broadcast program recording device and recording the selected broadcast program" (col. 6, lns. 39-31) (Emphasis added).

The reexamination proceedings also support the finding that "turning on" a VCR is to cause electricity to go to the VCR, and not merely causing the VCR to record a program. After the Examiner, in the June 8, 1992 Office Action, rejected claim 32-36 as being "unpatentable as anticipated under 35 USC § 102 over Muguet, 4, 787, 063," because Muguet disclosed, inter alia, the "turning on and off the VCR at start and en [sic] of the program or both." (FF 94). In the August 13, 1992, amendment, Young distinguished Muguet from the rejected claims on the following basis:

> Claims 33-35 include in their recitations the step of turning on a program recorder for a selected program, whereas in Muguet the specialized VCR must remain on continually, not just for the selected program.

(FF 106).

Based on the plain language of the claim, the specification and the prosecution history, the administrative law judge finds that "turning on" requires that the system disclosed in claim 33 to turn on the recording device's power so that it is able to record the selected program.

c. Independent Claim 36

Independent claim 36 reads:

> A process for controlling the presentation of broadcast programs to a television receiver, which comprises supplying program schedule information to storage means in a data processor, supplying user program selection criteria to the data processor, said user program selection criteria comprising a plurality of independent user chosen selection criteria and at least one portion [sic] choice, the data processor combining said user program selection criteria, using the combined user program selection criteria to select programs for viewing from the program schedule information in said storage means in the data processor, storing information identifying the selected programs including broadcast schedule times, channels and program titles, using the stored information to tune the television receiver to the selected programs, turning on a program recording device and recording the selected broadcast program by supplying control signals to a remote controller for the program recording device.

(FF 46). All of the language in claim 36 is found in claim 18 or in claim 33. Hence, the interpretation of that language in claim 18 or in claim 33 controls the interpretation of the same language in claim 36.

d. Independent Claim 42

Independent claim 42 reads:

> A system for controlling a recording device to allow user selection of broadcast programs from schedule information, which comprises a data processor, a first input means for the schedule information connected to said data processor, a second user selection input means connected to said data processor, said data processor being configured to select programs from the schedule information based on user inputs, storage means connected to receive the schedule information for programs selected by said data processor, a programmable tuner for connection to the recording device, said programmable tuner being connected to receive control signals from said data processor at a time of a selected broadcast for causing said programmable tuner to supply broadcast signals for the selected programs to the recording device, and a television receiver, said system being configured to allow said television receiver to receive a different program than the broadcast signal

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for the selected program supplied to said recording device, wherein said data processor is configured for a selectable display mode, said data processor being configured to present an initial display of said schedule information stored in said storage means upon selection of said display mode, said initial display automatically comprising schedule information for at least one of a current time period and a current channel of said programmable tuner.
(FF 47). Much of the language in claim 42 is found in claim 18 and hence, the interpretation of that language in claim 18 controls the interpretation of the same language in claim 42. The parties have disputed: "a first input means for the schedule information connected to said data processor," "a second user selection input means connected to said data processor," and

wherein said data processor is configured for a selectable display mode, said data processor being configured to present an initial display of said schedule information stored in said storage means upon selection of said display mode, said initial display automatically comprising schedule information for at least one of a current time period and a current channel of said programmable tuner.

i. The language "a first input means for the schedule information connected to said data processor"

Complainants argued that this claim limitation is not a means plus function element, because it "does not recite a function; it only recites a structure well known in the computer field;" that an "input means" which is, according to complainants, simply a mechanism for supplying a data to the data processor, e.g., is an input port and wire; and that a person of ordinary skill in the art would know that the input port of a computer is its input means. (CPost at 115). Complainants also argued that if this limitation was construed to be a means plus function element, the structures corresponding to the input means are the lines running from the data demodulator in FIGs. 3 and 4 to the CPU (lines 108 and 182, respectively) and the input ports to which they are connected. (CPost at 116).

Respondents argued that this limitation is a means plus function limitation, the claimed function being the receipt and supply of schedule information to the data processor. (RFF 1114). Respondents also argued that two corresponding sets of structures are disclosed in this specification: (1) in the Fig. 3 embodiment, the corresponding structure is the FM antenna 92, the FM receiver 94, the SCA subcarrier decoder 98, and the data demodulator 102, and (2) in the Fig. 4 embodiment, the corresponding structure is the antenna 162, programmable TV tuner 164, program data timing controller 168, and data demodulator 169. (RFF 112).

The staff did not take a position regarding this limitation in its initial post hearing brief.

The use of term "means" creates a presumption of the applicability of 35 U.S.C. § 112, ¶ 6. See Sage Products, Inc. v. Devon Industries, Inc., 126 F. 3d 1420, 1427 (Fed. Cir. 1997); Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580, 1584 (Fed. Cir. 1996); Certain Flooring Products, Inv. No. 337-TA-443, Final Initial Determination at 11-20 (Nov. 2, 2001), Comm'n Notice Finding No Violation (March 22, 2002). The administrative law judge rejects complainants' argument that this limitation is not subject to 35 U.S.C. § 112, ¶ 6, because there is no function recited. The limitation in question, "a first input means for the schedule information connected to said data processor," recites a "means," which is connected to the "data processor," for the "input" of "schedule information." Therefore, the administrative law judge finds that this limitation should be interpreted pursuant to 35 U.S.C. § 112, ¶ 6.

The administrative law judge also rejects complainants' argument that if

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interpreted under 35 U.S.C. § 112, ¶ 6, this limitation should be construed to mean only the lines running from the data demodulator in FIGs. 3 and 4 and the input ports to which they are connected (lines 108 and 182, respectively). To the contrary, the only instance the term "port" is used in the '121 specification of the '121 patent is in connection with "conventional" transmitter systems which are described as being without "novelty." Thus the specification does not disclose any input ports being connected to the data processors depicted in FIGs. 3 and 4. The only mention of a "port" at all in the specification is the "serial input/output (I/O) port" 24 which, in conjunction with line 28, connects the microcomputer 22 to the data modulator 26 in the transmitter depicted in FIG. 1. (col. 6, lns. 28-31). In the transmitter depicted in FIG. 2, the microcomputer's 22 I/O port 24 is connected to a buffer. (col. 6, lns. 64-67). The transmitter system 20 depicted in FIG. 1 is described accordingly:

Since the design and implementation of the system 20 is [sic] itself [sic] conventional, and the novelty resides in the particular data processing signals broadcast with the system 20, the design and operation of the system 20 will not be described in further detail.

(col. 6, lns. 55-59) (Emphasis added). The transmitter system 50 depicted in Fig. 2 is described in similar terms. (See col. 7, lns. 26-30).

While the only instance the term "port" is used in the specification of the '121 patent is in connection with "conventional" transmitter systems which are without "novelty," the specification makes the following description of the structures involved in allowing the data processor in the first embodiment to receive the information broadcast by the "conventional" transmitter systems:

FIG. 3 is a block diagram of a receiver and television receiver control system 90 which is used in combination with the FM transmitter system 20 of FIG. 1. An FM antenna 92 receives the broadcast signals from the system 20, which are supplied to FM receiver 94 on line 96. FM receiver 94 supplies the FM broadcast signals to an SCA subcarrier decoder 98 on line 100. The decoder 98 strips the schedule information signals from the FM broadcast signals and supplies the schedule information signals to a data demodulator 102 on line 104. The data demodulator 102 converts the schedule information signals to digital format and supplies the digital schedule information signals to system control unit 106 on line 108, more particularly, to CPU 110 of the system control unit 106.

(col. 7, lns. 33-46). Therefore, in accordance with the first embodiment the following structures are needed in order to supply to the CPU the program schedule information: an FM antenna (to receive the broadcast signals), an FM receiver (to supply the broadcast signals to the SCA subcarrier decoder), a SCA subcarrier decoder (to separate the program schedule information from the rest of the broadcast signal), and a data demodulator (to convert the program schedule information into digital format).

In connection with the second embodiment, the specification of the '121 patent (CX-1) describes the following structures and operations:

FIG. 4 is a block diagram of another receiver system 160, which may be used with the transmitter system 50 shown in FIG. 2. Antenna 162 receives the TV broadcast signal from the transmitter system 50 and supplies it to a programmable TV tuner 164 on line 166. The tuner 164 supplies the broadcast signal to a program data timing controller 168 on line 170, to data demodulator 169 on line 171 and to a video switcher 172 on line 174. The output of controller 168 is supplied to the demodulator 169 on line 176. The demodulator 169 supplies the program schedule information signals, which have been stripped from the TV broadcast signals and digitized, to CPU 178 of system control unit 180 on line 182.

(col. 8, lns. 23-35). Therefore, supplying the CPU of the second embodiment with program schedule information involves the following structure: an antenna (to receive the broadcast signal), a programmable tuner (to route the broadcast signal

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to a data demodulator) and a program data timing controller, and a data demodulator (to digitize the schedule information).

The administrative law judge finds that in neither the first or second embodiments the term "port" is used, either in connection with supplying the CPU with schedule information or otherwise. Additionally, with respect to the other structures relied upon by complainants in their proposed constructions, viz., lines 108 and 182, the administrative law judge finds no description of those "structures." Rather the specification merely states that the digitized schedule information is supplied to the CPUs by the data demodulators along lines 108 and 182. The administrative law judge finds no indication that lines 108 and 182 are capable of supplying schedule information to the CPUs without the structures described above. [FN12]

Based on the foregoing, the administrative law judge finds the first input means of claim 42 comprises either (1) an FM antenna, an FM receiver, a SCA subcarrier decoder, and data demodulator; or (2) an antenna, a programmable tuner, a program data timing controller and a data demodulator; or (3) their 35 U.S.C. § 112, ¶ 6 equivalents.

ii. The language "a second user selection input means connected to said data processor"

Complainants argued that this limitation is not a means plus function element because it does not recite a function, and, if it were construed as a means plus function element, the corresponding structures are a remote controller and a remote receiver, as well as line 120/192. (CPost at 117). Respondents argued that this limitation was a means plus function element and that the corresponding structures are a remote controller and a remote receiver, lines 120 and 192, and the keypad and keys depicted in Fig. 5. (RRCFF 851). The staff took no position regarding the construction of this element.

The administrative law judge rejects complainants' argument that the limitation in issue is not governed by 35 U.S.C. § 112, ¶ 6, because he finds that the limitation does recite a function, viz., a "means" for the "input" of "user selection[s]." Therefore, he finds that it should be construed under 35 U.S.C. § 112, ¶ 6, for the same reasons that that "first input means" of claim 42 was so construed. See supra.

The administrative law judge further finds that the structure corresponding to the limitation in issue is a remote controller, with a keypad, and a remote receiver or its 35 U.S.C. § 112, ¶ 6 equivalents. In support and with reference to the first embodiment, the specification states that "[o]ther inputs are supplied to the CPU 110 are supplied by a remote transmitter controller 116-remote receiver 118 combination on line 120." (col. 7, lns. 51- 53). With respect to the second embodiment, "[u]ser program selections and other user inputs are provided by a remote control transmitter 188-remote receiver 190 combination on line 192," (col. 8, lns. 42-44), the remote controller 116/188 is also clearly depicted in Fig. 5 as having a keypad.

iii. The language "wherein said data processor is configured for a selectable display mode, said data processor being configured to present an initial display of said schedule information stored in said storage means upon selection of said display mode, said initial display automatically comprising schedule information for at least one of a current time period and a current channel of said programmable tuner"

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Complainants argued that this limitation should be construed as requiring that the data processor be capable of invoking a particular mode of displaying schedule information in response to user inputs, that the "initial display of said schedule information" refers to the first display of television schedule information that appears when the user selects a particular "selectable display mode," and that this initial display will include at least information about one program that is either being currently broadcast, or is scheduled to be broadcast, on the channel to which the system is already tuned. (CPost at 125).

Respondents and the staff argued that limitation requires an initial display mode that the user can select from multiple options for the display of schedule information when the display is first invoked and that this information should include information for programs selected for recording, and therefore, the initial display should provide current programming information and programming information for recording. (PPost at 114-15; SPost at 17).

The limitation at issue was added to claim 42 during reexamination proceedings in the applicant's February 26, 1993 Supplemental After Final amendment in response to the Examiner's rejection of the claim in his January 5, 1993 Office Action. (FF 121 to 128). Young stated in the accompanying remarks:

Automatically Focusing the Display
Also discussed were clarifications of the preselection of schedule information for display, directed to automatically focusing a display of schedule information according to a current time or a current channel. The Examiner has confirmed that the claims reciting this selective display are believed to be allowable. Support for this selective display can found [sic], for example, at column 10, lines 12-65. Lines 50-59 are an example display for preferred embodiment. Lines 45-46 explain that the listing starts at the nearest previous half-hour. Lines 46-47 explain that a pointer (not shown in the example screen) will be positioned at the last selection made (and thus indicate the current channel). Lines 60 to 62 explain that the screen also includes 3 lines of status information, which at lines 56-59 is shown to include for the currently selected channel the remaining time and program title schedule information. Similar disclosure also appears at column 1, lines 33-37.
(FF 149). In a March 26, 1993 Office Action, the Examiner found that claim 42, "as amended, avoid[s] the art of record and [is] patentable." (FF 155).

Said remarks in the February 26 1993 Supplemental After Final refer to sections of the specification, which disclose a "selectable display," such that an user can change the display by changing the prime time, channel or theme criteria or the time in which the display begins and in which the initial display comprises information selected by the data processor in response to the user inputs, as well as either the current channel that the television is tuned to or the current time. Thus the "example display" referred to by Young discloses a list of six programs, the start times of which run from 9:00 pm to 9:30 pm, and three additional lines of information immediately below the last program listed. (col. 10, lns. 50-59). The current time and date is contained in the three lines below the program listing. Id. The current time is reported to be 9:23 pm, and because the "[l]isting always starts at the previous half hour," the first time slot display is at "9:00." (col. 10. lns. 45-46). The listing is also restricted in accordance to the settings of the prime time, channel and theme criteria. (col. 10, ln. 65 - col. 11, ln. 5). The text discloses "that the pointer always is positioned at the last selection made," although no "pointer" is depicted in the sample display. (col. 10, lns. 46-47). The display can be changed by changing the prime time, channel and theme criteria. (col. 13, lns. 32-44; col. 14, lns. 16-28; and col. 14, ln. 55 - col. 15, ln. 16). The user can also change the time that the display will start at. (col. 11, lns.

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29-36).

Based on the foregoing, the administrative law judge finds, consistent with the portions of the '121 patent's specification cited by Young in his February 26, 1993 Supplemental After Final, that the limitation in issue requires a "selectable display," such that an user can change the display by changing the prime time, channel and theme criteria and in which the initial display comprises information selected by the data processor in response to the user inputs, as well as either the current channel that the television is tuned to or the current time.

e. Independent Claim 51

Independent claim 51 reads:

A system for controlling a recording device to allow user selection of broadcast programs from schedule information, which comprises a data processor, a first input means for the schedule information connected to said data processor, a second user selection input means connected to said data processor, said data processor being configured to select programs from the schedule information based on user inputs, storage means connected to receive the schedule information for programs selected by said data processor, a programmable tuner for connection to the recording device, said programmable tuner being connected to receive control signals from said data processor at a time of a selected broadcast for causing said programmable tuner to supply broadcast signals for the selected programs to the recording device, said data processor being connected to a remote controller for said recording device to supply control signals to said remote controller for powering on said recording device, starting and stopping recording of the selected program and powering off said recording device, further comprising a display means coupled to said data processor, wherein said data processor is configured for a selectable display mode, said display means being configured to present an initial display of said schedule information stored in said storage means upon selection of said display mode, said initial display automatically comprising schedule information for at least one of a current time period and a current channel of said programmable tuner.

(FF 52). The language in claim 51 is found in the preceding claims in issue. Hence, the prior interpretation of corresponding language in the preceding claims controls the interpretation of language in claim 51.

f. Independent Claim 54

Independent claim 54 reads:

A system for controlling receipt of broadcast television programs to allow user selection of broadcast programs from broadcast schedule information which is selectively stored in a storage means, which comprises a data processor, a programmable tuner configured to receive both the broadcast programs and the broadcast schedule information connected to said data processor, means connected between said programmable tuner and said data processor for separating the broadcast schedule information from the broadcast programs and supplying the broadcast schedule information to said data processor, a user selection input means connected to said data processor, said data processor being configured to select programs from the schedule information stored in said storage means based on user inputs, said storage means being connected to receive a reminder calendar list comprising the schedule information for programs selected by said data processor, said programmable tuner being connected to receive control signals from said data processor at a time of a selected broadcast for causing said programmable tuner to supply signals for the selected broadcast programs to at least one signal receiver for the selected broadcast programs, wherein said user inputs comprise a plurality of user program selection criteria, said data processor being configured to combine

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said plurality of user program selection criteria and to present a list of programs meeting said combined program selection criteria, said user inputs further comprising a program choice from said presented list of programs, said reminder calendar list comprising information identifying titles for said programs selected by said data processor.
(FF 53). Much of the language in claim 54 is found in preceding independent claims in issue and, hence, the prior interpretation of that language controls the interpretation of the same language in claim 54. With respect to the language:

i. The language "means connected between said programmable tuner and said data processor for separating the broadcast schedule information from the broadcast programs and supplying the broadcast schedule information to said data processor"

The parties agree that the language is a means plus function element and that the function of the element is to segregate program schedule information from television programs and to supply the program schedule information to the data processor. (CPost at 147; PPost at 110). The parties also agree that the Fig. 4 embodiment, and not the Fig. 3, is the correct embodiment to consider in determining the structures that comprise the corresponding means. (CPost at 147; PPost at 110). Complainants argued, however, that the corresponding means is the demodulator 169, while respondents argued that the corresponding structures are the data demodulator 169 and the program data timing controller 168.

The specification of the '121 patent describes the following process for supplying program schedule information to the data processor in the FIG. 4 embodiment:
FIG. 4 is a block diagram of another receiver system 160, which may be used with the transmitter system 50 shown in FIG. 2. Antenna 162 receives the TV broadcast signal from the transmitter system 50 and supplies it to a programmable TV tuner 164 on line 166. The tuner 164 supplies the broadcast signal to a program data timing controller 168 on line 170, to data demodulator 169 on line 171 and to a video switcher 172 on line 174. The output of controller 168 is supplied to the demodulator 169 on line 176. The demodulator 169 supplies the program schedule information signals, which have been stripped from the TV broadcast signals and digitized, to CPU 178 of system control unit 180 on line 182.
(col. 8, lns. 23-35). Therefore, the administrative law judge finds that the data demodulator 169 is one of the corresponding structures in the FIG. 4 embodiment, as it "supplies the program schedule information signals, which have been stripped from the TV broadcast signals and digitized, to CPU 178." As to which structure or structures separate the schedule information from the broadcast program respondents' expert witness, Rhyne, testified that when the VBI was used to transmit program schedule information the data demodulator could not be the only corresponding structure to separate the program schedule information:
Well, if you're going to pick data off of one or more lines in the vertical blanking interval, you have to have a line counter. It's a process that's commonly called data slicing; it's used, for example, in closed captioning at line 21 [of the VBI].
And that's what the that program timing controller is, it's not well described in the patent. But as best I understand it, it was a counter that found the appropriate line or lines and then pulls out a little snippet of electronic signal that was supposed to carry the data, and passes it to the demodulator.
Well if the demodulator didn't have that device in front of it, it would be trying to demodulate all of the video signals on all of the lines and it would just be producing gibberish.
(Tr. at 3596-97). The specification of the '121 patent is consistent with Rhyne's testimony. The FIG. 3 embodiment is a receiver for use with a transmitter that transmits the program schedule information separate from the broadcast programming.

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(col. 6, lns. 20-24; col. 7, lns. 33-37). Therefore, the FIG. 3 embodiment does not need to separate the schedule information from the broadcast programming. The FIG. 3 embodiment has a data demodulator 102 which converts the schedule information signals to digital format and supplies the digital schedule information to the CPU 110, after the schedule information signals are "strip[ped]" from the FM broadcast by the SCA sub carrier decoder 98. The FIG. 3 embodiment does not have the program data timing controller. The FIG. 4 embodiment, which has to separate schedule information from the broadcast programming, has a program data timing controller 168 and the program data timing controller 168 outputs directly to the data demodulator 169.

Accordingly, the administrative law judge finds that the corresponding 35 U.S.C. § 112, ¶ 6 structures are the data demodulator 169 and the program data timing controller 168 or their 35 U.S.C. § 112, ¶ 6 equivalents.

g. Independent Claim 57

Independent claim 57 reads:

A television schedule system for controlling receipt of broadcast television programs to allow user selection of broadcast programs from broadcast schedule information displayed on a television, said broadcast schedule information comprising broadcast schedule times, titles and channels, said system comprising:

a data processor;

a system clock connected to said data processor for providing a system time;

a programmable tuner connected to said data processor and configured to receive both the broadcast programs and the broadcast schedule information;

signal separating means connected between said programmable tuner and said data processor for separating the broadcast schedule information from the broadcast programs, and for supplying the broadcast schedule information to said data processor;

display means connected to said data processor for displaying at least a portion of said broadcast schedule information on said television;

user selection input means connected to said data processor for providing user inputs for selecting listings of programs from said displayed broadcast schedule information; and

storage means being connected to said data processor for storing schedule information, wherein said data processor is configured to selected programs from said displayed broadcast schedule information based on said user inputs, to retrieve broadcast schedule information for said selected programs from said broadcast schedule information supplied to said data processor, and to store said retrieved schedule information in said storage means, said stored broadcast schedule information identifying a broadcast schedule time and channel and a program title for each said selected program; wherein

said data processor provides control signals to said programmable tuner when the system time matches a stored broadcast schedule time of one of said selected programs, said control signals causing said programmable tuner to supply broadcast program signals for the stored broadcast schedule channel of said one selected program to at least one signal receiver; and wherein

said data processor is configured for a selectable display mode, said display means being configured to display a preselected initial display of said schedule information stored in said storage means upon selection of said display mode, said preselected initial display automatically comprising schedule information meeting initial display selection criteria, said initial display selection criteria including at least one of a current time period and a channel currently selected by said programmable tuner.

(FF 54). Much of the language in claim 57 is found in preceding claims and, hence, the interpretation of that language controls the interpretation of the same

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language in claim 57.

With respect to the language:

signal separating means connected between said programmable tuner and said data processor for separating the broadcast schedule information from the broadcast programs, and for supplying the broadcast schedule information to said data processor

the parties agree that this limitation should be construed the same as the "separating means" limitation of claim 54, which is similarly worded. (PPost at 110, CPost at 161). Accordingly, the administrative law judge finds that the corresponding 35 U.S.C. § 112, ¶ 6 structures are the data demodulator 169 and the program data timing controller 168 or their 35 U.S.C. § 112, ¶ 6 equivalents.

Both complainants and respondents agree that the language:

display means connected to said data processor for displaying at least a portion of said broadcast schedule information on said television

is a means plus function limitation and that the function is to display schedule information on a television. (CPost at 161; PPost at 119). Complainants argued however that the corresponding structure is the video display generator 136 of FIG. 3 and 204 of FIG. 4 and a device for display, such as a television receiver. (CPost at 162). Respondents argued that an additional structure comprises the means in addition to the video display generator and television receiver, viz., the video switcher (140/172).

The schedule information is displayed in the FIG. 3 embodiment in the following manner:

The CPU 110 supplies information signals from the program schedule data on line 108, control inputs on line 114 and user inputs on line 120 to video display generator 136 on line 138. Output video display signals from the generator 136 are supplied to a video switcher 140 on line 142. The video switcher also receives TV program signals from tuner 132 on line 144, and a control signal from CPU 110. The video switcher 140 supplies the signals from the tuner 132 or the generator 142 to the TV receiver 126 on line 148 and a video cassette recorder (VCR) 150 on line 152.

(col. 7, ln. 68 - col. 8, ln. 12). The display of schedule information in relation to the FIG.4 embodiment is similar:

From the user inputs on line 192 and the control program, the CPU generates control signals for the programmable TV tuner 164, which are supplied to video display generator 204 on line 206. The generator 204 converts the video display information signals to video signals for the video switcher 172 on line 208. The CPU 178 supplies control signals for the video switcher 172 on line 210 to video signal outputs of the video switcher 172 on lines 212 and 214 to the TV receiver 200 and VCR 216 between schedule information video signals from the generator 204 and the program video signals from tuner 164.

(col. 8, lns. 49-62).

Therefore, as the above portions of the specification indicate, the video switcher (140, 172) allows the CPU to control whether or not the IPG, incorporating the schedule information, will be displayed or not. Without this ability, the user would not be able to see the IPG or would only see the IPG, and would not be able to view any television programming. In fact, as the following testimony by complainants' expert witness, Faillace, reveals, a system in accordance to the '121 patent, but omitting the video switcher, would be useless:

Q. Without a working video switcher, the person who has spent a lot of money for their brand new TV with a fancy -

A. Guide.

Q. - guide will simply have a regular old television, right?

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A. That's correct.
(Tr. at 2391).

Therefore, the administrative law judge finds that the corresponding structure to this limitation is (1) a video generator, a video switcher, and a television receiver, or (2) their 35 U.S.C. § 112, ¶ 6 equivalents.

The parties agree that the limitation "a selectable display mode" should be interpreted the same way as the "selectable display mode" limitation of claim 42 was interpreted. (CPost at 145; PPost at 114). Therefore, the administrative law judge finds that this limitation requires a "selectable display," such that an user can change the display by changing the Prime Time, Channel and Theme criteria, or the time in which the display begins and in which the initial display comprises information selected by the data processor in response to the user inputs, as well as either the current channel that the television is tuned to or the current time. See supra.

B. '268/'204 Patents

In issue are claims 1 and 3 of the '268 patent and claims 14, 15, 16 and 17 of the '204 patent.

Claims 1 and 3 of the '268 patent (FF 59-61) read:

1. An interactive television schedule system, which comprises:

a television display,
means coupled to said television display for displaying the television schedule on said television display as a grid of two-dimensionally arranged, adjacent irregular cells which vary in length corresponding to time duration of programs, with a title of a program being displayed in each of said irregular cells, said grid having a plurality of channels listed in a first dimension and time listed in a second dimension,
user input means coupled to said means for displaying the television schedule, said user input means including a program selector and a movement control for a visual identification of ones of said irregular cells which initiates movement of said visual identification in the first dimension, and irregular movement of said visual identification in the second dimension in steps corresponding to variation in cell size, responsive to an input by a user to said movement control, between first and second ones of said irregular cells to select a desired one of said irregular cells corresponding to program,
a tuner coupled to said user input means for tuning to the desired program, and
means coupled to said means for displaying the television schedule for displaying a program note overlay including a program description for the desired program on said television display.
3. The interactive television schedule system of claim 1 additionally comprising means coupled to said means for displaying the television schedule for selecting the desired visually identified program in response to activation of said program selector, and
a recording device coupled to said means for selecting the desired program to record the desired program.

Independent claim 14 and dependent claims 15, 16 and 17 of the '204 patent (FF 62 to 65) read:
14. An interactive television schedule system, which comprises:
a television display,
means coupled to said television display for displaying a television schedule

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on said television display as a grid of two-dimensionally arranged, adjacent irregular cells which vary in length corresponding to time duration of programs, with a title of a program being displayed in each of said irregular cells, said grid having a plurality of channels listed in a first dimension and time listed in a second dimension,

user input means coupled to said means for displaying the television schedule, said user input means including a program selector and a movement control for a visual identification of selected ones of said irregular cells which controls movement of said visual identification in the first dimension and in the second dimension from cell to cell, responsive to an input by a user to said movement control to visually identify a desired one of said irregular cells corresponding to a desired program,

means coupled to said means for displaying the television schedule for selecting the desired visually identified program in response to activation of said program selector, and

a programmable tuner coupled to said means for selecting the desired program for tuning to a select channel for the desired program,

said means for displaying the television schedule on said television display further being configured to display an overlay containing information on a television program being shown on said television display when a channel being shown on said television display is changed.

15. The interactive television schedule system of claim 14 in which the overlay information on the television program includes program title, name of television service, channel number, and time.

16. The interactive television schedule system of claim 15 in which said means for displaying the television schedule is further configured to provide an alternate overlay including a program note with a program description for the television program being shown on said television display.

17. The interactive television schedule system of claim 14 in which said means for displaying the television schedule is further configured to provide an alternate display including a program note with a program description for the visually identified program.

Independent claim 31 and dependent claims 32 through 34 of the '204 patent (FF 66 to 69) read:

31. An interactive process for operating a television schedule system, which comprises:

displaying a television schedule on a television display as a grid of two-dimensionally arranged, adjacent irregular cells which vary in length corresponding to time duration of programs, with a title of a program being displayed in each of said irregular cells, said grid having a plurality of channels listed in a first dimension and time listed in a second dimension,

providing a visual identification of a selected one of said irregular cells,

moving said visual identification in the first dimension and in second dimension between first and second ones of said irregular cells to select a desired one of said irregular cells corresponding to a desired program,

tuning a programmable tuner to a select channel based on position of said visual identification for the desired program, and

displaying an overlay containing information relating to a television program being shown on said television set when a channel being shown on the television set is changed.

32. The interactive process for operating a television schedule system of claim 31 in which the information relating to the television program includes program title, name of television service, channel number, and time.

33. The interactive process for operating a television schedule system of claim 32 additionally comprising the step of displaying an overlay including a program note with a program description for the television program being shown on said

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television set.

34. The interactive process for operating a television schedule system of claim 31 additionally comprising the step of displaying a program note with a program description for the visually identified program.

Based on the arguments of the parties, the following claimed language is in dispute for the asserted claims of each of the '268 and '204 patents: "visual identification," "means ... for displaying," and the language relating to the movement and the program note limitations. Moreover, the language "tuning a programmable tuner to a select channel based on position of said visual identification" is also in dispute for the asserted claims of the ' 204 patent.

1. The language "visual identification" ('268/'204 Patents)

Each of the asserted claims of the '268 and '204 patents refers to a "visual identification." The parties agree that "visual identification" is not a term of art. (See, e.g., RFF 1296 and CRFF 1296). [FN13]

Complainants argued that "visual identification" is defined by its ordinary meaning, viz., any identifier that can be seen. (CFF 1387). It was further argued that there is nothing in the claims, specification or prosecution history that defines "visual identification" in a manner that is "unconventional" or inconsistent with the ordinary meaning of the term. (CFF 1388).

Respondents argued that the "visual identification" of each of the asserted, independent claims of the '268 and '204 patents requires an "innovative cursor" as defined in the specification as a cursor that (1) highlights the entire cell, (2) identifies the current half-hour position within a cell that is longer than a half-hour, and (3) differentially identifies the remaining portions of the cell; that the intrinsic evidence conclusively demonstrates that the "innovative cursor" is not merely a preferred embodiment, but is an essential part of the invention; and that long before reaching the description of the preferred embodiment, a reader of the specification would learn that the invention is the innovative cursor. (See, e.g., EPost at 117). The staff argued that the visual identification should be construed as an identification that provides the user some sort of indication as to which segment of a long program cell the visual identification is currently focused upon. (SPost at 29).

The "visual identification" is described by the claim language of all the asserted claims as being a visual identification of an irregular cell comprising the two dimensional grid of the television schedule. (CX-3, col. 14, lns. 56-57; CX-4 col. 17, lns. 1-2; col. 20, lns. 6-7). However, the term "visual identification" does not appear in the '268 and the '204 patents' common specification.

The "innovative cursor 32" is the only "visual identification" described in the Abstract, Summary of the Invention, and Detailed Description of the Invention sections as being capable of attaining the objectives of the invention as set forth in the Summary of the Invention section. The Abstract, which is identical in the '268 and the '204 patents, describes a screen for a user interface of a television schedule system consisting of a two-dimensional array of cells containing program titles. Each cell corresponds to a program and the length of each cell is directly proportional to the length of the corresponding program. The array is arranged as a grid of three regular columns, each column delineating a duration of time of an half hour in length, and twelve rows of program listings. Each program listing is contained in a cell, with some of the program listings overlapping two or more of the columns because of their length. (CX-3). The Abstract identifies a key problem

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with a user interface that utilizes a conventional cursor in a grid made up of such irregular cells:

Because of the widely varying length of the cells (26), if a conventional cursor used to select a cell location were to simply step from one cell to another, the result would be abrupt changes in the screen (10) as the cursor moved from a cell (26) of several hours length to an adjacent cell in the same row. (CX-3).

The Abstract then discloses the inventors' solution for these "abrupt changes in the screen:"

An effective way of taming the motion is to assume that behind every array (24) is an underlying array of regular cells. By restricting cursor movements to the regular cells, abrupt screen changes will be avoided. With the cursor (32), the entire cell (26) is 3-D highlighted, using a conventional offset shadow (34). The offset shadow (34) is a black bar that underlines the entire cell and wraps around the right edge of the cell. To tag the underlying position - which defines where the cursor (32) is and thus, where it will move next - portions (36) of the black bar outside the current underlying position are segmented, while the current position is painted solid.
(CX-3). The cursor (32) described in the abstract is referred to as the "innovative cursor" in the Detailed Description of the Invention and is depicted in Figures 1 and 5 of both patents. (CX-3, Figs. 1 and 5). [FN14]

The Summary of the Invention section, which is identical in the '268 and '204 patents, states that the objects of the invention may be attained by a novel television schedule system and method featuring a user interface with a novel cursor. Thus it reads:

The attainment of these and related objects may be achieved through use of the novel television schedule system and process user interface herein disclosed. A television schedule system including a user interface in accordance with this invention has a display. A means is connected to the display for displaying the television schedule on the display as an array of irregular cells which vary dimensionally in length, corresponding to different television program time lengths. A means is connected to the display for providing a cursor with the television schedule on the display. The cursor has a variable length corresponding to the length of a selected one of the irregular cells in which the cursor is located. A means is connected to the means for providing the cursor for moving the cursor in the array in a series of equal length steps. At least some of the irregular cells have a length which is greater than the length of the steps.

In the process of operating a television schedule system with the user interface of this invention, the television schedule is displayed as an array of irregular cells which vary dimensionally in length, corresponding to different television program time lengths. A cursor is provided with the television schedule on the display, the cursor has a variable length corresponding to the length of a selected one of the irregular cells in which the cursor is located. The cursor is moved in the array in a series of equal length steps, with at least some of the irregular cells having a length which is greater than the length of the steps. (CX-4, col. 2, ln. 52- col. 3, ln. 10) (Emphasis added).

The Detailed Description of the Invention section, which is identical in the '268 and '204 patents, describes the problem created by using a conventional cursor with a grid composed of irregular cells:

Because of the widely varying length of the cells 26, if a conventional cursor used to select a cell location were to simply step from one cell to another, the result would be abrupt changes in the screens 10, 12, 14, 18 and 20 as the cursor moved from a cell 26 of several hours length to an adjacent cell in the same row. Such abrupt changes disorient a user of the system.

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(CX-4, col. 4, lns. 46-52) (Emphasis added). It further describes one way of preventing abrupt changes that could otherwise "disorient a user of the system:"

An effective way of taming the motion is to assume behind every array 24 is an underlying array of regular cells. By restricting cursor movements to the regular cells, abrupt screen changes will be avoided.

(CX-4, col. 4, lns. 46-52). However, the Detailed Description of the Invention section immediately acknowledges that even this system would be "befuddling to users," as

there is now a potential ambiguity between the underlying cell which governs cursor movement and visible cell 26 which holds the program title.

Viz. if the cursor moves in half hour steps, and the cell length is, say four hours, should the cursor be 1/2 hour long or four hours long? If the cursor only spans the interval of the underlying cell (1/2 hour), the cursor appears to be highlighting a segment of the cell, which is misleading. On the other hand, if the cursor spans the entire four hours of the TV listing, the cursor underlying position will be obscure. In this case, cursor right/left commands will appear inoperative while traversing a long cell. The absence of feedback following a cursor command is befuddling to users.

(CX-4, col. 4, ln. 56 - col. 5, ln. 2) (Emphasis added).

It then states that "[t]herefore, an innovative cursor 32 (Fig. 1) for the irregular array 24 is required which satisfies several conflicting requirements." (CX-4, col. 5, lns. 3-5). (Emphasis added).

Under the Detailed Description of the Invention section, the innovative curser is described accordingly:

With the cursor 32, the entire cell 26 is 3-D highlighted, using a conventional offset shadow 34. The offset shadow 34 is a black bar that underlines the entire cell and wraps around the right edge of the cell. To tag the underlying position - which defines where the cursor 32 is and thus, where it will move next - portions 36 of the black bar outside the current underlying position are segmented, while the current position is painted solid.

For an half hour cell 26, the offset shadow's underline bar will always be black. FIGS. 2 and 3 show the cursor 32 as it appears for a half-hour program. For programs that go beyond 1/2 hour, only the current 1/2 hour position will be solid black. All remaining positions will be striped. If the cursor is moved left or right, the solid section will move accordingly, providing complete visual feedback. (CX-3, col. 5, lns. 7-23).

The Detailed Description of the Invention concludes:

It should now be readily apparent to those skilled in the art that a system and method incorporating a novel user interface capable of achieving the stated objects of the invention has been provided. The user interface that is configured to compensate for the particular nature of the television schedule information. The user interface has a cursor operation that compensates for an irregular grid format of the television schedule information. The user interface presents the schedule information in a format that compensates for limited resolution of the television display. The user interface presents supplemental schedule information in overlays that obscure a minimum amount of useful other information. Order of presentation of the schedule information in the interface is customizable by user preference.

(CX-3, col. 14 lns. 21-35)(Emphasis added).

The features of the "innovative cursor" are readily observed from the Figures 1 and 5 of the '204 and the '268 patents. As seen in Figures 1 and 5 of the patents, the "innovative cursor" described in the text of the patents highlights the first half of the cell, which corresponds with first half hour of an hour long program, with a solid black line, while highlighting the second half of the cell, which

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corresponds to the last half hour of an hour long program, with a segmented line. Thus Figure 1 of the '268 patent shows a two dimensional television program schedule grid guide made up of cells of irregular length, wherein each cell contains a program title and corresponds to a single television program. Time is displayed horizontally, while channels are displayed vertically. (CX-3, Fig. 1). Therefore, the cursor is able to highlight the entire cell and to indicate to the user its exact position within the cell.

As seen from the foregoing, a conventional cursor, and especially its mode of moving within a grid composed of irregular cells (i.e., moving to an adjacent cell in response to each use of the movement controller by the user), was disclaimed by the applicants. Furthermore, complainants' reliance on the doctrine of claim differentiation is misplaced. As stated above, the doctrine of claim differentiation is not determinative. See, supra. Furthermore, the limitation of claim 7 that the "visual identification" comprise a cursor is not inconsistent with the administrative law judge's finding that the "visual identification" is a cursor that (1) highlights the entire cell, (2) identifies the current half-hour position within a cell that is longer than a half-hour, and (3) differentially identifies the remaining portions of the cell. A cursor is a "visual cue." (Mirriam Webster's Collegiate Dictionary Online available at http://www.m-w.com/).). Therefore, complainants' proposed construction of "visual identification" as being any identification that is visible would render claim 7's limitation redundant.

Based on the foregoing, the administrative law judge finds that the claimed visual identification of the '268 and '204 patents is the "innovative curser" defined in the specification as a cursor that (1) highlights the entire cell, (2) identifies the current half-hour position within a cell that is longer than a half-hour, and (3) differentially identifies the remaining portions of the cell.

2. The language "means... for displaying" ('268/'204 Patents)

Claim 1 of the '268 patent recites:

> means coupled to said television display for displaying the television schedule on said television display as a grid of two-dimensionally arranged, adjacent irregular cells which vary in length corresponding to time duration of programs, with a title of a program being displayed in each of said irregular cells, said grid having a plurality of channels listed in a first dimension and time listed in a second dimension.

(CX-3). In almost the exact same language, claim 14 of the '204 provides for the same "means ... for displaying" element as provided for in claim 1 of the '268 patent. [FN15]

The parties agree that the "means ... for displaying" elements in claim 1 of the '268 patent and claim 14 of the '204 patent are means plus function elements. (See, e.g., CPost at 184; PPost at 123). Complainants contend that the corresponding structures for this element are the CPU 228 and the Video Display Generator 224. (CPost at 184, 222). Respondents and the staff argued that the corresponding structures include, in addition to the CPU 228 and the Video Display Generator 224, the Video Switcher 226. (PPost at 123-24; SPost at 29).

The administrative law judge rejects complainants' arguments that the 35 U.S.C. § 112 corresponding structures should be limited to the CPU 228 and the Video Display Generator 224 to the exclusion of the Video Switcher 226. Thus, the specification provides:

> For a What's on TV request, the listing stored in schedule memory 232 is retrieved, processed by CPU 228, and outputted to video display generator 224. Video switcher 226 is enabled by CPU output 246 to select the video display

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generator 224 output whenever schedule data is to be presented to the TV/monitor 210.
(CX-4, col. 13, lns. 12-17). Accordingly, Figures 22A and 22B, which are the only block diagrams of systems incorporating the inventions of the '268 and '204 patents, show that the CPU and the Video Display Generator in Figure 22A are connected to the television display through the Video Switcher, and that, in Figure 22B, the CPU is similarly connected to the television display. [FN16]

Furthermore, complainants' expert witness, Faillace, testified that each of the video switchers, referred to in the '121, '204 and '268 patents, operated in the same way, viz., it receives control signals from the CPU indicating which of the two inputs that it receives - i.e., the input from the tuner or the input from the video display receiver - it should accept and pass through so that it is displayed on the television set and switches to the selected input. (Tr. at 2387).

In the context of the invention of the '121 patent, Faillace testified as to what would happen if the video switcher was rendered inoperable:

Q Now, this person watching television with this invention that's incorporated in the television, unbeknownst to him, the video switcher has gone on the blink. We won't go into the details, but it is struck. It's no longer able to respond to commands from the CPU, and it is simply letting the output from the turner go through to the television receiver.

When that person presses the button on his remote to try to call up the guide, what will happen?

A He won't see a guide.

Q I'm sorry, not a guide. He will try pull up the program schedule information.

A He won't see that either.

Q In other words, it won't be generated on the display?

A It will.

* * *

Q If the video switcher is inoperative as I described, the viewer will only receive the television program, the signal from the tuner, that's correct.

A The broadcast program, that's right.

Q The broadcast program. So then isn't it true that in order for the program information that is being generated by the video display generator to reach the TV receiver, that video switcher or its equivalent must be there in order to allow that information to reach the TV receiver and be displayed on the screen?

A It is true in precisely the same sense that the line 142 must also be there.

Q Without a working video switcher, the person who has spent a lot of money for their brand new TV with a fancy -

A Guide.

Q - guide will simply have a regular old television, right?

A That's correct.

(Tr. at 2389-91). Moreover, complainants' in their post hearing brief responded to respondents' inclusion of a video switcher as part of the corresponding "means ... for displaying" accordingly: "Respondents [sic] proposed additional structure merely enables the CPU (executing relevant software routines) and video display generator to perform their stated functions." (CPost at 185 (Emphasis added)). Therefore, complainants admit that the CPU and Video Display Generator need the Video Switcher in order to accomplish their ascribed function of "displaying the television schedule on said television display."

Based on the foregoing, the administrative law judge finds that the corresponding

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means to the "means ... for displaying" of claim 1 of the '268 patent and claim 14 of the '204 patent are (1) the CPU, the video display generator, and the video switcher, or (2) their 35 U.S.C. § 112 equivalents.

3. The movement limitation ('268/'204 Patents)

Independent claim 14 of the '204 patent requires

a movement control for a visual identification of selected ones of said irregular cells which controls movement of said visual identification in the first dimension and in second dimension from cell to cell.

(CX-4, col. 17, lns. 1-5). Claim 14 recited that the cells comprising the television grid guide would be "two dimensionally arranged," with "plurality of channels listed in the first dimension and time listed in a second dimension." (CX-4, col. 16, lns. 58-65).

Independent claim 31 provides for process that calls for:

moving said visual identification in the first dimension and in the second dimension between first and second ones of said irregular cells to select a desired one of said irregular cells corresponding to a desired program.

(CX-4, col. 20, lns. 8-11). As with claim 14 of the '204 patent, "a plurality of channels" is listed in the first dimension, while time is listed in the second dimension. (CX-4, col. 20, lns. 3-5).

As was observed above, see supra, claim 1 of '268 patent had the following language:

a movement control for a visual identification of ones of said irregular cells which initiates movement of said visual identification in the first dimension, and irregular movement of said visual identification in the second dimension in steps corresponding to variation in cell size, responsive to an input by a user to said movement control, between first and second ones of said irregular cells.

(CX-3, col. 14, lns. 56-65). Once again, "a plurality of channels" is listed in the first dimension, while time is listed in the second dimension. (CX-3, col. 14, lns. 50-53).

Complainants argued that the movement limitation only requires "that the 'visual identification' be in one cell, in one instance, then in another cell, in a second instance. As such, movement' of the 'visual identification' moves relative to the physical dimensions of the television screen - irrespective of whether the grid stays put, or whether the grid moves while the 'visual identification' stays put." (CPost at 197). Respondents S-A and Pioneer and the staff argued that the movement limitation of the asserted claims is only satisfied if the "visual identification" moves within the grid guide, and is not satisfied if the "visual identification" remains stationary while the grid guide itself moves. (See, S-A Post at 127-28; PPost at 134-136; SPost at 50- 52).

Respondent EchoStar argued that the movement limitation be construed such that the cursor would move at regular intervals, so that some user inputs would cause the cursor to move from cell to cell, but other user inputs would cause the cursor to move its position within the cell. (EPost at 126-128). Under EchoStar's construction, cell to cell movement would occur when the cursor was in a cell that corresponded to the length of the cursor's regular movement. (Id.). For instance if the cursor was moved at half hour intervals and happened to be in a cell corresponding to a show that was a half hour in duration, it would exhibit cell to cell movement to the next cell. If the cursor was in a cell that corresponded to a program greater than a half hour it would exhibit movement within the cell. (Id).

The administrative law judge rejects complainants' argument that the cursor does

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