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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

PERSONALIZED MEDIA COMMUNICATIONS, LLC,
Patent Owner.

Case No. IPR2020-00723
U.S. Patent No. 7,747,217

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 7,747,217**

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I. Introduction

Google LLC (“Petitioner”) requests *inter partes* review of claims 1-3, 7-9, 11, 12, 16-18, and 20-22 (“challenged claims”) of U.S. Patent No. 7,747,217 (the “’217 patent”). The ’217 patent relates to a television network and method of programming communication in a network to control the reception, coordination, and presentation of multimedia presentations at a user’s display. (’217 patent at 12:3-14:54.) The ’217 patent describes a “Wall Street Week” example, where a user’s television receives a television program and embedded digital data reflecting stock prices; generates text and graphics based on that digital data; and superimposes text and graphics on video information for the television program with “well[-]known” techniques, to generate a multimedia presentation. (*See id.* at 10:43-11:24, 12:3-14:54, 21:47-52, 48:8-74:5, 128:63-141:3, 239:10-13.)

This method and network were not new at the time of the earliest claimed priority date for the ’217 patent. The asserted art (*Campbell, Millar, and Thonnart*) describes transmitting a television program and digital data (such as subtitles); creating text (and graphics) based on that digital data; and superimposing the created text and subtitles onto the television program, for viewing at the user’s home television. (*See Exs. 1006, 1010, 1014.*) The claims are obvious and should be canceled.

II. Statement of Precise Relief Requested for Each Claim Challenged

Under 35 U.S.C. § 311, Petitioner requests review and cancelation of claims 1-3, 7-9, 11, 12, 16-18, and 20-22. The challenged claims are unpatentable in view of the following prior art.¹

Prior Art References	
Ref. 1:	<i>Campbell</i> , PCT Patent Publication WO 81/02961 to Campbell et al., published Oct. 15, 1981; prior art under at least pre-AIA 35 U.S.C. § 102(a) (Ex. 1014).
Ref. 2:	<i>Millar</i> , GB 1,370,535, published Oct. 16, 1974; prior art under at least pre-AIA 35 U.S.C. § 102(a), (b), (e) (Ex. 1006).
Ref. 3:	<i>Thonnart</i> , U.S. Patent No. 4,413,281, issued Nov. 1, 1983, from U.S. Patent Application No. 277,672, filed June 26, 1981; prior art under at least pre-AIA 35 U.S.C. § 102(e) (Ex. 1010).

The challenged claims are unpatentable under the following grounds:

¹ Petitioner does not concede the challenged claims are entitled to the earliest claimed priority date of November 3, 1981.

Grounds of Unpatentability	
Ground 1:	<i>Campbell</i> in view of <i>Millar</i> renders obvious claims 1-3, 7-9, 11, 12, 16-18, and 20-22 under 35 U.S.C. § 103.
Ground 2:	<i>Campbell</i> in view of <i>Millar</i> and <i>Thonnart</i> renders obvious claims 11, 12, and 16-18 under 35 U.S.C. § 103.

III. Overview of the '217 Patent

The '217 patent describes a system for transmitting, receiving, coordinating, and presenting multimedia presentations at a user's television. ('217 patent at 12:3-14:54; Ex. 1004 ¶¶ 17-19.) The system includes an intermediate transmitter station, e.g., a cable head end, that receives and retransmits signals to a receiver station. (*Id.* at Abstract, Figs. 1, 6A-6B, 167:59-168:18.)

The '217 patent describes a "Wall Street Week" program, which provides a multimedia presentation. (*Id.* at 12:3-14:54, 48:8-74:5, 128:63-141:3.) In the "Wall Street Week" example, two different media are transmitted to a receiver station: (1) a traditional television program, and (2) digital data for generating text and graphics information. (*Id.* at 12:3-14:54.) These media transmissions may include identifying information that tells the receiver station about the content of the media. (*Id.* at 46:5-25, 25:65-26:18, 62:13-42.) The receiver station receives transmissions, generates associated text and graphics information, and combines these text and graphics with

additional video information from the television program using the “graphic overlay techniques, well known in the art,” to generate a multimedia presentation at a user’s television. (*Id.* at 10:43-14:54, 21:47-52, 48:8-74:5, 128:63-141:3, 239:10-13.)

IV. The Level of Ordinary Skill in the Art

A person of ordinary skill in the art at the time of the effective filing date (“POSITA”) would have a Bachelor’s degree in electrical engineering or computer engineering (or equivalent), and at least three years of work experience in the field of TV broadcasting systems, computer systems or TV electronics, and/or multimedia or real-time video systems. With more education, e.g., post-graduate degrees and/or study, less experience would be needed to attain an ordinary level of skill in the art. Similarly, more experience can substitute for formal education. (Ex. 1004 ¶¶ 29-31.)

V. Claim Construction

The Board construes claims consistent with *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See also* 37 C.F.R. § 42.100(b); 83 Fed. Reg. 51,340 (Oct. 11, 2018). Challenged claims should only be construed if necessary to resolve a controversy. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

The parties proposed constructions in the ’217 patent in a related district court litigation. (*See* Ex. 1009.) Petitioner has analyzed the claims in this proceeding using these constructions. The Board need not resolve disputed constructions here because

the claims read on the prior art under either party's construction. *Nidec*, 868 F.3d at 1017. When needed, Petitioner addresses the constructions in the analysis below.

VI. Asserted References

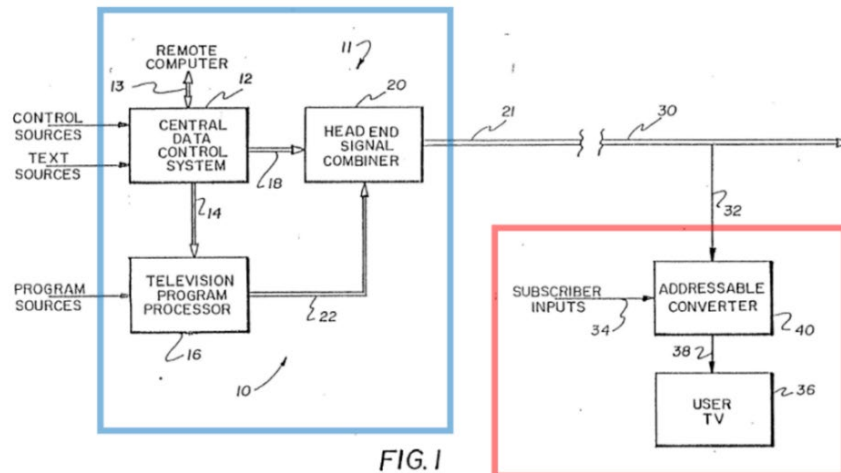
A. Overview of *Campbell*

Campbell describes “an addressable cable television control system” that sends text and graphics information (e.g., teletext), in the “vertical interval” of a television broadcast. (See *Campbell* at 1:7-2:11, 2:34-4:11, 8:18-10:26, 28:3-34:7, 34:19-26, Figs. 2A-2B; Ex. 1004 ¶¶ 34-40.) During the vertical interval, no television picture information is transmitted, making it available for the transmission of digital data, e.g., text and graphics, and control data. (*Id.* at 8:18-10:26.) After the vertical interval, transmission of television picture information begins. (*Id.*; see also Ex. 1021 at 24.)²

Figure 1 illustrates *Campbell*'s cable television control system. (*Campbell* at 6:10-35.) A cable head end station 11 receives data “from a wide variety of sources,” formats it as needed, incorporates it into a vertical blanking interval, and transmits

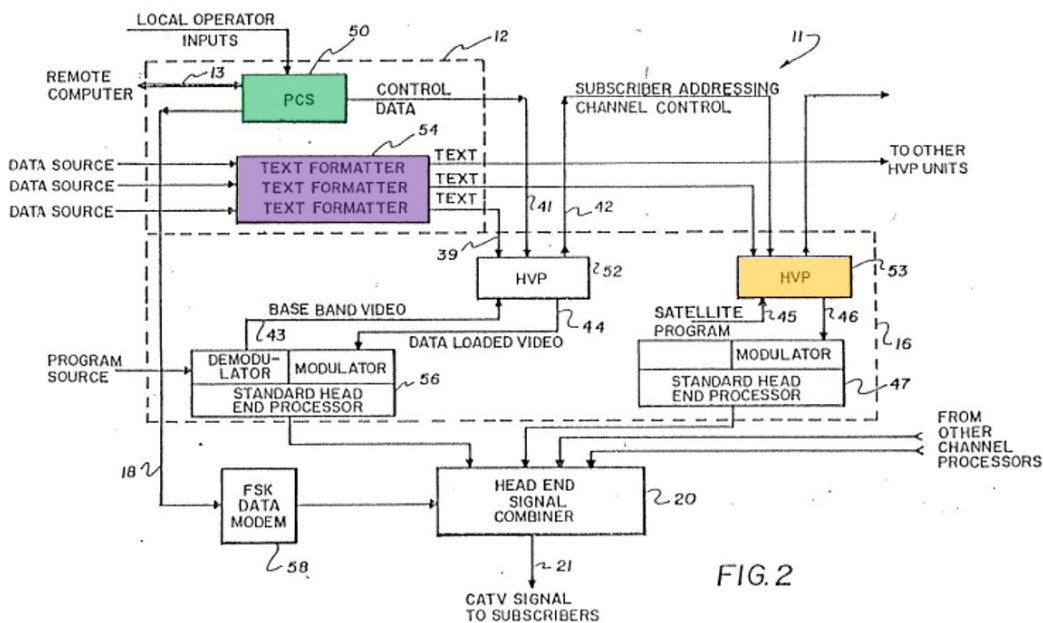
² Ex. 1021 is dated after November 3, 1981, however, later disclosure underscore knowledge attributable to a POSITA. *Ecolchem, Inc. v. S. Cal. Edison Co.*, 227 F.3d 1361, 1379 (Fed. Cir. 2000). Moreover, the vertical interval was well known prior to this date. See *Campbell* at Figs. 2A-2B, 8:18-10:27.

it to a subscriber station that includes an addressable converter 40 and user television 36. (*Id.* at 6:10-35.)



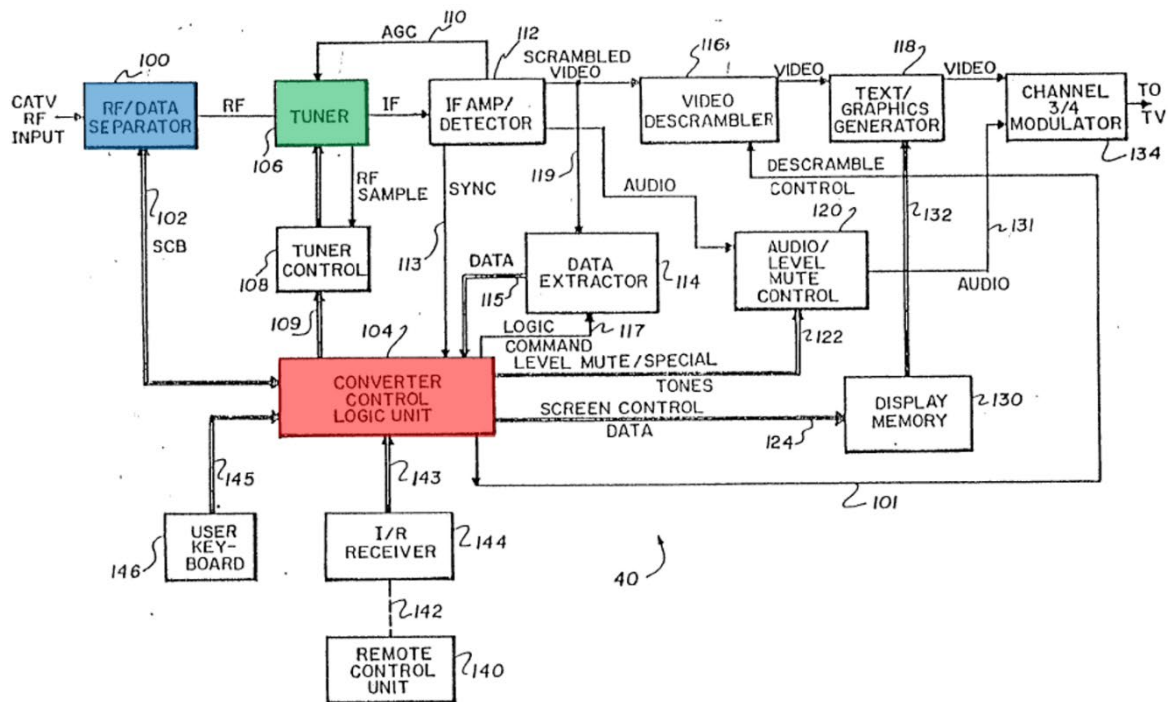
(*Id.* at Fig. 1 (annotated) (blue is a head end station, and red is a subscriber station.))

Figure 2 illustrates an exemplary cable head end station.



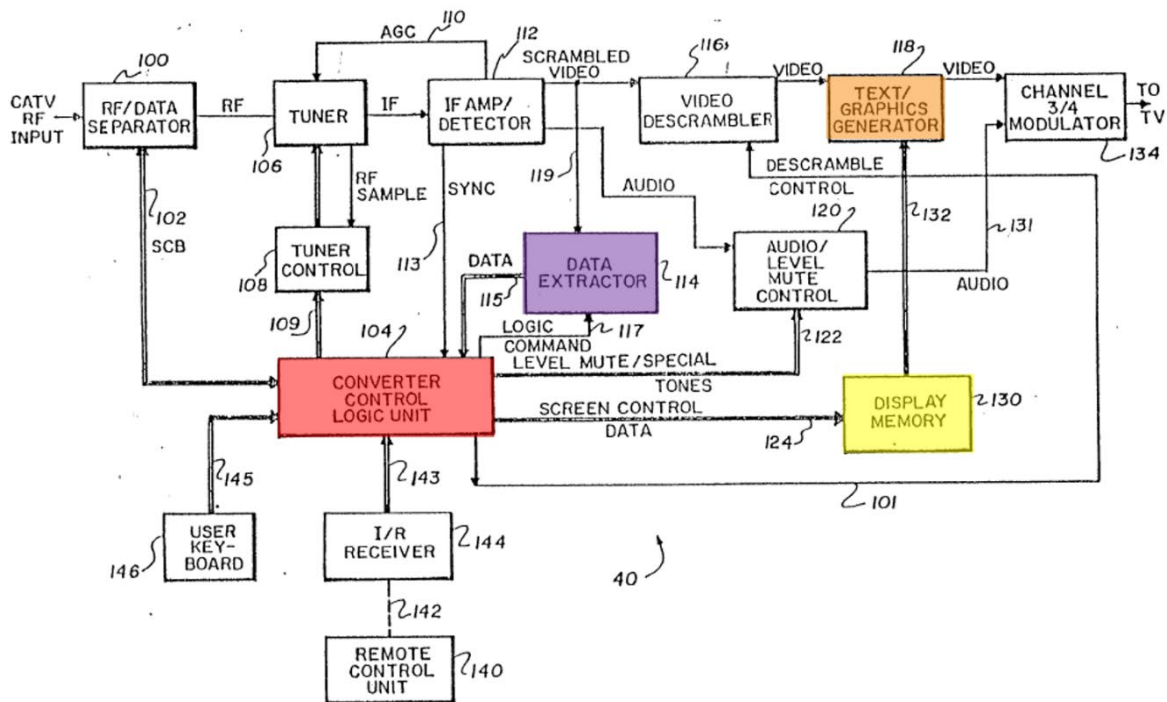
(*Id.* at Fig. 2 (annotated).) The cable head end station includes a programming control system or PCS (shown in green) that generates data (channel control signal or eligibility code signal) to control activity at a downstream receiver station. (*Id.* at 7:8-15.) The cable head end station includes text formatter 54 (shown in purple) that receives data, such as news and stock information, from many sources, and processes that data to provide text and graphics to receiver stations. (*Id.* at 7:16-25.) The text formatter sends data to head end video processors (HVP), like HVP 53. (*Id.*) HVP 53, denoted in orange, receives the text and graphics from text formatter 54, control data from PCS 50, as well as television information from a satellite source 45. (*Id.* at 7:26-32, Fig. 2.) It incorporates text and graphics and control data into the vertical interval. (*Id.* at 7:33-8:9.) That television broadcast is sent to receiver stations. (*Id.* at 8:10-17.)

Figure 6 shows an exemplary receiver station. The broadcast is received at an RF/data separator 100 (blue below). (*Id.* at 12:32-13:9.) The separator 100 directs control data (e.g., eligibility code) to a converter control logic unit 104 (red below) “carried out by a microprocessor,” and it sends RF data-loaded television signals to a conventional tuner 106 (green below). (*Id.* at 12:32-13:9, 14:29-35.)



(*Id.* at Fig. 6 (annotated).)

Tuner 106 (green above) sends television signals to IF/amp detector 112, which separates video (and digital text and graphics information) from audio. (*Id.* at 13:10-26.) The audio goes to audio/level mute control 120, and video (including digital text and graphics information) is sent to a data extractor 114 (purple below). (*Id.* at 13:10-26.) The data extractor 114 separates digital data (text and graphics) from video content and sends digital data to converter control logic unit 104 (red below). (*Id.* at 13:16-26, 15:27-16:34.) The video content is sent to the video descrambler 116, where it is processed. (*Id.* at 13:27-36.)



(*Id.* at Fig. 6 (annotated).) Converter control logic unit 104 (red above) sends received digital text and graphics to display memory 130 (yellow above), which then sends any formatted display characters to text/graphics generator 118 (orange above). (*See id.* at 14:1-6.) Text/graphics generator 118 “provides display characters and graphic symbols.” (*Id.* at 14:1-28.) Characters and graphics are combined with additional video from the video unit descrambler, and that combined output displayed at the user’s television. (*Id.* at 13:27-14:28.)

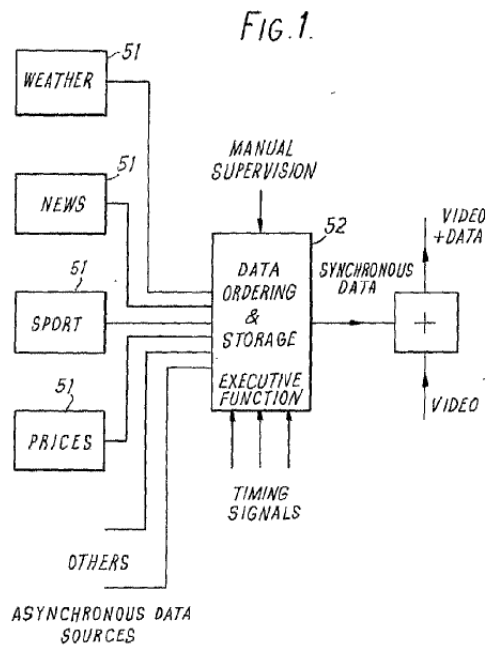
Campbell also discloses “procedures to restrict access to television programming, including restrictions on the basis of . . . eligibility.” (*Id.* at 17:33-21:21.) A program may be assigned an eligibility code that defines the subject matter

of that program. (*Id.* at 18:24-35.) This “allows families . . . to control access to all movies having unsuitable subject matter.” (*Id.* at 18:31-33.) The PCS at the head end station provides such control data, transmitted in the vertical interval with digital text information from text formatter 54. (*Id.* at 19:6-34, 7:8-32.) When a receiver receives the television signal and eligibility code, it compares that code to an “eligibility threshold code 238” stored at converter control logic 104. (*Id.* at 21:12-21.) If the eligibility threshold code 238 is “exceeded by the eligibility code of a given television program,” then the receiver will prevent the display of the program subject matter. (*Id.* at 21:12-21, 23:12-32.)

B. Overview of *Millar*

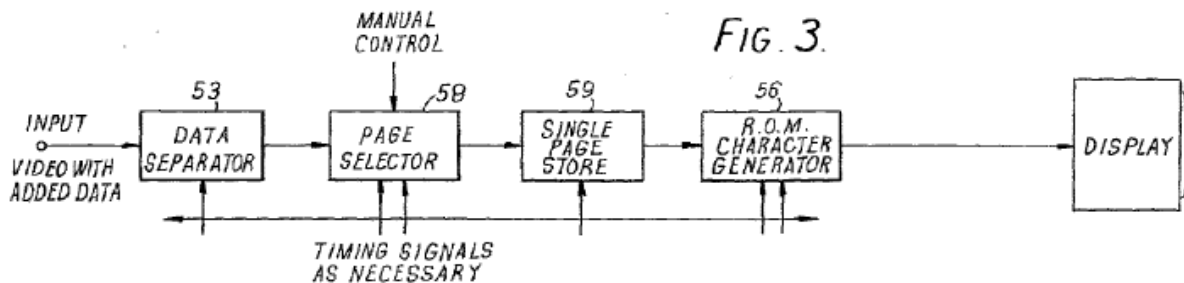
Millar describes a system that provides for creation and display of multimedia presentations at a television receiver (e.g., captions on a television picture). (*Millar* at Title, 1:9-47; Ex. 1004 ¶¶ 41-44.) *Millar* explains it is “well known” to transmit caption and similar information “simultaneously with a video signal” to “superimpose captions such as sub-titles on a picture.” (*Id.* at 1:9-24.) *Millar* incorporates teletext technology, (*id.* at 1:48-66, 2:27-48.), which sends a “digitally coded data signal” representing caption data in the “vertical interval” of a television signal. (*See, id.* at 1:48-2:17.)

Millar's teletext system includes transmitting and receiving terminals. (*Id.* at 1:67-86, 3:9-12; 2:106-128.) An exemplary transmitting terminal is shown in Figure 1.



(*Id.* at Fig. 1, 3:17-40.)

Millar's receiver terminal is “adapted to receive the video signal and display a corresponding picture.” (*Id.* at 1:67-86.) Figure 3 shows an exemplary receiving terminal.



(*Id.* at Fig. 3.)

The receiver includes a data separator circuit 53 to extract the digitally coded data signal (i.e., caption information) from the television signals. (*Id.* at 3:92-96, 1:67-86.) Extracted digital data is then sent to a page selector. (*Id.* at 4:24-62.) The page selector is programmed with “set-up codes”—that are compared to page codes of the incoming digital data—and responds to “timing signals” to select the digital data to store. (*Id.* at 4:56-62.) The digital data is then “entered into storage.” (*Id.* at 4:24-62, 1:67-86.) The receiving station then sends the stored data to a decoding circuit (what it calls the ROM character generator) to convert the digital data into a “repetitive vision signal.” (*Id.* at 1:67-86, 3:105-112, 5:71-104 (explaining that ROM is “essentially a complex decoder” that can be programmed).) The caption information is displayed with the picture on the television. (*Id.* at 1:9-24, 1:67-86.)

C. Overview of *Thonnart*

Thonnart relates to a system and method for “simultaneous teletext and analog signal transmission” using known television networks. (*Thonnart* at Title, 1:10-17; Ex. 1004 ¶¶ 45-46.) “Identifying messages” associated with analog and digital signals (i.e., teletext) ensure that teletext (text and/or diagrams) is transmitted “approximately synchronous with the corresponding information [e.g., the television information] in the analog form.” (*Id.* at 1:46-56, 2:24-46.) This “identifying message[.]” “is received by a conventional receiving set equipped with a decod[er],

memory and detector,” the detector being “sensitive to the identifying material.” (*Id.* at Abstract, 1:54-56, 3:39-49, 4:14-24.)

VII. The Challenged Claims Are Unpatentable

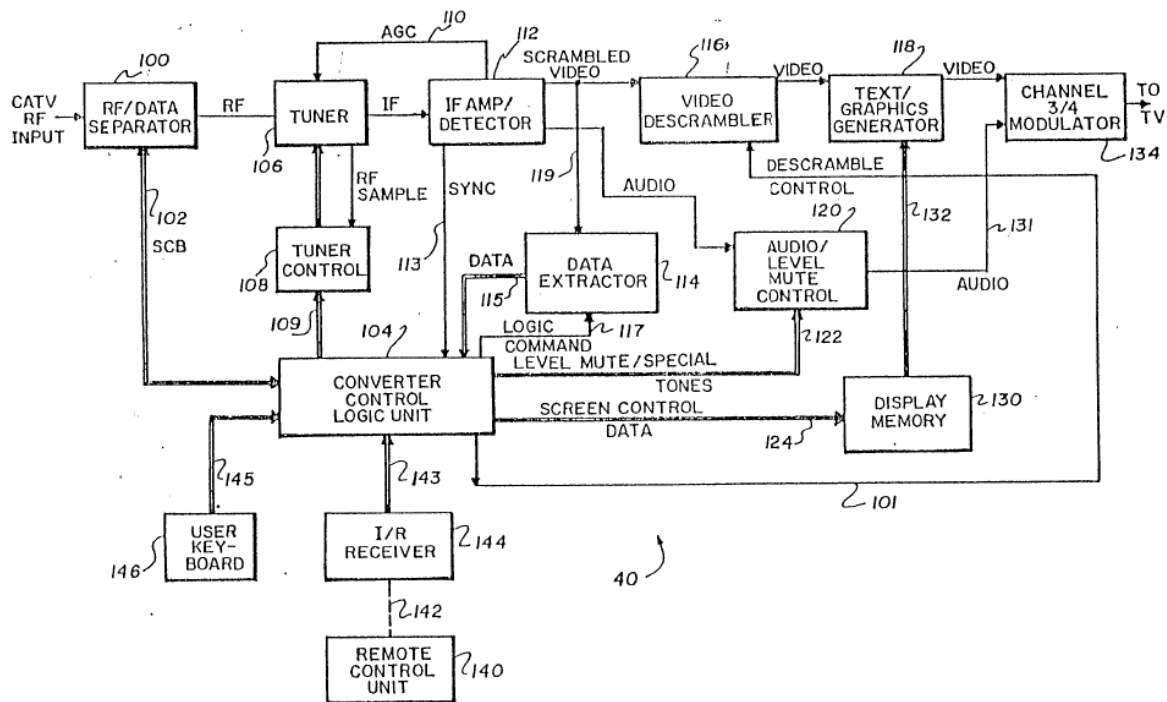
A. Ground 1: *Campbell* and *Millar* Render Obvious Claims 1-3, 7-9, 11, 12, 16-18, and 20-22

1. Independent Claim 1

- a. A method of outputting a multimedia presentation at a receiver station adapted to receive a plurality of signals, said method comprising the steps of:**

To the extent that the Board finds the preamble limiting, *Campbell* and *Millar* disclose or render obvious this element. (Ex. 1004 ¶¶ 47-54.)

Campbell discloses “a receiver station adapted to receive a plurality of signals.” (*See Campbell* at 6:10-35, Fig. 1.) *Campbell*’s receiving station is shown below:



(*Campbell* at Fig. 6.) This station receives television broadcasts from the cable head end. (*Campbell* at Fig. 2, 6:10-35, 7:8-8:17, 12:32-13:9.) The broadcasts consist of television signals with picture and sound television information and digital signals carrying text and graphics information. (*Campbell* at 1:7-2:11, 2:34-3:36, 8:18-10:26, Figs. 2A-2B, 12:32-13:9, 28:3-34:7.)

Campbell's receiver takes the received signals, processes them, as needed, and then provides the audio, video, and graphic and text information to the television for display. (See *Campbell* at 12:32-14:35, 15:27-16:34.) *Campbell's* content is displayed, but it does not expressly state it is displayed in a multimedia presentation.

(Ex. 1004 ¶ 49.) It would have been obvious to a POSITA to do so in view of *Millar*.
(*Id.*)

Millar discloses a method of outputting a multimedia³ presentation at a receiver station in the form of captions or subtitles superimposed on a television picture. (*Id.* ¶ 50; *Millar* at 1:9-24, 1:48-86, 2:27-48, 2:75-92, 2:106-128.) The Board

³ Consistent with the intrinsic record, “medium”/“media” mean “a channel of communication, such as radio, television, newspaper, book, or Internet.” (’217 patent at Abstract; Ex. 1012 at 23 (citation omitted); Ex. 1015 at 2; Ex. 1011 at 1:6-22; Ex. 1016 at 32; Ex. 1009 at 27-36.) PMC argued that “media” and/or “medium” means “forms of electronically transmitted programming, such as audio, video, graphics, and/or text, [where] television programming (including its video and audio components) is a single form of media.” (Ex. 1009 at 4.) PMC argues its construction is met when the plurality of signals includes audio and/or video of a television program (a first medium), and associated graphics information for the program (a second medium). *See* Ex. 1025 at 5 (“audio and/or video signals (first medium) for the title” and “thumbnail images for that title (second medium).”). Google disagrees with PMC’s construction, but the above mapping of any picture and sound television information and caption information being *two distinct media* meets Google’s proposed construction as well. (Ex. 1004 ¶ 50, n.3.)

stated during prosecution that picture and sound television information carried by a television signal and caption data carried by a digital data signal are *two distinct media*. (Ex. 1012 at 24.) Thus, placing captions (medium one) on a television picture (medium two) is outputting a multimedia presentation. (Ex. 1004 ¶ 50.) This is like the '217 patent's "Wall Street Week" multimedia presentation, with graphics added to a television picture for display. (*Id.* ¶ 50; '217 patent at 10:43-11:24, 12:3-14:54, 21:47-52, 48:8-74:5, 128:63-141:3, 239:10-13.)

It was known to "superimpose captions such as sub-titles on a [television] picture," and to create a multimedia presentation. (*Millar* at 1:9-24.) *Millar* sends caption information in the vertical interval of a television signal, like *Campbell*. (*Id.* at 1:48-86, 2:27-128; Ex. 1004 ¶ 51.) A receiver station receives these signals, extracts digital data, and then converts it to a signal representing the alphanumeric information (caption) and superimposes it on a display. (*Millar* at 1:67-86, 2:27-92.)

In view of this disclosure, it would have been obvious to modify *Campbell*'s system (to the extent it does not already do so) to superimpose text and graphics, i.e., captions, on a television picture and provide a "multimedia presentation." (Ex. 1004 ¶ 52.) *Millar* explains captions provide a benefit to users and "enable deaf viewers (of which there are many) to have added to their pictures sub-titles." (*Millar* at 1:17-35.) A POSITA would have been motivated to adapt *Campbell*'s analogous system, introduce captions into the vertical interval of the television signal, and have

captions displayed on the television to provide a deaf viewer (and interested populations) with the additional benefit of being able to read what is stated during a program. (Ex. 1004 ¶ 52; *e.g.*, *Hilbert* (Ex. 1022) at 1:9-13 (“It is desirable to include additional information beyond the picture and sound . . . , [such as,] subtitles for deaf persons, special notices and the like.”).)

A POSITA would have made this modification with a reasonable expectation of success. (Ex. 1004 ¶ 53.) *Campbell’s* stations can transmit teletext like *Millar* (*Campbell* at 28:3-34:7), and the text/graphics generator is *already capable* of superimposing text like a “channel number” on the screen with the associated picture (*id.* at 14:7-11). It would have simply been the substitution of one known technique for another, and would require no undue burden for a POSITA to adjust *Campbell’s* system to also generate and superimpose subtitles on a television picture. (Ex. 1004 ¶ 53; *e.g.*, *Campbell* at 3:28-36 (indicating “provides a substantial amount of textual data per channel for use . . . to provide additional data to supplement a channel television program”).)

- b. receiving said plurality of signals including at least two media which include a first medium received in a digital data channel from a source external to said receiver station;**

Campbell and *Millar* disclose or render obvious this element. (Ex. 1004 ¶¶ 55-58.)

Campbell discloses “receiving [a] plurality of signals” by disclosing a receiver that receives the broadcast consisting of television signals carrying picture and sound television information and digital signals carrying text and graphics data. (Section VII.A.1.a.) This “plurality of signals” includes “at least two media”: (1) the television signals with picture and sound television information, and (2) the digital signals carrying text and graphics, i.e., caption, information. (Section VII.A.1.a; Ex. 1004 ¶ 56.) The Board explained during prosecution that picture and sound information in a television signal and text and graphics information in digital signals are *two different media*. (Ex. 1012 at 24.) PMC agreed to this understanding. (*Id.* at 26-27. *Campbell* accordingly discloses a “receiving said plurality of signals including at least two media.” (Ex. 1004 ¶ 56.)⁴

⁴ In the related litigation, PMC argues “media/medium” should mean “[f]orms of electronically transmitted programming, such as audio, video, graphics, and/or text, television programming (including its video and audio components) is a single form of media.” (Ex. 1009 at 27-36.) Petitioner disagrees with that proposed construction, but the above mapping of the picture and sound television information and caption information being *two distinct media* meets PMC’s construction as well. (Ex. 1004 ¶ 56, n.4.)

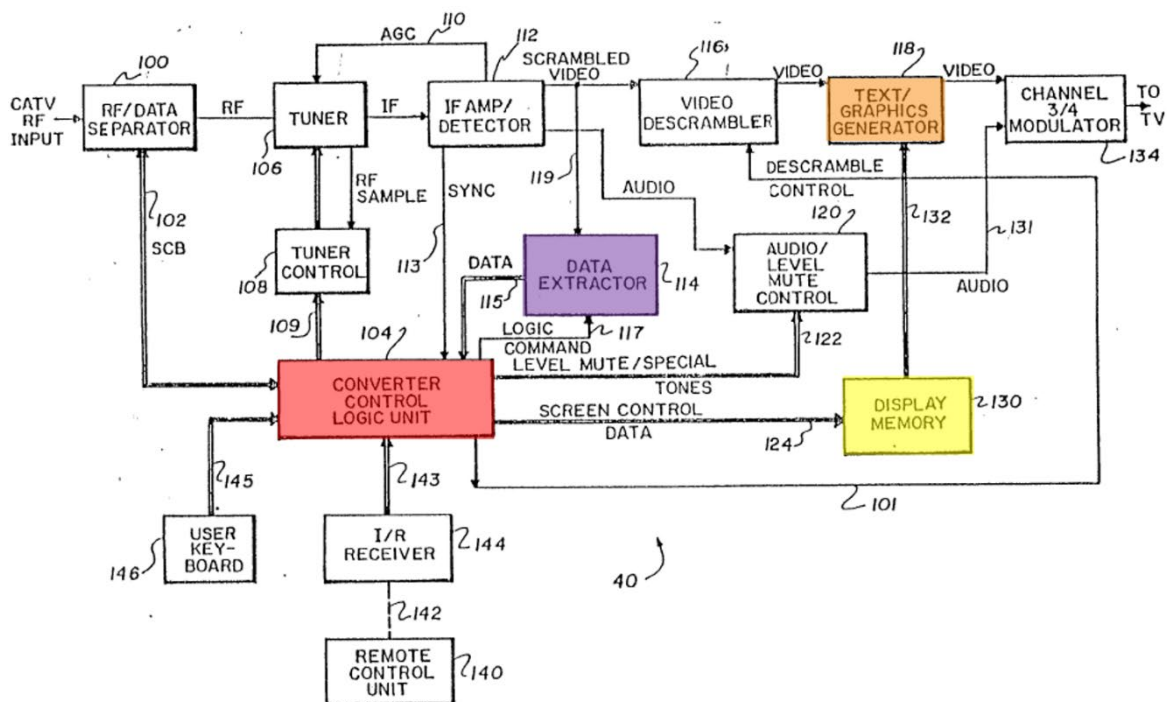
Last, *Campbell* explains one of the media (“a first medium”) in the “plurality of signals” is received via a digital data channel from a source external to the receiver station. (Ex. 1004 ¶ 57.) As a digital data channel is a broadcast or cablecast carrying digital information, *Campbell*’s disclosure of text and graphics (caption data in view of *Millar*) transmitted in a “binary digital data packet” in the television broadcast from the head end station meets this element. (*Campbell* at 10:19-26, 11:10-21, 16:1-5, 28:3-34:7; Ex. 1004 ¶ 57; *see also* ’217 patent at 11:25-63, 43:52-44:58, 217:5-10; Ex. 1011 at 20:16-68; Ex. 1009 at 57-63.)⁵ *Millar* confirms that this transmission scheme is well known, also disclosing using a digital data signal for to carry caption information sent in the vertical interval of a television signal. (*Millar* at 1:48-86 (“digitally coded data signal”), 2:27-128.)

⁵ In the related litigation, PMC argues that a “digital data channel” is a “channel that carries exclusively or predominantly digital information.” (Ex. 1009 at 57-63.) Petitioner disagrees with that construction, but the above mapping satisfies PMC’s construction because “teletext” is a “channel of communication” that carries digital information “exclusively or predominantly.” (Ex. 1004 ¶ 57, n.6; Ex. 1009 at 27-36 (construing media as “channel of communication”); Ex. 1012 at 24 (teletext is own media, i.e., channel of communication).)

- c. storing information from said first medium in a storage medium at a computer at said receiver station;

Campbell and *Millar* disclose or render obvious this element. (Ex. 1004 ¶¶ 59-63.)

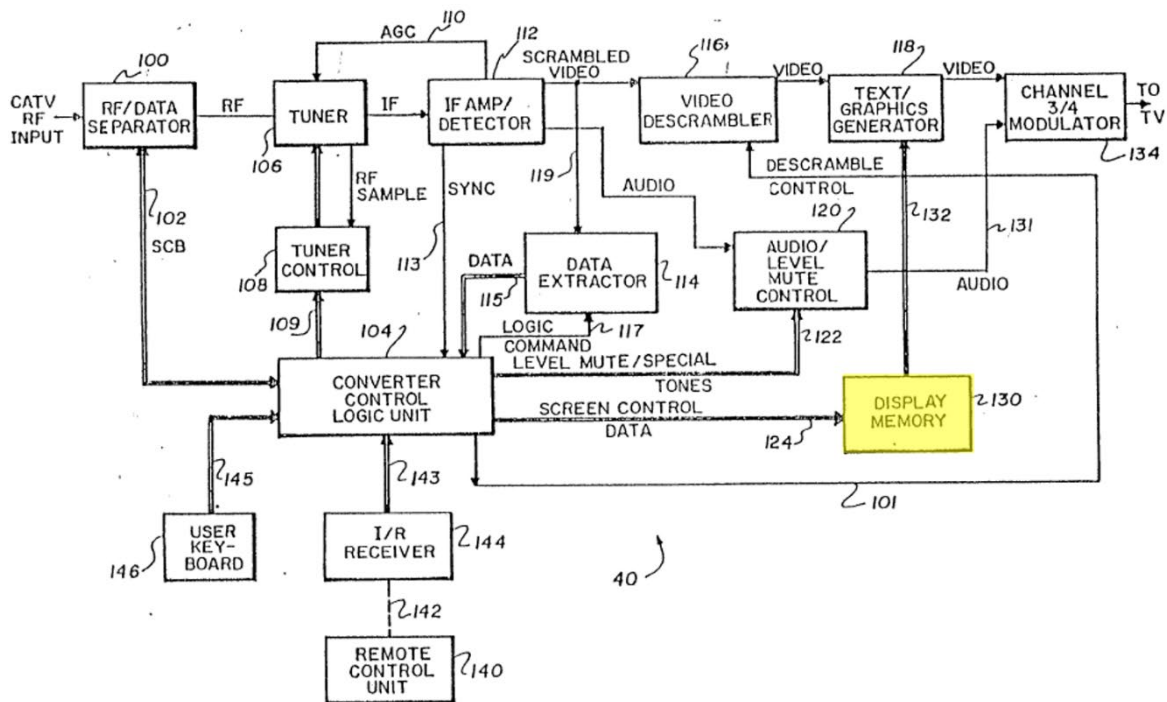
Campbell discloses a computer at the receiver station. (*Id.* ¶ 60.) As shown in Figure 6, an addressable converter 40 at the receiver includes a data extractor, control logic unit, display memory, and text/graphics generator. (*Id.*; *Campbell* at 12:32-13:26, 14:1-35, 15:27-16:34.)



(*Campbell* at Fig. 6 (annotated).) The claims do not limit a computer to one device, *01 Communique Lab., Inc. v. LogMeIn, Inc.*, 687 F.3d 1292, 1297 (Fed. Cir. 2012);

A POSITA would have understood that elements, such as the converter control logic unit (annotated in red), the data extractor (annotated in purple), the display memory (annotated in yellow), and the text/graphics generator (annotated in orange), together comprise a “computer” because they are programmable electronic devices that store, retrieve, and process data. (Ex. 1004 ¶ 60; *Campbell* at 12:32-13:26, 14:1-35 (control logic unit (CLU) “carried out by a microprocessor”), 15:27-16:34.) Moreover, *Campbell* discloses that converter control logic unit 104 includes microprocessor unit 140. (Ex. 1004 ¶¶ 60-61.) If the claims are limited to a single device, it would have been obvious to a POSITA to place the functionality in one or all these elements into a microcomputer. (*Id.*) This would have been applying a known technique to a known device to achieve a predictable result. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417-18 (2007).

Campbell further explains its computer includes a storage medium that stores information from a “first medium.” (Ex. 1004 ¶ 62.) Text and graphics (captions in view of *Millar*), i.e., caption, information carried by the digital data signal is the “first medium.” (Section VII.A.1.b.) *Campbell’s* receiver receives this medium, separates it at data extractor 114 from the picture and sound television data, and transfers it to a control logic unit, which sends it to a display memory. (Ex. 1004 ¶ 62; *Campbell* at 12:32-13:26, 14:1-35, 15:27-16:34, 28:3-34:7.) The display memory is annotated below in Figure 6.



(*Campbell* at Fig. 6 (annotated).) The transmitted text and graphics data is stored in display memory 130, prior to being used by the text//graphics generator 88 to create the video display. (*Campbell* 14:1-14.)

- d. **determining content,⁶ through use of processor instructions resident on said computer at said receiver station, of each medium received after said first medium in said plurality of signals, wherein determining content of each medium comprises: processing an identifier which identifies said content of each of said medium; comparing said processed identifier to a predetermined identifier, wherein said**

⁶ “Content” is a “substance or gist, in contrast to form or structure.” (Ex. 1009 at 142-50; Ex. 1012 at 24, 26; Ex. 1015 at 3; Ex. 1016 at 32-33.)

**predetermined identifier is determined at a time prior
to receiving said plurality of signals;**

Campbell and *Millar* disclose or render obvious this element. (Ex. 1004 ¶¶ 64-69.)

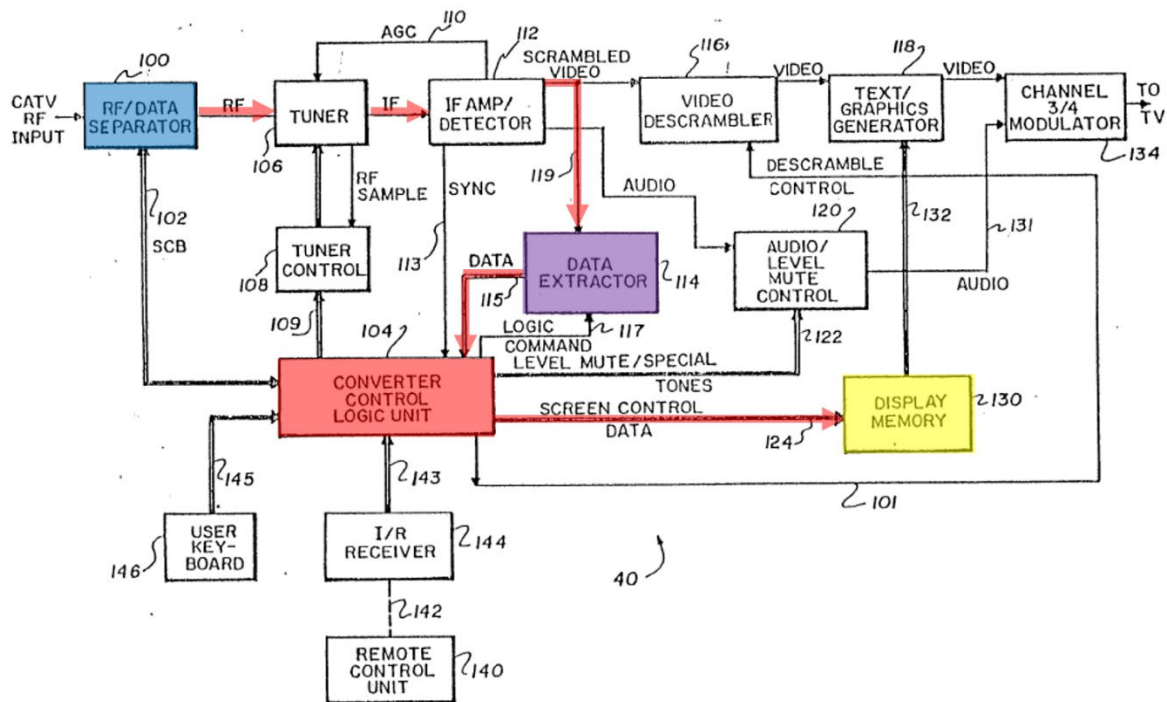
Campbell discloses the claimed “medium received after said first medium in said plurality of signals.” (*Id.* ¶ 65.) *Campbell*’s receiver receives “a plurality of signals” with two media: picture and sound television information, and text and graphics (caption in view of *Millar*) information. (Section VII.A.1.b.) The text and graphics (caption) information carried in digitally coded signals is a first medium in a plurality of signals including at least two media. (*Id.*) The *other medium* is the picture and sound information carried by television signals. (*Id.*) As digital signals carrying text and graphics (captions) in the vertical interval of a television signal (the “first medium”) are received *before* lines carrying picture and sound information, a POSITA would have understood that *Campbell*’s *picture and sound medium* is received *after* the first medium. (Ex. 1004 ¶ 65; Ex. 10213 at 24; *e.g.*, *Campbell* at Figs. 2A-2B, 8:18-10:26; *Millar* at 2:122-128 (“data signal” “provided during the vertical interval to allow the field time base to stabilize before the first picture”), 3:30-40 (digital data signal “precede[s] the picture information”).) *Campbell* thus discloses a “medium received after said first medium in said plurality of signals” in its picture and sound television medium. (Ex. 1004 ¶ 65.)

Campbell further discloses “determining content of each medium,” of this medium as recited in the claims. (*Id.* ¶ 66.) To determine content, *Campbell* discloses the claimed feature of “an identifier which identifies said content of each of said medium.” (*Id.*) Eligibility codes transmitted in the vertical interval of the television broadcast define the subject matter for the program. (*Campbell* at 17:33-21:21.) This allows families “to control access to all movies having unsuitable subject matter.” (*Campbell* at 18:24-35.) A POSITA would have understood that the eligibility code data is similar to that in the ’217 patent for identifying the “content” of the medium, i.e., information about the origin of a program, *subject matter of the program*, program unit, or overlay number field. (Ex. 1004 ¶ 66; ’217 patent at 46:5-25, 25:65-26:18, 62:13-42.) A POSITA would have understood that eligibility code data identifies *more than the type* of medium (e.g., a picture and sound television medium).⁷ (Ex. 1004 ¶ 66.)

⁷ Consistent with the ’217 specification (’217 patent at 46:5-25, 25:65-26:18, 62:13-42), the Board held “determining content” and “identifying content” require “ascertaining or recognizing the content” of the media, as opposed to identifying the type of media. (Ex. 1012 at 26.) It reasoned “determining content” could be assessing some identifier that indicates either the program being watched or its subject matter.

Campbell also discloses “processing an identifier” at a receiver station and also “comparing said processed identifier to a predetermined identifier, wherein said predetermined identifier is determined at a time prior to receiving said . . . plurality of signals” at converter control logic 104. (Ex. 1004 ¶ 67; *see, e.g., Campbell* at 17:33-21:21.) *Campbell*’s channel control data may be inserted into the vertical interval of a television broadcast at the PCS in the cable head end. (*Campbell* at 17:33-21:21.) When that broadcast is received by the subscriber station, data extractor 114 at the subscriber extracts control data (that eligibility code) and sends it to control logic unit 104 “carried out by a microprocessor 410.” (*Campbell* at 4:4-7, 7:33-8:4, 12:32-13:9, 14:1-35, 15:20-23, 18:24-35.) This is illustrated below.

(*Id.*) During prosecution of a related patent, the Board held identifying content could also be considering the “information that specify the location of the content, thereby identifying that specific content by its location,” for example, a page code associated with a page of teletext. (Ex. 1013 at 28-30.)



(*Campbell* at Fig. 6 (annotated).) *Campbell* explains once a converter control logic receives the eligibility code, it compares it to the “eligibility threshold code 238” *already stored therein* to ascertain the subject matter (content) of the television program. (*Campbell* at 21:12-21.) The subscriber-specific control data, such as the subscriber address and the subscriber-specific eligibility threshold word, are previously sent to converter control logic unit 104. (See *Campbell* at 12:32-13:9, 17:33-18:35 21:12-21, 23:12-32, Figs. 6, 11; Ex. 1004 ¶ 67.) If the eligibility threshold code is “exceeded by the eligibility code of a given television program,” then the receiver will prevent displaying that subject matter (or program). (See *Campbell* at 21:12-21, 23:12-32.)

Last, *Campbell* explains the processing and comparing steps (claimed content determination) occur “through use of processor instructions [commands and signals] resident on said computer at said receiver station.” (Ex. 1004 ¶ 68; Ex. 1009 at 21-27.) *Campbell* describes using the RF/data separator and converter control logic “carried out by a microprocessor.” (*Campbell* at 12:32-13:9, 14:1-35, 15:20-23.) These components are like those in the ’217 patent’s receiving station, shown below. (Ex. 1004 ¶ 68.)

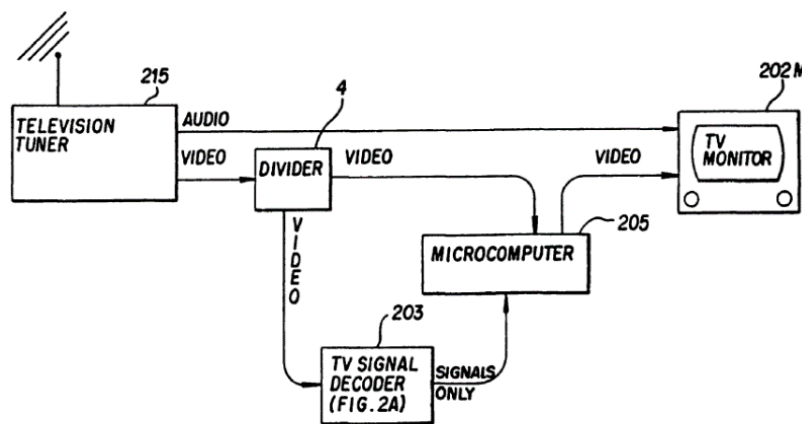


FIG. 1

(’217 patent at Fig. 1.) Because *Campbell*’s RF/data separator and converter control logic unit microprocessor are programmed-electronic devices that store, retrieve,

and process data in response to commands and signals, they meet this claim element.

(*Campbell* at 12:32-13:9, 14:1-35, 15:20-23; Ex. 1004 ¶ 69, n.10.)⁸

- e. **coordinating, through use of processor instructions resident on said computer at said receiver station, a presentation using said information with a presentation of a medium comprising an identifier that matches said predetermined identifier based on said step of determining content; and**

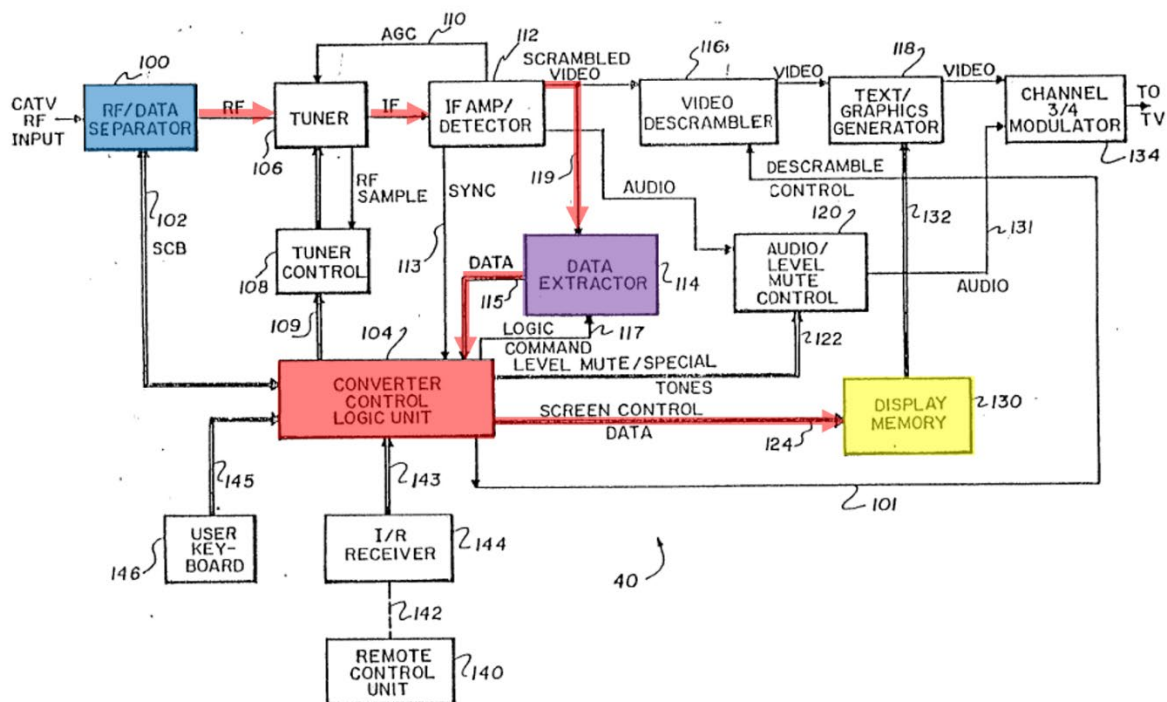
Campbell and *Millar* disclose or render obvious this element. (Ex. 1004 ¶¶ 70-75.)

It would have been obvious in view of *Campbell* and *Millar* to create and display a multimedia presentation at the subscriber station with captions (medium one) superimposed on the television picture (medium two). (Section VII.A.1.a; Ex. 1004 ¶ 71; *see also* Ex. 1012 at 51 (“‘coordinate’ presentations by virtue of the ‘information’ (caption) being superimposed on the ‘second medium’ (television picture)”).)

Campbell explains a digital signal carrying text and graphic data (captions in view of *Millar*) is transmitted from the cable head end station in the vertical interval of the television signals. (*Campbell* at 1:7-2:11, 2:34-3:36, 8:18-10:26, 28:3-34:7,

⁸ As noted in Section VII.A.1.c, the claims do not limit the claimed computer to one device. (Ex. 1004 ¶ 72.) Nevertheless, it would have been obvious to place this functionality in a microcomputer. (*Id.*)

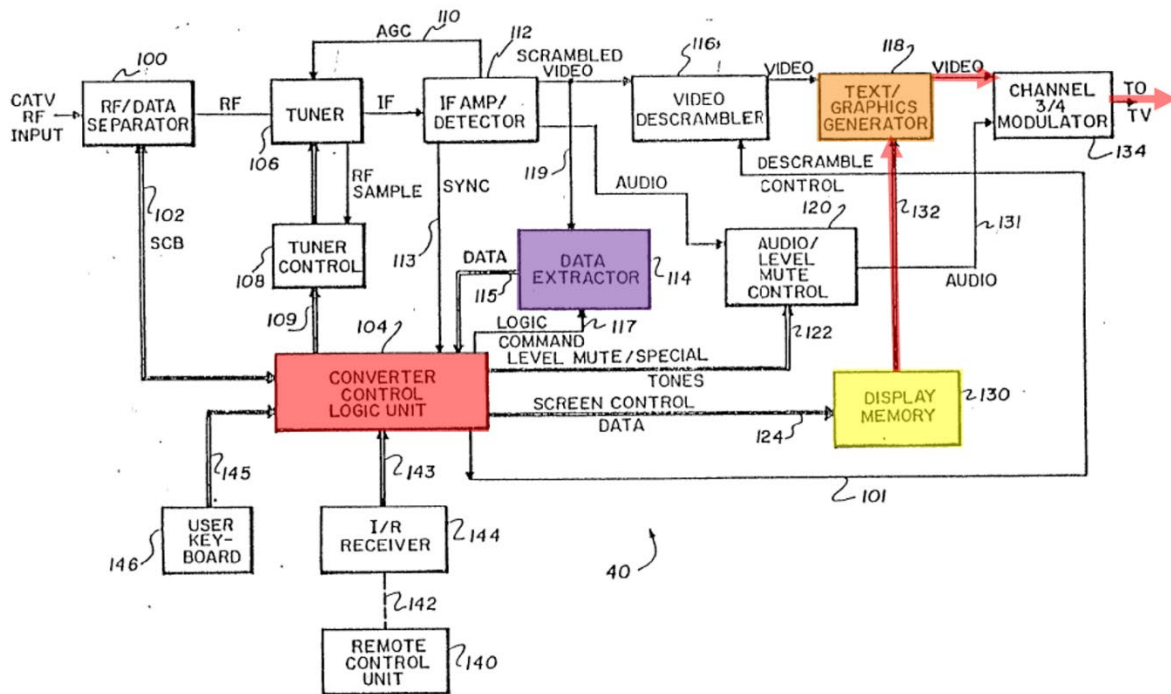
34:19-26, Figs. 2A-2B; Sections VII.A.1.a, VII.A.1.b.) The station receives these signals at an RF/data separator, which extracts any control data, and sends picture and sound data, and digital text and graphics data (captions), via several components to the data extractor 114. (*Campbell* at 12:32-13:26, 15:27-16:34.) The data extractor separates the digital text and graphics (caption) data from the picture and sound television information, and then sends the data to a converter control logic, which relays the data (the claimed “said information”) to the display memory. (*Campbell* at 13:16-26, 14:1-6, 15:27-16:34; Section VII.A.1.c; Ex. 1004 ¶ 72.) This pathway for digital text and graphics (caption) data is shown below.



(*Campbell* at Fig. 6 (annotated).) As these steps occur in programmed electronic devices that store, retrieve, and process data (*see* Ex. 1004 ¶ 72; Section VII.A.1.c), they are done through the “use of processor instructions resident on said computer at said receiver station,” as claimed (Ex. 1004 ¶ 72).⁹

Campbell in view of *Millar* teaches that the receiver station coordinates a presentation of the stored caption data with a picture and sound television medium, i.e., the claimed “medium comprising an identifier that matches . . . based on said step of determining content,” by creating captions and superimposing them on the picture in the proper location. (Ex. 1004 ¶ 73; Section VII.A.1.d; Ex. 1012 at 51.) *Campbell* states a display memory transmits the text and graphics information (captions in view of *Millar*) to the text/graphics generator, which provides display characters and graphic symbols (superimposed on the picture in view of *Millar*) “for display” at a user’s television. (*Campbell* at 13:27-14:28; Ex. 1004 ¶ 73; *see also*, e.g., *Millar* at 1:48-86, 2:27-48, 2:106-128, 3:105-112, 5:71-104.) This is illustrated below in Figure 6.

⁹ If the claims require this functionality by a single computer, this would have been obvious to a POSITA. (*See* Sections VII.A.1.c and VII.A.1.d. (Ex. 1004 ¶ 72.))



(*Campbell* at Fig. 6 (annotated).) This step occurs on programmed electronic devices that store, retrieve, and process data, and is therefore “through use of processor instructions resident on said computer . . . ,” as claimed. (Ex. 1004 ¶ 73.)

Campbell and *Millar* render “based on the said step of determining content” obvious. (*Id.* ¶ 74; Section VII.A.1.d.) *Campbell* describes eligibility codes that define a subject matter for a program, and indicate if it contains suitable content for children or content for mature audiences. (*Campbell* at 17:33-21:21.) A family controls access to all movies having unsuitable subject matter. (*Campbell* at 18:24-35.) If the content is unsuitable, the program is not presented. (*Campbell* at 21:12-21, 23:12-32; Ex. 1004 ¶ 74.) *Campbell* therefore provides the picture and sound

portion of a multimedia presentation *only after it has determined the content* and deemed it appropriate for the audience. (Ex. 1004 ¶ 74.)

- f. outputting and displaying said multimedia presentation to a user at said receiver station based on said step of coordinating such that said presentation using said information has a predetermined relationship to said content of said medium comprising an identifier that matches said predetermined identifier and said content of said medium comprising an identifier that matches said predetermined identifier explains a significance of said presentation using said information.**

Campbell and *Millar* disclose or render obvious this element. (Ex. 1004 ¶¶ 76-80.)

Campbell and *Millar* render obvious “outputting and displaying said multimedia presentation . . .” (*Campbell* at 13:27-14:28; *Millar* at 1:48-86, 2:27-48, 2:106-128, 3:105-112, 5:71-104; Ex. 1004 ¶ 77.) A combination of *Campbell* and *Millar* display of a multimedia presentation at a receiver station with captions superimposed on a television picture. (*Id.* ¶ 77; Sections VII.A.1.a, VII.A.1.e.) *Campbell* discloses that the receiver station receives a “plurality of signals,” extracts digital data having text and graphics (captions in view of *Millar*), stores it, and converts it to captions to superimpose on a picture. (*Campbell* at 13:27-14:28; *Millar* at 1:67-86, 2:27-48, 2:75-92.)

Campbell and *Millar* further render obvious “that said presentation using said information [text and graphics (captions)] has a predetermined relationship to said content of said medium comprising an identifier [picture and sound television].” (Ex. 1004 ¶ 78.) As *Millar* explains, *caption information* is related to a television picture output at a user’s display. (*Millar* at 1:9-47.) This aligns with the Board’s reasoning during prosecution: caption “inherently has a ‘predetermined relationship’ to the ‘content of said second medium’ (television picture) because the captions are transmitted with the television picture they are associated with.” (Ex. 1012 at 51.) But, even if it were not inherent, it would have been obvious that captions must have a predetermined relationship to the picture and sound television information, because captions are text reflecting the audio of the program, and they are displayed synchronously and in a set location on the picture of the program. (Ex. 1004 ¶ 78.)

Last, *Campbell* and *Millar* disclose or render obvious “content of said medium comprising an identifier . . . explains a significance of said presentation using said information [captions].” (*Id.* ¶ 79.) PMC argues this term means “explanation of significance is based on a relationship of the media,” and Petitioner argues its means “[e]xplains meaning or importance to the specific user.” (Ex. 1009 at 120-35.) This dispute is immaterial; the combination of *Campbell* and *Millar* satisfies both constructions. Regarding PMC’s construction, it would have been obvious that picture and sound information (medium comprising an identifier) explains the

significance of captions (information) by providing the underlying source material (the picture and sound) and context for the text and graphics added to the multimedia presentation. (See Ex. 1004 ¶ 79.) Regarding Petitioner’s construction, *Campbell* provides for the selection of (or preventing display of) mature content based on eligibility code comparisons (Section VII.A.1.d), and it would have been obvious to a POSITA that a mature program is for *specifically authorized* (i.e., age-appropriate) users, and that the mature content displayed in the picture would explain the meaning or importance *to a specific mature user* of the captions displayed on the screen. (See Ex. 1004 ¶ 79.)

Campbell and *Millar* render obvious claim 1.

2. Dependent Claim 2

The method of claim 1, wherein each of said plurality of signals is received from an external transmitter station.

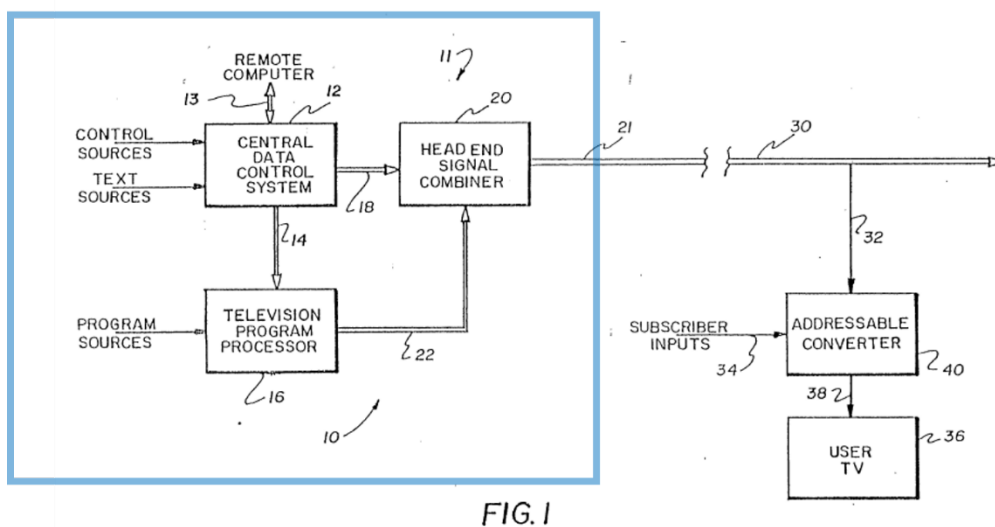
Campbell and *Millar* disclose or render obvious this element. (Ex. 1004 ¶¶ 81-85.) Because the “intermediate transmitter station” (claim 3) is a type of “external transmitter station” (claim 2), the unpatentability proofs in Section VII.A.3 render claim 2 obvious. (Ex. 1004 ¶¶ 81-85.)

3. Dependent Claim 3

The method of claim 2, wherein said external transmitter station is an intermediate transmitter station.

Campbell and *Millar* disclose or render obvious this element. (Ex. 1004 ¶¶ 86-90.)

Campbell describes a head end station that receives data from external sources and retransmits that data to receiver stations. (*Campbell* at 6:10-35.) This is shown below in Figure 1.



(*Id.* at Fig. 1 (annotated).) *Campbell*'s head end is therefore an *intermediate* between different content sources and a receiver. (*Campbell* at 6:10-35; Ex. 1004 ¶ 87.)

Campbell explains that its head end receives data (news, stocks, etc.) from different sources. (*Campbell* at 7:16-25.) And its head end station receives television information from satellite sources at the head end processors. (*Campbell* at 7:26-32, Fig. 6.) Thus, the head end station receives data/television information *over the air*, like the head end in *Cox* and '217 specification. (Ex. 1004 ¶ 88; '217 patent at Fig.

6; *Cox* at 1:13-60, 3:4-9, 3:21-27, Fig. 1; Ex. 1009 at 150-65 (an “intermediate transmitter station” is “a station that receives and retransmits transmissions sent over-the-air from one location to many locations”).)

4. Dependent Claim 7

The method of claim 1, wherein said content of said medium comprising an identifier that matches said predetermined identifier includes audio.

Campbell discloses this limitation when disclosing a picture and sound television medium that is a conventional television program, that is transmitted according to a television schedule, in a conventional television system, comprising video signals carrying picture data and audio signals carrying audio data. (*Campbell* at 1:7-2:11, 2:34-3:36, 6:10-35, 7:16-10:26, 12:32-13:9, 28:3-34:7, 34:19-26, Figs. 2A-2B; Section VII.A.8; Ex. 1004 ¶¶ 91-93.)

5. Dependent Claim 8

The method of claim 1, wherein said content of said medium comprising an identifier that matches said predetermined identifier includes video.

Campbell discloses this limitation when disclosing a picture and sound television medium that is a conventional television program, that is transmitted according to a television schedule, in a conventional television system, comprising video signals carrying picture data and audio signals carrying audio data. (*Campbell* at 1:7-2:11, 2:34-3:36, 6:10-35, 7:16-10:26, 12:32-13:9, 28:3-34:7, 34:19-26, Figs. 2A-2B; Section VII.A.8; Ex. 1004 ¶¶ 94-96.)

6. Dependent Claim 9

The method of claim 1, further comprising the step of storing said medium comprising an identifier that matches said predetermined identifier at said receiver station.

Campbell and *Millar* disclose or render obvious this element. (Ex. 1004 ¶¶ 97-98.) A medium comprising an identifier that matches said predetermined identifier is the picture and sound television medium. (Section VII.A.1.d.) *Campbell* sends this medium to a video descrambler to be processed. (*Campbell* at 13:27-36.) A POSITA would understand this video descrambler includes buffers for temporarily storing portions of the video while it is processed. (Ex. 1004 ¶ 97.) It is common for receiving stations to store video content for processing and later use. (*Id.*; *Millar* at 2:93-105.)

7. Independent Claim 11

- a. A method of outputting a multimedia presentation at a receiver station adapted to process a plurality of signals, said plurality of signals including first and second media of said multimedia presentation, said method comprising the steps of:**

This limitation is substantially identical to element 1a for claim 1. (Section VII.A.1.a; Ex. 1004 ¶ 99.) This element only differs by reciting the receiver station is “adapted to process a plurality of signals, said plurality of signals including first and second media of said multimedia presentation,” instead of “adapted to receive a

plurality of signals.” *Campbell* and *Millar* disclose or render obvious this feature.
(*Id.*)

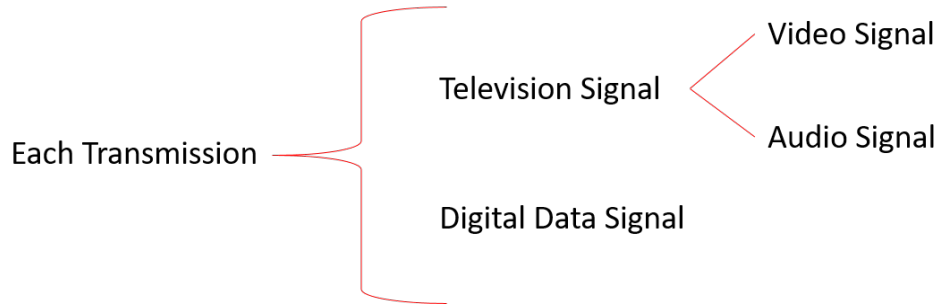
Campbell’s receiver station receives television signals carrying picture and sound television information and digital signals carrying text and graphic (caption in view of *Millar*) information. (*Id.* ¶ 100; *Campbell* at 1:7-2:11, 2:34-3:36, 6:10-35, 7:8-10:26, Figs. 2A-2B, 12:32-13:9, 28:3-34:7.) This is the claimed “plurality of signals.” (Ex. 1004 ¶ 100.) This plurality of signals includes first and second media: picture and sound information is one medium, and text and graphic data (captions) is another. (Ex. 1012 at 24.) *Campbell*’s receiver station *processes* the signals—“converter, under [the] direction of converter control logic [104], processes the RF data-loaded television signals.” (*Campbell* at 12:32-13:1.) *Campbell*’s receiver receives these signals at an RF/data separator, which separates out any control data and transfers the picture and sound television information and digital caption data to the data extractor. (*Campbell* at 12:32-13:26, 14:1-6, 15:27-16:34.) That data extractor separates text and graphics data from the picture and sound television information. (*See Campbell* at 12:32-13:26, 14:1-6, 15:27-16:34.) It sends television information on to the video descrambler to be processed (*Campbell* at 13:27-36.); and it sends the text and graphics caption data to a converter control logic unit, which relays it to a display memory and to a text/graphics generator for the creation and display of text and graphics (captions in view of *Millar*) on a television picture.

(*Campbell* at 13:16-14:28, 15:27-16:34.) Thus, *Campbell* and *Millar* render obvious a receiver “adapted to process a plurality of signals, . . . including first and second media” (Ex. 1004 ¶ 100.) As the remaining preamble is identical to element 1a, the unpatentability proofs above show *Campbell* and *Millar* disclose or render obvious this element, to the extent the Board finds the preamble limiting.

- b. receiving a subset of said plurality of signals from a source external to said receiver station, each signal of said subset of said plurality of signals including an identifier, wherein said subset of said plurality of signals comprises a plurality of said plurality of signals;**

Campbell and *Millar* disclose or render obvious this element. (Ex. 1004 ¶¶ 101-105.)

Campbell’s receiver station receives a plurality of signals from the head end. (Sections VII.A.1.a, VII.A.7.a; *e.g.*, *Campbell* at 6:10-35, 8:10-17, 12:32-13:36, 14:29-35.) The plurality of signals includes (1) digital signals carrying text and graphics (caption) data, and (2) television signals carrying picture and sound television information. (*Campbell* at 1:7-2:11, 2:34-3:36, 8:18-10:26, 28:3-34:7, 34:19-26, Figs. 2A-2B.) This is shown in the below graphic.



(Ex. 1004 ¶ 102.) As the television signals carrying picture and sound information are a number (or portion) of the total number of signals received at a receiver station (combined digital and television signals) from the transmitter, they constitute a “subset of said plurality of signals,” as claimed. (*Id.*)

Moreover, each television signal comprises an audio and video signal portion. (*Id.*) Thus, for every *one* digital signal transmitted, a corresponding *two* signals comprising the television signal are transmitted. (*Id.*; see also *Millar* at 2:106-3:3 (explaining digital signal could be modulated into television signal with a “picture signal” and a “sound carrier frequency”); *Campbell* at 13:10-36 (separating audio, video, and text and graphic data).) As such, television signals (the claimed “subset of said plurality of signals”) are also the “plurality of said plurality of signals.” (Ex. 1004 ¶ 103.) *Campbell* and *Millar* thus disclose and/or render obvious “receiving a subset of said plurality of signals from a source . . . , wherein said subset of said plurality of signals comprises a plurality of said plurality of signals.” (*Id.*)

Campbell further discloses “each signal of said subset of said plurality of signals [(picture and sound television data)] including an identifier” because it describes identifying information associated with the television signal, and in turn, with the constituent video and audio signals. (*Id.* ¶ 104; Section VII.A.1.d; *Campbell* at 17:33-21:21.)¹⁰

- c. receiving said second medium in a digital data channel from a source external to said receiver station, wherein said second medium is not included in said subset of said plurality of signals;**

Campbell and *Millar* disclose or render obvious this element. (Ex. 1004 ¶¶ 106-109.)

Campbell discloses a receiver station that receives a plurality of signals from the head end station. (Sections VII.A.1.a, VII.A.7.a; *e.g.*, *Campbell* at 6:10-35, 8:10-17, 12:32-13:36, 14:29-35.) A subset of those signals are the television signals carrying picture and sound information, *i.e.*, the “first medium.” (Section VII.A.7.b;

¹⁰ In the related litigation, PMC has alleged that this limitation is satisfied where the alleged receiver station receives a TCP/IP packet comprising “TCP Destination Port” number (the alleged “identifier”) and “audio and/or video signals.” *See* Ex. 1025 at 3, 22-24. Thus, *Campbell*’s disclosure of an identifier that accompanies the audio and/or video signals discloses or renders obvious this limitation based on PMC’s statements.

Ex. 1004 ¶ 107.) Other of the plurality of signals received at the receiver, i.e., not in the subset of signals, are therefore the digital signals carrying text and graphics (i.e., caption) information, the claimed “second medium.” (Ex. 1004 ¶ 107.) *Campbell* and *Millar* therefore disclose “receiving said second medium . . . , wherein said second medium is not included in said subset of said plurality of signals.” (*Id.*)

Campbell also discloses this second medium (text and graphics, i.e., caption information in view of *Millar*) is received in a “digital data channel from a source external to said receiver station.” (*Id.* ¶ 108.) As discussed in element 1b of claim 1, *Campbell* transmits caption information (i.e., second medium) in a digital data channel because it is digital information carried by a broadcast transmission to a receiver station. (*Id.* ¶ 108; Section VII.A.1.b.)

- d. controlling a microcomputer at said receiver station through execution of processor instructions, to:
process each identifier of each signal of said subset of said plurality of signals, compare each processed identifier to a predetermined identifier, wherein said predetermined identifier is determined at a time prior to receiving said plurality of signals and identifies content of said first medium,**

This limitation is substantially identical to element 1d in claim 1, and the same proofs establish that *Campbell* and *Millar* disclose or render obvious this element. (Section VII.A.1.d; Ex. 1004 ¶ 110.)

Campbell discloses “each signal of said subset of said plurality of signals including an identifier.” (Section VII.A.7.b.) That subset of said plurality of signals is the picture and sound television information. (*See id.*; Ex. 1004 ¶ 111.) *Campbell* discloses (1) “process[ing] each identifier of each signal of said subset of said plurality of signals” (the picture and sound), and (2) “compar[ing] each processed identifier to a predetermined identifier . . . ,” all to determine/identify the content of a “first medium,” here, again, the picture and sound television information. (Section VII.A.1.d; Ex. 1004 ¶ 111; *Campbell* at 17:33-21:21, 23:12-32.) *Campbell* also discloses and/or renders obvious processing and comparing at a computer (or microcomputer) responsive to processor instructions. (Sections VII.A.1.d, VII.A.1.c; Ex. 1004 ¶ 111.)

- e. **process only a signal of said subset of said plurality of signals that includes an identifier that matches said predetermined identifier to provide said first medium of said multimedia presentation,**

Campbell and *Millar* disclose or render obvious this element. (Ex. 1004 ¶¶ 113-116.)

Campbell and *Millar* render obvious creating and outputting a multimedia presentation of two media: (1) picture and sound television information, and (2) text and graphics data (captions in view of *Millar*) data. (Section VII.A.7.a; Ex. 1004 ¶ 114.) *Campbell* processes signals for each of the media comprising the multimedia

presentation. (Ex. 1004 ¶ 114; *e.g.*, *Campbell* at 12:32-13:36, 14:1-6, 15:27-16:34; Section VII.A.7.a.) That is, it describes processing signal(s) for a television program. (Ex. 1004 ¶ 114.) And, it describes processing digital signal(s) carrying the associated caption information. (*Id.*)

The signal for the *specific television program* to be watched (to provide audio and video information for show) is a “signal of said subset of said plurality of signals that includes an identifier.” (Sections VII.A.7.b; Ex. 1004 ¶ 115.) As only a signal for the television program *being presented* is processed to provide the picture and sound television information for a multimedia presentation, *Campbell* discloses “process only a signal of said subset of said plurality of signals that includes an identifier that matches said predetermined identifier to provide said first medium” (Ex. 1004 ¶ 115.) And *Campbell* discloses or renders obvious processing at a computer (microcomputer) responsive to processor instructions. (Sections VII.A.1.d, VII.A.1.c; Ex. 1004 ¶ 115.)

f. identify content of said second medium,

Campbell and *Millar* disclose or render obvious this element. (Ex. 1004 ¶¶ 117-124.)

The claimed “second medium” is the text and graphics information (captions in view of *Millar*) carried by digital signals. (Section VII.A.7.c.) A POSITA would understand that *Campbell* does not expressly disclose identifying the content of this

second medium, but it would nevertheless have been obvious in view of *Millar*. (Ex. 1004 ¶ 118.)

Millar explains that its transmitter station receives caption and television data from several different sources. (*Millar* at 3:17-29, Fig. 1.) *Millar* then combines that caption and television data, and transmits it to a receiver station for creation and display of a multimedia presentation. (*Id.* at 3:17-4:76.) *Millar* explains that carried with the caption data are “character codes” that identify the specific “page and row” of caption data “transmitted in any given field.” (*Id.* at 3:75-79.) In this way, *Millar* discloses an “identifier” indicating the content of digital caption data because it “identif[ies] that specific [caption] content by its location”; that is, specific captions for a program are located in a specific location within the larger digital transmission of caption data. (Ex. 1013 at 28-30.) This is comparable to identifying information set forth in the ’217 patent because it identifies an origin of the data, and is similar to the “overlay number field” used to identify the content of the digital graphics in the “Wall Street Week” embodiment. (*See, e.g.*, ’217 patent at 46:5-25, 25:65-26:18, 62:13-42.) (Ex. 1004 ¶ 119.)

Millar’s receiver station receives a plurality of signals including the digitally coded data signals carrying caption information. (*See, id.* at 1:67-86.) On receipt, the receiver station extracts the digitally coded data at the data separator circuit from the synchronously transmitted picture and sound television information for the

television program. (*Id.* at 3:92-96.) The extracted data is then transferred to the page selector. (*Id.*) The page selector is preprogrammed with “set-up codes” that correspond to and specifically identify the digital data to be selected and sent to storage before use and inclusion in a multimedia presentation. (*Id.* at 4:24-62.) The page selector compares preprogrammed “set-up codes” with the “character codes” of the transferred caption data. (*Id.* at 4:56-62.) If these codes match, the page selector “enter[s] into storage” the associated caption data. (*Id.*)

In this way, *Millar* discloses “identify content of said second medium.” (Ex. 1004 ¶¶ 120-121.) This is consistent with what the Board reasoned during prosecution of one related patent: identifying content could include considering “information that specify the location of the content,” for example, page code associated with teletext. (Ex. 1013 at 28-30.) By processing and comparing the character codes of the caption data to preprogrammed “set-up codes,” *Millar* can choose caption content and place it in storage before ultimate display in the multimedia presentation. (Ex. 1004 ¶ 121.)

A POSITA would have been motivated to implement a similar regime in *Campbell* to improve its efficiency and effectiveness. (*Id.* ¶ 122.) *Campbell* discloses identifying a subject matter of the television program to provide a means of filtering mature content for unsuitable audiences. (*Id.*; Section VII.A.1.d.) A POSITA would have wanted to make sure that *Campbell*’s receiver station *could*

also identify associated text and graphics (caption) data to prevent it from displaying on the user's television *if that user lacks authorization* to receive the program and associated data. (Ex. 1004 ¶ 122.) *Millar's* system provides one mechanism for accomplishing this in a simple and efficient fashion. (*Id.*)

Further, a POSITA would have made this modification with a reasonable expectation of success. (*Id.* ¶ 123.) *Campbell's* stations transmit and process teletext, like *Millar*. (*Campbell* at 28:3-34:7.) And *Campbell* transmits identifying control data in the vertical interval of a television signal. (*Campbell* at 1:7-2:11, 2:34-3:36, 8:18-10:26, 28:3-34:7, 34:19-26, Figs. 2A-2B.) The modification would have been the mere substitution (or supplementation) of a known technique with another, and it would require no undue burden to adjust *Campbell's* system to identify the content of the text and graphics data (captions). (Ex. 1004 ¶ 123.) To the extent *Campbell's* system is adjusted to also identify the content of the text and graphics, this step would occur on *Campbell's* computer (microcomputer), which is responsive to processor instructions. (Sections VII.A.1.d, VII.A.1.c; Ex. 1004 ¶ 123.)

- g. generate information based on said second medium based on identifying said content of said second medium, and**

Campbell and *Millar* disclose or render obvious this element. (Ex. 1004 ¶¶ 125-128.)

The combination of *Campbell* and *Millar* render obvious creating and outputting a multimedia presentation of two media: (1) picture and sound television information, and (2) digital text and graphics information (caption information in view of *Millar*). (Section VII.A.7.a; Ex. 1004 ¶ 126.) To provide the multimedia presentation, *Campbell* discloses processing signals for each of the media making up a multimedia presentation. (Ex. 1004 ¶ 126; *Campbell* at 12:32-13:36, 14:1-6, 15:27-16:34; Section VII.A.7.a.) It describes processing signal(s) for the television program. (Ex. 1004 ¶ 126.) And, it describes processing digital signal(s) carrying associated text and graphics (caption) information. (*Id.*)

Regarding the latter, *Campbell*'s receiver receives these signals and separates them out from picture and sound television data at the data extractor. (*Campbell* at 12:32-13:26, 14:1-6, 15:27-16:34.) The data extractor sends all text and graphics (caption) data to the converter control logic unit, which then relays it to the display memory and the text/graphics generator to create characters and graphics for display on the television picture. (*See Campbell* at 13:16-14:28, 15:27-16:34.) *Campbell* and *Millar* thus render obvious “generate information [e.g., subtitles] based on said second medium [caption information in the digital signal] based on identifying said content of said second medium [stored caption data is generated and provided to display].” (Ex. 1004 ¶ 127.) And, *Campbell* discloses or renders obvious this

happening at a computer (microcomputer) responsive to processor instructions.
(Sections VII.A.1.d, VII.A.1.c; Ex. 1004 ¶ 127.)

h. coordinate presentation of said first medium and said information based on said second medium; and

This limitation is substantially identical to element 1e for claim 1 and the proofs of unpatentability show *Campbell* and *Millar* disclose or render obvious this element. (Section VII.A.1.e; Ex. 1004 ¶ 129.)

The “said first medium” is picture and sound television medium, which is the “medium comprising an identifier . . .” recited in claim 1. (*Id.* ¶ 130.) The “said information based on said second medium” is the caption information, which is “said information” recited in claim 1. (*Id.*) The teachings of *Campbell* and *Millar* disclose coordinating a multimedia presentation of the media as captions (medium two) that are superimposed on a television picture (medium one). (*Id.*; Section VII.A.7.a; Ex. 1012 at 51.) And *Campbell* explains this all occurs on a computer (microcomputer) responsive to processor instructions. (Sections VII.A.1.d, VII.A.1.c; Ex. 1004 ¶ 130.)

- i. **outputting and displaying said multimedia presentation to a user at said receiver station based on said step of controlling such that content of said first medium has a predetermined relationship to said information based on said second medium and said content of said first medium explains a significance of said information based on said second medium.**

This limitation is substantially identical to element 1f for claim 1 and the unpatentability proofs show *Campbell* and *Millar* disclose or render obvious this element. (Ex. 1004 ¶¶ 132-133; Ex. 1012 at 51; Section VII.A.1.f.) Claim 11 is obvious in view of *Campbell* and *Millar* and should be cancelled.

8. Dependent Claim 12

The method of claim 11, wherein said first medium comprises a television program including video and audio.

Campbell and *Millar* disclose or render obvious this element. (Ex. 1004 ¶¶ 134-136.)

Campbell discloses a receiver that receives television signals carrying picture and sound television information and digital signals carrying text and graphics (caption in view of *Millar*) data. (*Id.* ¶ 135; *Millar* at 1:1-86, 2:27-48, 2:106-128; *Campbell* at 6:10-35, 8:10-17, 12:32-13:36, 14:29-35.) The claim requires a “second medium” received in a digital data channel, and as discussed in Section VII.A.7.c, this would be the transmitted text and graphics (caption) data. (Ex. 1004 ¶ 135.) The other medium, the picture and sound television medium, is thus the claimed “first medium.” (*Id.* ¶ 135.) *Campbell* explains this first medium is a conventional

television program, transmitted according to a television schedule, in its conventional television system, and comprises video signals carrying picture data and audio signals carrying audio data. (*Campbell* at 1:7-2:11, 2:34-3:36, 6:10-35, 7:16-10:26, 12:32-13:9, 28:3-34:7, 34:19-26, Figs. 2A-2B; Ex. 1004 ¶ 135.)

9. Independent Claim 16

a. A method of outputting a multimedia presentation at a receiver station adapted to receive a plurality of media, said method comprising the steps of:

This limitation is substantially identical to element 1a for claim 1. (Section VII.A.1.a; Ex. 1004 ¶ 137.) This element only differs in requiring “adapted to receive a plurality *of media*” instead of “a plurality *of signals*” (emphases added). (Ex. 1004 ¶ 137.) But this difference is immaterial.

Campbell’s receiver station receives television signals carrying picture and sound television information and digital signals carrying text and graphic (caption in view of *Millar*) data. (*Id.* ¶ 137; *Millar* at 1:1-86, 2:27-128; *Campbell* at 6:10-35, 8:10-17, 12:32-13:36, 14:29-35.) Picture and sound information is one medium, and caption data is another. (Ex. 1012 at 24.) *Campbell* and *Millar* thus disclose that the receiver station receives a *plurality of media*. (Ex. 1004 ¶ 137.) As the remaining preamble is identical to element 1a, the proofs in Section VII.A.1.a demonstrate that *Campbell* and *Millar* disclose or render obvious this limitation, to the extent the Board finds the preamble limiting. (*Id.* ¶ 137.)

- b. receiving, at said receiver station, at least two of said plurality of media from different sources,¹¹ a first medium of said plurality of media being received in a plurality of signals and a second medium of said plurality of media being received in a digital data channel from a remote transmitter station;**

Campbell and *Millar* disclose or render obvious this element. (Ex. 1004 ¶¶ 138-141.)

Campbell receives two (a “plurality of”) media at a receiver station. (Section VII.A.9.a.) The first medium is the picture and sound television information carried by television signals. (*Id.*) This is the “first medium . . . received in a plurality of signals.” (Ex. 1004 ¶ 139.) The second is text and graphics information (captions in view of *Millar*) carried by digital signals. (Section VII.A.9.a.) Section VII.A.1.b explains this second medium is “received in a digital data channel” because it is digital data carried in a broadcast transmission from a head end to the receiver. (Ex. 1004 ¶ 139.) *Campbell* thus discloses a “first medium of said plurality of media being received in a plurality of signals and a second medium of said plurality of media being received in a digital data channel.” (*Id.*)

¹¹ The claims do not require the at least two of said plurality of media to come from different transmitters, only that they be from “different sources” generally. (Ex. 1004 ¶ 138, n.12.)

Campbell's two media are also “from different sources.” (*Id.* ¶ 140.)

Campbell's head end station receives data from external sources and retransmits that data to subscriber stations, as seen below. (*Campbell* at 6:10-35.)

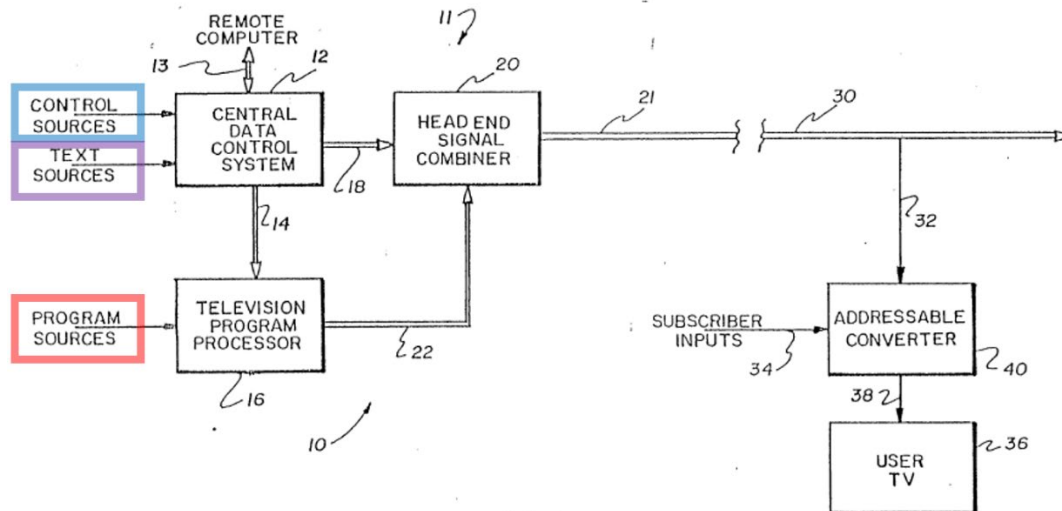


FIG. 1

(*Campbell* at Fig. 1 (annotated).) *Campbell's* head end receives data (news, stocks) “from a wide variety of sources.” (*Campbell* at 7:16-25.) And its head end station receives television information from yet another satellite source. (*Campbell* at 7:26-32, Fig. 6.) Because picture and sound television information (medium one) and text and graphic (caption in view of *Millar*) information (medium two) derive *from different sources*, *Campbell* and *Millar* render obvious “at least two of said plurality of media from different sources.” (Ex. 1004 ¶ 140.)

- c. **identifying, using a processor,¹² content of a first medium of said at least two of said plurality of media by processing each signal of said plurality of signals, each signal of said plurality of signals including an identifier, and comparing each processed identifier to a predetermined identifier, said predetermined identifier being determined prior to receiving said plurality of media and identifying content of said first medium;**

This limitation is substantially identical to elements 11d and 11e in claim 11, and the same proofs demonstrate *Campbell* and *Millar* disclose or render obvious this element. (Sections VII.A.7.d, VII.A.7.e; Ex. 1004 ¶ 142.)

The “plurality of signals” includes the “first medium,” i.e., the picture and sound television medium. (Section VII.A.9.b.) As in element 11e, *Campbell* discloses processing that plurality of signals at the receiver station to provide a first medium: picture and sound television information. (Section VII.A.7.e; Ex. 1004 ¶ 143.) And, as for element 11d, *Campbell* discloses the “plurality of signals”

¹² A “processor” is a device that processes data. (Ex. 1009 at 13.) And, for the reasons above in Section VII.A.1.c, *Campbell* discloses or renders obvious a processor. If PMC argues a processor is a “device that performs operations according to instructions” (*id.*), *Campbell* discloses or renders obvious a computer (microcomputer) that is preprogrammed (according to instructions) to store, retrieve, and/or process data. (Sections VII.A.1.c, VII.A.1.d; Ex. 1004 ¶ 142, n.13.)

carrying the picture and sound television medium including an identifier, and identifying the content of that picture and sound television medium by comparing that identifier to a predetermined identifier. (Sections VII.A.7.d, VII.A.1.d; Ex. 1004 ¶ 143.)

- d. processing only a signal of said plurality of signal[s] that includes an identifier that matches said predetermined identifier to provide said first medium;**

The claimed “plurality of signal[s] that includes an identifier that matches said predetermined identifier” is the television signals carrying the claimed first medium, i.e., the picture and sound television medium. (Section VII.A.9.b.) The limitation is therefore substantially identical to element 11e above for claim 11, and those proofs of unpatentability show *Campbell* and *Millar* disclose or render obvious this element. (Section VII.A.7.e; Ex. 1004 ¶ 145.)

- e. storing said first medium at said receiver station; and**

Campbell and *Millar* disclose or render obvious this element. (Ex. 1004 ¶ 146.) The claimed “first medium” is a picture and sound television medium. (Section VII.A.9.b.) As such, this element is identical to claim 9. (Section VII.A.6.) The unpatentability proofs above show *Campbell* and *Millar* render obvious this element. (Ex. 1004 ¶ 146; Section VII.A.6; *Campbell* at 13:27-36; *Millar* at 2:93-105.)

f. identifying content of said second medium;

The claimed “second medium” is the caption information. (Section VII.A.9.b.) This limitation is therefore substantially identical to that recited in element 11f of claim 11, which recites “identify content of said second medium.” (Section VII.A.7.f; Ex. 1004 ¶ 147.) The unpatentability proofs discussed in Section VII.A.7.f therefore demonstrate *Campbell* and *Millar* disclose or render obvious this element. (Ex. 1004 ¶ 147.)

g. processing, based on said content of said second medium, said second medium to generate information based on said second medium;

This limitation is substantially identical to element 11g for claim 11. (Section VII.A.7.g; Ex. 1004 ¶ 148.) This element only differs in specifying “processing” instead of “generate information.” *Campbell* and *Millar* disclose or render obvious processing digital signals carrying text and graphics (caption) data to generate subtitles for the presentation. (*Campbell* at 12:32-13:36, 14:1-6, 15:27-16:34.) The proofs in Section VII.A.7.g demonstrate that *Campbell* and *Millar* disclose or render obvious the remainder of this element. (See Ex. 1004 ¶ 148; Ex. 1012 at 51; Section VII.A.7.g.)

h. outputting and displaying said multimedia presentation, said multimedia presentation comprising a coordinated presentation of information included in said first medium and said generated information based on said second medium, said information included in said first medium having a

predetermined relationship to said generated information based on said second medium and said information included in said first medium explaining a significance of said generated information based on said second medium.¹³

This limitation is substantially identical to element 1f in claim 1. (Section VII.A.1.f; Ex. 1004 ¶ 149.) This element only differs in specifying that the presentation is a “coordinated presentation of information included in said first medium and said generated information based on said second medium.” (Ex. 1004 ¶ 149.) But, *Campbell* and *Millar* disclose or render obvious the creation and display of a multimedia presentation of captions (medium one) on the television picture (medium two). (Section VII.A.1.a; Ex. 1004 ¶ 149.) This presentation combines two media, related by content,¹⁴ and it therefore constitutes a “coordinated presentation.” (Ex. 1004 ¶ 149; Section VII.A.1.f.) The proofs of unpatentability discussed in Section VII.A.1.f show that *Campbell* and *Millar* disclose or render obvious the

¹³ The “first medium” is the picture and sound television medium and the “second medium” is the caption medium. (Section VII.A.9.b; Ex. 1004 ¶ 149, n.14.)

¹⁴ Petitioner does not believe this term needs to be construed, but if PMC argues a “coordinated presentation” is an “[o]rganized presentation that combines several media related by content” (Ex. 1009 at 49), *Campbell* and *Millar* render obvious a “coordinated presentation.” (Ex. 1004 ¶ 149, n.15.)

remainder of this element. (Ex. 1004 ¶¶ 149-150; Section VII.A.1.f; Ex. 1012 at 51.)

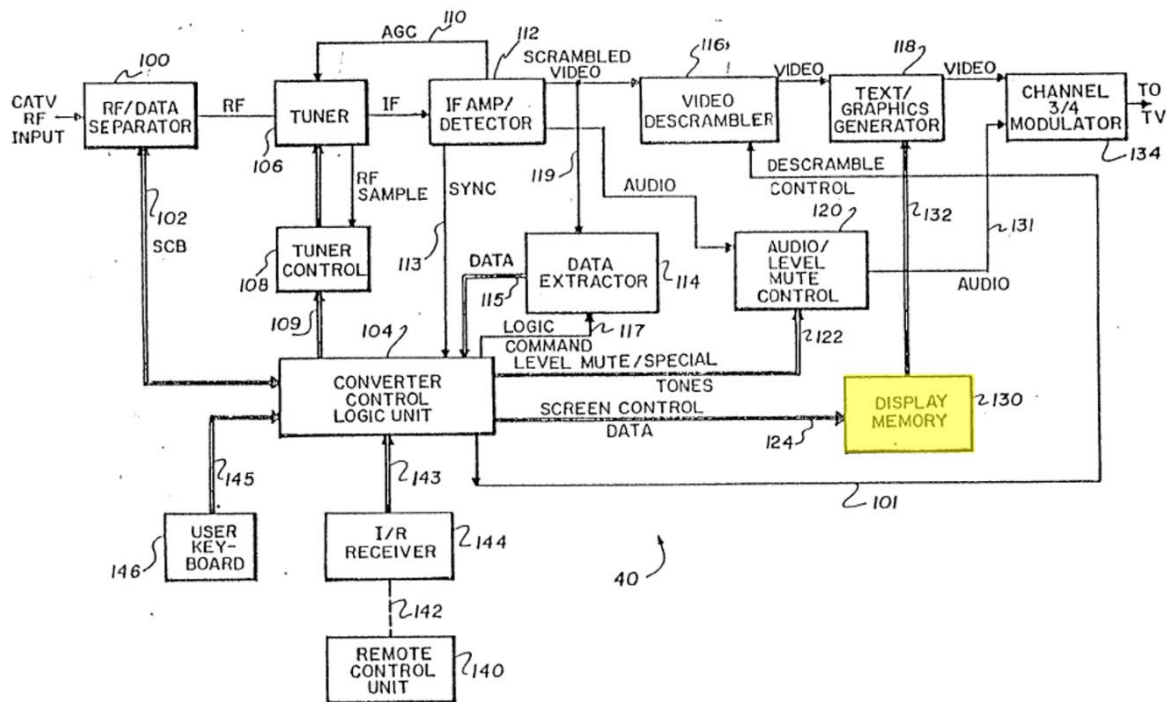
Claim 16 is obvious in view of *Campbell* and *Millar*.

10. Dependent Claim 17

The method of claim 16, said method further comprising the step of storing said information based on said second of said at least two of said plurality of media at said receiver station.

Campbell and *Millar* disclose or render obvious this element. (Ex. 1004 ¶¶ 151-153.)

The “information based on said second of said at least two of said plurality of media at said receiver station” is the text and graphics (caption) data that is transmitted in the vertical interval of a television signal. (Section VII.A.9.b; Ex. 1004 ¶ 152.) Such information would be stored in *Campbell’s* display memory, annotated in Figure 6. (Ex. 1004 ¶ 152; *Campbell* at 12:32-13:26, 14:1-35, 15:27-16:34, 28:3-34:7.)



(*Campbell* at Fig. 6 (annotated).)

11. Dependent Claim 18

The method of claim 16, wherein said first medium comprises a television program including video and audio.

Like dependent claim 12, dependent claim 18 incorporates the limitation that the “first medium comprises a television program including video and audio.” (’217 patent at 288:12-13, 289:19-20.) Therefore, the unpatentability proofs discussed in Section VII.A.8 show *Campbell* and *Millar* disclose or render obvious this element. (Ex. 1004 ¶ 154.)

12. Independent Claim 20

- a. **A method of outputting a multimedia presentation at a receiver station having an output device, said method comprising the steps of:**

This limitation is substantially identical to element 1a for claim 1. (Section VII.A.1.a; Ex. 1004 ¶ 155.) This element only differs in stating, “having an output device” instead of “adapted to receive a plurality of signals.” (Ex. 1004 ¶ 155.) *Campbell* discloses this additional feature, and thus *Campbell* and *Millar* disclose or render obvious this element. As shown in Figures 1 and 6 of *Campbell*, the receiver station has a television for outputting the multimedia presentation. (*Id.*)

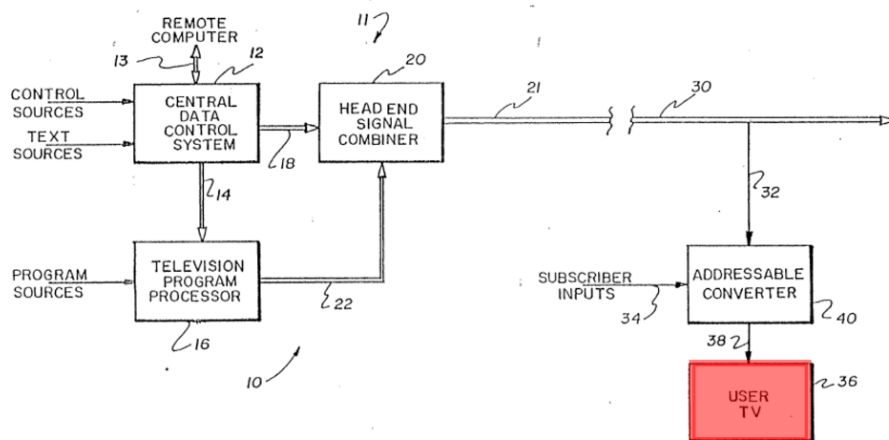
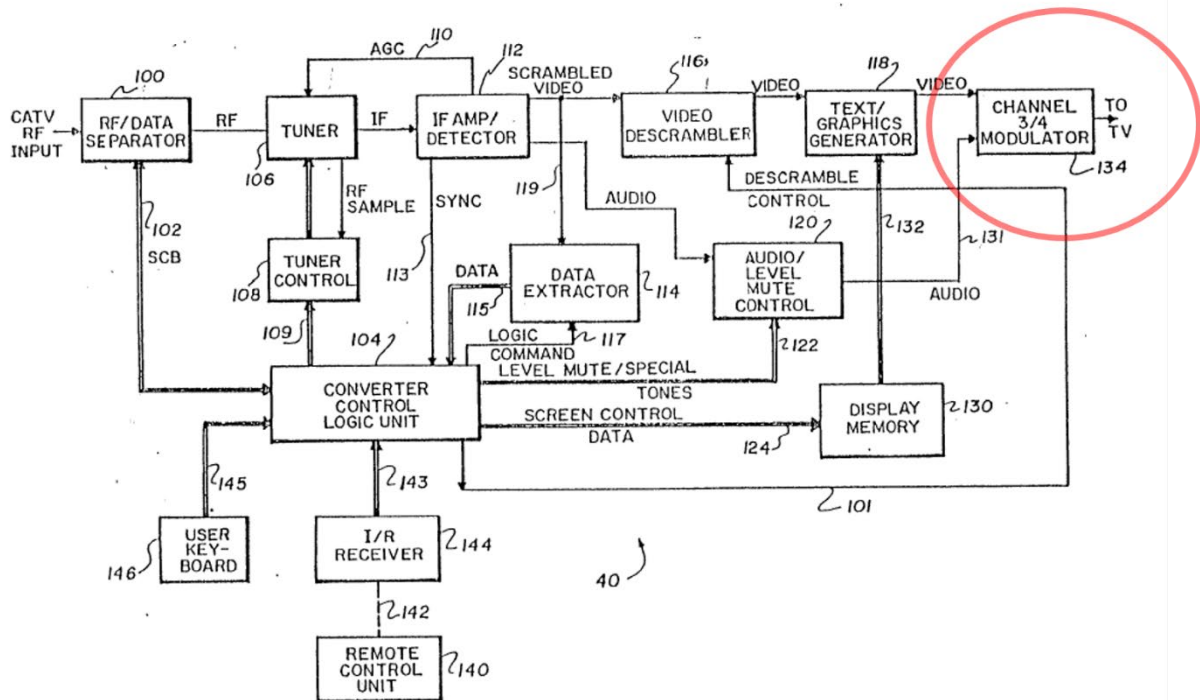


FIG. 1



(*Campbell* at Figs. 1, 6 (annotated).) The television is the claimed “output device.” (Ex. 1004 ¶ 155.) Because the rest of the preamble is identical to element 1a, the unpatentability proofs discussed above demonstrate that *Campbell* and *Millar* disclose or render obvious this element, to the extent that the Board finds the preamble limiting. (*Id.*)

b. receiving a plurality of signals from a source external to said receiver station[;]

This limitation is substantially identical element 16b in claim 16. (Section VII.A.9.b; Ex. 1004 ¶ 156.) *Campbell* receives two media at a receiver station: a first medium received in a “plurality of signals,” and a second medium received in a digital data channel, both from the external head end and the transmitter station.

(Section VII.A.9.b; Ex. 1004 ¶ 157; *Campbell* at 6:10-35, 12:32-13:26, 14:1-35, 15:27-16:34.) Therefore, *Campbell* and *Millar* render this element obvious. (Section VII.A.9.b; Ex. 1004 ¶ 157.)

- c. **identifying, using a processor, content of a first medium to be output in said multimedia presentation by: processing said plurality of signals, each of said plurality of signals including an identifier, and comparing each said identifier with a predetermined identifier, said predetermined identifier determined prior to receiving said plurality of signals and identifying content of said first medium;**

This limitation is substantially identical to element 16c for claim 16. (Section VII.A.9.c; Ex. 1004 ¶ 158.) This element only differs in stating: “a first medium to be output in said multimedia presentation.” (Ex. 1004 ¶ 158.) But, the two media received and processed in the combined *Campbell* and *Millar* system are output in a multimedia presentation. (*Id.*; *Millar* at 1:9-24, 1:48-86, 2:27-48, 2:75-92, 2:106-128.) As such, *Campbell* and *Millar* disclose or render obvious this feature. (Ex. 1004 ¶ 158.) The proofs in Section VII.A.9.c demonstrate *Campbell* and *Millar* disclose or render obvious the remainder of this element. (Ex. 1004 ¶ 158; Sections VII.A.1.d, VII.A.1.c.)

- d. processing only a signal of said plurality of signal[s] that includes an identifier that matches said predetermined identifier to provide said first medium;**

The claimed “plurality of signal[s] that includes an identifier that matches said predetermined identifier” is the television signals carrying the claimed first medium, i.e., a picture and sound television medium. (Section VII.A.12.c.) The limitation is therefore substantially identical to element 11e for claim 11. (Section VII.A.7.e; Ex. 1004 ¶ 159.) The proofs of unpatentability in Section VII.A.7.e show *Campbell* and *Millar* disclose or render obvious this element. (Ex. 1004 ¶ 159.)

- e. processing a control signal at said receiver station that causes execution of processor instructions to process data received in a second medium from an external source to create a series of discrete video images, wherein said second medium is not included in said plurality of signals;**

Campbell and *Millar* disclose or render obvious this element. (Ex. 1004 ¶¶ 160-165.)

Campbell receives two media at a receiver station: a first medium in a “plurality of signals,” and a second medium in a digital data channel, both from a head end station. (Section VII.A.9.b; Ex. 1004 ¶ 161.) A second medium is text and graphics information (captions in view of *Millar*), and since it is received in the digital data channel, it is “not included in said plurality of signals.” (Ex. 1004 ¶ 161.)

Campbell and *Millar* disclose or render obvious creating a “series of discrete video images,” i.e., graphics or text, from a second medium. (*Id.* ¶ 162.) As the ’217 patent provides, this requirement of discrete video images is simply information that represents a visually perceivable presentation like graphics, images (still or moving), or text. (*See* ’217 patent at 12:3-14:54, 48:8-74:5, 128:63-141:3, Fig. 1C; Ex. 1004 ¶ 162.) The “Wall Street Week” embodiment indicates the “discrete video image[]” was a “graph.” (*Id.*) The Board relied on this during prosecution to understand the scope of the claims. (*See* Ex. 1012 at 89.) Therefore, *Campbell* and *Millar* disclose or render obvious this element: describe processing a digital signal carrying text and graphics (caption) information to generate subtitles for a multimedia presentation. (Sections VII.A.7.g, VII.A.9.g.) *Campbell* receives a digital data signal, extracting it from the television signal, storing it, and transferring it to a text/graphic generator to provide characters and graphics symbols (captions superimposed on the picture in view of *Millar*) “for display” at a user’s television. (*Campbell* at 12:32-14:28, 15:27-16:34; *see also Millar* at 1:48-86, 2:27-48, 2:106-128, 3:105-112, 5:71-104; Ex. 1004 ¶ 162.)

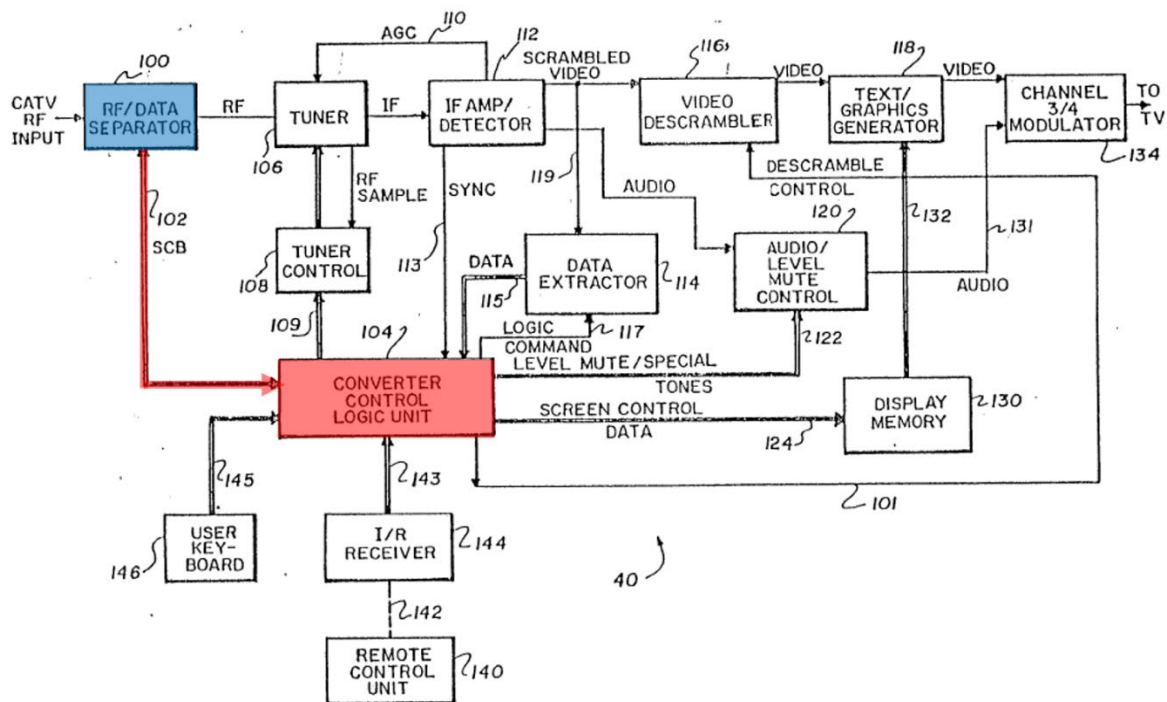
PMC contends that a video image “may include a single graphic of a visual presentation that is capable of showing movement.” (Ex. 1009 at 115.) If PMC’s construction is adopted, it does not foreclose the mapping set forth above. (Ex. 1004 ¶ 163.) PMC’s recitation of “*may include*” suggests that things *other than* a single

graphic from a visual presentation capable of showing movement satisfy this limitation. (*Id.*) Nonetheless, *Campbell* and *Millar* render this element obvious because the disclosed captions (subtitles) and graphics (still images) are “capable of showing movement.” (*Id.*) As *Cox* explains, a POSITA would have understood caption and graphics information is repeated or recycled through, over time. (*Id.*; e.g., *Cox* at Fig. 7, 8:11-40.) It is therefore a “moving” or “changing” content, and any text or graphic superimposed on a television picture at any point in time necessarily meets PMC’s construction.¹⁵ (Ex. 1004 ¶ 163.)

Campbell further discloses “processing a control signal at said receiver station that causes execution of processor instructions.” (Ex. 1004 ¶ 164.) In addition to both processing television signals carrying picture and sound television information, and digital signals carrying text and graphics information (caption data in view of *Millar*), *Campbell* explains that its receiver also processes channel control codes (tier codes and eligibility codes, inter alia) that determine which programs the receiver will displays. (*Campbell* at 17:33-21:21, 23:12-32; Ex. 1004 ¶ 164.) The control

¹⁵ “Video image” cannot be limited to a *moving image* because that construction disregards the only supporting disclosure in the ’217 patent—the “Wall Street Week” embodiment and its depiction of a *still* image or graphic. (Ex. 1004 ¶ 163; ’217 patent at 12:3-14:54, 48:8-74:5, 128:63-141:3, Fig. 1C; Ex. 1012 at 89.)

information is received at the RF/data separator and sent to converter control logic unit “carried out by a microprocessor.” (*Campbell* at 12:32-13:9, 14:1-35, 15:20-23.) This is illustrated below.



(*Campbell* at Fig. 6 (annotated).)¹⁶

¹⁶ *Millar* similarly discloses processing control signals at the receiver station that control, e.g., the brightness or color of the generated caption information at the user’s display. (See, e.g., *Millar* at 2:35-48, 2:75-92; Ex. 1004 ¶ 164, n.17.)

f. causing a video image of said series of discrete video images to be output and displayed subsequent to said step of identifying; and

This limitation is substantially identical to element 16h for claim 16. (Section VII.A.9.h; Ex. 1004 ¶ 166; Sections VII.A.1.f, VII.A.7.i.) This claim additionally requires¹⁷ the output of one media in the presentation to be “subsequent to said step of identifying.” (Section VII.A.12.c.) A POSITA would have understood that this output and display step is necessarily subsequent to said step of identifying because, by the time the presentation has been created and displayed, the receiver has identified the relevant media, selected what it needs to produce the presentation, directed it to the appropriate computer and processing equipment, and created the presentation. (Ex. 1004 ¶ 166.) Output of the caption for the multimedia presentation occurs *only after* the program and associated caption data are identified. (*Id.*) The proofs discussed in Section VII.A.9.h show *Campbell* and *Millar* disclose or render obvious the remainder of this element. (Sections VII.A.1.f, VII.A.7.i, VII.A.9.h; Ex. 1004 ¶¶ 166.)

¹⁷ The claims also differ in that claim 20 specifies one of the media is a “video image” but for the reasons noted above in Sections VII.A.12.a-VII.A.12.e, *Campbell* and *Millar* disclose or render obvious this aspect.

- g. combining said outputted video image into said multimedia presentation at said output device based on said step of causing to be output, said multimedia presentation comprising said first medium and said outputted video image of said series of discrete video images, said first medium having a predetermined relationship to said series of discrete video images and said first medium explaining a significance of said video image of said series of discrete video images.**

This limitation is substantially identical to element 16h for claim 16. (Section VII.A.9.h; Ex. 1004 ¶ 167.) The unpatentability proofs discussed above in Section VII.A.9.h show *Campbell* and *Millar* disclose or render obvious this element. (Ex. 1004 ¶¶ 167-168; Ex. 1012 at 51; *see* Sections VII.A.7.h, VIIA.1.f, VII.A.9.h.)

13. Dependent Claim 21

The method of claim 20, wherein said first medium comprises a television program including video and audio.

Like dependent claim 12, dependent claim 21 requires that the “first medium comprises a television program including video and audio.” (’217 patent at 288:12-13, 289:62-63.) The unpatentability proofs discussed in Section VII.A.8 show *Campbell* and *Millar* disclose or render obvious this element. (Ex. 1004 ¶ 169.)

14. Dependent Claim 22

The method of claim 20, wherein said second medium is received in a digital data channel.

Campbell and *Millar* disclose or render obvious this element. (Ex. 1004 ¶ 170.) The second medium is text and graphics (caption) data transmitted via digital

data signals in the vertical interval of the television signal. (Section VII.A.12.e.) As noted above for claim 1, this data is transmitted in a digital data channel because it is digital information carried by a broadcast transmission to a receiver station. (Ex. 1004 ¶ 170; *e.g.*, Section VII.A.1.b.)

B. Ground 2: *Campbell*, *Millar*, and *Thonnart* Render Obvious Claims 11, 12, and 16-18

Each of claims 11, 12, and 16-18 requires “identifying content of said second medium,” i.e., identifying the content of the caption information transmitted via their digital data signals. (Sections VII.A.7.f, VII.A.9.f; Ex. 1004 ¶ 171.) *Campbell* and *Millar* disclose or render the element obvious. Even if the Board finds that page information (including the “character code” in *Millar*) fails to identify the content of a second medium, this element nevertheless would have been obvious to a POSITA in view of *Thonnart*. (*Id.* ¶¶ 171-175.)

Thonnart uses television networks “either for supplementing or replacing the images and sounds composing the usual programs, texts and sequences coded in a digital form (designed hereinafter as teletexts),” and to “permit their reproduction by the user, on an ordinary receiving station by means of a decoding and memory apparatus equipped with a ‘page’ selector.” (*Thonnart* at 1:10-17.) *Thonnart* uses identifying information for the program and the teletext information to ensure the digital teletext information is transmitted “in a manner at least approximately

synchronous with the corresponding information in the analog form,” i.e., to ensure that the corresponding information aligns. (*Id.* at 1:46-56, 2:24-46.) This “information is received by a conventional receiving set equipped with a decod[er] . . . and detector,” the detector “sensitive to the identifying material.” (*Thonnart* at Abstract, 1:54-56, 3:39-49, 4:14-24.) In this way, *Thonnart* discloses “identifying content of said second medium,” i.e., the captions. (Ex. 1004 ¶ 172.)

A POSITA would have been motivated to implement a similar regime in *Campbell* to improve its efficiency and effectiveness. (*Id.* ¶ 173.) *Campbell* identifies a subject matter of the television program to filter mature content for unsuitable audiences. (*Id.*; Section VII.A.1.d.) A POSITA would have wanted to make sure that *Campbell*’s receiver station *could also identify* associated text and graphics data (captions in view of *Millar*) to prevent it from displaying on the user’s television *if that user lacks authorization* to receive the program and associated data. (Ex. 1004 ¶ 173.) *Thonnart*’s system provides one mechanism for accomplishing this in a simple and efficient fashion. (*Id.*)

Further, a POSITA would have made this modification with a reasonable expectation of success. (*Id.* ¶ 174.) *Campbell*’s stations transmit and process teletext like in *Thonnart*. (*Campbell* at 28:3-34:7.) And *Campbell* provides transmission of identifying control data in the vertical interval of a television signal. (*Campbell* at 1:7-2:11, 2:34-3:36, 8:18-10:26, 28:3-34:7, 34:19-26, Figs. 2A-2B.) It would have

been the substitution (or supplementation) of one known technique for another, requiring no undue burden, to adjust *Campbell*'s system to also identify a content of the text and graphics (caption) data. (Ex. 1004 ¶ 174.) To the extent *Campbell*'s system is adjusted to identify the content of the text and graphics, this would occur on *Campbell*'s computer (microcomputer) responsive to processor instructions. (Sections VII.A.1.d, VII.A.1.c; Ex. 1004 ¶ 174.) *Campbell*, *Millar*, and *Thonnart* thus disclose or render this limitation obvious. (Ex. 1004 ¶ 174.)

Because the remaining limitations in claims 11, 12, and 16-18 are disclosed in *Campbell* and *Millar* (Sections VII.A.7, VII.A.8 and VII.A.9-VII.A.11), *Campbell*, *Millar*, and *Thonnart* render these claims obvious, and they should be cancelled. (Ex. 1004 ¶ 175.)

VIII. This Petition Does Not Present Redundant Grounds

Non-institution under § 314 would be improper. The district court proceeding will not analyze the same issues as this IPR. *Cf. NHK Spring Co., Ltd. v. Intri-Plex Techs. Inc.*, IPR2018-00752, Paper 8, 19–20 (PTAB Sept. 12, 2018). While the district court case is scheduled for trial before this case concludes, the petition challenges dependent claims 7 and 8 not at issue in the district court. And although invalidity contentions in the district court case may include *Campbell*, *Millar*, and *Thonnart*, the invalidity issues are not finalized or briefed, making any alleged overlap of arguments speculative. *See, e.g., Facebook, Inc. v. Blackberry Ltd.*,

IPR2019-00899, Paper 15 at 12 (Oct. 8, 2019); *Resideo Techs., Inc. v. Innov. Scis., LLC*, IPR2019-01306, Paper 19, 11–13 (Jan. 27, 2020).

Non-institution under § 325 would also be improper. PMC hampered the prosecution process. The '217 patent is one of 329 related applications that PMC filed claiming priority back to November 1981 and having combined “between 10,000 and 20,000 claims.” (Ex. 1018 at 2.) The examiner asked if PMC’s conduct was “[e]vidence of a [s]hell [g]ame?” (Ex. 1019 at 11.) The examiner noted a “‘*moving target*’ approach to prosecution [that] takes on a more ominous/disturbing complexion when there appears to be some evidence that [the] applicant is recycling previously presented claims/issues . . . without notifying the Office[.]” (*Id.*) Given this alone, the Board should proceed.

Non-institution would also be improper weighing the six factors set forth in *Becton Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8, 17-18 (PTAB Dec. 15, 2017). Regarding factors (a) and (b), PMC cited, or the office otherwise processed, over 2,000 references during the prosecution of the '217 patent, making meaningful consideration impossible. And while the examiner separately noted *Millar*, *Thonnart*, and *Campbell* during prosecution, the examiner never applied the combination of these references set forth in this petition.

The same is true for factors (c)-(d). The examiner considered *Millar* as a cited reference (*see* Ex. 1002 at 3542), but the examiner never applied *Millar* on the

merits. *Thonnart* was considered, but combined with different art (DE 2,356,969 to Zaboklicki) and for different issues, such as disclosure of “control[ing] storage of the television program (the ‘first medium’) or ‘information based on said second medium’ where the ‘second medium’ is the secondary audio.” (Ex. 1002 at 309-10.) And the examiner referenced *Campbell*, but PMC was not sure the reference was even being used on the merits. Ex. 1002 at 1141, n.4; *see also id.* at 1757-58 (examiner citing *Campbell* and noting it was “known for . . . associated TV programming to have a “content” that explicitly refers to the associated “program-related” videotext pages.”). And even if *Campbell* was addressed on the merits, it was not combined, as here, with *Millar* and *Thonnart*.

Regarding factor (e), the examiner erred in allowing the asserted claims to issue based on amendments made by PMC. At the end of prosecution, the applicant amended the claims (*id.* at 435) and the examiner amended the claims again (*id.* at 401), with both amendments including substantial changes. The examiner’s only comment was that “the prior art of record fails to teach or suggest the respective claim limitations when considered as a whole and when read in light of the following interpretations disclosed by the Board of Patent Appeals and Interferences in the 1/13/09 decision.” (*Id.* at 403.) There is no evidence that the office considered the teachings of *Campbell*, *Millar*, and *Thonnart* (or similar teachings) and how these teachings rendered the features of the amended claims obvious. And given the

2,000+ references cited, such would have been effectively impossible. At most, the examiner reviewed the claims considering the rejections on appeal, which differ from the arguments in the petition.

Regarding factor (f), the office never considered the combination presented in the petition, so there can be no “reconsideration” of these issues. Moreover, the petition includes new evidence never considered by the office, including an expert declaration from Clifford Reader, a highly skilled artisan.

Finally, the office considered a challenge of the '217 patent filed by Samsung in PTAB-IPR2017-00288. (*See* Ex. 1023.) The filing is inconsequential under §§ 314 and 325 at least because: (1) it relied on different prior art and theories (*see, e.g.,* Ex. 1023 at 7); (2) it did not cover all the claims at issue here (*id.*); and it was terminated before PMC filed a preliminary response or before the Board considered it (Ex. 1024 at 3).

Considering these facts, non-institution under §§ 314 or 325 would be improper.

IX. Mandatory Notices

A. Real Party-in-Interest Under 37 C.F.R. § 42.8(b)(1)

The Petitioner and real party-in-interest is Google LLC.¹⁸

B. Related Matters Under 37 C.F.R. § 42.8(b)(2)

To the best of Petitioner's knowledge, the '217 patent is, or has been, involved in the following district court litigations:

Name	Number	Court	Filed
<i>Personalized Media Communications, LLC v. Google LLC</i>	2:19-cv-00090	EDTX	Mar. 21, 2019
<i>Personalized Media Communications, LLC v. Netflix, Inc.</i>	2:19-cv-00091	EDTX	Mar. 21, 2019
<i>Personalized Media Communications, LLC v. TCL Corp. et al.</i>	2:17-cv-00433	EDTX	May 17, 2017
<i>Personalized Media Communications, LLC v. Hisense Co. Ltd. et al.</i>	2:17-cv-00437	EDTX	May 17, 2017

¹⁸ Google LLC is a subsidiary of XXVI Holdings Inc., which is a subsidiary of Alphabet Inc. XXVI Holdings Inc. and Alphabet Inc. are not real parties in interest to this proceeding.

Name	Number	Court	Filed
<i>Personalized Media Communications, LLC v. Haier America Company, LLC et al.</i>	2:17-cv-00438	EDTX	May 17, 2017
<i>Personalized Media Communications, LLC v. Tsinghua Tongfang Co., Ltd. et al.</i>	2:17-cv-00439	EDTX	May 17, 2017
<i>Personalized Media Communications, LLC v. Funai Electric Co., Ltd.</i>	2:16-cv-00105	EDTX	Feb. 1, 2016
<i>LG Electronics, Inc. et al. v. Personalized Media Communications, LLC</i>	1:15-cv-01096	DED	Nov. 26, 2015
<i>Personalized Media Communications, LLC v. Samsung Electronics America, Inc. et al.</i>	2:15-cv-01754	EDTX	Nov. 10, 2015
<i>Personalized Media Communications, LLC v. TPV Int'l (USA), Inc. et al.</i>	2:15-cv-01206	EDTX	July 1, 2015
<i>Funai Electric Co., Ltd. v. Personalized Media Communications, LLC</i>	1:15-cv-00558	DED	June 29, 2015

Petitioner is also aware of one petition that challenged claims 1-5, 7-9, 11, 30-32, and 38 of the '217 patent, filed by Samsung Electronics Co., Ltd.:

Name	Case Number	Filed	Challenged Claims
<i>Samsung Electronics Co., Ltd. v. Personalized Media Communications, LLC</i>	IPR2017-00288	Nov. 18, 2016	1-5, 7-9, 11, 30-32, and 38

C. Lead and Back-Up Counsel Under 37 C.F.R. § 42.8(b)(3)

Lead Counsel	Back-Up Counsel
<p>Erika H. Arner (Reg. No. 57,540) erika.arners@finnegan.com Finnegan, Henderson, Farabow, Garrett & Dunner, LLP Two Freedom Square 11955 Freedom Dr. Reston, VA 20190-5675 Tel: 571-203-2700 Fax: 202-408-4400</p>	<p>Daniel C. Cooley (Reg. No. 59,639) daniel.cooley@finnegan.com Finnegan, Henderson, Farabow, Garrett & Dunner, LLP Two Freedom Square 11955 Freedom Dr. Reston, VA 20190-5675 Tel: 571-203-2700 Fax: 202-408-4400</p> <p>Joshua L. Goldberg (Reg. No. 59,369) joshua.goldberg@finnegan.com Finnegan, Henderson, Farabow, Garrett & Dunner, LLP 901 New York Avenue NW Washington, DC 20001-4413 Tel: 202-408-4000 Fax: 202-408-4400</p> <p>Cory C. Bell (Reg. No. 75,096) cory.bell@finnegan.com Finnegan, Henderson, Farabow, Garrett & Dunner, LLP Two Seaport Lane Boston, MA 02210-2001 Tel: 617-646-1600 Fax: 202-408-4400</p>

Lead Counsel	Back-Up Counsel
	Sydney R. Kestle (Reg. No. 78,725) sydney.kestle@finnegan.com Finnegan, Henderson, Farabow, Garrett & Dunner, LLP 901 New York Avenue NW Washington, DC 20001-4413 Tel: 202-408-4000 Fax: 202-408-4400 A. Grace Mills (Reg. No. 66,946) gracie.mills@finnegan.com Finnegan, Henderson, Farabow, Garrett & Dunner, LLP 901 New York Avenue NW Washington, DC 20001-4413 Tel: 202-408-4000 Fax: 202-408-4400

D. Service Information Under 37 C.F.R. § 42.8(b)(4)

Please address all correspondence to lead counsel and back-up counsel at the addresses shown above. Petitioner also consents to electronic service by email.

X. Grounds for Standing

Petitioner certifies the '217 patent is available for *inter partes* review and the Petitioner is not barred or estopped from requesting *inter partes* review. Petitioner filed the Petition within one year of service of the complaint against Petitioner in a related district court litigation (i.e., March 25, 2020). (Ex. 1003.)

XI. Conclusion

Petitioner has established a reasonable likelihood of prevailing on the challenged claims. The Board should institute *inter partes* review.

Dated: March 21, 2020

Respectfully submitted,

/Erika H. Arner/

Erika H. Arner (Reg. No. 57,540)

Attorney for Petitioner Google LLC

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(a)(1)(i), the undersigned hereby certifies that the foregoing PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 7,747,217 contains 13,942 words, excluding parts of this Petition exempted under § 42.24(a), as measured by the word-processing system used to prepare this paper.

Dated: March 21, 2020

/Erika H. Arner/

Erika H. Arner (Reg. No. 57,540)

Attorney for Petitioner Google LLC

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§ 42.6(e) and 42.105(a) & (b), the undersigned hereby certifies that on March 21, 2020, a copy of the foregoing PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 7,747,217 associated Power of Attorney, and corresponding Exhibits 1001-1006, 1008-1019, 1021-1025 were served on Patent Owner via email to the email addresses below. In view of the COVID-19 situation, the parties agreed to electronic service of the Petition and associated exhibits and papers via email under 37 C.F.R. § 42.105(b) to the email addresses below:

Correspondence Address of Record: Ann Alpha-Kpetewama Goodwin Proctor LLP 1900 N Street, N.W. Washington, D.C. 20036 AAAlpha-Kpetewama@goodwinlaw.com patentdc@goodwinlaw.com	Identified by Patent Owner: Dmitry Kheyfits Andrey Belenky Kheyfits Belenky LLP 1140 Avenue of the Americas, 9 th Floor New York, NY 10036 dkheyfits@kblit.com abelenky@kblit.com docket@kblit.com Thomas J. Scott, Jr. Personalized Media Communications 14090 Southwest Freeway, Suite 308 Sugar Land, TX 77478 tscott@pmcip.com
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Dated: March 21, 2020

/William Esper/
William Esper, Legal Assistant
Finnegan LLP