

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DISH Network L.L.C. and DISH Technologies L.L.C.

Petitioner,

v.

Digital Broadcasting Solutions, LLC

Patent Owner.

IPR2023- 00977

Attorney Docket No.: 081841.0149

PETITION FOR *INTER PARTES* REVIEW OF

U.S. PATENT NO. 9,538,122

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PETITIONER’S EXHIBIT LIST

Ex. No.	Description of Documents
1001	U.S. Patent No. 9,538,122 (“ 122 Patent ”)
1002	Declaration of Dr. Kevin Jeffay
1003	Prosecution File History of the ’122 Patent
1004	Complaint, <i>Digital Broadcasting Solutions, LLC v. DISH Network L.L.C.</i> , United States District Court for the Eastern District of Texas, Case No. 2:22-CV-00335, Dkt. No. 1
1005	Infringement Contentions, <i>Digital Broadcasting Solutions, LLC v. DISH Network L.L.C.</i> , United States District Court for the Eastern District of Texas, Case No. 2:22-CV-00335
1006	U.S. Patent No. 8,510,771 to Casagrande et al., entitled “Methods and apparatus for filtering content from a presentation stream using signature data” (“ Casagrande ”)
1007	U.S. Patent No. 7,251,413 to Dow et al., entitled “System and method for improved blackfield detection” (“ Dow ”)
1008	U.S. Patent App. Pub. No. 2006/0225105 by Russ, entitled “Networked multi-room system ad insertion” (“ Russ ”)
1009	U.S. Patent App. Pub. No. 2009/0165057 by Miller et al., entitled “Concurrent program content processing apparatus, systems, and methods” (“ Miller ”)
1010	Order Carrying DISH’s Motion to Change Venue, <i>Digital Broadcasting Solutions, LLC v. DISH Network L.L.C.</i> , United States District Court for the Eastern District of Texas, Case No. 2:22-CV-00335, Dkt. No. 41
1011	DISH’s Supplemental Brief in Support of its Motion to Transfer (Public Redacted Version), <i>Digital Broadcasting Solutions, LLC v. DISH Network L.L.C.</i> , United States District Court for the Eastern District of Texas, Case No. 2:22-CV-00335, Dkt. No. 44

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Ex. No.	Description of Documents
1012	Docket Control Order, <i>Digital Broadcasting Solutions, LLC v. DISH Network L.L.C.</i> , United States District Court for the Eastern District of Texas, Case No. 2:22-CV-00335, Dkt. No. 28

I. MANDATORY NOTICES UNDER 37 C.F.R. 42.8(a)(1)

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

DISH Network L.L.C. (“DISH”) is the petitioner. DISH is directly or indirectly owned by the following direct or indirect owner: DISH Network Corporation.

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

DBS asserts the ’122 Patent in the following district court case along with the ’710 Patent. *Digital Broadcasting Solutions, LLC v. DISH Network L.L.C.*, United States District Court for the Eastern District of Texas, Case No. 2:22-CV-00335 (the “District Court” matter).

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

Petitioner designates the following: Lead Counsel is Eliot D. Williams (Reg. No. 50,822) of Baker Botts L.L.P.; Back-up Counsel are G. Hopkins Guy (Reg. No. 35,886), Ali Dhanani (Reg. No. 66,233), and Thomas Carter (Reg. No. 76,040) of Baker Botts L.L.P.

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

A copy of this entire Petition, including all Exhibits and a power of attorney, is being served by FEDERAL EXPRESS, costs prepaid, to the address of the attorney or agent of record for Digital Broadcasting Solutions, LLC (“DBS” or “Patent Owner”) in the district court proceedings regarding the ’122 Patent: WILLIAMS SIMONS & LANDIS PLLC, 2633 McKinney Ave, Suite 130 #366

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Dallas, TX 75204; 601 Congress Ave., Suite 600 Austin, TX 78701; 1735 Market Street, Suite A #453 Philadelphia, PA 19103; and to the correspondence address listed for the '122 Patent: 125600 – Fitzsimmons IP Law, PO Box 199 Gardena, CA 90248.

Petitioner consents to service by electronic mail at: eliot.williams@bakerbotts.com, hop.guy@bakerbotts.com, ali.dhanani@bakerbotts.com, and thomas.carter@bakerbotts.com. A Power of Attorney is filed concurrently herewith under 37 C.F.R. §42.10(b).

II. CLAIM LISTING

A. Claim 1

1[Pre]	A digital video recorder (DVR) for time shifting at least one video program, said video program being transmitted over a data distribution system, comprising:
1[a][i]	a tuner for receiving a plurality of video programs, wherein (i) said plurality of video programs are transmitted at the same time on a single channel within said data distribution system,
1[a][ii]	(ii) said tuner can be tuned to said single channel to receive said plurality of video programs, and
1[a][iii]	(iii) at least one of said plurality of video programs includes at least first, second and third portions, wherein said second portion as transmitted is configured to follow said first portion, and said third portion as transmitted is configured to follow said second portion;
1[b]	a memory device for storing said plurality of video programs, allowing said one of said plurality of video programs to be played back at a later time;
1[c]	a controller configured to receive commands from a user of said DVR, wherein a first command changes said DVR from a first playback state to a second playback state, a second command initiates playback of said one of said plurality of video programs from said memory device, and a third command instructs said DVR to receive and store said plurality of video programs; and
1[d][i]	at least one processor configured to (i) provide said one of said plurality of video programs in its entirety to a display device in response to receiving said second command during a first period of time,
1[d][ii]	(ii) provide said one of said plurality of video programs in its entirety to said display device in response to receiving said second command during a second period of time if said DVR is in said first playback state, and
1[d][iii]	(iii) provide only a portion of said one of said plurality of video programs to said display device in response to receiving said second command during said second period of time if said DVR is in said second playback state, said portion of said one of said plurality of video programs including at least said first and third portions of said one of said plurality of video programs, wherein said third portion is provided to said display device immediately following said first portion if said second command is received during said second period of time and said DVR is in said second playback state;

1[e]	wherein said second period of time is a period of time after said first period of time.
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B. Claim 2

2. The DVR of claim 1, further comprising a wireless transmitter in communication with said at least one processor and said memory device, said wireless transmitter being configured to transmit said one of said plurality of video programs in its entirety or said portion of said one of said plurality of programs at least indirectly to said display device, said display device being remotely located from said DVR.

C. Claim 3

3. The DVR of claim 1, further comprising at least one other tuner, wherein said at least one other tuner allows said DVR to receive at least one other video program while said tuner is being used to receive said plurality of video programs, said at least one other video program being selected by said user.

D. Claim 4

4. The DVR of claim 1, wherein said one of said plurality of video programs includes at least primary and secondary video content, and said first and third portions of said one of said plurality of video programs consists of said primary video content.

E. Claim 5

5. The DVR of claim 4, wherein said second portion of said one of said plurality of video programs consists of said secondary video content and said memory device is further configured to store at least one time when said second portion begins and at least one time when said second portion ends.

F. Claim 6

6. The DVR of claim 1, wherein said first period of time is a period of time that begins when said one of said plurality of video programs is stored on said memory device and available to be viewed and ends within a predetermined time thereafter, said predetermined time being less than one week.

G. Claim 7

7. The DVR of claim 1, wherein said single channel is stored in said memory and said at least one processor is configured to tune said tuner to said single channel in response to said controller receiving said third command.

H. Claim 8

8. The DVR of claim 1, wherein data communicated via said single channel is compressed prior to transmission and said at least one processor is configured to decompress said data after its have been received so that said one of said plurality of video programs or said portion of said one of said plurality of video programs can be displayed, depending on when said second command is received and said playback state of said DVR.

I. Claim 9

9. The DVR of claim 5, wherein said secondary video content comprises at least one advertisement.

J. Claim 10

10[a]	The DVR of claim 1, wherein said at least one processor is further configured to (i) retrieve said portion of said one of said plurality of video programs from said memory if said second command is received during said second period of time and said DVR is in said second playback state, and
10[b]	(ii) retrieve said one of said plurality of video programs in its entirety from said memory device if another second command is received at a time thereafter and said DVR is switched to said first playback state at or before said time thereafter.

K. Claim 11

11[Pre]	A method for time shifting at least one video program transmitted to a digital video recorder (DVR) over a data distribution system, comprising:
11[a][i]	receiving a plurality of video programs, wherein said plurality of video

	programs are transmitted at the same time and are received by a single tuner in said DVR, and
11[a][ii]	at least one of said plurality of video programs includes at least first, second and third portions, wherein said second portion as transmitted is configured to follow said first portion, and said third portion as transmitted is configured to follow said second portion;
11[b]	receiving a third command from at least one user of said DVR, said third command indicating a desire to use said single tuner to receive said plurality of video programs and to store said plurality of video programs on at least one memory device in said DVR;
11[c]	storing said plurality of video programs on said at least one memory device in said DVR in response to receiving said third command from said at least one user of said DVR;
11[d]	receiving a second command from said at least one user of said DVR, said second command indicating a desire to playback at least a portion of said one of said plurality of video programs;
11[e]	receiving a first command from said at least one user of said DVR, said first command indicating a playback state of said DVR; and
11[f]	providing said at least a portion of said one of said plurality of video programs to a display device in response to receiving said second command from said at least one user of said DVR;
11[g][i]	wherein said step of providing said at least a portion of said one of said plurality of video programs to said display device further comprises (i) providing said one of said plurality of video programs to said display device in response to receiving said second command during a first period of time,
11[g][ii]	(ii) providing said one of said plurality of video programs to said display device in response to receiving said second command during said second period of time if said DVR is in said first playback state, and
11[g][iii]	(iii) providing only a portion of said one of said plurality of video programs to said display device in response to receiving said second command during said second period of time if said DVR is in said second playback state, said portion of said one of said plurality of video programs including at least said first and third portions of said video program, wherein said third portion is provided to said display device immediately following said first portion if said second command is received during said second period of time and said DVR is in said second playback state;
11[h]	wherein said second period of time is a period of time after said first

period of time.

L. Claim 12

12. The method of claim 11, wherein said step of providing said at least a portion of said one of said plurality of video programs to a display device further comprises transmitting said at least a portion of said one of said plurality of video programs to said display device via a transmission path that includes at least one wireless connection, said display device being remotely located from said DVR.
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M. Claim 13

13. The method of claim 11, wherein said step of storing said plurality of video programs on said at least one memory device in said DVR further comprises storing at least one time of when said second portion of said video program begins and at least one time of when said second portion of said video program ends.

N. Claim 14

14. The method of claim 11, wherein said one of said plurality of video programs includes at least primary and secondary video content, said portion of said video program that is provided to said display device if said second command is received during said second period of time and said DVR is in said second playback state consists of said primary video content, and said secondary video content includes at least one advertisement.

O. Claim 15

15. The method of claim 11, further comprising the steps of: compressing said plurality of video programs prior to said plurality of video programs being transmitted over said data distribution system, and decompressing said plurality of video programs after said plurality of video programs have been received by said DVR and before said one of said plurality of video programs or portion thereof is provided to said display device.

A. Claim 16

16. The method of claim 11, further comprising the step of tuning said single tuner to a particular channel at a particular time in response to receiving said third
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command, said particular channel and said particular time being stored in said at least one memory device in said DVR.

A. Claim 17

17. The method of claim 16, further comprising the step of receiving a fourth command from said at least one user of said DVR, said fourth command indicating a desire to record a second video program, which is accomplished using another tuner if said second video program is being transmitted to said DVR while said plurality of video programs are being transmitted to said DVR.

B. Claim 18

18[Pre][i]	A digital video recorder (DVR) for time shifting at least one of a plurality of video programs,
18[Pre][ii]	said one of said plurality of video programs consisting of first, second and third portions, wherein said second portion as transmitted is configured to follow said first portion, and said third portion as transmitted is configured to follow said second portion, comprising:
18[a]	a first tuner for receiving data on said plurality of video programs, wherein said data on one of said plurality of video programs is transmitted together with said data on other ones of said plurality of video programs, so that said first tuner receives said data on said one of said plurality of video programs at the same time that it receives data on said other ones of said plurality of video programs;
18[b]	at least one memory device for storing said data on said plurality of video programs, including at least said one of said plurality of video programs;
18[c]	a controller for receiving commands including at least a first command for setting a playback state of said DVR, a second command for initiating a playback of said one of said plurality of video programs from said memory device, and a third command for initiating said reception and said storage of said data on said plurality of video programs; and
18[d][i]	at least one processor for (i) providing said first, second and third portions of said one of said plurality of video programs respectively to a display device in response to receiving said second command during a first portion of time,
18[d][ii]	(ii) providing said first, second and third portions of said one of said plurality of video programs respectively to said display device in

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	response to receiving said second command during a second period of time if said DVR is in a first playback state, and
18[d][iii]	(iii) providing said first and third portions of said one of said plurality of video programs respectively to said display device in response to receiving said second command during said second period of time if said DVR is in a second playback state, wherein said third portion is provided to said display device immediately following said first portion if said second command is received during said second period of time and said DVR is in said second playback state.

A. Claim 19

19. The system of claim 18, wherein said third command further results in said first tuner being tuned to a particular frequency to receive said data on said plurality of video programs, said particular frequency being provided by a content provider and stored on said DVR.

B. Claim 20

20. The system of claim 18, wherein said second portion comprises at least one commercial and said data on said plurality of video programs is packetized, with individual packets being linked at least indirectly to individual ones of said plurality of video programs and to individual channels associated with content owners thereof.

III. FORMAL REQUIREMENTS

A. Standing

Petitioner certifies that the '122 Patent is eligible for *inter partes* review and Petitioner is not barred or estopped from challenging the claims on these grounds.

B. Identification of Challenge

Petitioner requests review on the grounds that (1) claims 1-20 are obvious over Casagrande in view of Russ and Miller under 35 U.S.C. §103; (2) claims 1, 3-5, 7-11, 13-16, and 18-19 are anticipated by Dow under 35 U.S.C. §102; and (3) claims 1-20 are obvious over Dow in view of Russ and Miller under §103.

IV. SUMMARY OF THE '122 PATENT

The '122 Patent “relates to the storage and play back of time-shifted data” including “adding auxiliary data to data that has been time-shifted.” Ex[1001], 1:18-21. It includes an embodiment where “the auxiliary data is removed only after its value has diminished.” Ex[1001], Abstract; Ex[1002] ¶59.¹

The '122 Patent admits that “[d]igital video recorders (‘DVRs’), like TiVO™, [were] commonly used to record data (e.g., video, audio, etc.), allowing it to be played back at a later time.” Ex[1001], 1:23-25. The patent refers to this as “time-shifting.” Ex[1001], 1:25-27.

The '122 Patent purports to recognize the dilemma that time-shifting

¹ Petitioner does not concede the claims comply with 35 U.S.C. §112.

functions presented to content owners and/or providers. Namely, “it allows the user to skip commercials...which can decrease the value of the program.” Ex[1001], 1:48-51. The patent purports to address this issue by configuring a receiving device “to function as a DVR” and “to perform both standard receiver functions (e.g., receiving data on a plurality of channels[]), processing data on a channel selected by a user (e.g., via a remote control), and providing the processed data to a display) and standard DVR functions (e.g., allowing a user to record, pause, rewind, fast forward, and play processed data).” Ex[1001], 4:40-41; 42-48.

The ’122 Patent was filed on 11/17/2014 as a continuation of an application filed 10/24/2011. Ex[1001]. The ’122 Patent claims the benefit of a provisional application filed 11/01/2010. The ’122 Patent was allowed without any office actions. Ex[1003], 61-67.

V. LEVEL OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art (“POSA”) pertaining to the ’122 Patent would have been someone with at least a bachelor of science in electrical engineering, computer engineering, computer science or a similar technology degree, as well as two years of relevant industry experience, including Internet networking architectures, digital programming delivery, and STBs. Ex[1002] ¶41.

VI. CLAIM CONSTRUCTION

The District Court has not construed the ’122 Patent’s claims. Petitioner has applied what it understands to be DBS’s interpretation of the terms as evidenced by

the Complaint (Ex[1004]) and Initial Infringement Contentions (Ex[1005]). *See also* Ex[1002] ¶61. However, Petitioner submits that the prior art discloses or renders obvious every claim element under any reasonable construction, in accordance with 37 C.F.R. § 42.100(b), as further explained below.

VII. SUMMARY OF PRIOR ART

The Casagrande, Dow, Russ, and Miller references are prior art under §102 even if the challenged claims are entitled to the provisional filing date of 11/1/2010.

A. Casagrande (Ex[1006])

Casagrande, U.S. Patent No. 8,510,771, was filed on 05/04/2009, published on 06/24/2010, and issued on 08/13/2013. Because Casagrande is was filed and published before the '122 Patent's potential priority date, Casagrande is prior art under at least §§ 102(a) and (e).

Casagrande involves identifying locations within a presentation stream (i.e., video program) for filtering data segments from the stream. Ex[1006], Abstract. Casagrande uses metadata to “identify boundaries of segments within a presentation stream, such as segments of a show and interstitials (e.g., commercials) of the show.” *Id.* Thereafter, Casagrande allows playback of selected segments from the presentation stream while omitting others. *Id.*, 3:3-5, 20-29. Casagrande also discloses that the show may be associated with “playback restrictions” that restrict user operations or otherwise prevent certain types of playback control, including outputting the stream “without skipping over” any segments, “regardless of whether

a user provides input requesting...skipping.” *Id.*, 4:20-32, 6:1-3, 19:63-20:2.

When time shifting restrictions are active, Casagrande DVR’s control logic will output the stream in its entirety, or, alternatively output a stream containing primary video content along with partial or entirely new interstitials. *See, e.g., id.*, 24:31-56.

B. Dow (Ex[1007])

Dow, U.S. Patent No. 7,251,413, was filed on 04/26/2002 and issued on 07/31/2007. Dow is prior art under at least §§102(a), (b), and (e).

Dow concerns “providing enhanced navigation of stored digital video content based upon an event index.” Ex[1007], Abstract. Specifically, Dow teaches the “detection of events in a video signal or data stream.” *Id.*, 3:53-54.

According to Dow, a video program contains content such as “program segments and commercials.” *Id.*, 9:48-49. “These portions of content are viewed sequentially in a normal presentation, such as during a television broadcast.” *Id.*, 9:49-51. Dow teaches that the “commercial indexer 140, may detect...transitions in the content...to provide enhanced playback options, such as commercial skipping.” *Id.*, 6:61-67.

Dow describes a control interface module that prompts control signals through a user interface allowing “for toggling the commercial skip function between active and inactive modes.” *Id.*, 24:16-20, 24:30-31, 24:55-56.

Dow teaches that, during certain time periods, commercial skipping is always

inactive by prohibiting enabling the commercial skip function toggle, such as “in live view mode or delayed view mode.” *Id.*, 24:44-48.

C. Russ (Ex[1008])

Russ is a U.S. patent application publication filed on 04/05/2005 and published on 10/05/2006. Because Russ published more than one year before the '122 Patent's potential priority date, Russ is prior art under at least §§102(a), (b), and (e).

Russ describes the insertion of material “into a presentation from a tuned source in a networked multi-room system (NMS)....” Ex[1008], Abstract. Russ utilizes presentation metadata to display secondary content with a previously recorded presentation stream. *See id.* ¶¶0022, 0023, 0026-0031.

Russ teaches that “a user's trick play functionality could be restricted while viewing a portion of a presentation, such as commercials.” *Id.* ¶0033. Further, Russ teaches using a multipurpose tag to command a primary device to “preclude trick play for only a specified length of time, such as two weeks,” after which, a user may utilize trick play functionality. *Id.* ¶¶0034, 0035.

D. Miller (Ex[1009])

Miller is a U.S. patent application filed on 12/20/2007 and published on 06/25/2009. Miller is prior art under at least §§102(a), (b), and (e).

Like Casagrande, Miller teaches a STB receiving signals via a satellite network and explains that the signal received by the box will “include a plurality of

multiplexed programs...may be communicated as a plurality of program content streams that are multiplexed upon a single carrier channel.” Ex[1009] ¶¶0002, 0029. Miller also discloses that “[p]rogram content portions may comprise MPEG (‘Motion Picture Experts Group’) packets that contain compressed and/or audio, video, and/or other data.” *Id.* ¶0029.

E. Motivations to Combine

While Section VIII provides specific motivations to combine for individual claim limitations, a POSA would generally have been motivated to combine the teachings of Dow, Casagrande, Russ, and Miller for several reasons. Ex[1002] ¶93. First, all four references concern the use of DVRs by a user to view content. Ex[1007], Abstract; Ex[1006], 1:18-34; Ex[1008] ¶0003; Ex[1009] ¶0016; Ex[1002] ¶93. All disclose time-shifting functionality when viewing content. Ex[1007], 9:37-39; Ex[1006], 9:64-67; Ex[1008] ¶0032; Ex[1009] ¶0044; Ex[1002] ¶93.

Dow, Casagrande, and Russ teach using restrictions to prevent users from performing trick-play or skipping over content such as commercials. Ex[1007], 24:44-48; Ex[1006], 9:64-67; Ex[1008] ¶0033; Ex[1002] ¶93. Thus, a POSA viewing the teachings of Casagrande or Dow would naturally have looked to Russ for additional details regarding the implementation of such functionality on DVRs, considered Russ’s disclosure of time-limited restrictions on trick-play/commercial skipping as applicable to Dow’s and Casagrande’s systems, and would have

understood the benefits of adding this feature to Dow and Casagrande. Ex[1002] ¶93.

A POSA would have recognized that Russ’s limits on the use of trick-play (e.g., fast-forwarding) based on time periods was applicable to the various types of trick-play described in Casagrande and Dow, such as automatically skipping commercials. Ex[1002] ¶137. A POSA would have been motivated to implement the known time-based limits on restrictions found in Russ in the systems of Dow and Casagrande to obtain the predictable result of restricting automatically skipping of commercials for a finite period of time, thereby increasing the financial value of the commercial content to the broadcaster. *Id.*

Similarly, a POSA would have been motivated to combine Dow, Casagrande, and Russ with Miller. Ex[1002] ¶110. All teach using DVRs in satellite-based systems. Ex[1006], 4:64-5:11; Ex[1008] ¶0016; Ex[1002] ¶¶93, 105, 110; Ex[1009], Abstract, ¶¶[0019]-[0020]. Thus, a POSA would have looked to Miller for details surrounding the processing of signals delivered to a DVR over a satellite network. Ex[1002] ¶105.

VIII. GROUNDS

A. Ground 1: Claims 1-20 are Obvious Over Casagrande in View of Russ and Miller.

1. Independent Claims 1, 11, and 18

- a. 1[Pre]: “A digital video recorder (DVR) for time shifting at least one video program, said video program being

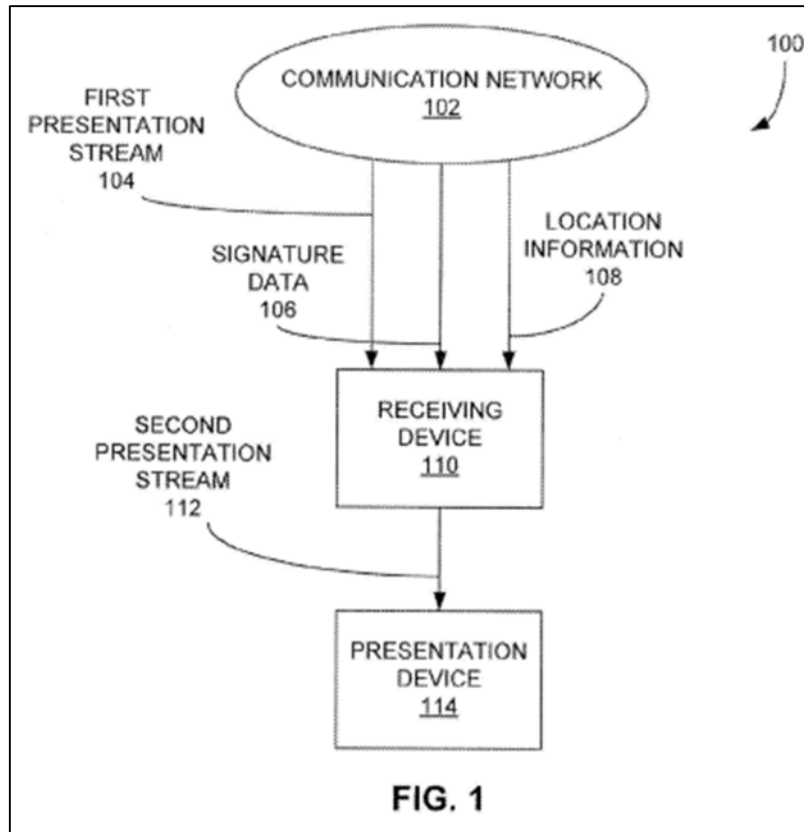
*transmitted over a data distribution system,
comprising:”; 11[Pre]; 18[Pre][i]*

To the extent these preambles are limiting, Casagrande discloses them. Casagrande discloses a DVR “[to] allow viewers to record video in a digital format to a disk drive.” Ex[1006], 1:17-22. Casagrande explains that DVRs “are often incorporated to [STBs] for satellite and cable television services” and that “[a] television program stored on a [STB] allows a viewer to perform time shifting functions, and may additionally allow a viewer to skip over commercial breaks.” Ex[1006], 1:21-26. Further, a POSA would have understood that “[t]ime-shifting was a well-known practice in A/V presentations.” Ex[1002] ¶94.

Casagrande further explains “the A/V stream may be supplied by any source, such as an over-the-air broadcast, a satellite or cable television distribution system....” Ex[1006], 4:36-40.

- b. *1[a][i]: “a tuner for receiving a plurality of video programs, wherein (i) said plurality of video programs are transmitted at the same time on a single channel within said data distribution system,”; 11[a][i]; 18[a]*

Casagrande explains that “[t]he receiving device 110 of Fig. 1 may be any device capable of receiving a presentation stream” such as a “STB” from the “communication network 102 comprises a cable or satellite television network for distribution of an A/V stream.” Ex[1006], 6:26-34; Fig. 1 (below); Ex[1002] ¶96.



Casagrande's STB includes a "communication interface 1502" with "circuitry to receive a first A/V stream 1504 and location information 1508." *Id.*, 17:62-64. "If the receiving device 1510 is a satellite [STB], then the communication interface 1502 may be configured to receive satellite programming, such as the first A/V stream 1504, via an antenna from a satellite transponder." *Id.*, 17:65-18:2. It may also be a "terrestrial ('over-the-air') television receiver." Ex[1006], 4:41-46; Ex[1002] ¶97. Casagrande teaches that "the location information 706 may be transmitted to the receiving device 710 together or separately from the first A/V stream 704" Ex[1006], 12:52-54.

A POSA would have understood that STBs use a tuner to receive the data from a satellite transponder via the antenna. Ex[1002] ¶99. Moreover, a POSA

would have been motivated and found it obvious to implement Casagrande's STB with a tuner to isolate and extract the desired programming from the received signal. Ex[1002] ¶101.

For example, Russ explains that "primary device 140" is a STB that "includes a processor, **a tuner system**," "which may be a simplified processor and only one tuner, may be included to extract channels from the received downstream broadband signals." Ex[1008] ¶¶[0020], [0033]. Thus, a POSA would have understood that Casagrande's DVR includes one or more tuners to "extract channels" from the received A/V signal or would have found this an obvious implementation choice. Ex[1002] ¶100. Tuners and related software had been shown in Russ to effectuate Casagrande's desired channel extraction in a STB. *Id.* ¶101; Ex[1006], 18:49–53.

The limitations are further rendered obvious when combining Casagrande with Russ and Miller's teachings. Ex[1002] ¶102. Miller discloses "a system that concurrently processes multiple distinct programs communicated via a single carrier signal." Ex[1009] ¶[0002]. Miller "includes a receiving device comprising a tuner operable to receive a multiplexed signal via a satellite network that communicates digital video programming, the multiplexed signal comprising a plurality of program content portions, each program content portion corresponding to one of a plurality of programs, and a program content transporter that is communicatively coupled to the tuner." *Id.* ¶[0002].

A POSA would have been motivated to combine Casagrande with Russ and

Miller to properly process the received user input and A/V stream communicated over a single channel. Ex[1002] ¶103. A POSA viewing Casagrande would have understood that the DVR needs one or more tuners to extract the A/V streams in order to perform the various control functions on them. *Id.* Casagrande’s “control logic 1520 may include hardware logic circuitry in lieu of, or in addition to, a processor and related software to allow the control logic 1520 to control the other components of the receiving device 1510.” Ex[1006], 18:49-53. A POSA would have found it obvious to try an implementation of Casagrande’s A/V stream as multiple video programs communicated at the same time on a single channel, which Miller explains provides the benefits of saving resources and improving operation efficiency of the satellite network. Ex[1002] ¶145. For example, Miller teaches that having multiple tuners capable of accessing a single program is “subject to several disadvantages, such as higher manufacturing costs for receiving devices 118, increased power consumption by receiving devices 118, and the like.” Ex[1009] ¶[0031]. Thus, Miller seeks to avoid these disadvantages by providing “various techniques to facilitate the concurrent utilization of program content communicated via a single carrier signal” such as “receiving via a single content stream selector a multiplexed signal containing multiple distinct programs.” *Id.* ¶[0032]; Ex[1002] ¶104. Thus, a POSA would have understood that adding Miller’s multiplexing feature to the combined system of Casagrande and Russ provides the benefits described in Miller. Ex[1002] ¶106.

Additionally, each of these references discloses the use of satellite systems to deliver video content. Casagrande explains that “***an A/V stream ... may be transmitted to...a terrestrial (‘over-the-air’) television receiver...[or a] a satellite television receiver.***” Ex[1006], 4:41-46. Russ explains that “***satellite and cable television systems,*** are now capable of providing many services in addition to analog broadcast video.” Ex[1008] ¶[0003]. Russ teaches that “a processor [and] ***a tuner system.***” *Id.* ¶[0020]. And Miller describes that “[t]he system includes a receiving device comprising ***a tuner operable to receive a multiplexed signal via a satellite network...the multiplexed signal comprising a plurality of program content portions...corresponding to one of a plurality of programs.***” Ex[1009] ¶[0002]. A POSA would have been motivated to combine the teachings of Miller, which describe the known process of using multiplexed signals alongside one or more tuners to deliver video content, with Casagrande and Russ with a reasonable expectation of success. Ex[1002] ¶¶105,106.

Thus, a POSA would have found it advantageous to implement the multiplexing functionality of Miller in the combined system of Casagrande and Russ to avoid the “higher manufacturing costs” and “increased power consumption” associated with using multiple tuners to access single program streams, and to provide a STB capable of decoding existing multiplexed satellite signals, such as taught in Miller. Ex[1009] ¶[0031]; Ex[1002] ¶106.

- c. 1[a][ii]: “(ii) said tuner can be tuned to said single channel to receive said plurality of video programs, and”

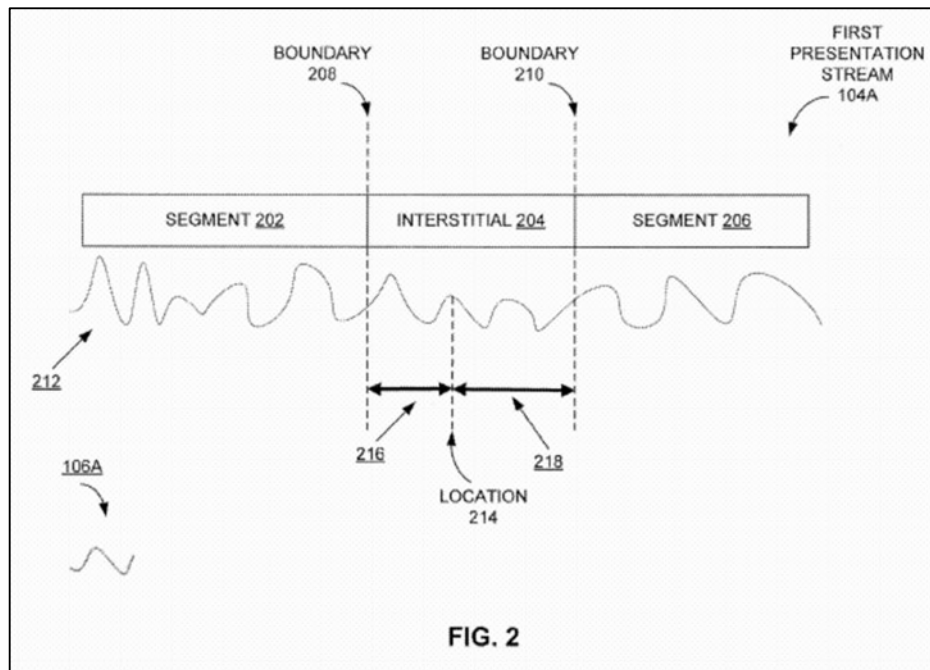
Casagrande renders obvious its DVR including multiple tuners, alone or in view of Russ and/or Miller. See element 1[a][i]. Further, Russ teaches known tuner features, e.g., “extract[ing] channels from the received downstream broadband signals” and users selecting a channel to display. Ex[1008] ¶[0020]. Russ details that “decryptors and decoders may be included to decode encoded signals for proper processing and display.” *Id.* Thus, Casagrande, alone or in view of Russ renders obvious elements 1[a][ii].

Miller renders obvious element 1[a][ii] by teaching “a system that concurrently processes multiple distinct programs communicated via a single carrier signal” including “a tuner operable to receive a multiplexed signal via a satellite network...and a program content transporter that is communicatively coupled to the tuner.” Ex[1009] ¶[0002]; Ex[1002] ¶110. A POSA would have been motivated to have Casagrande’s tuner be capable of tuning to a single channel to receive a plurality of video programs because, as Miller teaches, this provides the benefits of saving resources, improving operation efficiencies of satellite-based networks, and to provide a STB capable of decoding existing multiplexed satellite signals. Ex[1009] ¶[0002]; Ex[1002] ¶110.

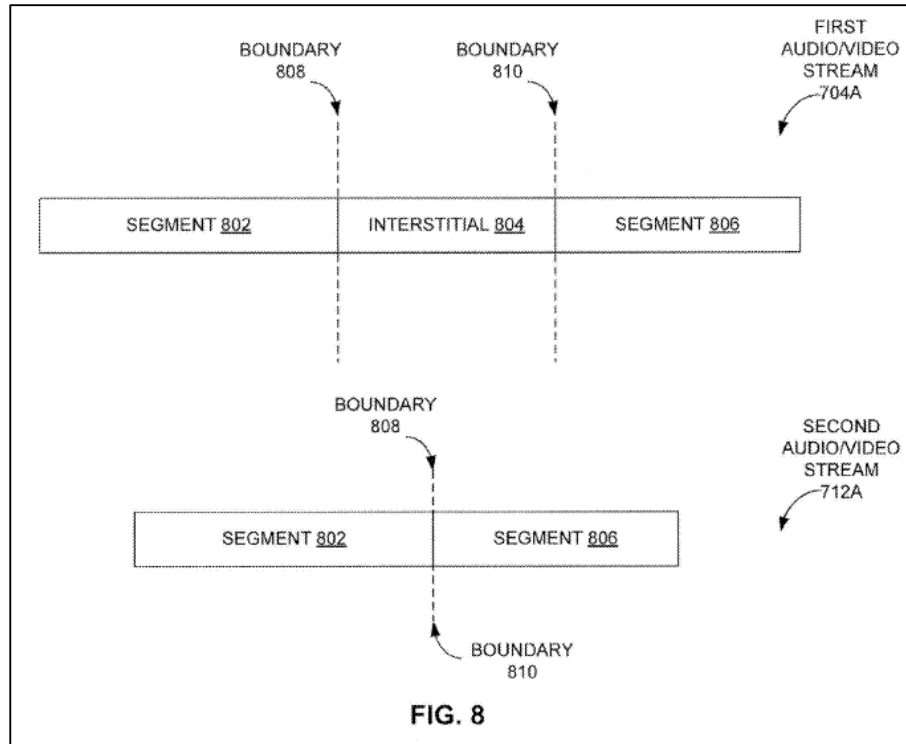
- d. 1[a][iii]: “(iii) at least one of said plurality of video programs includes at least first, second, and third portions, wherein said second portion as transmitted is configured to follow said first portion, and said third

portion as transmitted is configured to follow said second portion;”; 11[a][ii]; 18[Pre][ii]

Casagrande discloses the “segments” and “interstitials” within A/V streams. Ex[1002] ¶112. Figure 2 depicts Casagrande’s A/V stream 104A including “multiple segments of video frames, which are interspersed with interstitials (e.g., commercials).” Ex[1006], 4:57-63. “[I]nterstitials are the video frames of a recording that do not belong to a selected show (e.g., commercials...).” Ex[1006], 4:57-63.



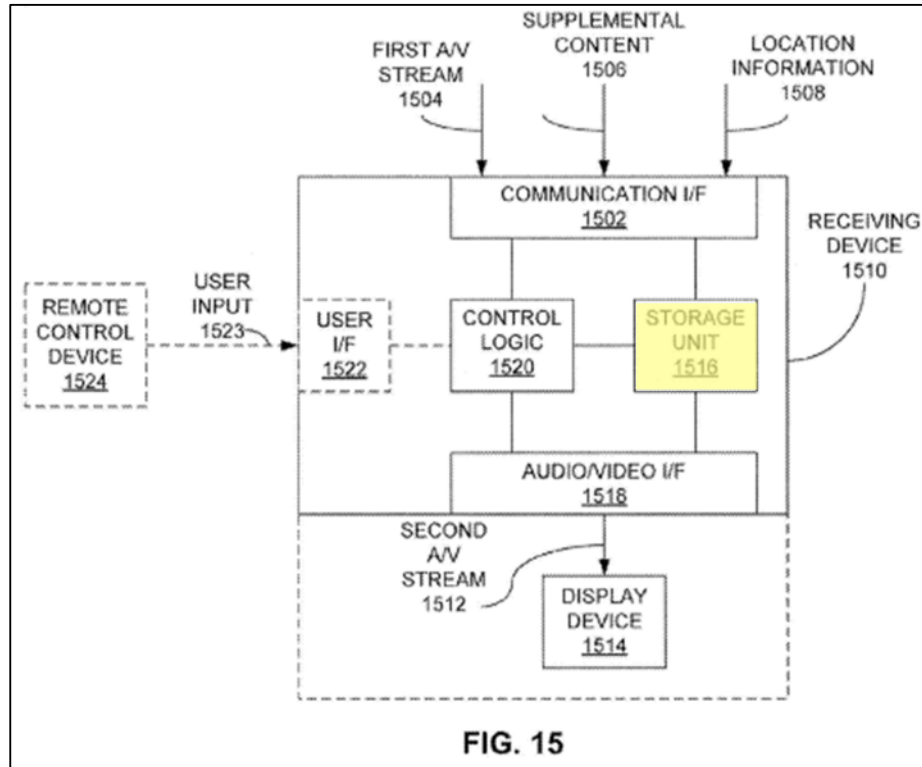
Likewise, Casagrande’s Figure 8 depicts “a graphical representation of the first A/V stream received by the receiving device and a second A/V stream outputted by the receiving device.” Ex[1006], 1:59-61.



Casagrande’s Figure 8 teaches that first A/V stream 704A includes contiguous segments 802, 806 that maintain their order when interstitial 804 is removed to form second A/V stream 712A. Ex[1002] ¶113. Accordingly, a POSA would have understood that Casagrande’s Figures 2 and 8 show contiguous segments corresponding to the claimed “first, second, and third portions.” *Id.* ¶114.

- e. 1[b]: “a memory device for storing said plurality of video programs, allowing said one of said plurality of video programs to be played back at a later time;”;
11[c]; 18[b]

Casagrande’s Figure 15 includes “a storage unit,” “the first A/V stream 1504 and the supplemental content 1506.” Ex[1006], 18:18-25, Fig. 15 (highlight added). Casagrande explains that “the receiving device 1510, by way of the control logic 1520,” stores “the A/V stream 1504 in the storage unit 1516.” *Id.*, 18:64-67.



Casagrande’s storage unit allows for playback of the saved video program at a later time. Ex[1002] ¶118. Specifically, “[c]ommunicatively coupled with the storage unit 1516 is an A/V interface 1518, which is configured to output A/V streams from the receiving device 1510 to the display device 1514 for presentation to a user.” Ex[1006], 18:26-29.

- f. 1[c]: “a controller configured to receive commands from a user of said DVR, wherein a first command changes said DVR from a first playback state to a second playback state, a second command initiates playback of said one of said plurality of video programs from said memory device, and a third command instructs said DVR to receive and store said plurality of video programs; and”; 11[b]; 11[d]; 11[e]; 18[c]

Casagrande teaches that its control logic “communicate[s] with a user interface 1522 configured to receive user input 1523 directing the operation of the

receiving device 1510.” Ex[1006], 18:54-60. Casagrande explains that “control logic 1520, includes a processor...for execution of software configured to perform the various control functions.” *Id.*, 18:45-49. User input of commands can be “generated by...remote control device 1524, which may transmit[s] the user input 1523 to the user interface 1522.” *Id.*, 7:32-34, 18:54-60; Ex[1002] ¶121. User commands, such as “select[ing] a particular channel to watch or record,” are “provided to the processor 740 via the controller 710.” *Id.*, 8:15-16; Ex[1001], 7:46-48, 8:23; Ex[1002] ¶124. Thus, a POSA would have understood Casagrande’s “user interface” comprises the claimed “controller” because it communicates with the “remote control” to receive “user input” and deliver instructions to “control logic” including a “processor.” Ex[1002] ¶123.

Regarding the “first command,” Casagrande teaches that “a user may select by way of the user input 1523 whether the first A/V stream 1504 or the second A/V stream 1512 is outputted to the display device 1514,” corresponding to the claimed first and second playback states. Ex[1006], 19:63-66; Ex[1002] ¶123. Casagrande explains “[t]he receiving device 710A is operable to receive a first A/V stream 704” that “includ[es] at least one segment of a show, [and] at least one interstitial of the show....” Ex[1006], 15:21-24, 21:28-32; Ex[1002] ¶123. “[T]he control logic 1520 generates and transmits a second A/V stream 1512.” *Id.*, 19:10-14; Ex[1002] ¶123. Casagrande teaches that, “the receiving device 710 filters particular portions from the first A/V stream 704 to output a second A/V stream 712 for presentation by the

display device 714.” *Id.*, 15:30-34. The “second A/V stream” has the interstitials (e.g., commercials) removed from the first A/V stream. Ex[1002] ¶145.

Thus, Casagrande teaches a user selecting between a first playback state (i.e., playback of the entire first A/V stream) and a second playback state (i.e., playback of the second A/V stream, excluding commercials). Ex[1002] ¶124.

Regarding the “second command,” Casagrande explains that “a user may be presented with a menu of available segments of the television program, and may select one or more of the available segments for presentation.” Ex[1006], 4:1-4; Ex[1002] ¶125. Further, Casagrande explains that “[b]ased upon user selection of particular segments from the selection menu, the receiving device responsively outputs the selected segments.” Ex[1006], 4:4-8; Ex[1002] ¶125.

Regarding the claimed “third command,” Casagrande’s discloses “user input 1523 directing the operation of the receiving device 1510” (Ex[1006], 18:54-60; Ex[1002] ¶126) the operations including “receiving device 1510, by way of the control logic 1520, [] configured to receive the first A/V stream 1504...and store the A/V stream 1504 in the storage unit 1516.” Ex[1006], 18:64-67; Ex[1002] ¶126.

- g. 1[d][i]: “at least one processor configured to (i) provide said one of said plurality of video programs in its entirety to a display device in response to receiving said second command during a first period of time,”; 11[f]; 11[g][i]; 18[d][i]

Casagrande teaches the use of “control logic 1520 [that] **includes a processor,**” for “execution of software configured to perform the various control

functions described herein.” Ex[1006], 18:45-49; Ex[1002] ¶128.

The control logic “control[s] the operation of” the “communication interface 1502, the storage unit 1516, and the A/V interface 1518.” Ex[1006], 18:42-45; Ex[1002] ¶129. Casagrande further explains that “A/V interface 1518...is configured to output A/V streams from the receiving device 1510 to a display device 1514 for presentation to a user.” Ex[1006], 18:26-29; Ex[1002] ¶129. Thus, a POSA would have understood that “control logic” is “configured” to control “A/V interface 1518” to “output A/V streams from the receiving device 1510 to the display device.” Ex[1002] ¶129.

A POSA would have understood that Casagrande presents the entirety of the A/V presentation (e.g., the first A/V stream) even when the user requests the shortened version without commercials (the second A/V stream). *Id.* ¶130. As Casagrande explains, “a content provider of the first A/V stream 1504 *may prevent the user from maintaining such control.*” Ex[1006], 19:66-20:2; Ex[1002] ¶130. Casagrande explains that “commercials within a television program may be associated with restrictions against fast forwarding or skipping, and a recording *device may automatically present the commercial segments regardless of the receipt of user input requesting non-presentation of the segments.*” Ex[1006], 4:27-32; Ex[1002] ¶130. Thus, Casagrande teaches playback of the entire first A/V stream during a first period of time (i.e., while restrictions are active), “regardless of” whether the first or second playback state had been requested by the user. *Id.* ¶111.

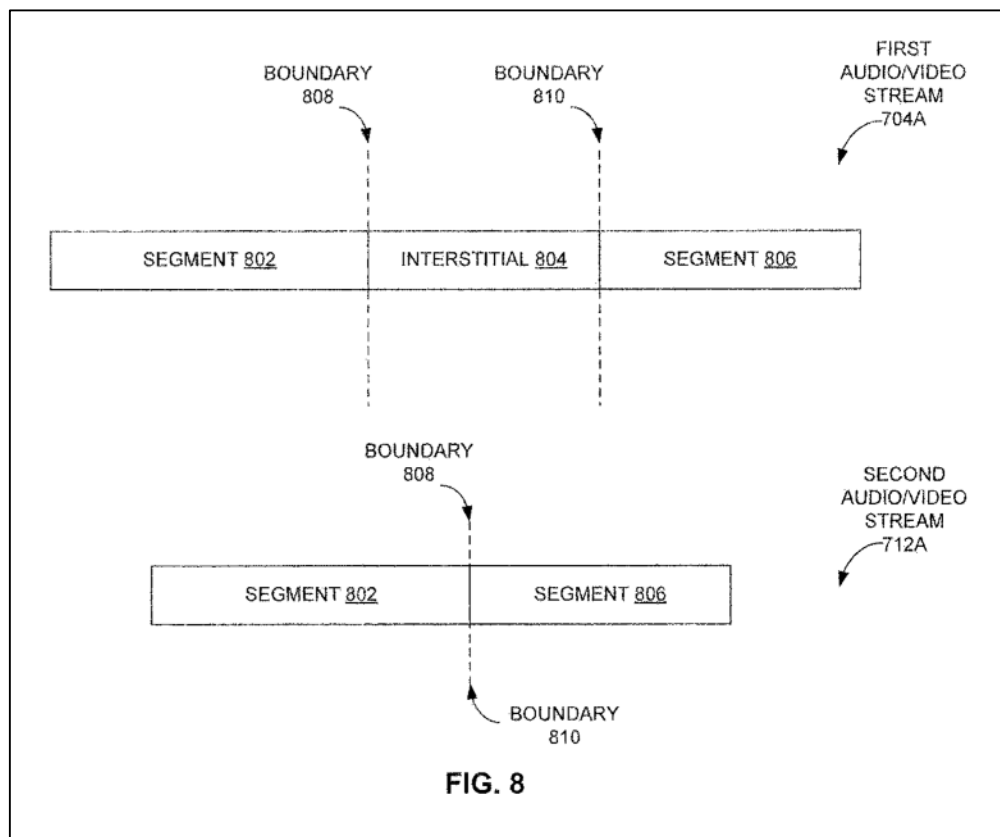
Casagrande processes the additional information using the same control logic explained above. *Id.* ¶131. Processing a user request for changing between the first playback state (i.e., first A/V stream) and the second playback state (i.e., second A/V stream) will still lead to the depiction of the first A/V stream on the STB during a first time period where the content provider has placed restrictions on removing interstitial content. *Id.* Moreover, as explained below, when combined with Russ, this restriction on skipping may be lifted after a time period. Therefore, element 1[d][i] is obvious. *Id.*

- h. 1[d][ii]: “(ii) provide said one of said plurality of video programs in its entirety to said display device in response to receiving said second command during a second period of time if said DVR is in said first playback state, and”; 11[f]; 11[g][ii]; 18[d][ii]

Similar to Casagrande, Russ discloses its “trick play functionality” for skipping commercials “could be restricted,” particularly suggesting to “*preclude trick play for only a specified length of time, such as two weeks.*” Ex[1008] ¶[0035]; Ex[1002] ¶135. Russ further explains that “a tag corresponding with a commercial could expire after a period of time.” Ex[1008] ¶[0035]; Ex[1002] ¶136. Thus, Russ discloses the desirability of having a first period of time wherein the user must watch the entire A/V stream., including commercials, regardless of whether the user requested playback of a commercial-free stream. Ex[1002] ¶136. Similarly, Russ discloses the desirability of having a second period of time (i.e., once the restriction expires) in which the user may elect to skip the commercials or not. *Id.*

¶136. Of course, A POSA would have recognized that Russ’s time-based limits were one of a number of finite, identified solutions to providing restrictions to skipping or fast-forwarding through content. *Id.* ¶140.

Ultimately, A POSA would have been motivated to combine the time-based restrictions of Russ with the ability to restrict the skipping of interstitials as illustrated by Casagrande’s Figure 8, below.



This combination would effectuate the desired result of restricting “temporally moving through particular identified segments” that Casagrande discusses. Ex[1006], 4:20-21; Ex[1002] ¶136. Indeed, Casagrande explains that “specific segments may be identified and associated with particular playback

restrictions.” Ex[1006], 5:67-6:1; Ex[1002] ¶134.

A POSA would have found it obvious to apply the time-based nature of the restrictions on trick-play taught in Russ as a way to implement the various “playback restrictions” found in Casagrande, including the restriction on skipping commercials entirely. *Id.* ¶¶137; Ex[1006];4:20-32;5:56-6:1. Casagrande and Russ both disclose restrictions on removing interstitials that are directly linked to first and second time periods. *Id.* ¶136. A POSA would therefore have looked to the teachings and methods of Russ for guidance on how to further achieve Casagrande’s desired results. *Id.* ¶136.

As discussed above, Casagrande and Russ both disclose a first time period when only the first A/V stream may be played such as when the content provider has placed restrictions on removing interstitials. *Id.* ¶142. A POSA would have appreciated that multiple reasons existed for a user of Casagrande’s DVR to select the playback of the first A/V stream (i.e., the entire video program) even after a period of restriction on commercial skipping had ended, such as, for example, when watching the Super Bowl, where commercials may be of particular interest. *Id.*

A POSA would have recognized that Russ’s limits on the use of trick-play based on time periods was applicable to the various types of trick-play described in Casagrande, such as automatically skipping interstitials (e.g., commercials). *Id.* ¶137. A POSA would have been motivated to implement the time-based limits on restrictions found in Russ in Casagrande’s DVR to obtain the predictable result of

restricting automatically skipping of interstitials for a finite time period, thereby increasing the financial value of the interstitial content to the broadcaster. *Id.* A POSA would have had a reasonable expectation of success incorporating Russ's techniques into Casagrande's DVR, as they would have entailed simple software/user interface modifications well within the skill in the art, and because a similar technique had been shown to work in Russ's similar system. *Id.*

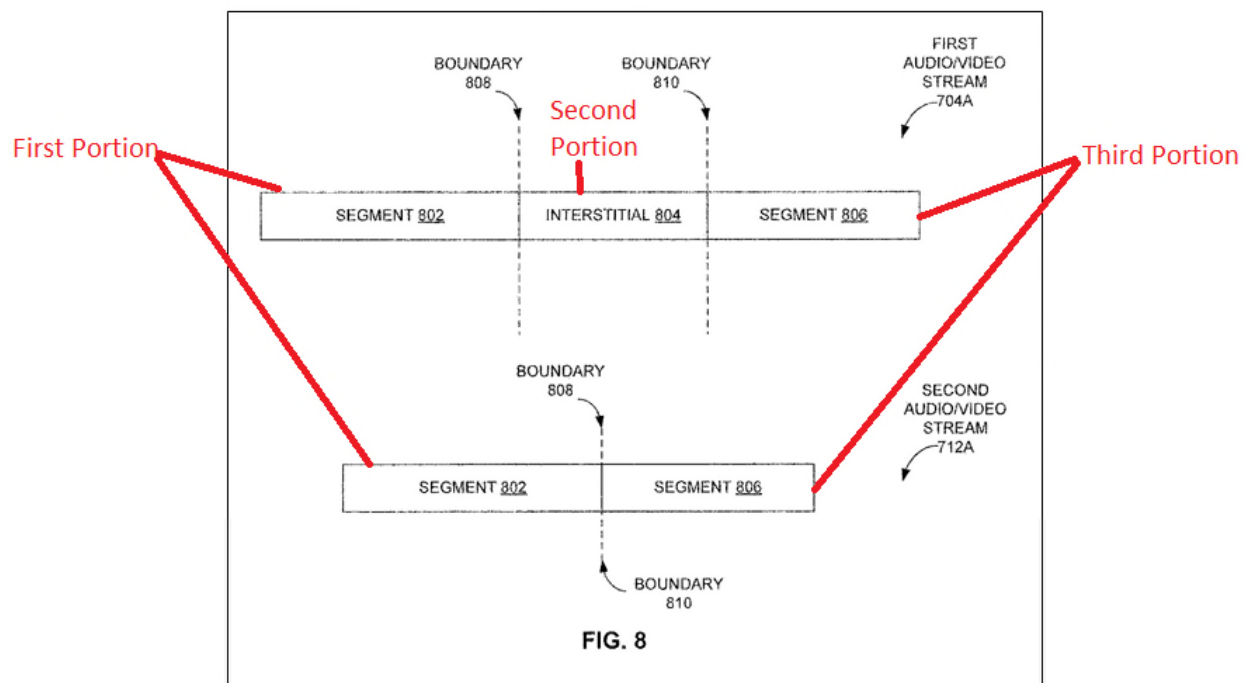
Further, a POSA would have understood that some users are more willing to accept restrictions on commercial skipping soon after distribution of the content while others are willing to wait to watch the program in order to allow commercial skipping. *Id.* ¶138. Accordingly, a POSA would have understood that Russ's technique allows the content provider to obtain additional revenue from advertisements during the restriction period. *Id.* As Casagrande discloses, some commercials become less relevant over time, further confirming the obviousness of having an initial period where commercials are shown, and a later period where commercials can be skipped.

- i. 1[d][iii] and 11[g][iii]: “(iii) provide only a portion of said one of said plurality of video programs to said display device in response to receiving said second command during said second period of time if said DVR is in said second playback state, said portion of said one of said plurality of video programs including at least said first and third portions of [said one of said plurality of video programs/said video program], wherein said third portion is provided to said display device immediately following said first portion if said second command is

received during said second period of time and said DVR is in said second playback state;”; 11[f]; 18[d][iii]

A POSA would have understood that Casagrande’s “second A/V stream” includes segments in the original temporal order, excluding one or more interstitial segments. *Id.* ¶145. Casagrande’s Figure 21 illustrates the “process for processing an audio/video stream.” Ex[1006], 23:45-46; Ex[1002] ¶145.

Using Figure 21’s steps, a user “effectively view[s] a subset of the segments of an A/V stream in the original temporal order of the segments, skipping output of undesigned segments of the A/V stream.” Ex[1006], 24:23-26; Ex[1002] ¶145. This is shown in Casagrande’s Figure 8, annotated below. Ex[1006], 13:5-8; Ex[1002] ¶146.



In Casagrande, “a first A/V stream 704 includes a first A/V segment 802 of a

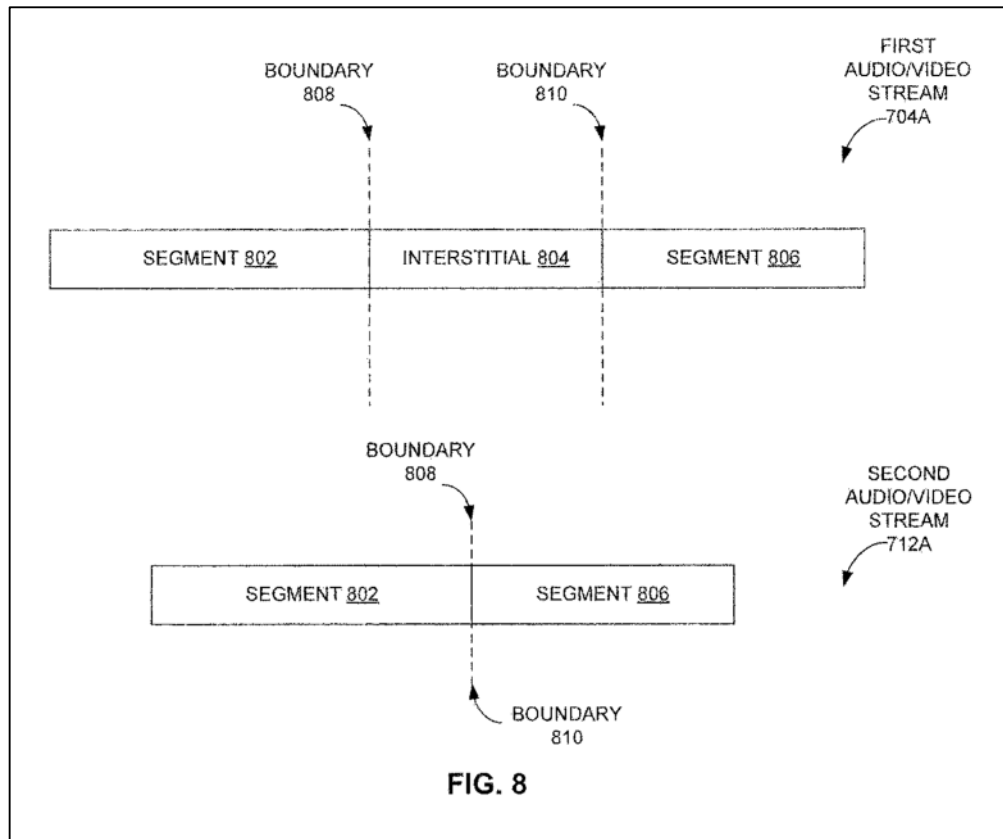
show, an interstitial 804 and a second A/V segment 806 of the show.” Ex[1006], 13:13-15; Ex[1002] ¶146. “[T]he boundary 808 (e.g., the ending boundary of segment 802) is the starting point at which the interstitial 804 is to be filtered from the first A/V stream 704A” and “boundary 810 (e.g., the beginning boundary of segment 806) is the ending point at which the interstitial 804 is to be filtered from the first A/V Stream 704A.” Ex[1006], 13:23-28; Ex[1002] ¶146. Casagrande explains that “[a]s a result of the filtering...second segment 806 [third portion] is outputted immediately following the first segment 802 [first portion].” Ex[1006], 13:29-31; Ex[1002] ¶146.

As discussed for claim element 1[d][ii], in the combination with Russ, once the commercial skipping inhibition period (i.e., the claimed “first period of time”) expires, the combination would permit the user to request playback of the “second A/V stream” where the commercial is removed as described above. *Id.* ¶148-151.

j. 1[e] and 11[h]: “wherein said second period of time is a period of time after said first period of time.”

As noted, Russ explains that “a tag corresponding with a commercial could expire after a period of time after which the tag would become inactive or replaceable.” Ex[1008] ¶[0035]; Ex[1002] ¶154. Thus, during the first time period, the combination of Casagrande and Russ results in the ability to play only the “first A/V stream” as shown in Casagrande’s Figure 8, regardless of whether the user requests playback of a stream without commercials. Ex[1006], Fig. 8; Ex[1002]

¶¶155-156.



Further, the second time period wherein skipping of commercials is allowed begins once the restriction expires. Ex[1002] ¶156.

2. Claims Depending From Claims 1, 11, and 18

- a. Claim 2. “The DVR of claim 1, further comprising a wireless transmitter in communication with said at least one processor and said memory device, said wireless transmitter being configured to transmit said one of said plurality of video programs in its entirety or said portion of said one of said plurality of programs at least indirectly to said display device, said display device being remotely located from said DVR.”

Claim 12: “The method of claim 11, wherein said step of providing said at least a portion of said one of said plurality of video programs to a display device further

comprises transmitting said at least a portion of said one of said plurality of video programs to said display device via a transmission path that includes at least one wireless connection, said display device being remotely located from said DVR.”

Casagrande discloses wirelessly transmitting programs to the display device. Casagrande explains that its DVR receiving device 1510 includes “A/V interface 1518, and control logic 1520.” Ex[1006], 17:53-55; Ex[1002] ¶159. “[T]he control logic 1520 includes a processor...for execution of software configured to perform the various control functions described [t]herein.” Ex[1006], 18:45-49; Ex[1002] ¶159. Moreover, “[t]he A/V interface 1518 may incorporate circuitry to output the A/V streams in any format recognizable by the display device 1514...including WiFi.” Ex[1006], 18:29-35; Ex[1002] ¶159.

When discussing Figure 1, Casagrande teaches that its DVR receiving device is “communicatively coupled to the presentation device 114 through any type of...wireless connection.” Ex[1006], 6:54-56; Ex[1002] ¶161. Casagrande discloses “[e]xemplary wireless connections include WiFi, ultra-wide band (UWB) and Bluetooth.” Ex[1006], 6:58-59; Ex[1002] ¶161.

- b. Claim 3. “The DVR of claim 1, further comprising at least one other tuner, wherein said at least one other tuner allows said DVR to receive at least one other video program while said tuner is being used to receive said plurality of video programs, said at least one other video program being selected by said user.”

Claim 3’s second tuner is obvious for the same reasons as claim 1. Miller

discloses the “desirab[ility] to access multiple program content streams concurrently....[A] user may desire to view a first program and record a second program that are being communicated concurrently by a program distributor 106 to a receiving device 118.” Ex[1009] ¶[0031]; Ex[1002] ¶169. To accomplish this, Miller’s receiving device includes “at least two tuners, such that the first tuner can be configured to receive a first carrier signal that carries a program content stream corresponding to the first program and the second tuner can be configured to receive a second carrier signal that carries a program content stream corresponding to the second program.” Ex[1009] ¶[0031]; Ex[1002] ¶169. Then, the receiving device “concurrently process[es] the two program content streams by...displaying the first program content stream on a presentation device 120 and recording the second program content stream on a user device 122.” Ex[1009] ¶[0031]; Ex[1002] ¶169.

- c. *Claim 4. “The DVR of claim 1, wherein said one of said plurality of video programs includes at least primary and secondary video content, and said first and third portions of said one of said plurality of video programs consists of primary video content.”*

As discussed above, a POSA would have understood the multiple segments of Casagrande’s video frames correspond to “primary content” while the interstitials correspond to “secondary content.” Ex[1002] ¶173. Further, as described above, Casagrande’s second A/V stream includes only the video segments and not the interstitials. *See supra* Claim Element 1[d][iii]. Casagrande discloses “the receiving device 710 may output the video content...omitting presentation of the interstitial.”

Ex[1006], 14:40-44; Ex[1002] ¶175.

- d. Claim 5. “The DVR of claim 4, wherein said second portion of said one of said plurality of video programs consists of said secondary video content and said memory device is further configured to store at least one time when said second portion begins and at least one time when said second portion ends.”

Claim 13. “The method of claim 11, wherein said step of storing said plurality of video programs on said at least one memory device in said DVR further comprises storing at least one time of when said second portion of said video program begins and at least one time of when said second portion of said video program ends.”

Casagrande teaches a storage unit within the DVR. *See supra* Claim Element 1[b]; Ex[1002] ¶180. Casagrande uses location information “specif[ying] portions of the first presentation stream 104 that are to be skipped and/or presented during...the first presentation stream 104 by the receiving device 110.” Ex[1006], 7:35-39; Ex[1002] ¶180. The location information includes “metadata associated with the presentation stream”, which further includes information as to where the boundaries separating A/V segments and/or interstitials exist. *See* Ex[1006], 2:36-38; Ex[1002] ¶180.

For Casagrande’s location information corresponding to “presentation times,” a POSA would have found it obvious to implement that information as a time stamp of the stored video. Ex[1002] ¶182. Casagrande teaches “location information 706 may be transmitted to the receiving device 710 together or separately from the first A/V stream 704.” Ex[1006], 12:52-54; Ex[1002] ¶184. And Casagrande explains

that “the location information 1508 may be stored in the storage unit 1516 for subsequent retrieval and processing by the control logic 1520.” Ex[1006], 19:6-9; Ex[1002] ¶184.

- e. Claim 6. “The DVR of claim 1, wherein said first period of time is a period of time that begins when said one of said plurality of video programs is stored on said memory device and available to be viewed and ends within a predetermined time thereafter, said predetermined time being less than one week.”

Russ teaches “trick play functionality” to skip commercials. Ex[1008] ¶[0033]; *see supra* Claim Element 1[d][iii]. Russ explains “[t]he commercial slot could also preclude trick play for only a specified length of time, such as two weeks.” Ex[1008] ¶[0035]; Ex[1002] ¶187.

A POSA would have understood that Russ’s disclosure of a two-week period is exemplary in nature and other time periods are useable. Ex[1002] ¶¶188. Russ discloses “a specified length of time” and then uses the phrase “such as” to show a particular example. *Id.* A POSA would have understood that a day or a weekend are also examples of “specified length[s]” of time that would be an obvious implementation choice. *Id.* For example, a “presentation programmer” may include a commercial for an event that takes place the next day or during the weekend. *Id.* Thus, a POSA understood that Casagrande’s DVR may be able to skip the commercial after that event. *Id.*

- f. Claim 7. “The DVR of claim 1, wherein said single channel is stored in said memory and said at least one

processor is configured to tune said tuner to said single channel in response to said controller receiving said third command.”

Claim 16. “The method of claim 11, further comprising the step of tuning said single tuner to a particular channel at a particular time in response to receiving said third command, said particular channel and said particular time being stored in at least one memory device in said DVR.”

Claims 7 and 16 are obvious for the same reasons as claims 1 and 11. Casagrande’s control logic “receive[s] user input 1523 directing the operation of the receiving device 1510.” Ex[1006], 18:54-60; Ex[1002] ¶191. Casagrande’s receiving device “receive[s] the first A/V stream 1504 by way of the communication interface 1502, and store[s] the A/V stream 1504 in the storage unit 1516.” Ex[1006], 18:64-67; Ex[1002] ¶191.

Miller likewise discloses a “content stream selector” “compris[ing] a single tuner” for “tun[ing] to a frequency of a carrier signal that carries multiple program content streams multiplexed.” Ex[1009] ¶[0063]; Ex[1002] ¶194. “The content stream selector may then begin and continue to receive and forward, such as by storing in a buffer 412, program content portions from each of the multiple program content streams, as they arrive over the carrier signal.” Ex[1009] ¶[0063]; Ex[1002] ¶194.

- g. Claim 8. “The DVR of claim 1, wherein data communicated via said single channel is compressed prior to transmission and said at least one processor is configured to decompress said data after its have been

received so that said one of said plurality of video programs or said portion of said one of said plurality of video programs can be displayed, depending on when said second command is received and said playback state of said DVR.”

Claim 15. “The method of claim 11, further comprising the steps of: compressing said plurality of video programs prior to said plurality of video programs being transmitted over said data distribution system, and decompressing said plurality of video programs after said plurality of video programs have been received by said DVR and before said one of said plurality of video programs or portion thereof is provided to said display device.”

Claims 8 and 15 are obvious for the same reasons as claims 1 and 11. Casagrande’s “A/V data may be formatted according to one of the MPEG encoding standards, such as MPEG-2 or MPEG-4.” Ex[1006], 7:12-14; Ex[1002] ¶197. A POSA would have understood that such standards, including MPEG-2 and MPEG-4, involved compressing video data. Ex[1002] ¶197. Further, Casagrande’s signature data “comprises compressed data, e.g., compressed audio or video data. The compressed data may then be expanded and compared with the audio or **video data of the first presentation stream 104 which has also been uncompressed.**” Ex[1006], 8:55-60; Ex[1002] ¶198.

Further, it was already known in the art for DVRs to decompress previously compressed data for display. Ex[1002] ¶200. Miller teaches that “the signal received by the receiving device 118 may include a plurality of multiplexed programs.” Ex[1009] ¶[0029]; Ex[1002] ¶200. Miller explains that “a plurality of

programs [are] communicated as a plurality of program content streams that are multiplexed upon a single carrier signal. Each content stream comprise[s] a plurality of program content portions” Ex[1009] ¶[0029]; Ex[1002] ¶200. Further, Miller discloses those content portions “comprise MPEG...packets that contain compressed...video...data.” Ex[1009] ¶[0029]; Ex[1002] ¶200. Miller explains that “[t]he video processing system 404 and/or the presenter 408 may perform additional processing on program content portions, such as decompression...prior to communicating the program content to the presentation device 120.” Ex[1009] ¶[0052]; Ex[1002] ¶200.

h. Claim 9. “The DVR of claim 5, wherein said secondary video content comprises at least one advertisement.”

Casagrande discloses an A/V stream that is “comprised of multiple segments of video frames, which are interspersed with interstitials (e.g., commercials).” Ex[1006], 4:57-62; Ex[1002] ¶203.

i. Claim 10[a]. “The DVR of claim 1, wherein said at least one processor is further configured to (i) retrieve said portion of said one of said plurality of video programs from said memory if said second command is received during said second period of time and said DVR is in said second playback state, and”

Casagrande discloses “a processor...to perform the various control functions.” Ex[1006], 18:45-49; Ex[1002] ¶206; *see supra* Claim Element 1[d][i].

Casagrande teaches that, “[r]esponsive to identifying portions of the first A/V stream 704, the receiving device 710 filters particular portions from the first A/V

stream 704 to output a second A/V stream 712 for” display. Ex[1006], 15:30-34; Ex[1002] ¶207. Casagrande teaches that “[b]oth the first A/V stream 1504 and the second A/V stream 1512 may reside within the storage unit 1516.” Ex[1006], 19:43-44; Ex[1002] ¶207. And Casagrande discloses users “select[ing]...whether the first A/V stream 1504 or the second A/V stream 1512 is outputted to the display device 1514 by way of the A/V interface.” Ex[1006], 19:63-66; Ex[1002] ¶207. Casagrande then explains that “[a]t some point after the location information 1508 is processed, the control logic 1520 generates and transmits a second A/V stream 1512 over the A/V interface 1518 to the display device 1514.” Ex[1006], 19:10-13; Ex[1002] ¶208.

- j. *Claim 10[b]: “(ii) retrieve said one of said plurality of video programs in its entirety from said memory device if another second command is received at a time thereafter and said DVR is switched to said first playback state at or before said time thereafter.”*

A POSA would have understood that changing the “playback state” of Casagrande is not temporally limited to before the first request to view an A/V stream is received and processed. Ex[1002] ¶213. Thus, a subsequent request to view the “first A/V stream” comprising the entire content stream may be received after a request to view the “second A/V stream” has been processed, such as when commercials are of interest to a user. *Id.* Casagrande explains that users “may select...whether the first A/V stream 1504 or the second A/V stream 1512 is outputted to the display device 1514 by way of the A/V interface 1518.” Ex[1006],

19:63-66;Ex[1002] ¶213. Casagrande discloses that both A/V streams 1504 and 1512 “may reside within storage unit 1516.” Ex[1006], 19:44-45; Ex[1002] ¶214.

- k. Claim 14. “The method of claim 11, wherein said one of said plurality of video programs includes at least primary and secondary video content, said portion of said video program that is provided to said display device if said second command is received during said second period of time and said DVR is in said second playback state consists of said primary video content, and said secondary video content includes at least one advertisement.”

Claim 14 is obvious for the same reasons as claims 4-5 and 9. Ex[1002], ¶¶243-44.

- l. Claim 17. “The method of claim 16, further comprising the step of receiving a fourth command from said at least one user of said DVR, said fourth command indicating a desire to record a second video program, which is accomplished using another tuner if said second video program is being transmitted to said DVR while said plurality of video programs are being transmitted to said DVR.”

Casagrande teaches its DVR “perform[s] further processing using the identified portions of the presentation stream, such as filtering of segments of the presentation stream.” Ex[1006], 3:5-7;Ex[1002] ¶250. The “communication interface 1502” further includes “circuitry to receive a first A/V stream 1504 and location information 1508.” Ex[1006], 17:62-64;Ex[1002] ¶250. Casagrande’s storage unit “is configured to store both the first A/V stream 1504 and the supplemental content 1506.” Ex[1006], 18:18-20; Ex[1002] ¶251. Similarly, Russ

teaches that “[a] processor and a tuner system...may be included to extract channels from the received downstream broadband signals.” Ex[1008] ¶[0020]; Ex[1002] ¶252. A POSA would have understood that recording multiple video programs airing on various channels was a well-known practice and this limitation is inherently present in Casagrande or rendered obvious by Russ. Ex[1002] ¶253.

Further, Miller explains that it was “desirable to access multiple program content streams concurrently.” Ex[1009] ¶[0031]; Ex[1002] ¶254. Miller explains that “a user may desire to view a first program and record a second program that are being communicated concurrently by a program distributor 106 to a receiving device 118.” Ex[1009] ¶[0031]; Ex[1002] ¶254. “[T]he receiving device 118 may include at least two tuners, such that the first tuner can...receive a first carrier signal...and the second tuner can...receive a second carrier signal that carries a program content stream corresponding to the second program.” Ex[1009] ¶[0031]; Ex[1002] ¶254. Thus, a POSA would understand that the STB’s memory could store and/or output at least two programs simultaneously. Ex[1002] ¶254.

- m. *Claim 19. “The system of claim 18, wherein said third command further results in said first tuner being tuned to a particular frequency to receive said data on said plurality of video programs, said particular frequency being provided by a content provider and stored on said DVR.”*

Claim 19 is obvious for the same reasons as claims 1 and 7. Ex[1002] ¶¶270-71.

- n. Claim 20. “The system of claim 18, wherein said second portion comprises at least one commercial and said data on said plurality of video programs is packetized, with individual packets being linked at least indirectly to individual ones of said plurality of video programs and to individual channels associated with content owners thereof.”

Claim 20 is obvious for the same reasons as claim 18. Ex[1002] ¶273.

Miller also discloses that “[p]rogram content portions...comprise...packets that contain compressed and/or encrypted video, audio, and/or other data.” Ex[1009] ¶[0029]; Ex[1002] ¶278.

Therefore, claims 1-20 are obvious over Casagrande alone or in combination with Russ and Miller.

B. Ground 2: Claims 1, 3-5, 7-11, 13-16, and 18-19 Are Anticipated by Dow.

1. Independent Claims 1, 11, and 18

- a. 1[Pre], 11[Pre], and 18[pre][i]

To the extent any of these preambles is limiting, Dow discloses them. Ex[1002] ¶281. Dow teaches a DVR that “provide[s] a large number of enhancements for receiving, storing, and viewing video content,” including “enhanced navigation options, such as slow motion, fast-forwarding, and rewinding—all at variable speeds and with better fidelity than prior analog systems.” Ex[1007], 3:2-26. Dow’s DVR contains an AV input module that “receives input through various conventional interfaces, including coaxial RF/Ant, S-Video, component audio/video, network interfaces, and others.” Ex[1007], 5:34-46.

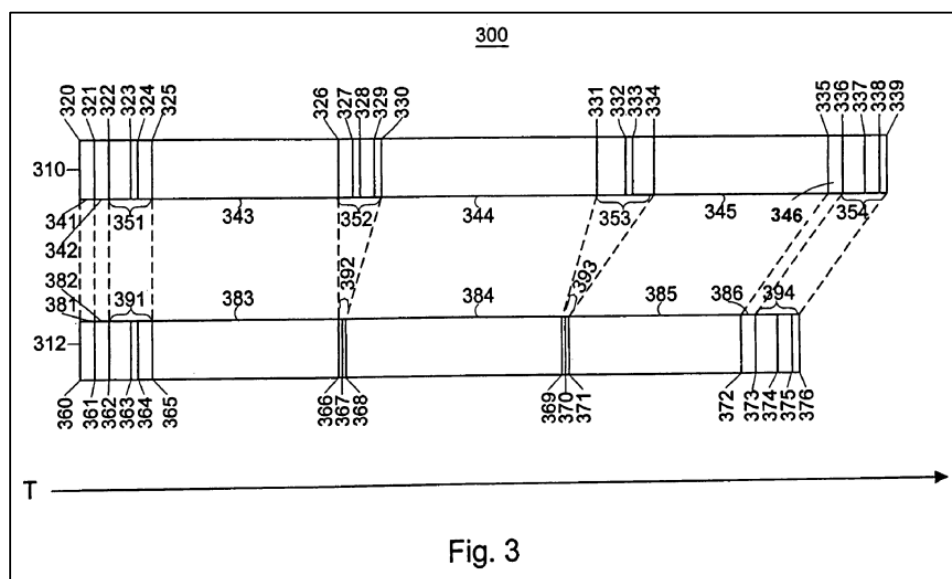
b. 1[a][i], 1[a][ii], 11[a][i], and 18[a]

Dow's AV input module, which "includes a tuner," "receives an external signal, such as a broadcast signal...of packetized communication signal." Ex[1007], 12:21-23; Ex[1002] ¶283. The AV input module's tuner is a "conventional tuner for selecting a signal or channel from a spectrum of available signals or channels." Ex[1007] 12:31-32; Ex[1002] ¶282.

Dow also recognizes the use of a tuner to access multiple programs on a single channel by explaining that a tuner is optional the "where the data carrier consists of a single signal or channel." Ex[1007], 12:33-34; Ex[1002] ¶282.

c. 1[a][iii], 11[a][ii], and 18[Pre][ii]

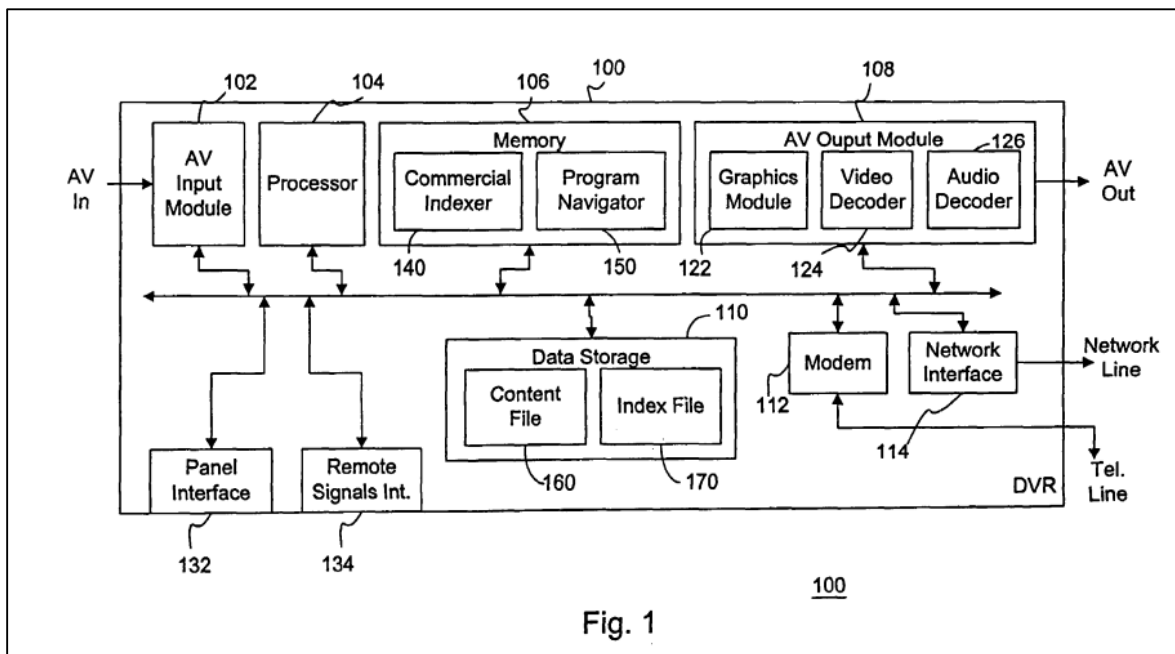
Dow teaches a video program containing "portions of content" that are "viewed sequentially in a normal presentation, such as during a television broadcast or standard replay from a recorded source." Ex[1007], 9:49-52, Fig. 3 (below).



Dow explains that “[t]he program 300 contains content of varying natures, for example, program segments and commercials.” *Id.* 9:49-52. Figure 3 depicts a video program 300, a first portion comprising content 343, a second portion comprising a commercial group 352, and a third portion comprising content 344. Ex[1002] ¶286.

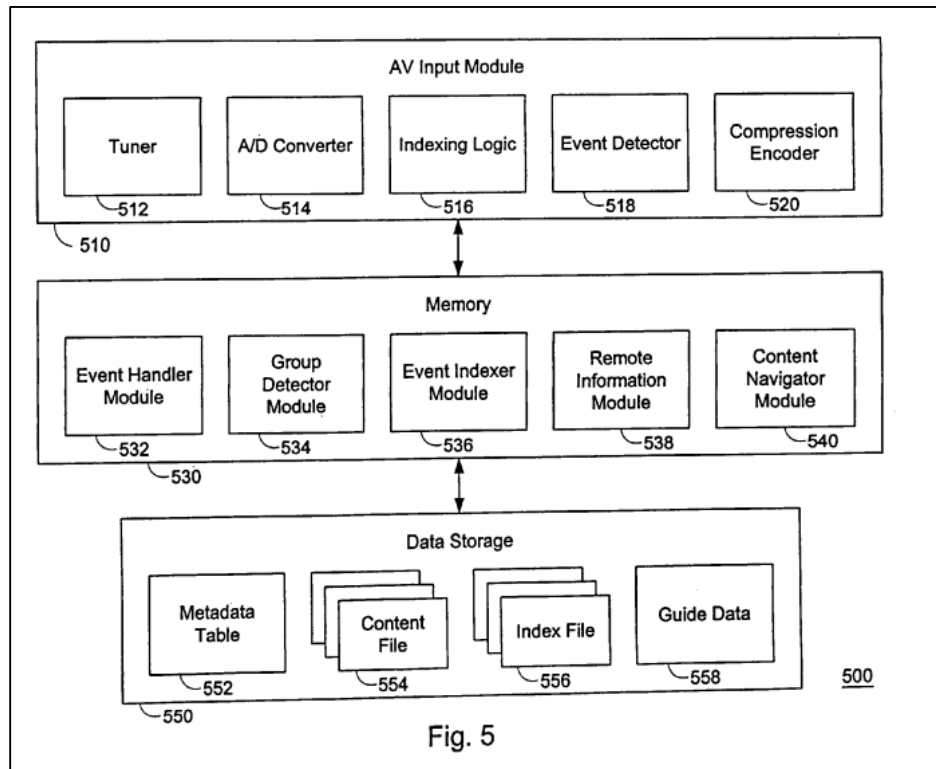
d. 1[b] and 18[b]

Dow’s DVR “includes...a memory 106...[and] a data storage medium 110.” Ex[1007], 5:3-9, Fig. 1 (below)



Dow’s “DVR memory 106 includes [a] commercial indexer 140 and a program navigator 150 and the data storage 110 includes at least one content file 160 and at least one index file 170.” Ex[1007], 6:45-48. Referencing Figure 5, Dow explains that “memory 530 includes software modules for processing received data, selectively storing secondary data, and providing navigation of stored content. The data storage 550 includes files for storing content and other data used in the operation

of the DVR.” Ex[1007], 12:11-17; *see also* Fig. 5 (below).

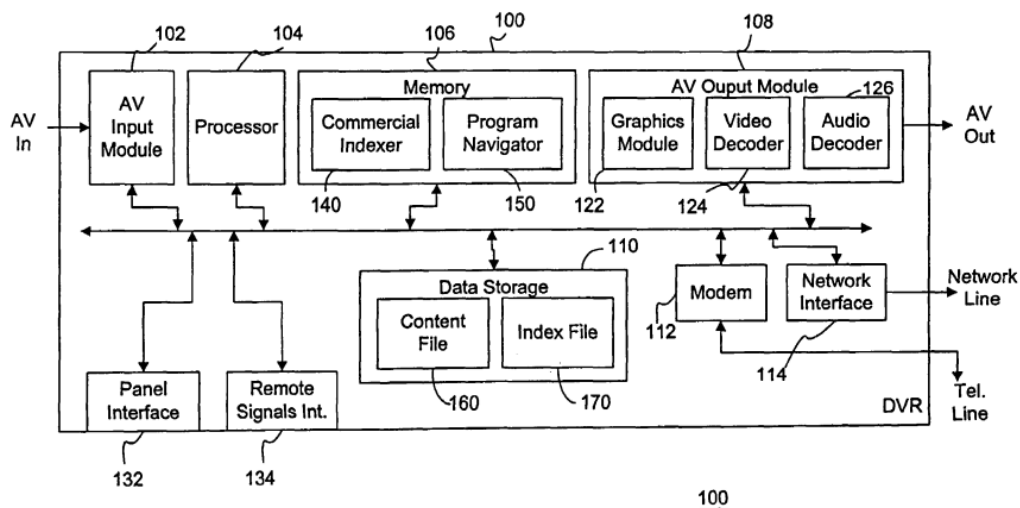


Dow’s DVR contains a memory device that stores a received program for playing back at least a portion of the program at a later time. Ex[1002] ¶292. Additionally, Dow discloses that “the user may select one or more of the programs for recording.” Ex[1007], 6:14-15.

e. 1[c], 11[b], 11[d], 11[e], and 18[c]

As Dr. Jeffay explains, the first portion of these claim elements generally claim to devices or method steps related to remotely controlling the DVR system. Ex[1002] ¶¶293,349. In the ’122 Patent, the controller is “in communication with a remote control” and can be combined with the DVR’s processor for simplicity. Ex[1001], 7:40; Ex[1002] ¶293.

In Dow, “the processor 104 executes instructions such as those stored in the memory 106 to provide functionality” of the DVR.” Ex[1007], 5:9-12;Fig. 1 (below). The user controls the operation of Dow’s DVR “through control signals originating from a remote control, which are received through the remote signals interface 134, in conventional fashion.” Ex[1007], 5:21-26; Ex[1002] ¶295.



Similarly, Dow teaches a control interface module for providing an interface between the navigation function module and the DVR generally. Dow’s control interface module “define[s] one or more control signals for toggling the commercial skip function between active and inactive modes, such as a button on (and corresponding control signal from) a remote control.” Ex[1007], 24:29-32. Thus, Dow’s command for toggling the commercial skip function corresponds to the claimed “first command” wherein the toggling changes the DVR between the claimed “first playback state” and “second playback state.” Ex[1002] ¶296.

Dow further explains that the control interface module provides “a global default through a menu system for defining whether commercial skip function is active or inactive at the start of playback (e.g., when the play button is pressed),” corresponding to the claimed “second command.” Ex[1007], 24:37-40; Ex[1002] ¶297.

“The menu overlay 420 displays one or more ways of viewing the previously recorded programs, including using the commercial skipping feature. Display of menu overlay 420 may be initiated based on a control signal received from the user.” Ex[1007], 11:42-46; Ex[1002] ¶297. Dow discloses that “the user may select one or more of the programs for recording,” corresponding to the claimed “third command.” Ex[1007], 6:14-15; Ex[1002] ¶298.

f. 1[d][i], 11[f], 11[g][i], and 18[d][i]

Dow’s processor “executes instructions such as those stored in the memory 106 to provide functionality.” Ex[1007], 5:9-12; Ex[1002] ¶299. Dow’s processor will provide the entire program to the display during a first time period, for example, the 2-minute period needed for program buffering and processing—even when the DVR receives the command for skipping commercials (claimed “second command”); Ex[1002] ¶300.

Dow’s control interface module “define[s] one or more control signals for toggling the commercial skip function between active and inactive modes, such as a button on (and corresponding control signal from) a remote control. [A] user may

wish to select whether a subsequently viewed program will start with the commercial skip in the active or inactive mode.” Ex[1007], 24:27-36; Ex[1002] ¶300. Dow teaches that “[t]he control interface module 818 may define that the commercial skip is always inactive in live view mode or delayed view mode (a form of playback) where there is insufficient time to buffer and process events for identifying commercial groups (e.g., a time delay of less than two minutes).” Ex[1007], 24:43-48.

g. 1[d][ii], 11[f], 11[g][ii], and 18[d][ii]

Dow’s first playback state occurs when the commercial skip feature toggled off, and thus not enabled. Ex[1002] ¶301. As discussed above, Dow’s control interface module defines “one or more control signals for toggling the commercial skip function between active and inactive modes, such as a button on (and corresponding control signal from) a remote control.” Ex[1007], 24:29-32; Ex[1002] ¶301. Thus, a user of Dow’s DVR may disable the commercial skip feature in a second time period (e.g., period after the first time period needed for buffering/processing). Ex[1002] ¶302.

h. 1[d][iii], 11[f], 11[g][iii], and 18[d][iii]

When in the second time period and receiving the second command (e.g., play program), Dow’s control provides only the program’s first and third portions if the DVR is the second playback state (e.g., commercial skip toggled to on). Ex[1002] ¶302. For example, Dow’s Figure 3 (below) “shows a timeline of a program 300

that has been recorded on a DVR.” Ex[1007], 9:39-40.

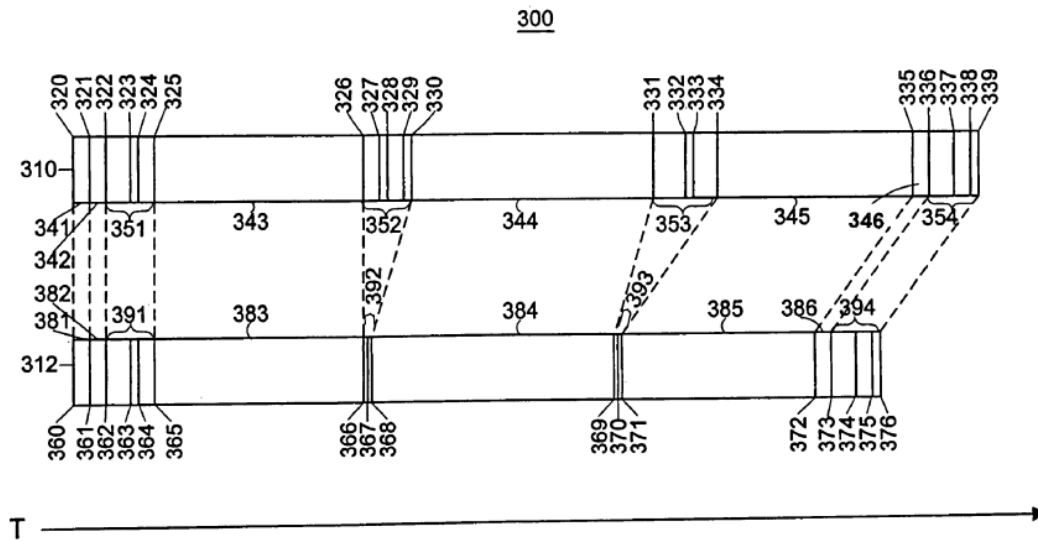


Fig. 3

As Figure 3 shows, the program segments (e.g., 343, 344) are the first and third portions and the commercial 352 is the second portion. Ex[1002] ¶302. “The first timeline 310 is the program 300 as it may be viewed in correspondence with how it was originally presented and stored on DVR 100. The second timeline 312 is the program 300 viewed with one embodiment of an automated commercial skipping feature enabled.” Ex[1007], 9:40-45. In the second timeline 312, Figure 3 illustrates commercial-skip-indicators 392, 393. Dow, however, teaches that those indicators are optional such that “[p]rogram segments 383, 384, and 385 would be presented sequentially without any interruption or other indication that commercials had been skipped.” Ex[1007], 10:43-47; Ex[1002] ¶302.

i. 1[e] and 11[h]

As shown above, Dow’s first time period for buffering and processing results

in commercial skip feature being disabled. Ex[1007] 24:44,24:46-47. Because the user cannot enable commercial skip during that time period, the second time period during which commercial skip is available must occur after the first time period. Ex[1002] ¶304.

In sum, Dow anticipates claims 1, 11, and 18.

2. Claims Depending From Claims 1, 11, and 18

a. Claim 3

Dow's DVR incorporates a "conventional tuner for selecting *a signal or channel from a spectrum of available signals or channels.*" Ex[1007], 12:31-32; Ex[1002] ¶307. Dow recognizes that simultaneous video processing is an attractive feature for DVRs and therefore discloses that the DVR's AV input module "include[s] any number of conversion modules for converting between conventional broadcast or communication signals and a digital format used within the DVR." Ex[1007], 12:45-48; Ex[1002] ¶307. In this way, "event detection or other video processing may be carried out simultaneously with compression and storage of the video data." Ex[1007], 12:39-42; Ex[1002] ¶307.

The DVR user "select[s] one *or more* of the programs for recording," which necessarily includes multiple tuners. Ex[1007], 6:14-15; Ex[1002] ¶308. The AV input module, which contains the DVR's tuner, may be scaled to enable the simultaneous processing of video programs. Ex[1002] ¶308.

b. Claim 4

Dow discloses a program containing content of varying natures, including primary and secondary video content. *Id.* ¶311. The enumerated content portions include first and third portion having primary video content and a second portion as secondary video content, which corresponds to embedding interstitial content between portions of the program. *Id.* ¶312. Dow's Figure 3 depicts timelines of example video programs with Dow's commercial skip function disabled and enabled. Ex[1007], Fig. 3.

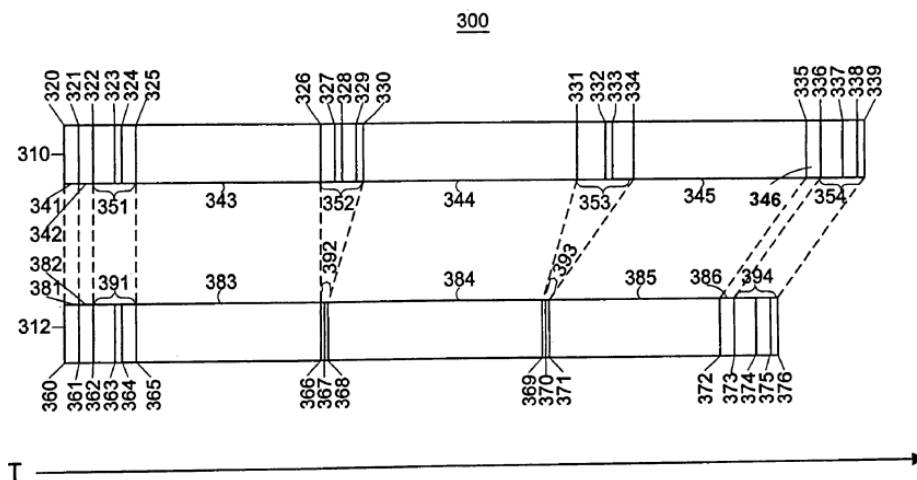


Fig. 3

Dow explains that “[t]he program 300 also includes a number of commercials embedded within the video presentation” that are interspersed throughout the program. Ex[1007], 10:18-19; Ex[1002] ¶311.

c. Claims 5 and 13

In the '122 Patent, secondary video content corresponds to auxiliary data, such as advertisements. Ex[1001], 4:55. Because the commercials are embedded within

the presentation in Dow, they may also be transmitted along with the video program and stored in memory. Ex[1002] ¶317. In order to detect and filter commercials, Dow's DVR includes an event indexer module that "provides the logic for writing an event index into the data storage 550." Ex[1007], 14:48-49; Ex[1002] ¶317. The event indexer module "receive[s] a first tag indicating a starting location for a commercial group and...an ending location for a commercial group." Ex[1007], 14:50-55; Ex[1002] ¶321.

d. Claims 7 and 16

Dow's processor "executes instructions such as those stored in memory 106 to provide functionality" of the DVR. Ex[1007], 5:10-12. Also, Dow's DVR contains a "conventional tuner for selecting a signal or channel from a spectrum of available signals or channels." Ex[1007], 12:31-32. Conventional tuners such as those available before the '122 Patent operated by tuning the DVR to a particular channel or signal to record a program transmitted over the particular channel or signal. Ex[1002] ¶322.

Dow confirms its DVR's ability to store a channel in memory and processor to tune the DVR to the stored channel by specifically explaining that its DVR channel guide "displays available content from which individual pieces of content may be selected for current *or future recording* and viewing." Ex[1007], 6:11-13; Ex[1002] ¶322.

Thus, when the user provides a command indicating their desire to record a

program airing in the future via the remote control, the DVR's processor executes instructions to save the particular signal or channel and tune the DVR to the particular signal or channel for recording. Ex[1002] ¶323. In this way, the user need not leave the television or display device turned on to record the program.

e. *Claims 8 and 15*

Dow teaches that the external signals received by its DVR's AV input module may be "a broadcast signal." Ex[1007], 12:21-23. While Dow teaches the general ability to receive convert signals from a first format into a digitally encoded MPEG format that may be stored in the DVR's memory, Dow also explains that "[t]he A/D converter 514 may be obviated in systems where the video data is received in a digital format." Ex[1007], 12:43-45. In these systems, "compression encoding may be unnecessary" because compression occurred prior to transmission. Ex[1002] ¶328; Ex[1007], 13:36-37.

As for decompression, '122 Patent defines the term "processor" by the functions it carries out. Ex[1002] ¶329. The claimed processor is defined by its ability to decompress data transmitted over the channel. Ex[1001], 13:10-11; Ex[1002] ¶329. The processor maps to a device located within the DVR system that decompresses transmitted data and renders the video program into a format suitable for transmission to a display device. Ex[1003] ¶329. Within Dow's DVR is the AV output module, which "further includes a graphics module 122, video decoder 124 and audio decoder 126." Ex[1007], 5:61-62. Dow's processor

“executes instructions such as those stored in the memory 106 to provide functionality” to the DVR system. Ex[1007], 5:10-12. “The video decoder 124 and audio decoder 126 are preferably MPEG decoders that can obtain the MPEG data stored in the data storage medium 110 and convert it to a format compatible with the display device.” Ex[1007], 5:62-66.

f. Claim 9

Dow discloses a video presentation “contain[ing] content of varying natures, for example, program segments and commercials.” Ex[1007], 9:48-49. The program segments correspond to the primary content disclosed in the ’122 Patent, while the “commercials embedded within the video presentation” correspond to secondary content. Ex[1007], 10:18-19; Ex[1002] ¶331; *see also* Ex[1001], 4:55. The embedded commercials of Dow are commercial groups, “composed of 3-4 commercials” per group. Ex[1007], 10:22-23; Ex[1002] ¶331.

g. Claim 10

(1) 10[a]

Dow anticipates this limitation for the same reasons as in element 1[d]. Ex[1002] ¶¶333-337.

(2) 10[b]

Dow’s DVR “allow[s] the user to toggle the commercial skip feature on and off.” Ex[1007], 11:64-65. If the commercial skip feature is disabled, even if the command is received during a second period of time, the user will view the program

with both primary video content and secondary content (e.g., the DVR will play the video in a “first playback state”). Ex[1002] ¶340.

h. Claim 14

Dow discloses a presentation containing, “program segments and commercials” and a DVR having functionality to skip the commercials. Ex[1007], 9:48-49; 10:43-45. A user of Dow’s DVR “select[s] whether a subsequently viewed video program will start with the commercial skip in the active or inactive mode.” Ex[1007], 24:34-36. Importantly, Dow’s commercial skip function is active only during a second time period that occurs after a first time period. *See supra* Claim Element 1[e]. When the user transmits a second command during a second time period with the commercial skip function enabled, the user will view “[p]rogram segments...sequentially without any interruption or other indication that commercials had been skipped.” Ex[1007], 10:47-50. In other words, the video program will be presented with only primary content and no secondary content (e.g., commercials, *see supra* claim 9). Ex[1002] ¶¶367-68.

i. Claim 19

Claim 19 is anticipated for the same reasons as in claims 1 and 7. *See supra* claim elements 1[c], 7.

Therefore, claims 1, 3-5, 7-11, 13-16, and 18-19 of the ’122 Patent are anticipated by Dow. Ex[1002] ¶¶388-89.

C. Ground 3: Claims 1-20 Are Obvious Over Dow In View of Russ and Miller.

Claims and elements not discussed below are disclosed or rendered obvious for the reasons stated above in Ground 2. Ex[1002] ¶391.

1. Independent Claims 1, 11, and 18

- a. To the extent DBS asserts that Dow does not disclose or render obvious the elements of claims 1, 11, and 18 discussed below, Dow, Russ, and Miller render obvious those elements.1[a][ii] and 18[a]

Miller discloses “a system that concurrently processes multiple distinct programs communicated via a single carrier signal.” Ex[1009] ¶[0002]. Miller “includes a receiving device comprising a tuner operable to receive a multiplexed signal via a satellite network that communicates digital video programming, the multiplexed signal comprising a plurality of program content portions, each program content portion corresponding to one of a plurality of programs, and a program content transporter that is communicatively coupled to the tuner.” Ex[1009] ¶[0002]; Ex[1002] ¶396.

A POSA would have been motivated to combine Dow with Miller so that Dow’s system properly processes the received user input and A/V stream communicated over a single channel. Ex[1002] ¶397. For example, a POSA viewing Dow would have understood that the DVR needs one or more tuners to extract the A/V streams to perform various control functions on them. *Id.* Dow teaches a conventional tuner for selecting a channel from available channels and that

the “tuner may be unnecessary where the data carrier consists of a single signal or channel.” Ex[1007], 12:31-34; Ex[1002] ¶397. Thus, a POSA would have found it obvious to try an implementation of Dow’s system using multiple of video programs communicated at the same time on a single channel, which Miller explains provides the benefits of saving resources and improving operation efficiency of the satellite network. Ex[1002] ¶397. Miller notes that having multiple tuners capable of accessing a single program is disadvantageous because of “higher manufacturing costs for receiving devices 118, increased power consumption by receiving devices 118, and the like.” Ex[1009] ¶[0031]; Ex[1002] ¶397. Thus, Miller seeks to avoid these disadvantages by providing techniques for “the concurrent utilization of program content communicated via a single carrier signal” such as “receiving via a single content stream selector a multiplexed signal containing multiple distinct programs.” Ex[1009] ¶[0032]; Ex[1002] ¶397. Thus, a POSA would have understood that adding the multiplexing feature of Miller to the system of Dow would have provided the benefits described in Miller. Ex[1002] ¶397.

Additionally, all of the references disclosed herein teach satellite systems to deliver video content. Ex[1002] ¶398. Dow explains that “received signals can originate from...satellite” with the “AV input module 102 being configured to ***include appropriate conventional tuning.***” Ex[1007], 5:36-41 (emphasis added). Russ also discloses “***satellite and cable television systems***” providing analog broadcast video. Ex[1008] ¶[0003] (emphasis added). Russ teaches “[t]he primary

device 140” includes “***a tuner system***” and other conventional hardware. Ex[1008] ¶[0020] (emphasis added). And Miller describes that “[t]he system includes a receiving device comprising ***a tuner operable to receive a multiplexed signal via a satellite network*** that communicates digital video programming, the multiplexed signal comprising a plurality of program content portions, each program content portion corresponding to one of a plurality of programs.” Ex[1009] ¶[0002] (emphasis added). A POSA would have been motivated to combine the teachings of Miller, which describe the known process of using multiplexed signals alongside one or more tuners to deliver video content, with Dow and Russ with a reasonable expectation of success. Ex[1002] ¶402.

Thus, a POSA would have found it advantageous to implement the multiplexing functionality of Miller in the combined system of Dow and Russ to avoid the “higher manufacturing costs” and “increased power consumption” associated with using multiple tuners to access single program streams, and to provide a STB capable of decoding multiplexed satellite signals, as taught in Miller. Ex[1009] ¶[0031]; Ex[1002] ¶399.

b. 1[d][ii], 11[g][ii], and 18[d][ii]

Russ’s “trick play functionality” to skip commercials “could be restricted” such that “[t]he commercial slot could also *preclude trick play for only a specified length of time, such as two weeks.*” Ex[1008] ¶[0035]; Ex[1002] ¶417. Russ further explains that “a tag corresponding with a commercial could expire after a period of

time.” Ex[1008] ¶[0035]; Ex[1002] ¶417. Thus, Russ discloses the desirability of having a first period of time wherein the user must watch the entire A/V stream, including commercials. Ex[1002] ¶417. Similarly, Russ discloses the desirability of having a second period of time (i.e., once the restriction expires) in which the user may elect to skip the commercials or not. *Id.* A POSA would have been motivated to combine the time-based restrictions of Russ with Dow’s commercial skip functionality. *Id.*

A POSA would have been motivated to combine Dow and Russ to implement the desired result of deactivating the commercial skipping functionality beyond the two minutes taught by Dow. Ex[1002] ¶417; Ex[1007], 24:43-48. In addition to the natural obviousness to try Russ’s teachings with Dow’s system, a POSA would further have looked to Russ to implement the time-based restrictions on trick-play taught in Russ to the “inactive” period found in Dow due to Russ’s applicability to Dow’s system. Ex[1002] ¶418. Russ’s time-based restrictions were one of a number of finite identified solutions to providing restrictions to skipping or fast-forwarding through content. *Id.* ¶419. Similarly, A POSA would have predictably succeeded in implementing Russ’s teachings in Dow’s system, obtaining the predictable result of restricting automatically skipping of interstitials for a finite period of time, thereby increasing the financial value of the interstitial content to the broadcaster. *Id.*

c. 1[d][iii], 11[g][iii], and 18[d][iii]

These limitations are rendered obvious when combining Dow with Russ's teachings as discussed above for claim element 1[d][ii]. Ex[1002] ¶420.

d. 1[e] and 11[h]

Russ further explains that “a tag corresponding with a commercial could expire after a period of time after which the tag would become inactive or replaceable.” Ex[1008] ¶[0035]; Ex[1002] ¶423. Thus, a POSA would have understood that the combination of Dow and Russ as described above renders obvious this limitation. Ex[1002] ¶¶423-424.

2. Claims Depending From Claims 1, 11, and 18

To the extent DBS asserts that Dow does not disclose or render obvious the claims discussed below, Dow, Russ, and Miller render those claims obvious.

a. Claims 2 and 12

Dow teaches a user “control[ling] the operation of the DVR 100...through control signals originating from a remote control,” received through the remote signals interface. Ex[1007], 5:21-26. Responsive to the remote signals transmitted, Dow's DVR processes the signals and engages its AV output module to “obtain the MPEG data stored in the data storage medium 110 and convert it to [a] format compatible with the display device.” Ex[1007], 5:64-67; Ex[1002] ¶426.

Dow's system includes “local area networks 210 and 230 [that] may include or be portions of a smart home network interconnecting a variety of appliances and

home subsystems.” Ex[1007], 8:21-26. Dow discloses connecting each subsystem in the local area network (“LAN”) to a wide area network having servers for facilitating communication between DVRs and other resources on the network. Ex[1007], 8:28-30, 8:61-63; Ex[1002] ¶427. In a LAN containing two DVRs, one DVR “may access the guide information and stored video content of the [second DVR],” located in a different location. Ex[1007], 8:33-35; Ex[1002] ¶427.

Dow further explains that each local area network “also includes a router 214 and a broadband interface 212.” Ex[1007], 8:40-42; Ex[1002] ¶428. “The router 214 acts as a firewall between devices 216-222 within the home [local area] network 210 and other devices potentially connecting with those devices through the Internet.” Ex[1007], 8:46-49.

Dow teaches using “conventional network technology and software” in its local area networks comprising a variety of devices in different locations from one another. Ex[1007], 8:21-30. Dow’s local area networks contain routers and broadband interfaces that access the internet and assist with networking all the devices. Ex[1007], 8:40-42; Ex[1002] ¶428. Providing both a wide area network and a local area network having remotely-located and internet-connected devices inherently teaches wireless communication in between various connected devices in the network. Ex[1002] ¶428. It would have been obvious to a POSA that Dow’s DVR includes wireless transmitters in communication with the DVR’s processor to wirelessly transmit whole or partial video programs to remotely located display

devices. *Id.* As such, Dow renders obvious claims 2 and 12. Ex[1002] ¶¶429,497-498.

b. Claim 3

Miller discloses that it was “desirable to access multiple program content streams concurrently.” Ex[1009] ¶[0031]; Ex[1002] ¶433. Specifically, Miller teaches that its receiving device “may include at least two tuners” that each receive a program. Ex[1009] ¶[0031]; Ex[1002] ¶433. “Then, the receiving device 118 may concurrently process the two program content streams by, for example, displaying the first program content stream on a presentation device 120 and recording the second program content stream on a user device 122” such as a DVR. Ex[1009] ¶[0031]; Ex[1002] ¶433.

A POSA would have been motivated to expound upon Dow’s disclosure of “simultaneous[ly] processing and stor[ing]” video program data, Ex[1007], 12:39, provided through “the spectrum of available signals or channels.” Ex[1007], 12:31-32; Ex[1002] ¶434. Using Miller, a reference specifically titled “[c]oncurrent program content processing apparatus, systems, and methods,” a POSA would have expected to yield the desired effects of being able to simultaneously receive and store multiple video programs using two or more tuners. Ex[1009], Title; Ex[1002] ¶434.

c. Claim 6

This limitation is inherent based on Dow’s disclosures and the knowledge of a POSA. Russ confirms this. Russ’s restrictions on “trick play” disclose that trick

play “would not work for certain commercials as specified, for example, by the local cable operator or the presentation programmer” for possibly only a specified length of time, such as two weeks. Ex[1008] ¶¶[0033]-[0035]; Ex[1002] ¶447. This makes good sense, as restrictions on trick play further allow the content provider to obtain additional revenue from advertisements shown to viewers who value watching the program during the initial release period, while still appealing to viewers who are willing to delay watching the program to avoid commercials.

Thus, it is obvious that a POSA would have understood Dow and Russ’s disclosures of a “specified length of time” as including any period of time, such as a day or less than a week, as those were well known specified lengths of time. Ex[1002] ¶448. Moreover, a POSA would understand Russ’s disclosure of a two week period is exemplary in nature; any period of time could have been used. *Id.* A “local cable operator” or “presentation programmer” would have found it obvious to specify a shorter period of time, such as a day or less than a week, if a particular commercial were only relevant for that time period. *Id.* For example, a “presentation programmer” may include a commercial for an event that takes place the next day or the coming weekend. *Id.* Thus, the DVR of Dow will be able to enable the commercial skip function after the occurrence of that event. *Id.*

d. *Claims 7, 16, and 19*

Miller “includes a receiving device comprising a tuner operable to receive a multiplexed signal via a satellite network that communicates digital video

programming,” and comprises “a plurality of program content portions, each program content portion corresponding to one of a plurality of programs.” Ex[1009] ¶[0002]; Ex[1002] ¶452. Further, Miller discloses a “content stream selector” that “may comprise a single tuner” to “tune to a frequency of a carrier signal that carries multiple program content streams [that are] multiplexed.” Ex[1009] ¶[0063]; Ex[1002] ¶452. Miller explains that “[t]he content stream selector may then begin and continue to receive and forward, such as by storing in a buffer 412, program content portions from each of the multiple program content streams, as they arrive over the carrier signal.” Ex[1009] ¶[0063]; Ex[1002] ¶452. Thus, Miller renders obvious the limitation of tuning at least one of its multiple tuners to a particular channel to receive or record a video program communicated over said channel. Ex[1003] ¶452.

A POSA would have been motivated to combine Dow with Miller to further expound upon Dow’s disclosure of “simultaneous[ly] processing and stor[ing]” video program data, Ex[1007], 12:39, provided through “the spectrum of available signals or channels.” Ex[1007], 12:31-32; Ex[1002] ¶453. Using Miller, a reference specifically titled “[c]oncurrent program content processing apparatus, systems, and methods,” a POSA would have expected to achieve the desired results of being able to receive a video program by configuring the DVR’s processor to execute instructions tuning the on-board tuner to a particular channel. Ex[1009], Title; Ex[1002] ¶¶453-454.

e. *Claims 8 and 15.*

In addition to the above discussion about Dow’s disclosures of claims 8 and 15, a POSA would have understood that the decompression of previously compressed data for display in a DVR system was already known. Ex[1002] ¶457. For example, Miller teaches that “the signal received by the receiving device 118 may include a plurality of multiplexed programs,” that “compris[e] MPEG (“Motion Picture Experts Group”) packets that contain compressed and/or encrypted video.” Ex[1009] ¶[0029]; Ex[1002] ¶459. Miller’s “video processing system 404 and/or the presenter 408 may perform additional processing on program content portions, such as decompression, decryption, encryption, scaling, and the like, prior to communicating the program content to the presentation device 120.” Ex[1009] ¶¶[0029], [0052]; Ex[1002] ¶459.

f. *Claim 17*

As explained above, Dow teaches receiving commands “originating from a remote control” through the remote signals interface in conventional fashion. Ex[1007], 5:24-26. Conventionally, users transmit signals indicating their desire to record or otherwise view a video program. Ex[1002] ¶511. Dow’s DVR system allows for users to “select one or more of the [available] programs for recording.” Ex[1007], 6:15. As discussed previously, multiple tuners for receiving multiple video programs aired simultaneously are either inherently disclosed in Dow or rendered obvious in view of Dow and then-available prior art. Dow recognizes that

simultaneous video processing may be an attractive feature for DVRs and therefore discloses that the DVR's AV input module (within which Dow's tuner is located), "may include any number of conversion modules for converting between conventional broadcast or communication signals and a digital format used within the DVR." Ex[1007], 12:45-48; Ex[1002] ¶511. In this way, "event detection or other video processing [such as recording] may be carried out simultaneously with compression *and storage* of the video data." Ex[1007], 12:39-42; Ex[1002] ¶511.

Miller explains that "[i]n some instances, it may be desirable to access multiple program content streams concurrently." Ex[1009] ¶[0031]; Ex[1002] ¶513. Miller further explains that "a user may desire to view a first program and record a second program that are being communicated concurrently by a program distributor 106 to a receiving device 118." Ex[1009] ¶[0031]; Ex[1002] ¶513. Miller teaches that "the receiving device 118 may include at least two tuners" that receive a first program and a second program. Ex[1009] ¶[0031]; Ex[1002] ¶513.

g. *Claim 20*

Dow teaches a video program with a second portion comprising at least one advertisement. Ex[1002] ¶532. Additionally, the video program data Dow's DVR receives is an external signal, such as a "packetized communication signal." Ex[1007], 12:23; Ex[1002] ¶532. A POSA would have understood that the packetized communication signal of Dow includes individual packets being linked

at least indirectly to individual video programs and channels associated with the content owners thereof. Ex[1003] ¶535.

Miller also discloses that “[p]rogram content portions may comprise MPEG (“Motion Picture Experts Group”) packets that contain compressed and/or encrypted video, audio, and/or other data.” Ex[1009] ¶[0029]; Ex[1002] ¶534. Additionally, “program content portions may be encapsulated and/or formatted in other ways, such as by use of other or additional transport, compression, and/or encryption techniques.” Ex [1009] ¶[0029]; Ex[1002] ¶534.

Thus, claims 1-20 are obvious in view of Dow alone or in combination with Russ and Miller.

IX. SECONDARY CONSIDERATIONS

Petitioner is not aware of any evidence of secondary considerations.

DBS is a non-practicing entity with no practicing product. Thus, DBS is not entitled to any presumption of nexus. *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 33, Final Written Decision (P.T.A.B. Jan. 24, 2020) (precedential).

Accordingly, any arguments regarding secondary considerations should be afforded little weight.

X. DISCRETIONARY DENIAL UNDER § 314 IS NOT WARRANTED.

A. PTAB should not exercise its discretion to deny institution under *Becton* and *Advanced Bionics*.

Institution should not be denied under the framework set forth in *Becton*, *Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8, Institution

Decision (P.T.A.B. Dec. 15, 2017) (precedential as to §III.C.5, first paragraph) or *Advanced Bionics, LLC v. MED-EL Elektromedizinische Gerate GmbH*, IPR2019-01469, Paper 6, Institution Decision (P.T.A.B. Feb. 13, 2020) (precedential). The PTO has not previously considered Casagrande, Dow, or Russ in connection with any of the '122 Patent's claims. The face of the '122 Patent lists U.S. Patent No. 8,155,498 to Dow *et al.* ("Dow '498"), which shares several common inventors and has a similar specification to the Dow reference discussed herein. Ex[1001], (56). However, Dow '498 shares no familial relationship to Dow and was never relied on as the basis of a rejection. Further, the combinations presented herein are not redundant to any combination considered during prosecution. Additionally, this Petition provides analysis from Dr. Jeffay, an expert in the fields of computer science, computer network architecture, and digital program delivery in broadcast, cable or satellite television networks, and STBs. Ex[1002], ¶¶1-43. Dr. Jeffay's analysis of the prior art has not been presented to the PTO. In view of the new information presented, discretionary denial under 35 U.S.C. §325(d) is not warranted here.

B. Discretionary denial under the *Fintiv* factors is not appropriate.

1. Factor 1: Institution Increases the Likelihood of a Stay.

Factor 1 does not favor non-institution. No party in the District Court has requested a stay, and the Board does not speculate on how a district court will treat a motion to stay. *See, e.g., VMware, Inc. v. Intell. Ventures I LLC*, IPR2020-00859,

Paper 13, Institution Decision, at 12 (P.T.A.B. Nov. 5, 2020) (informative) (“In the absence of any evidence specific to this case, we decline to speculate about the presiding judge’s inclinations.”).

2. Factor 2: The Current District Court Schedule.

The parties are currently waiting for a ruling on DISH’s November 2022 Motion to Transfer Venue to the District of Colorado. After evaluating initial briefing, the District Court ordered venue-based discovery, which recently concluded. Ex[1010]. DBS has no meaningful contacts within the Eastern District of Texas and that all of the relevant witnesses, documents, and source code are in Colorado. Ex[1011].

Even if the District Court matter stays in Texas, trial is not proximate such that Institution should be denied. According to the current Docket Control Order (Ex[1012]), *which was issued before the District Court ordered the 75-day venue discovery period*, trial is scheduled for April 1, 2024. The parties have not begun claim construction or exchanged positions beyond initial infringement contentions.

Even if a trial occurs in April 2024, such a trial date would precede the FWD date by a period that has in the past not supported non-institution. *See e.g., Sand Revolution II, LLC v. Continental Intermodal Group-Trucking LLC*, IPR2019-01393, Paper 24, Institution Decision, at 8-10 (P.T.A.B. June 16, 2020) (FWD scheduled three to five months after the trial date).

Other factors weigh in favor of institution, such as Petitioners’ diligence in filing the petition, minimal investment made by either party in litigation (expert discovery not started and only venue discovery conducted), and the merits of the invalidity challenge. *Verizon Business Network Servs., Inc. v. Huawei Inv. & Holding Co. Ltd.*, IPR2020-01141, Paper 12, Institution Decision (P.T.A.B. Jan. 14, 2021). Petitioner has exercised diligence and filed this petition well in advance of the bar date. Expert discovery has not started and no depositions outside venue discovery have occurred. The *Markman* hearing is not scheduled for several months. In view of the grounds asserted in this petition, the merits of the invalidity challenge are strong.

3. Factor 3: Petitioner’s Diligence and Investment in the IPR Outweighs the Parties’ Minimal Investment in Litigation.

This petition was filed more than three months before the one-year statutory bar date. *Mylan Pharm., Inc. v. Sanofi-Aventis Deutschland GmbH*, IPR2018-01680, Paper 22, Institution Decision, at 18 (P.T.A.B. Apr. 3, 2019) (petition filed two months before bar date was “well within the timeframe allowed by statute, weighing heavily in [petitioner’s] favor”). Moreover, Petitioner filed this petition at a very early stage of the litigation—a fact that “has weighed against exercising the authority to deny institution under *NHK*.” *Apple, Inc. v. Seven Networks, LLC*, IPR2020-00156, Paper 10, Institution Decision, at 12 (P.T.A.B. June 15, 2020). Petitioner filed this petition even before the parties have identified terms to be

construed. No substantive orders have been issued by the court, no depositions have been taken outside of venue discovery, and expert discovery has not begun.

4. Factor 4: The Petition's Grounds Are Materially Different From Any That Might Be Raised in Litigation.

The co-pending litigation is in an early stage. At present, there is little or no overlap in issues between the litigation and any IPR resulting from this petition. It would be premature to conclude that the issues raised in this proceeding will overlap with those in the District Court. Instituting this proceeding will allow the Board to address the asserted prior art, narrowing the issues in the co-pending litigations due to the estoppel provisions of 35 U.S.C. §315(e)(2). *See, e.g., Fintiv* at 12-13; *Snap, Inc. v. SRK Tech. LLC*, IPR2020-00820, Paper 15, Institution Decision, at 13-16 (P.T.A.B. October 21, 2020); *Sand Revolution* at 11-12.

5. Factor 5: Institution Would Promote Judicial Efficiency

Petitioner and DBS are parties to the co-pending litigation. At worst, where the parties are the same, Factor 5 is neutral and, thus, need not be considered a basis for discretionary denial. *Cisco Sys., Inc. v. Ramot at Tel Aviv Univ. Ltd.*, IPR2020-00122, Paper 15, Institution Decision, at 10 (P.T.A.B. May 15, 2020) (APJ Crumbley, dissenting).

6. Factor 6: The Merits of this Petition Strongly Favor Institution

The merits of this Petition are compelling. As demonstrated in the Petition with reference to Dr. Jeffay's testimony and additional evidence, institution would

result in a finding of unpatentability of the Challenged Claims, which are either anticipated or obvious based upon prior art references that materially differ from those considered by the Examiner during prosecution. The strength of the merits alone outweighs any inefficiencies born of parallel litigation (and as explained above, institution of this Petition would actually *promote* efficiency). *See Fintiv* at 14-15.

XI. CONCLUSION

Petitioner respectfully requests that *inter partes* review of the '122 Patent be instituted and that the challenged claims be cancelled as unpatentable pursuant to 35 U.S.C. §318(b).

Petition for *Inter Partes* Review of U.S. Patent No. 9,538,122

Respectfully Submitted,

May 26, 2023

/ Eliot D. Williams /

Eliot D. Williams (Reg. No. 50,822)

BAKER BOTTS L.L.P.

700 K Street, N.W.

Washington, D.C. 20001

202.639.1334

G. Hopkins Guy III (Reg. No. 35,866)

BAKER BOTTS L.L.P.

1001 Page Mill Road, Bldg. 1, Suite 200

Palo Alto, California 94304-1007

650.739.7500

Ali Dhanani (Reg. No. 66,233)

Thomas B. Carter Jr. (Reg. No. 76,040)

BAKER BOTTS L.L.P.

910 Louisiana St.

Houston, TX 77002

713.229.1108

Attorneys for Petitioner, DISH Network
L.L.C.

CERTIFICATE OF SERVICE

In accordance with 37 C.F.R. §§42.6(e) and 42.105, the undersigned certifies that on May 26, 2023, a complete and entire copy of the **PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 9,538,122 UNDER 35 U.S.C. §§ 311-319 AND 37 C.F.R. §§ 42.100 *ET SEQ.*** (“Petition”) including exhibits and testimony relied upon were served on the patent owner at the correspondence address of record for the subject patent:

125600 – Fitzsimmons IP Law
PO Box 199
Gardena, CA

via overnight carrier; and

and to counsel for patent owner in the Lawsuit,

WILLIAMS SIMONS & LANDIS PLLC
2633 McKinney Ave., Suite 130 #366
Dallas, TX 75204
dbscounselwsl@wsltrial.com

via electronic mail.

Date: May 26, 2023

/ Eliot D. Williams /
Eliot D. Williams (Reg. No. 50,822)
G. Hopkins Guy III (Reg. No. 35,866)
Ali Dhanani (Reg. No. 66,233)
Thomas B. Carter Jr. (Reg. No. 76,040)
BAKER BOTTS L.L.P.
700 K Street, N.W.
Washington, D.C. 20001
202.639.1334

Attorneys for Petitioner, DISH Network

L.L.C.

CERTIFICATION UNDER 37 C.F.R. § 42.24(d)

Pursuant to 37 C.F.R. § 42.24(d), the undersigned hereby certifies that the word count under §42.24(a)(1) for the foregoing Petition for *Inter Partes* Review totals 13,999 words, within the 14,000 word limit allowed under § 42.24(a)(1)(i).

Date: May 26, 2023

/ Eliot D. Williams /

Eliot D. Williams (Reg. No. 50,822)
BAKER BOTTS L.L.P.
700 K Street, N.W.
Washington, D.C. 20001
202.639.1334

G. Hopkins Guy III (Reg. No. 35,866)
BAKER BOTTS L.L.P.
1001 Page Mill Road, Bldg. 1, Suite 200
Palo Alto, California 94304-1007
650.739.7500

Ali Dhanani (Reg. No. 66,233)
Thomas B. Carter Jr. (Reg. No. 76,040)
BAKER BOTTS L.L.P.
910 Louisiana St.
Houston, TX 77002
713.229.1108

Attorneys for Petitioner, DISH Network
L.L.C.