UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UNIFIED PATENTS, LLC,

Petitioner

v.

VL COLLECTIVE IP LLC,

Patent Owner

IPR2022-01086
U.S. Patent 8,605,794

PATENT OWNER'S RESPONSE

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PATENT OWNER'S EXHIBIT LIST

Exhibit	Description
2001	*MPEG LA Releases MPEG-DASH Patent Portfolio License*, MPEG LA (Nov. 17, 2016), available at https://www.mpegla.com/media/ (last visited Oct. 7, 2022)
2002	*DASH Licensees*, MPEG-LA, available at https://www.mpegla.com/programs/dash/licensees/ (last visited Oct. 7, 2022)
2003	Joint Claim Construction Statement in *VideoLabs, Inc. et al. v. Amazon.com, Inc. et al.*, No. 22-cv-00079-ADA-DTG
2004	VideoLabs' Answering Claim Construction Brief, *Starz Entertainment, LLC et al. v. VL Collective IP, LLC et al.*, No. 21-cv-1448-JLH (excerpted)
2005	Joint Claim Construction Chart in *Starz Entertainment, LLC et al. v. VL Collective IP, LLC et al.*, No. 21-cv-1448-JLH
2006	Declaration of Jaime F. Cardenas-Navia
2007	Declaration of Dr. Michael T. Goodrich
2008	Transcript of the March 22, 2023 Deposition of Dr. Immanuel Freedman
2009	Claim Construction Order, *Starz Entertainment, LLC et al. v. VL Collective IP, LLC et al.*, No. 21-cv-1448-JLH
2010	Markman Hearing Transcript, *Starz Entertainment, LLC et al. v. VL Collective IP, LLC et al.*, No. 21-cv-1448-JLH (excerpted)
2011	U.S. Patent No. 7,428,696 (Shin)
2012	U.S. Patent No. 5,598,352 (Rosenau)
2013	Microsoft Computer Dictionary, 5th Ed., Microsoft Press (2002) (excerpted)

VL Collective IP LLC ("Patent Owner") submits this Response to the Petition of Unified Patents, LLC ("Petitioner") seeking *inter partes* review ("IPR") of U.S. Patent No. 8,605,794 ("the '794 patent"). The Response is supported by the declaration of Dr. Michael T. Goodrich (EX2007.)

I. INTRODUCTION

The Petition fails to show that any of the challenged claims are unpatentable. The relied-upon references, Abbott and Sonohara, use very different means to solve very different problems than the '794 patent. The '794 patent is concerned with how to efficiently synchronize the segments of separate audio and video data streams once they are received at a client device (e.g., a television or mobile device), a process that had historically been slow and resource-intensive. The inventors improved upon the known arts by using "assignment rules" to create relationships between the audio and video segments that can be applied quickly and flexibly to synchronize content. Importantly, these assignment rules do not use, and are not based on, timestamps or other exact timing information.

By contrast, Abbott, to the extent it even addresses the synchronization of data segments, does so only in the very limited context of when a user "jumps" to a different point in a piece of content (i.e., skipping to the last part of a movie). Sonohara is even further afield, as it only describes embodiments where the audiovisual content is already stored together in a single data file. It is simply not

concerned with synchronizing two separate streams of data segments, which is the central focus of the '794 patent. Sonohara also relies on the same timestamp-based synchronization techniques that were disparaged in the specification of the '794 patent and disclaimed during patent prosecution.

II. BACKGROUND

A. Overview of the '794 Patent

In the early 2000s, the inventors of the '794 patent realized that the way audiovisual content (e.g., television shows and movies) was transmitted to consumers was fundamentally changing. For decades, content was transmitted to consumers primarily through televisions, and, within each global region (e.g., the United States), was encoded in a single formatting standard (e.g., the NTSC standard) that could be played by all televisions. (EX1001, 1:23-33.)

But with the increasing importance of the Internet, the devices to which content could be transmitted were proliferating. (*Id.*, 1:34-43.) Content could now be streamed to computers, laptops, PDAs, and other electronic devices that could play content encoded in any number of formats based on their capabilities. (*Id.*)

The varying strength of Internet connections, particularly on wireless devices, also necessitated multiple content formats. (*Id.*, 1:34-43, 1:64-2:20.) For example, while a desktop computer might be capable of playing high resolution content, doing so is not desirable if the Internet connection for that computer is slow. Instead, it

can be a better viewer experience for a lower quality version of the content to be transmitted more quickly rather than having the user constantly waiting for higher quality content to download.

The inventors also knew there were benefits to being able to change the quality of the content *during a stream*. (*Id.*, 1:64-2:20.) When an Internet connection is weak, send lower quality content; when the connection is strong, send higher quality content.

These changes in technology and consumer expectations led to new techniques for managing and processing audiovisual content. Content was no longer stored as a single file in a single location. Instead, the various versions of a movie's audio and video data files were broken up into numerous "segments" stored on various Internet servers. (*Id.*, 1:44-2:20 (describing using metadata languages such as XML to define segmented data streams).) These segments were more quickly transmitted over the Internet to consumer devices, and content could be played as soon as the first few segments arrived instead of waiting for the entire file to download.

Prior to the innovations of the '794 patent, however, there was not a suitable method for aligning the various segments from their respective audio and video data files. The need was all the greater when switching between audio or video formats midstream (e.g., to account for changing Internet bandwidth) or skipping to different

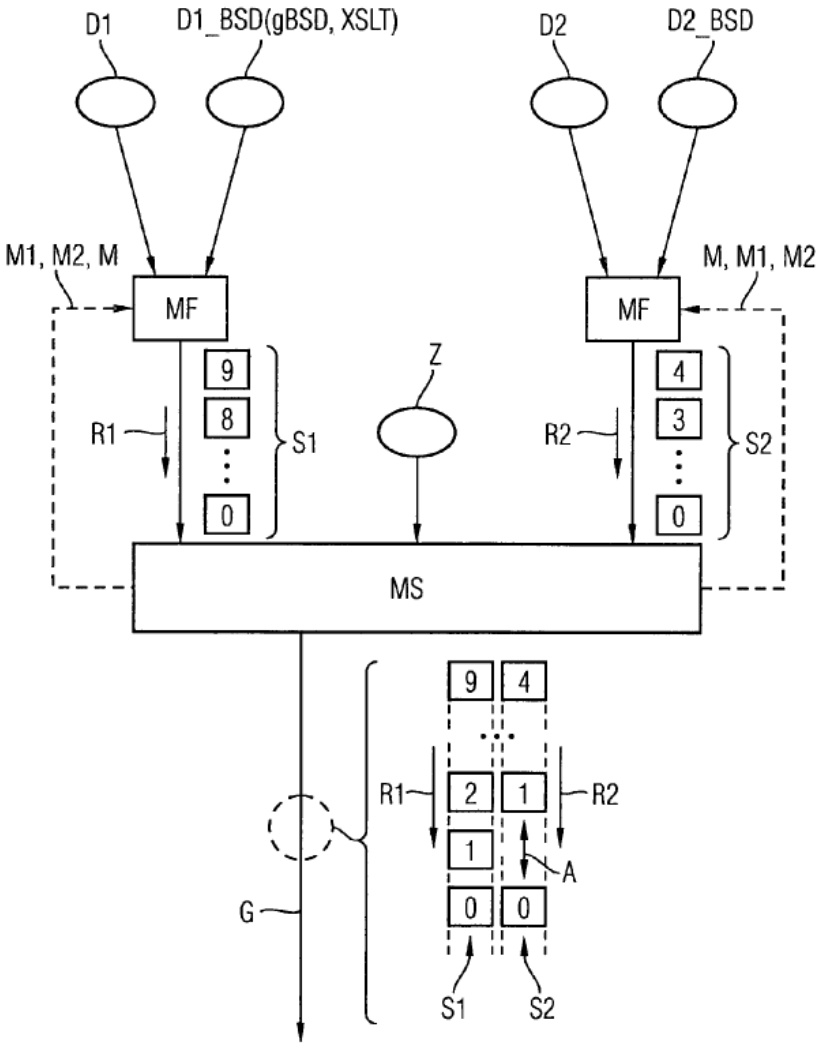
points within a piece of content. (*SId.*, 1:56-2:9.) Techniques existed but had large overhead and could be slow and resource intensive. (*Id.*, 2:4-12.) These old techniques generally used timestamps or other exact timing information to synchronize the data segments. (*Id.*, 2:4-12, 42-43.)

The '794 patent improves upon prior technologies. It describes a novel technique that uses "assignment rules" to govern the order and alignment of data segments. More specifically, assignment rules flexibly define relationships between data segments from one data file (e.g., an audio file) and data segments of another data file (e.g., a video file). Assignment rules enable data segments from different data files to be efficiently output sequentially, chronologically, and synchronously. (*Id.,* 2:36-3:3, claims 1, 9.) These assignment rules do not use timestamps or other exact timing information. (*Id.*, 2:42-43.)

Figure 1 of the '794 patent demonstrates the operation of an exemplary assignment rule. **D1** represents a video data file that is fragmented into video data segments numbered **0** through **9**. (*Id.*, 3:67-4:53.) **D2** represents an audio data file, which is fragmented into segments numbered **0** through **4**. (*Id.*, 3:67-4:53, 5:5-9.) That there are 10 video segments and only 5 audio segments could indicate that the audio segments are twice as long timewise as the video segments or that the total duration of every set of 2 video segments is the same as the duration of each consecutive audio segment. The precise duration of any individual data segment,

and the absolute point in time at which any given data segment is output, need not be known for the synchronization techniques of the ’794 patent to operate.

Rather, the assignment rule in Figure 1 requires that each audio data segment is assigned to every second video data segment, which is sufficient to maintain the proper alignment between the audio and video segments. During synchronization, audio segment **0** is output together with video segment **0**; video segment **1** comes next; then audio segment **1** is output together with video segment **2**; and so forth, until audio segment **4** is output together with video segment **9**. (*Id.*, 4:54-5:4.)



(*Id.*, Fig. 1.) Additional assignment rules are described in the specification; the assignment rule of the '794 patent can take many forms, including equations that describe the relationship between segments, and lists that align corresponding segments. (*Id.,* 5:35-6:42, Figs. 2, 4-5; Goodrich (EX2007), ¶¶36-41.)

B. The Claims of the '794 Patent

Exemplary method claim 1 reflects the above-described invention:

1. A method for synchronizing content-related first data segments of a first data file and content-related second data segments of a second data file, the method comprising:

sequentially outputting, by a device for synchronizing content-related data, the content-related first data segments and the content-related second data segments according to their chronological sequence in such a way that each of the content-related second data segments is output together with an associated one of the content-related first data segments on the basis of an assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments.

(EX1001, claim 1.)

C. Overview of Abbott

Abbott primarily describes an object hierarchy for creating content streams. (EX1004, 5:46-12:46.) The building block in the hierarchy is an atom, which is a file that contains content data (e.g., audio or video data). (*Id.*, 5:56-6:32.) "As one example, a movie can be partitioned into two atoms, one atom for video, and another atom for audio. As a further example, the movie can additionally include a third atom containing closed-captioning text." (*Id.*, 5:59-63.)

Abbott also describes "segments," which "identif[y] a portion of one particular atom . . . between two points in time." (*Id.*, 6:33-51.) Segments can be

sequentially ordered to form a "series." (*Id.*, 7:7-15.) "A series is a set of one or more segments that are joined or concatenated for sequential delivery of the corresponding data." (*Id.*) Finally, a "group" is formed by joining series in parallel. (*Id.*, 7:16-26.) While atoms refer to tangible data files, "segments," "series," and "groups" are all logical constructs used to identify and organize the data in those files.

Notably, while audio and video data can be loosely related to one another through their inclusion in series and groups, Abbott's object hierarchy does not have a means for defining relationships between specific portions of audio and the corresponding portions of video.

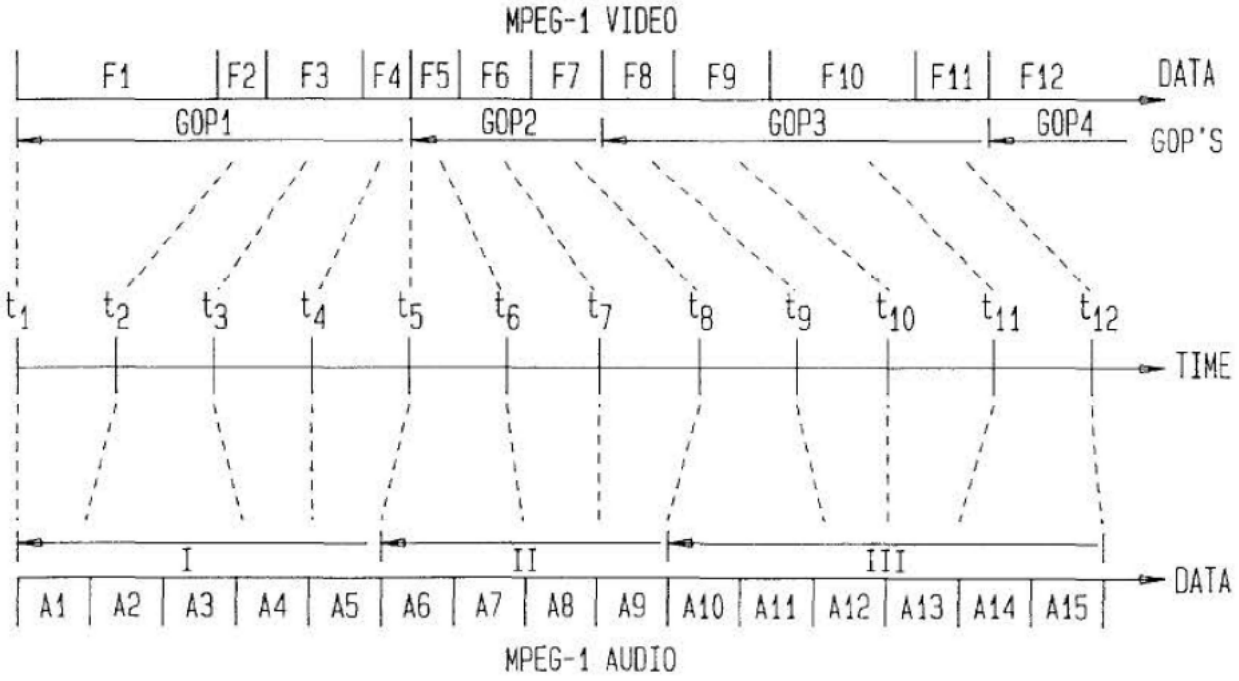
Abbott also describes techniques for media stream indexing and synchronization. (*Id.*, 12:47-22:4.) These techniques enable quick playback when a user jumps or skips to a different point in content. (*E.g.*, *id.*, 12:48-64, 15:55-64.) To address the technical difficulties involved with jumping to a specific point in time in content, Abbott uses indexes to ensure that the content only jumps to points in time where it is easier and faster to render content. (*Id.*, 16:6-31, 17:3-26, 18:66-19:17.) This corresponds, for example, to the start of a video Group of Pictures ("GOP"). (*Id.*)

Thus, when a user seeks to jump to a point in content, indexes are used to render the content from the start of the closest video GOP. (*Id.*, 18:66-19:3.) For

the video data, the index is created by mapping each video frame within a video GOP to the start of the video GOP; whenever a user seeks to jump to a point in time that falls within any of those video frames, the video index is used to look-up the start of the closest video GOP, and playback begins from there. (*Id.*, 19:3-17.) The audio index is created by mapping each audio frame that corresponds in time with a given video GOP to the start of the audio frame that most closely matches the start of the video GOP. (*Id.*)

Figure 9 (below) shows the relationships between audio frames, video frames, and video GOPs created with indexes for exemplary audio and video data files. The video index maps all time periods within **GOP1** (which encompasses video frames **F1** through **F4**) to the start of **GOP1** (which is the start of **F1**). The audio index similarly maps all time periods that fall within audio frames **A1** through **A5** (which all approximately fall within **GOP1**) to the start of **A1**. Indexing is necessary to synchronize audio and video data when jumping throughout content because Abbott's object hierarchy does not otherwise interrelate particular portions of audio and video data.

FIG. 9



(*Id.*, Fig. 9.)

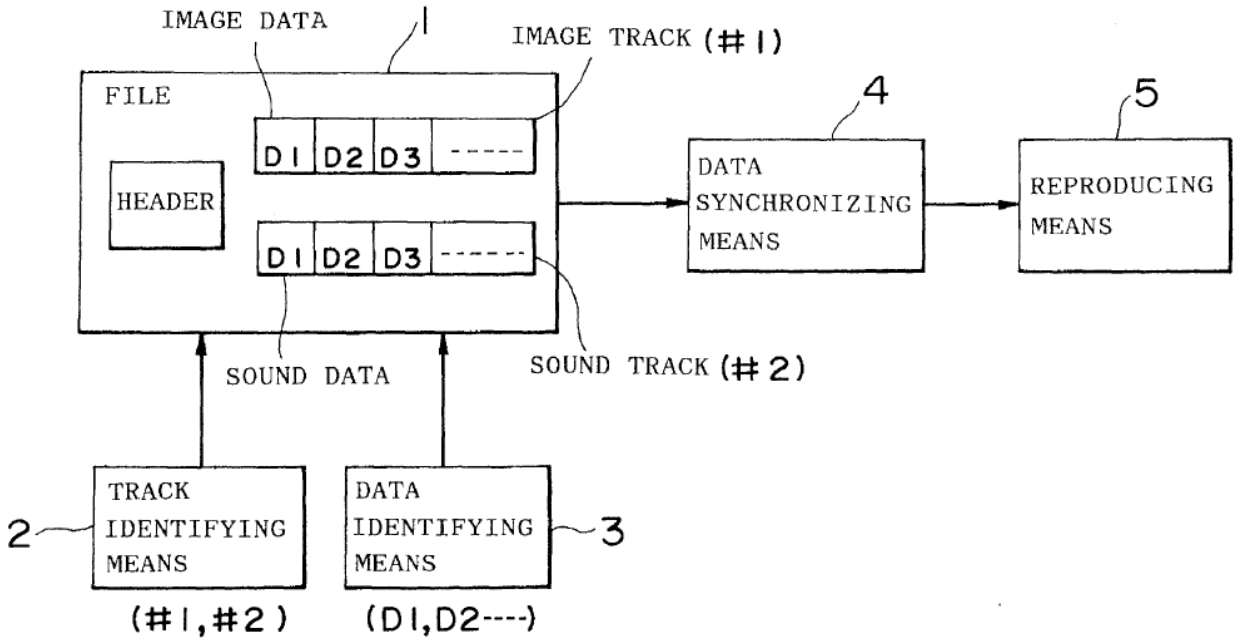
Thus, when the user jumps to a different point in content, Abbott's indexing is used to more quickly render synchronized content (at the start of a video GOP and the closest-in-time audio frame). Importantly, once this index-enabled synchronization has been performed, playback resumes according to the object hierarchy configurations, and the indexes are not used until there is another jump in content. (*Id.*, 18:66-19:1 (describing using indexes only when jumping to points in content), 18:53-57 (same); Pet., 28-29 ("Even if the viewer were 'to skip to an arbitrary point in time in an item of program material,' after skipping to that time, the content at that point in time would be output and presented *sequentially*, in time

order.") (emphasis original).) This is in contrast to the '794 patent, where assignment rules are used to interrelate *each* second data segment with its corresponding first data segment. (EX1001, claims 1, 9.)

D. Overview of Sonohara

Sonohara discloses techniques to address certain difficulties of reproducing audio and video data that is stored in separate data files in synchronicity. (EX1003, 1:11-39.) Specifically, Sonohara notes that simultaneously rendering content directly from two different data files is challenging "because the audio data and the image data are read out independently from the two files." (*Id.,* 1:36-39.) This makes it "necessary to adjust timings for synchronism between the video data and audio data" and "increases" the "load imposed on a microprocessor." (*Id.*, 1:40-42.) Sonohara further notes that "the formation of programs for controlling the two files is intricate." (*Id.*, 1:42-43.)

Sonohara addresses these challenges by merging the audio and video information from their separate data files into a *single* data file. (*Id.*, 1:51-58, Fig. 1 (reproduced below).)



The image and sound data in the file (**1**) are identified in separate tracks (**#1** and **#2**). (*Id.*, 1:59-62.) The audio and video data is divided into unit times (1 second-long chunks) that are separately identified (**D1**, **D2**, **D3**, etc.). (*Id.*, 1:62-65.) Header information in the file identifies the audio and video unit times. (*Id.*, 1:66-2:4.)

Unlike the '794 patent, which synchronizes data segments from two separate files, Sonohara avoids the challenges inherent therein by combining the audio and video data into a single file and then carrying out the synchronizing. (*Id.*, 3:21-24 ("[S]ince the image and sound data are reproduced in synchronism on a single file **1**, the number of the file to be controlled may be one to simplify the file control and facilitate the program formation."), 8:19-26.)

Moreover, Sonohara does not address the problems that led to the inventions of the '794 patent, such as the need to quickly align and order audio and video

segments that arrive separately and potentially out of order, and to do so with flexible assignment rules rather than timestamps or other exact timing information. (*Supra*, Section II.A.) Sonohara discloses just one way to synchronize the unit times of audio and video data — every audio and video unit time is output together. And it is only because the audio and video unit times with the same identifying numbers are reproduced at *specific, predetermined points in time* and are *the same duration* that synchronization occurs. Such timestamp-based techniques were specifically improved upon (and disclaimed) in the '794 patent. (Goodrich (EX2007), ¶¶43-46.)

III. PRIORITY DATE OF THE '794 PATENT

Petitioner assumes a priority date of April 12, 2005, which is the foreign priority date of the '794 patent. (Pet., 2-3.) Patent Owner reserves all rights to establish its preferred priority date in this or other proceedings, but does not dispute this assumed priority date for purposes of its Response. The Petition fails regardless of the priority date of the '794 patent. (Goodrich (EX2007), ¶47.)

IV. LEVEL OF ORDINARY SKILL

Petitioner sets forth a level of ordinary skill. (Pet., 6.) Patent Owner's expert proposes a somewhat different level, but this Response establishes that Petitioner's arguments fail even under its preferred definition of the level of ordinary skill. (Goodrich (EX2007), ¶¶48-52.)

V. CLAIM CONSTRUCTION

A. Patent Owner's Claim Construction Analysis

Patent Owner offers three constructions. Patent Owner's first construction reflects the express lexicography of the inventors. The second results from the application of well-established case law that governs when preambles are limiting and when the use of "first" and "second" indicate distinct instances of a claim element. Third construction reflects a negative limitation that is necessitated by the prosecution history, where the patentee disclaimed the use of exact timing information from the scope of the "assignment rule" claim limitations. (Goodrich (EX2007), ¶¶54-55.)

1. "content-related . . . data segments"

Term	Patent Owner's Proposed Construction
content-related . . . data segments (Claims 1, 9)	data segments ordered in a file such that they will present the file's contents in their intended presentation order when rendered sequentially

The inventors acted as their own lexicographers and set forth a definition of "content-related . . . data segments," which Patent Owner's proposed construction reflects. In the Detailed Description section of the specification defines the term "content-related" as it applies to data segments of a data file:

> For every first and second data file D**1**, D**2** there exists in each case a fragmentation description file D**1**_BSD, B**2**_BSD. Said fragmentation description file D**1**_BSD, B**2**_BSD specifies how content-related first and content-related second data segments S**1**, S**2** can be obtained from the respective first and second data file D**12**, D**2**. ***The term "content-related" is understood to mean that first and second data segments have a syntactical meaning within the respective data file***, such as e.g. a plurality of succeeding second data segments represent the speech signal of a specific speaker within a dialog sequence.

(EX1001, 4:9-22 (emphasis added).)

When a term in the specification "is set off by quotation marks," as here, it is "often a strong indication that what follows is a definition." *Sinorgchem Co., Shandong v. Int'l Trade Comm'n*, 511 F.3d 1132, 1136 (Fed. Cir. 2007). "Moreover, the word 'is,' again a term used here in the specification, may 'signify that a patentee is serving as its own lexicographer.'" *Sinorgchem*, 511 F.3d at 1136 (internal citations omitted). Additionally, the Federal Circuit has held that the specification expressly defines a term when it states what the term "shall be understood to mean." *Chevron U.S.A. Inc. v. Univ. of Wy. Research Corp.*, 978 F.3d 1361, 1366 (Fed. Cir. 2020). There are thus three strong indications of lexicography: (1) "content-related" is set off by quotation marks; (2) the patentee used the word "is" to describe the term

"content-related"; and (3) the patentee states what "content-related" is "understood to mean."

Patent Owner's construction reflects the inventors' definitional language. For clarity, Patent Owner's construction describes what it means for data segments to have a "syntactical meaning" within a data file, as explained in the patent:

> The term "content-related" is understood to mean that first and second data segments have *a syntactical meaning within the respective data file*, such as e.g. *a plurality of succeeding second data segments* represent *the speech signal of a specific speaker within a dialog sequence*. Furthermore, *sections of the data file* can also be understood thereby, such as e.g. *individual images of a video sequence*. In the following description data segments always refer to content-based data segments.
>
> *********
>
> By the first data segments S**1** is meant *data segments of the first data file D**1** which have a content-related meaning for the first data file* D**1**, such as e.g. *individual images in a video sequence* or *individual spoken words in an audio sequence*.
>
> In this case the chronological sequence identifies that sequence of individual first data segments S**1** in which, for example, the latter are

> played back visually or made audible. For example, *one data segment contains the word "Good" and a further data segment the word "Morning", so the data segment containing "Good" is output first, and then the data segment containing "Morning"*.

(EX1001, 4:14-22, 49-60 (emphases added).)

The specification makes clear, through its use of consistent and repeated examples, that "syntactical meaning" requires a specific relationship between the data segments within a data file: *succeeding* data segments within a data file must be ordered so as to present the content in its intended *sequence* when rendered. *VirnetX Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1317-19 (Fed. Cir. 2014); *Alloc, Inc. v. ITC*, 342 F.3d 1361, 1368-71 (Fed. Cir. 2003).

Thus, if a speaker in a movie scene says "Good Morning," the corresponding audio data segments for that sequence will be ordered within the audio data file so that the "Good" audio segment is before the "Morning" data segment. Similarly, for the corresponding video sequence, the video data segment where the speaker mouths the word "Good" comes before the segment where the speaker mouths "Morning." It is this purposeful ordering of data segments that makes them "content-related" and provides them with a "syntactical meaning" within their "respective data file." Patent Owner's construction captures these relationships between the data segments and their respective files by including their sequential, chronological nature.

The claims further support Patent Owner's construction. Independent claims 1 and 9 require outputting the data segments "sequentially" and "according to their chronological sequence." (EX1001, claims 1, 9.) It is only by organizing data segments within their data files in the intended presentation order — *i.e.*, the "Good" audio segment is before the "Morning" audio segment — that outputting the segments sequentially will also result in the segments being output chronologically. The examples in the specification further buttress this lexicography. (*Id.*, Figs. 1-2, 4:23-5:9 (processing the data segments in each data file sequentially, which maintains the chronological order of the content); Fig. 5, 6:4-27 (same).)

This definition of "content-related . . . data segments" also makes sense in view of the problems the invention solved. While some media synchronization techniques are used to *create* content for the first time (e.g., splicing together various film sequences and audio samples to generate a movie), the '794 patent is used to *maintain* the proper order of previously-existing content (e.g., re-assembling the audio and video data segments that make up a television broadcast). (*Id.*, 1:34-2:3, 3:65-4:8 (describing known problems with traditional television broadcasts and other "data streams" that have an intended, chronological order that needs to be maintained by the device receiving the content).) Patent Owner's construction thus captures the meaning assigned to the term by the inventors. (Goodrich (EX2007), ¶¶56-57.)

Petitioner did not offer a competing construction for "content-related . . . data segments." (Pet., 8-9.) Petitioner's expert Dr. Freedman, however, acknowledged at his deposition that this term was defined in the '794 patent. (EX2008, 30:7-31:7 ("Q: Is that a definition in the '794 patent? A: It appears to be.").) Dr. Freedman thus agrees with Patent Owner that the '794 patent requires each set of "content-related . . . data segments" to have a "syntactical meaning" within its "respective data file." (*Id.*; EX1001, 4:14-17.)

Dr. Freedman also appears to have a similar view as Patent Owner on the interpretation of the phrase "syntactical meaning" within the definition. (EX2008, 31:8-36:9.) Dr. Freedman's examples of syntactical meaning relate to the syntax rules of a video or audio coding standard. (*Id.*, 32:13-21 ("Q: And my question is what is a 'syntactical meaning'? A: In the context of video coding standards, the organization and arrangement of content, including audio and video segments and their encodings, is defined by a syntax which determines what is allowed and what isn't allowed, what order these elements of the syntax are allowed."), 32:22-36:9.) Notably, Dr. Freedman agrees that the syntax relates to the order of the audio or video data within a data file. (*Id.*, 32:8-34:21 (describes syntax as governing, *inter alia*, the "order," "organization," "arrangement," and "allowed sequences" of the audio or video data). Critically for this Petition, Dr. Freedman agrees that the '794 patent requires each set of "content-related . . . data segments" to have a "syntactical

meaning" within its "respective data file." (EX2008, 30:7-31:7; EX1001, 4:14-17; Goodrich (EX2007), ¶58.)

The claim construction proceedings in the related district court cases further support this understanding. While Patent Owner and the opposing parties in those litigations did not fully agree on the construction of this term, as here, there was unanimous agreement that "content-related . . . data segments" is defined in the '794 patent and that it requires such data segments to have a "syntactical meaning within the respective data file." (EX2003, 4; EX2005, 9.) The only Court to construe this term also agreed construing the term to mean "segments of content data that have a syntactical meaning within the respective data file."[1] (EX2009, 4.)

Thus, while Patent Owner's construction most accurately reflects the meaning afforded to it by the inventors and should be adopted, if the Board is not inclined to resolve what it means for data segments to have a "syntactical meaning" within a

[1] In its oral order, the Court noted it was adopting its construction "without prejudice to either side raising the issue of what that definition means in conjunction with its summary judgment briefing, which at that point will hopefully shed some light for the Court on what the dispute is here." (EX2010, 112:1-6.) The Court thus has *not* resolved the meaning of "syntactical meaning" and may do so at summary judgment. (EX2010, 110:2-112:12.)

data file, then the Board should construe this term as "data segments that have a syntactical meaning within the respective data file." Given that Dr. Freedman largely agrees with Patent Owner's interpretation of "syntactical meaning," the Petition fails under either construction.

2. Preambles

Term	Patent Owner's Proposed Construction
Preambles (claims 1, 9)	The preambles are construed to be limiting. The first data file and the second data file are distinct from each other.

There are two claim construction issues related to the Preambles of claims 1 and 9 of the '794 patent: (1) whether the preambles are limiting; and (2) whether the "first data file" and the "second data file" must be different data files.

a. The Preambles Are Limiting

For independent claims 1 and 9, the preambles are limiting because they provide antecedent basis for multiple terms in the bodies of the claims, provide necessary structure for the claimed inventions, and capture the essence of the invention.

"Whether a preamble is limiting is 'determined on the facts of each case in light of the overall form of the claim, and the invention as described in the specification and illuminated in the prosecution history.'" *Bio-Rad Labs., Inc. v.*

10X Genomics Inc., 967 F.3d 1353, 1369 (Fed. Cir. 2020) (quoting *Applied Materials, Inc. v. Advanced Semiconductor Materials Am., Inc.*, 98 F.3d 1563, 1572-73 (Fed. Cir. 1996)). "No litmus test defines when a preamble limits claim scope. Some guideposts, however, have emerged from various cases discussing the preamble's effect on claim scope." *Catalina Mktg. Int'l., Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (citation omitted).

"[D]ependence on a particular disputed preamble phrase for antecedent basis may limit claim scope because it indicates a reliance on both the preamble and claim body to define the claimed invention." *Id.*; *Eaton Corp. v. Rockwell Int'l Corp.*, 323 F.3d 1332, 1339 (Fed. Cir. 2003) ("When limitations in the body of the claim rely upon and derive antecedent basis from the preamble, then the preamble may act as a necessary component of the claimed invention."). Further, "[a] preamble limits the claimed invention if it recites essential structure or steps, or if it is 'necessary to give life, meaning, and vitality' to the claim." *Bio-Rad*, 967 F.3d at 1369 (citation omitted). Likewise, when the preamble is essential to understand limitations or terms in the claim body, the preamble limits claim scope. *Catalina*, 289 F.3d at 808. "On the other hand, '[i]f the body of the claim sets out the complete invention,' then the language of the preamble may be superfluous." *Eaton*, 323 F.3d at 1339 (citation omitted); *Boehringer Ingelheim Vetmedica, Inc. v. Schering-Plough Corp.*, 320 F.3d 1339, 1345 (Fed. Cir. 2003) ("[A] preamble simply stating the intended use or

purpose of the invention will usually not limit the scope of the claim, unless the preamble provides antecedents for ensuing claim terms and limits the claim accordingly.") (citing *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1350 (Fed. Cir. 1998)).

The preambles of independent claims 1 and 9 each provide antecedent basis for two sets of claim terms. First, the preambles recite "content-related first data segments" and "content-related second data segments." (EX1001, claims 1, 9.) The bodies of both claims then refer back to these claim elements, as they recite "*the* content-related first data segments" and "*the* content-related second data segments." (*Id.* (emphasis added).) Many dependent claims also rely on the preambles of claims 1 and 9 for antecedent basis for these terms. (*Id.*, claims 2-4, 6, 10, 11.) This supports that the preambles limit both the independent and dependent claims.

Second, the preambles provide antecedent basis for the terms "first data file" and "second data file." The term "content-related . . . data segments" has been expressly defined in the '794 patent to mean "data segments that have a syntactical meaning within *the respective data file*."[2] (EX1001, 4:9-22 (emphasis added);

[2] While Patent Owner's construction elaborates on the meaning of "syntactical meaning" for clarity (*supra*, Section V.A.1), it maintains the express definition's relationship between the data segments and the respective data file.

supra, Section V.A.1.) Thus, through the definition of "content-related . . . data segments," the bodies of claims 1 and 9 refer to "the respective data file" for "the content-related first data segments" and "the respective data file" for "the content-related second data segments." The antecedent basis for each "respective data file" is provided in the preamble, which recites "content-related first data segments *of a first data file*" and "content-related second data segments *of a second data file*." (EX1001, claims 1, 9 (emphasis added).)

The preambles' "first data file" and "second data file" also provide antecedent basis for dependent claims 5, 13, 18, and 19. (EX1001, claims 5, 13, 18, 19.) The way the data files are referenced in these dependent claims presumes that they are already-existing claim limitations. Claims 18 and 19 state that "the assignment rule is maintained in *a* file separate from *the* first data file and *the* second data file." (*Id.*, claims 18, 19 (emphasis added).) Claims 18 and 19 thus introduce a new file ("*a* file") that contains the assignment rule that is distinct from already-existing files ("*the* first data file" and "*the* second data file"), which are the source of the first and second content-related data segments. (*Id.* (emphasis added).) That the first and second data files are understood to be preexisting in claims 18 and 19 demonstrates the inventors' intent for their introduction in the preambles of claims 1 and 9 to be limiting.

The preambles of claims 1 and 9 provide antecedent basis for four claim terms that are used in the bodies of the claims, which is strong evidence that the preambles are limiting. *Bio-Rad*, 967 F.3d at 1369 (finding that the preamble providing antecedent basis for two terms in the body of the claim "is a strong indication that the preamble acts 'as a necessary component of the claimed invention.'").

The preambles are also limiting for a separate, commonsense reason: "data segments" cannot exist in a vacuum. A "segment" is necessarily part of a larger *something*, from which the segment is apportioned. Referring to a "data segment" without knowing what was segmented to create it would be like walking to a deli counter and saying, "I'll have a piece." That just begs the question: A piece *of what*?

The preambles resolve that question. The "content-related first data segments" come from "a first data file," and are synchronized with the "content-related second data segments" that that are being synchronized come from "a second data file." (EX1001, claims 1, 19.) The preambles' recitations of the relationship between the content-related data segments and their respective data files provide essential structure for the claimed inventions. *See Shoes by Firebug LLC v. Stride Rite Children's Group, LLC*, 962 F.3d 1362, 1365-69 (Fed. Cir. 2020) (finding preamble limiting where it introduced "footwear" and the body of the claim referred to this essential structure as "the footwear").

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The preambles should also be found to be limiting because they set out the relationships between the content-related data segments and their respective data files, and these relationships are part of the "essence of the invention." *Boehringer*, 320 F.3d at 1345 ("[P]reamble language will limit the claim if it recites not merely a context in which the invention may be used, but the essence of the invention without which performance of the recited steps is nothing but an academic exercise. This principle holds true here, as it frequently does for method claims[.]").

The inventors expressly define "content-related . . . data segments" in the context of the data files from which they were obtained. (EX1001, 4:9-22; *supra* at __.) Moreover, every embodiment disclosed in the '794 patent describes synchronizing data segments that came from corresponding data files. (EX1001, 3:65-7:3 (describing various uses of assignment rules in relation to content-related data segments fragmented from data files D1 and D2), Figs. 1-3 (referencing the data files D1 and D2); *see also id.*, 7:4-20, Fig. 4 (describing embodiments with content-related data segments from more than two data files).) The relationship between the content-related data segments and their respective data files (plural) is even mentioned in the Title, further demonstrating that they were viewed by the inventors as core to the invention. (*Id.*, Title ("Method for Synchronizing Content-Dependent Data Segments of Files").) Additionally, claims 1 and 9 identify the very purpose

of the claims: "synchronizing," and the body of the claim describes how the synchronizing is performed.

Because the preamble is not just a context in which the invention operates, but is essential to the invention, it is limiting. *Boehringer*, 320 F.3d at 1345 (finding that the preamble was limiting because "'growing' and 'isolating' are not merely circumstances in which the method may be useful, but instead are the *raison d'être* of the claimed method itself"); *Applied Materials*, 98 F.3d at 1572-73 (finding the preamble limiting because "[t]he term 'cold purge' has its roots in the specification" and was central to the problem being solved). (Goodrich (EX2007), ¶59.)

Finally, in the two related district court cases in which there have been claim construction proceedings, all parties agreed that the preamble is limiting. (EX2003, 2; EX2004, 22.) That multiple, sophisticated parties that have an interest in vigorously litigating the '794 patent (Amazon.com and Starz Entertainment) agreed that the preambles are limiting is notable.

b. The "First Data File" and "Second Data File" Must Be Different Data Files

Within the preambles, "a first data file" and "a second data file" are set forth as separate limitations and so should be required to be met by distinct data files. Indeed, "[t]he use of the terms 'first' and 'second' is a common patent-law convention to distinguish between repeated instances of an element or limitation."

3M Innovative Props. Co. v. Avery Dennison Corp., 350 F.3d 1365, 1371 (Fed. Cir. 2003) (citing *Anchor Wall Sys., Inc. v. Rockwood Retaining Walls, Inc.*, 340 F.3d 1298, 1304 (Fed. Cir. 2003) ("first" and "second" sidewall surfaces understood to be different surfaces)); S*prings Window Fashions LP v. Novo Indus., L.P.*, 323 F.3d 989, 992 (Fed. Cir. 2003) ("first" and "second" opposed ends understood to be different ends).

Patent Owner's request for clarification that the first data file and second data file are different data files is based on well-trodden Federal Circuit law. *Gillette Co. v. Energizer Holdings, Inc.*, 405 F.3d 1367, 1373 (Fed. Cir. 2005) ("The claim is thus clearly not using the ordinals—first, second, third— to show a consecutive numerical limit *but only to distinguish or identify the various members of the group*. The case law of this court supports this reading of the claim language 'first, second, and third.'") (emphasis added) (citing *3M Innovative*, 350 F.3d at 1371). Also, there is abundant evidence that the inventors understood their invention to be about synchronizing content-related data segments from two separate data files. ('794 patent, 3:65-7:20, Figs. 1-4, Title; *supra*, Section V.A.2.a.) And in the related district court litigations, all parties agreed on this claim construction issue — the first and second data file are distinct. (EX2003, 2; EX2004, 22; Goodrich (EX2007), ¶60.)

In fact, Petitioner implicitly agrees that the two data files must be distinct, as Petitioner's analysis of why the preamble is met *assumes* distinct first and second data files. Specifically, Petitioner does not argue that a *single* data file — such as element **1** in Figure 1 of Sonohara — could meet both the "first data file" and "second data file" limitations of the preamble. (Pet., 10-14, 40-42.) Petitioner instead only attempts to map two different files to the first and second data files, respectively — such as the image file **11** and the sound file **12** in Sonohara. (*Id*.) As detailed below, this is a completely unworkable mapping; nevertheless, Petitioner viewed it as more viable than asserting that the two data file limitations could be met by a single data file. Through its choice of argument, Petitioner implicitly agrees that the first and second data files must be different data files.

In its institution decision, the Board raises two observations to "guide the parties" that are relevant to the preambles of claims 1 and 9 of the '794 patent. First, the Board states that claim 5's recitation of "media data are represented by at least one of the first data file and the second data file" "appears to add a limitation that the first and second data files are distinct, potentially suggesting that such a requirement is not part of the underlying independent claim." (Paper 8, 9-10.)

Claim 5, however, does not add a requirement that the first and second data files are distinct. As explained, such a limitation is already set forth in the preamble of claim 1. Claim 5 instead limits claim 1, from which it depends, solely by

specifying that at least one of the first and second data files is "media data." That is, while the data files set forth in the preamble of claim 1 can encompass a broad set of data, at least one of the data files in claim 5 is limited to "media" data. This excludes non-media data, such as metadata.

This interpretation of claim 5 is fully supported by the intrinsic evidence. The specification describes "media data" and "metadata" as two different types of data that can comprise the data files, with "media data" being either "video" or "audio" data. (EX1001, 3:4-10 ("With the method according to at least one embodiment of the invention, *media data*, in particular video or audio data, and/or *metadata*, in particular encoded according to the XML standard, are described by way of the first and/or second data file.") (emphases added), 4:36-41.)

Other claims support this reading of claim 5. Claim 12, which depends from claim 5, requires that the "media data" of claim 5 must be "at least one of video and audio data." (*Id.*, claims 5, 12.) Claim 5 thus limits one of the data files to media data, while claim 12 further limits that data file to containing either audio or video data. Claim 13, which depends from claim 1, is similar, in that it requires "at least one of the first data file and the second data file" to be comprised of "at least one of media data and metadata." (*Id.*, claim 13.) The '794 patent thus includes multiple dependent claims that specify the type of data in the data files, and that distinguish between media data and metadata.

Claim 5 is one such claim. It narrows claim 1 by specifying one of the two data files, which are already limitations of claim 1, is media data. It does not add a limitation that the first and second data files are distinct because the preamble of claim 1 already require different first and second data files. The doctrine of claim differentiation is therefore inapplicable to claim 5, and to all other dependent claims that reference "the first data file" or "the second data file."

The Board also suggests that claims 1 and 9 "do not require synchronization of the first data file with the second data file; rather, those claims require synchronization of the 'first *data segments*' and 'second *data segments*.'" (Paper 8, 10.) This is incorrect.

The first and second "content-related . . . data segments" do not exist in a vacuum, but rather, are expressly defined in the context of the data files from which they were created. (*Supra*, Section V.A.1.) Thus, while it is content-related data segments that are output together according to an assignment rule, and not the files themselves, the *effect* of synchronizing the data segments is that the data files are synchronized. Indeed, that is the *purpose* of the invention. The '794 patent addresses the challenge of efficiently and flexibly streaming video content, such as television broadcasts. (EX1001, 1:23-2:12.) Such content is maintained in data files, not an assortment of disconnected data segments. (*Id.*) Data files are thus central to the invention. The term "data file" is part of every disclosed embodiment

and appears in the '794 patent 60 times, including in the Title, Abstract, and all claims. (*Id.*, 3:65-7:20, Figs. 1-4, Title, Abstract, claims.)

For all these reasons, the "first data file" and "second data file" should be required to be distinct data files.

3. "assignment rule" Limitations

Term	Patent Owner's Proposed Construction
"assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments" / "assignment rule for assigning each one of the content-related second data segments to each one of the content-related first data segments" (Claims 1, 9)	assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments, wherein the assignment is not performed by using exact timing information for the content-related data segments

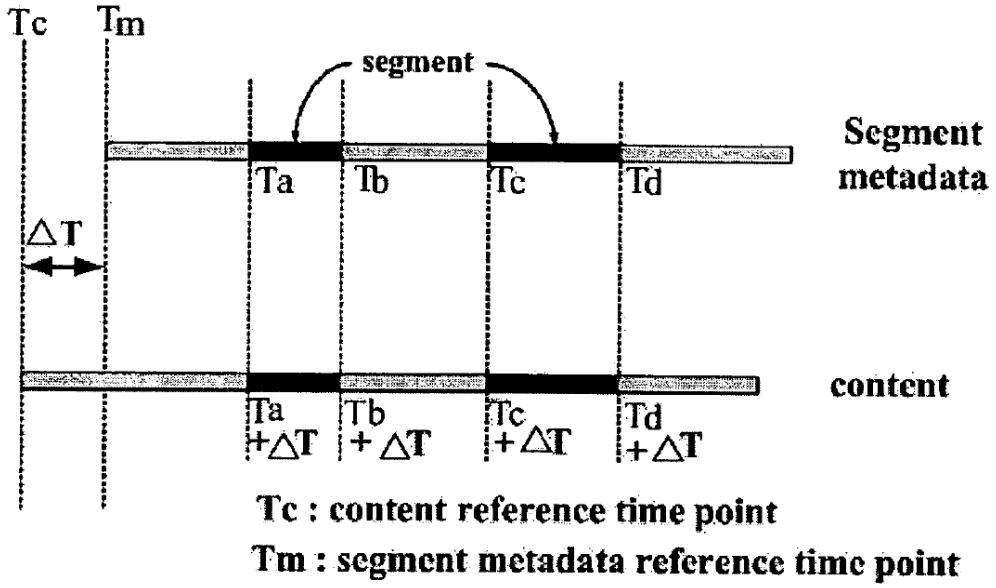
During the prosecution of the '794 patent, two prior art references were overcome based on arguments by the patentee that the claimed "assignment rule" did not encompass the techniques for synchronizing data segments disclosed in the references. By distinguishing the references in this manner, the patentee disclaimed

certain subject matter. Namely, assignment rules in which the content-related data segments are assigned to one another using exact timing information (such as timestamps). Patent Owner's construction for the "assignment rule" claim limitations reflects this disclaimer.

The first reference the patentee distinguished during prosecution was U.S. Patent No. 7,428,696 ("Shin").[3] Shin discloses a system in which different streams of data that are intended to be presented simultaneously are provided from different sources. (EX2011, 2:26-59.). For instance, one data stream might be video, while the other is metadata created based on the video. (*Id.*, 1:20-2:59.) Because the data streams come from different locations, they may arrive at different times. (*Id.*, 1:20-2:15.). If they do and are then reproduced as soon as they are received, the content will be presented asynchronously. (*Id.*, 2:16-22.)

Shin addresses this problem by aligning the data segments of the respective data streams using exact timing information. This is described with reference to Figure 6B of Shin:

[3] The Examiner's rejection was based on the related European Patent, EP1494430. (EX1002, 229-30 (2012/03/07 Non-Final Rejection, 4-5).) The patentee then overcame the rejection with reference to Shin, the U.S. Patent counterpart. (*Id.*, 259-60 (2012/04/11 Amendment, 8-9).)



(*Id.*, Fig. 6B.) Reference time points, $\mathbf{T_C}$ and $\mathbf{T_M}$, are calculated for each of the two data streams. (*Id.*, 7:36-8:67.) Then, the difference between the reference times, **ΔT,** is calculated, which corresponds to the time offset (i.e., the out-of-synchness) between the two streams. (*Id.*) This offset is then added (or subtracted) to one of the streams to ensure synchronicity for each of the data segments. (*Id.*) The result is that the corresponding content and metadata segments are aligned and output together. (*Id.*)

The patentee expressly distinguished the Shin reference because it aligned data segments using exact timing information, stating:

> Shin discloses a method for synchronizing content segments with metadata in response to user requests. Shin, col. 2, lines 31-35. The content data and metadata ***each include time information for***

> ***synchronization***. Shin, col. 2, lines 33-36. In response to user content requests, a synchronizer determines reference time points from the time information contained within the content data and the metadata. Shin, col. 2, lines 35-40 and col. 8, lines 1-6. ***The synchronizer then determines a relative time point and synchronizes the content data and metadata based on the determined time point***. Shin, col. 2, lines 42-45.
>
> The Examiner equates the relative time point of Shin to "an assignment rule" of claim 1. However, this time point does not assign "each second data segment to a first data segment." On the contrary, Shin at best determines ***a point in time in content and metadata so that they are synchronized***. Segments of one type of data are not assigned to segments of the other type; rather, ***a synchronization time is calculated***.

(EX1002, 259-60 (2012/04/11 Amendment, 8-9) (emphases added).) The Examiner agreed with these arguments and withdrew its rejection. (EX1002, 273 (2012/11/29 Final Rejection, 6) ("Applicant's arguments . . . have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.").)

By asserting that the claimed "assignment rule" does not encompass aligning the content-related data segments using exact timing information, the patentee

triggered prosecution disclaimer. *See Tech. Properties Ltd. LLC v. Huawei Techs. Co.*, 849 F.3d 1349, 1357-59 (Fed. Cir. 2017). The disclaimer is properly captured by excluding the use of "exact timing information," as more limited language, such as "timestamps," would not fully capture what was excluded. Shin performs multiple calculations based not just on timestamps, but also on reference times. (EX2011, 7:36-8:67, Figs. 6A-6D.) Both timestamps and reference times are precise, as opposed to approximate. (*Id.*) Patent Owner's construction thus accurately captures what was disclaimed, and not more or less. *Tech. Properties*, 849 F.3d at 135-59 (finding disclaimer of claim scope consistent with arguments made repeatedly and clearly to overcome prior art references). (Goodrich (EX2007), ¶¶61-62.)

The patentee distinguished U.S. Patent No. 5,598,352 ("Rosenau") during prosecution on a similar basis. Rosenau discloses a synchronization technique to address the problem that, over time, audio and video content can get out of synch. (EX2012, 1:24-3:38.) Essentially, Rosenau tracks how out-of-synch the audio and video content are using the timestamps in the content and a system clock, and once the level of asynchronicity passes a threshold time, corrective action is taken: a video frame is either repeated or skipped to (approximately) re-synchronize the audio and video (*id.*, 5:65-6:59), as shown below:

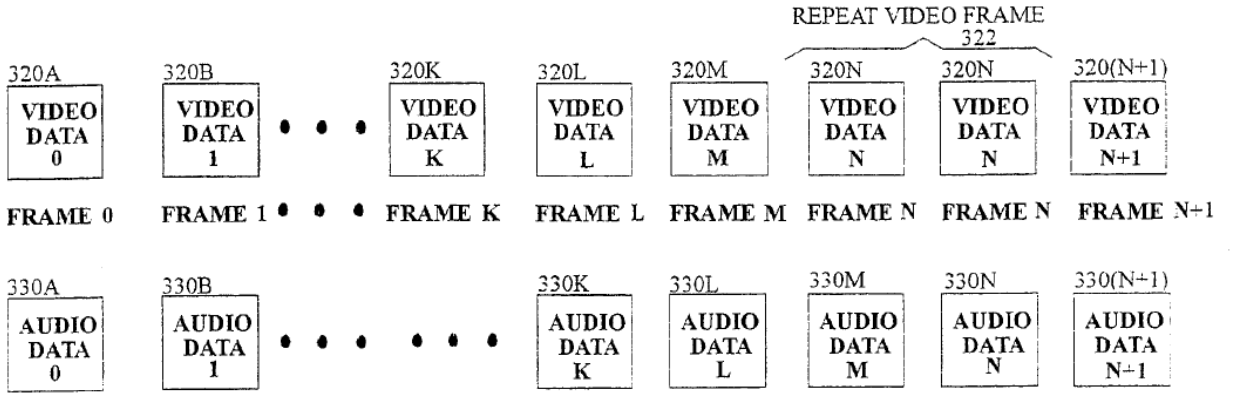


FIGURE 3B

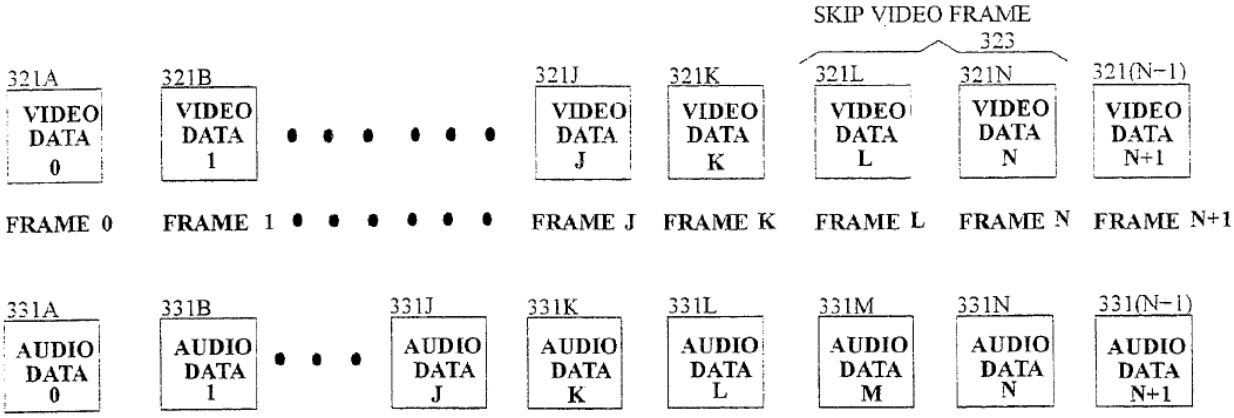


FIGURE 3C

(*Id.*, Figs. 3B, 3C.) As shown, video data segments are individually identified and output along with the audio data segment with the same identifier (e.g., **Video Data 0** and **Audio Data 0**). But when the corresponding video and audio data segments are out of synch by more than a certain amount of time (here, the length of a video frame), a video data segment is repeated or skipped.

The patentee distinguished Rosenau because it synchronized using exact timing information, which should not be considered part of the claimed "assignment rule":

Rosenau discloses a system that synchronizes a video display with audio playback. The synchronization is done by utilizing a system time clock. The synchronization is based on the timing information parsed from a data stream, which is loaded into a system time clock counter and incremented according to a predetermined clock frequency. *Rosenau*, col. 3, 1.57-col. 4, 1. 7; col. 4, 1. 3-7; col. 5, 1. 8-10, 37-40, 65-66; col. 6, 1. 24-25.

Additionally, *Rosenau* discloses that over time video data may lag the audio data. If a video frame leads an audio data by one frame, then the video frame may be skipped in order to resynchronize the video data frame with the audio data. Moreover, if the audio and video are out of sync by more than one frame, then it may be desirable to skip or repeat multiple frames. *Rosenau* col. 6, 1. 25-51.

However, the skipping and/or repeating of frames for resynchronization is not "an **assignment rule** for assigning each one of the content-related second data segments to one of the content-related first data segments", as required by Claim 1 (emphasis added). Instead, *Rosenau* merely discloses that when outputted audio data and video data fall out of sync, they may be resynchronized by skipping one or more video frames.

(*See* EX1002, 334-36 (2012/11/29 Response After Final Rejection, 13-15) (emphasis original).) The patentee thus described how Rosenau synchronizes "utilizing a ***system time clock***" and "the ***timing information*** parsed from a data stream," and distinguished it on that basis. (*Id.* (emphasis added).) The Examiner accepted this argument and reiterated this distinction in the Notice of Allowance. (EX1002, 395-96 (2013/08/01 Notice of Allowance, 4-5) ("The above discussion can be summarized as ***the frame synchronization is based on the timing information*** parsed from a data stream, which is loaded into a ***system time clock*** counter and incremented according to the clock frequency.") (emphases added).)

Patent Owner's construction, which makes clear that the assignment rule does not assign segments by using exact timing information, is thus consistent with, and necessitated by, the statements made by the patentee during prosecution. (Goodrich (EX2007), ¶63.)

Patent Owner notes that this disclaimer, and its resulting carve out from the "assignment rule," is not coextensive with the negative limitation of claims 20 and 21. Claims 20 and 21 further limit independent claims 1 and 9, respectively, by requiring that "the assignment rule is not based on a timestamp." While Patent Owner's construction requires that the assignment is not performed by "using" exact timing information (such as timestamps), claims 20 and 21 prohibit assignment rules that are "based on" a timestamp. The negative limitation in claims 20 and 21 is

broader, and so more limiting, than Patent Owner's construction. Accordingly, Patent Owner's construction is not in tension with the doctrine of claim differentiation. Even if it were, the doctrine cannot undo disclaimer. *E.g.*, *GPNE Corp. v. Apple Inc.*, 830 F.3d 1365, 1371 (Fed. Cir. 2016) ("Claim differentiation is 'not a hard and fast rule,' but rather a presumption that will be overcome when the specification or prosecution history dictates a contrary construction."). Indeed, were it possible for disclaimer to be negated by the doctrine of claim differentiation, then the claim scope a patentee forfeits to obtain its patent could be restored based on dependent claims.

Patent Owner's construction is also consistent with the specification. In the "Summary" section of the specification, assignment rules are described as advantageous because they are "carried out without the use of timestamps." (EX1001, 2:39-43; *see also id.*, 2:24-63 (describing the advantages that result from not using timestamps.) Assignment rules are then described throughout the specification without reference to using timestamps or other exact timing information, including in the claims. (*Id.*, 3:65-7:20.) *Traxcell Techs., LLC v. Nokia Solutions and Networks Oy*, 15 F.4th 1136, 1144-45 (Fed. Cir. 2021) (limiting claim scope based on statements made to distinguish prior art during prosecution that were consistent with the specification and claims). (Goodrich (EX2007), ¶¶64-65.)

Accordingly, the "assignment rule" claim limitations should be construed as "assignment rule for assigning each one of the content-related second data segments to one of the content-related first data segments, wherein the assignment is not performed by using exact timing information for the content-related data segments."

VI. PETITIONER HAS NOT SHOWN THAT ANY CHALLENGED CLAIMS ARE UNPATENTABLE

A. Abbott Does Not Disclose Ouputting "Each" Of The Second Data Segments Together With A First Data Segment Based On An "Assignment Rule"

Petitioner has not (and cannot) show that Abbott describes outputting "each" of the second data segments together with an associated first data segment based on an "assignment rule," as required by claims 1 and 9. (*Supra*, Section II.B; EX1001, claims 1, 9.) Abbott at most discloses creating indexes (the alleged assignment rule) that correlate groups of audio frames with video GOPs, using the correlations to synchronize a *single* audio frame with a *single* video GOP when a user jumps to a different point in the media, and processing the subsequent audio frames and video GOPs without any further use of the indexes. A single use of the purported assignment rule, applied to just one audio frame and one video GOP, is insufficient to meet the claim requirement "that *each* of the content-related second data segments is *output together* with an associated one of the content-related first data segments *on the basis of an assignment rule*." (EX1001, claim 1 (emphasis added), claim 9.)

Petitioner cites Abbott's descriptions of *creating* video and audio data index files that indirectly create relationships between audio frames and video GOPs. (Pet., 21-28 (citing Abbott (EX1004), 2:39-44, 2:51-60, 18:49-53, 18:58-63, 18:66-19:39, 19:58-20:24, Fig. 9).) But merely *creating* indirect logical relationships between these alleged "data segments" is insufficient to meet the express requirements of the claims.

Claim 1 is a method claim that requires the step of "outputting" each of the data segments together based on an assignment rule. Index files by themselves do not perform any acts of outputting. Claim 9 is a system claim that requires a "device configured to output" each of the data segments together based on an assignment rule. Just having indexes cannot satisfy this limitation — there must be hardware or software configured to actually output each segment based on the indexes. The index files of Abbott by themselves thus do not meet these claim limitations.

This is significant because Petitioner only relies on Abbott's descriptions of creating index files as the allegedly invalidating disclosure. (Pet., 21-28.) Abbott thus fails as an invalidating reference for this reason alone.

Yet, even if Petitioner were credited for Abbott's limited disclosures of the use of the index files, its anticipation argument still falls short. This is because Abbott only uses the index files to correlate an audio frame with a video GOP when the user moves to a different point within the media. Abbott states this expressly:

"*When jumping* to various points in an item of program material, the indexing method of the present invention ensures that a jump is made to the beginning of a GOP." (EX1004, 18:66-19:1 (emphasis added), 18:53-57 ("The media stream synchronization method of the present invention ensures that the data from every series in a group starts out in synchrony, and remains in synchrony *after any repositioning of the viewpoint within the program material*.") (emphasis added), 12:48-64, 15:55-64, 16:6-11, 16:67-17:2, 19:65-20:5.)

Following this singular use of the indexes, standard playback of content resumes, which does not use assignment rules to correlate first and second content-related data segments. (*See id.*) Indeed, Petitioner does not allege that Abbott relies on the index files (or any other purported assignment rule) during standard playback. (*Id.*, 5:46-7:35 (describing object hierarchy and processing the segments in each series without reference to anything akin to the claimed assignment rule).) Petitioner instead admits that, after a jump in content, playback resumes sequentially, and thus without the use of indexes. (Pet., 28-29 ("Even if the viewer were 'to skip to an arbitrary point in time in an item of program material,' after skipping to that time, the content at that point in time would be output and presented *sequentially*, in time order.") (citations omitted, emphasis original); *see also* EX1005 (Freedman), ¶96.) Abbott discloses using the indexes only when a jump is made in the media, not for "each" content-related second data segment (as the claims require).

Indeed, if one were to attempt to use Abbott's index files to synchronize "each" audio frame with each video GOP (the alleged data segments), the content would not playback smoothly, but instead would be repetitive and asynchronous. This is because Abbott's index files correlate *multiple* audio frames to the *start* of each video GOP, which is fundamentally different than the assignment rules of the '794 patent. (EX1004, Fig. 9, 19:1-39.)

By way of example, if the audio and video index files described with reference to Figure 9 were followed sequentially for each audio frame, audio frame **A1** would be output with the start of video **GOP1**; audio frame **A2** would then be output with the start of **GOP1**; audio frame **A3** would next be output with the start of **GOP1**; and same for audio frames **A4** and **A5**. A similar outputting of audio frames **A6** through **A9** would occur with **GOP2**. The effect of this would be the highly repetitive playback of video (the first part of **GOP2**) that is frequently out-of-sync with the audio (every audio frame after the first). And because the same video GOP would be partially output multiple times in a row before jumping to the start of the next video GOP, the video data would not be output "sequentially" or "chronologically," as required by the claims. (EX1001, claims 1, 9.)

The expert declaration of Dr. Freedman adds nothing of substance to Petitioner's analysis of this claim limitation; it merely repeats the petition using slightly different words. (EX1005, ¶¶82-90.) Thus, Petitioner has failed to show

that "each" content-related second data segment is "output together" with a content-related first data segment on the basis of an "assignment rule." This claim limitation is in the two petitioned independent claims and thus in all petitioned claims. (EX1001, claims 1, 3, 5, 9, 12-13, 15, 20-21.) Petitioner's anticipation argument based on Abbott (Ground 1) thus fails.

Petitioner's purported obviousness arguments for Abbott (Ground 2) do not address this shortcoming, and so are also unavailing. (Pet., 27-30; EX1005, ¶¶91-100.)

Petitioner first argues that "a POSITA would have recognized *Abbott's* index files to correspond to an *assignment rule*" because of supposed similarities in form and function, and so "Abbott's index files at least render obvious the recited *assignment rule*." (Pet., 28 (emphasis original), 30.) This is not an obviousness argument, but rather, a different way of stating that the limitation is literally met. Nonetheless, it is irrelevant to the identified defect in Abbott, which is about the use of the assignment rule to output each data segment. Patent Owner is not presently arguing that the assignment rule must be in an XML document or other particular format, which is the type of deficiency Petitioner's argument is intended to address.

Petitioner's second argument is also not an obviousness argument, but instead an assertion that the "output together" limitation is taught "or at least suggest[ed]" by Abbott's disclosures of presenting audio and video content and synchronizing

audio and video. (Pet., 29.) This argument is likewise immaterial, as it does not address the failure of Abbott to describe outputting data segments together *based on an assignment rule*.

Thirdly, Petitioner argues that to the extent that Abbott does not disclose "sequentially" outputting the segments, it would have been obvious as a simple matter of "common sense." (Pet., 28-29.) Whatever "sense" this argument may have, it too has no bearing on the missing claim limitation discussed above.

Petitioner's obviousness arguments also fail as a matter of law because Petitioner does not explain how Abbott should be modified, provide a rationale to modify the Abbott reference to arrive at the claimed invention, or explain why the POSITA would have a reasonable expectation of success in implementing the modification (much less provide evidence in support thereof). *In re Stepan Co.*, 868 F.3d 1342, 1345-46 (Fed. Cir. 2017) ("An obviousness determination requires finding both 'that a skilled artisan would have been motivated to combine the teachings of the prior art . . . and that the skilled artisan would have had a reasonable expectation of success in doing so.'"); *see also id.* at 1346 n.1 ("The dissent suggests the PTO need not establish a reasonable expectation of success where there is a single prior art reference. We do not agree. Whether a rejection is based on combining disclosures from multiple references, combining multiple embodiments from a single reference, or selecting from large lists of elements in a single reference,

there must be a motivation to make the combination and a reasonable expectation that such a combination would be successful, otherwise a skilled artisan would not arrive at the claimed combination.") (citation omitted).

Any obviousness argument based on Abbott would in any case fail because Abbott is directed to solving different problems than the '794 patent using different means. (*Supra*, Section II.C.) The indexes of Abbott are designed to quickly find a point in time from which to resume playback when the user jumps to a new point in the timeline of the content — they are not concerned with nor address how to quickly and efficiently align data segments *during* playback, which is what the '794 patent is about. (*Id.*) Because Abbott does not even recognize the problem that the '794 patent addresses, try to solve it, or provide a motivation to solve it, Abbott is neither a suitable starting point for an obviousness argument nor a useful secondary reference.

B. Sonohara Does Not Disclose Synchronizing or Sequentially Outputting Content-Related Data Segments From Two Distinct Data Files

Petitioner fails to show, and cannot show, that Sonohara describes "synchronizing content-related first data segments of a first data file and content-related second data segments of a second data file" or "sequentially outputting . . . the content-related first data segments and the content-related second data segments." (EX1001, claims 1, 9.)

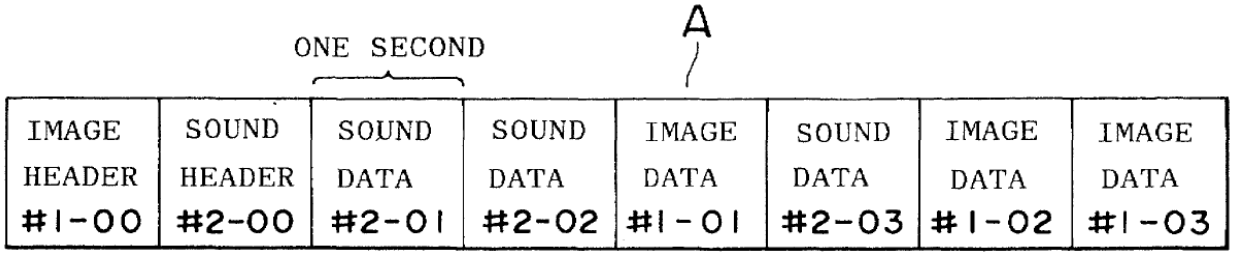
As an initial matter, the Petition provides no analysis of the term "content-related," which is an express and repeated limitation of all claims. (*See* Pet., 37-51; EX1005 (Freedman), ¶¶125-156.) The '794 patent defines "content-related . . . data segments" as "data segments that have a syntactical meaning within the respective data file." (EX1001, 4:9-22; EX2008, 30:7-31:7.) Patent Owner further interprets this term to require "data segments ordered in a file such that they will present the file's contents in their intended presentation order when rendered sequentially." (*Supra*, Section V.A.1.) Petitioner's expert, Dr. Freedman, similarly understands "syntactical meaning" to require, *inter alia*, a specific order of data segments within a data file, and a specific format, such as an audio or video coding standard. (*See id.*; EX2008, 32:4-36:9 ("In the context of video coding standards, the organization and arrangement of content, including audio and video segments and their encodings, is defined by a syntax which determines what is allowed and what isn't allowed, what order these elements of the syntax are allowed.").)

The Petition simply does not address these requirements of "content-related . . . data segments." (Pet., 37-51.) That is, there is no discussion of the purported data segments in Sonohara having a "syntactical meaning" within a data file. Despite largely agreeing with Patent Owner on the meaning of this phrase, Dr. Freedman does not address its requirements either. (EX1005, ¶¶125-156.) This failure to map Sonohara to a limitation in all claims necessarily means that Sonohara does not

anticipate any claims. *See Apple Inc. v. MPH Techs. Oy*, IPR2019- 00820, (Paper 10) at 49-55, 2020 WL 5735601 (P.T.A.B. Sept. 24, 2020) (finding petitioner did not meet its burden of showing unpatentability of claims where the petitioner did not address a claim limitation) *aff'd*, *Apple Inc. v. MPH Techs. Oy*, No. 2021-1355, 2022 WL 4103286, at *6-7 (Fed. Cir. Sept. 8, 2022). Petitioner also fails to make any obviousness argument related to "content-related . . . data segments" (Pet., 37-51; EX1005, ¶¶125-156.), and so Sonohara does not render any claims obvious. (Goodrich (EX2007), ¶¶75-79.)

In all events, Sonohara cannot invalidate any claims of the '794 patent because it does not disclose the claim limitations of "synchronizing content-related first data segments of a first data file and content-related second data segments of a second data file" or sequentially outputting "the content-related first data segments and the content-related second data segments." (EX1001, claims 1, 9.)

Sonohara describes creating a single data file 1 with unit times of audio and video data. (EX1003, 1:51-2:4, Fig. 1.) The unit times have a particular syntactical meaning within this single data file. For example, as shown in Figure 7 of Sonohara (reproduced below), both the audio and video unit times are stored together in the single data file, with audio unit times interspersed with video unit times. The image header provides additional syntax information about the unit times within the data file, including their track and identifying numbers. (*Id.*)



(EX1003, Fig. 7.)

Petitioner does not rely on this single data file, or its syntax-related information for the unit times, in its analysis of how Sonohara meets the claim limitations of "synchronizing" or "sequentially outputting" the "content-related data segments." (Pet., 37-51; EX1005, ¶¶125-156.) Nor could it, because as Petitioner acknowledges, the preambles and the bodies of claims 1 and 9 both require that the first and second "content-related . . . data segments" come from two distinct data files. (EX1001, claims 1, 9; *supra*, Sections V.A.1, V.A.2.) The single data file disclosed in Sonohara cannot meet the claim requirement of two, different data files. The unit times and their syntactical meaning within the single data file thus cannot meet the claimed requirements of "content-related first data segments of a first data file" and "content-related second data segments of a second data file." (Goodrich (EX2007), ¶¶66-72.)

Petitioner instead seeks to rely on the original image and sound data files as mapping to the two different data files. (Pet., 37-42.) But while the two source data files may be distinct, they do not have any corresponding "content-related . . . data

segments." Petitioner alleges that the unit times in the single data file are the corresponding "content-related . . . data segments." (Pet., 38.) By doing so, Petitioner improperly alternates between relying on the single data file and then relying on the two source data files. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369-71 (Fed. Cir. 2008) ("Because the district court had 'treated the claims as mere catalogs of separate parts, in disregard of the part-to-part relationships set forth in the claims and that give the claims their meaning,' we reversed.").

Petitioner's mapping fails for two additional reasons. First, the unit times in the single data file are not "of" the source data files because their syntactical meaning is completely different in the single data file than it would be in the source data files. The unit times are described in Sonohara as having a particular syntax: they are stored in a particular order in the single data file and identifying information is maintained in the header file. (EX1003, 1:51-2:4, Fig. 1.) By contrast, the two source data files (**11** and **12** in Figure 4) have different syntaxes. Each file only contains audio or image data, and so the order and structure of each file is necessarily different than the single data file **1** that stored both kinds of data. (EX1003, 1:11-3:25.) The two files also do not have headers with additional syntax information. (*Id.*) Thus, any mapping of the "content-related . . . data segments" to the unit times in Sonohara's single data file necessarily fails, because the syntactical meaning of its alleged data segments is different than the syntactical meaning of the audio and

image data within the separate image and sound files. (Goodrich (EX2007), ¶¶69-74.)

Said another way, because the syntactical meaning is different between the source data files and the single data file, any alleged mapping of the "content-related . . . data segments" that relies on the source data files cannot also rely on the single data file, as this would improperly map one disclosure to a claim term in one part of the claim (i.e., the preamble) and then a different disclosure to the same claim term in a different part of the claim (i.e., the body of the claim). *Net MoneyIN*, 545 F.3d at 1369-71. Petitioner divides how it addresses the preamble — first addressing the claim language of "synchronizing content-related first data segments" and "content-related second data segments" before discussing the "of a first data file" and "of a second data file" language — to conceal this inconsistency in its claim mapping.

Second, in addition to the syntax of the unit times being different in the single data file as compared with the data in the source data files, the audio and image data itself is different between the two. As Sonohara explains, when unit times of the audio and image data are stored into the single data file, they are also "imparted" with track numbers and identifying numbers. (EX1003, 1:59-65, 2:9-16, 2:57-65, 3:6-20, 4:45-54, 5:57-6:11, 8:3-26.) The unit times in the single data file have thus been modified such that they are not "of" the source data files. (EX2007 (Goodrich),

¶¶71-79.) This imparting of track and identifying numbers also further alters the syntax of the data within the respective data files.

Additionally, the POSITA would not interpret the unit times of the single data file to be "of" the source data files, for all the reasons above, and because Sonohara is explicitly directed to techniques for synchronizing image data and sound data that are part of the *same* data file. In fact, the use of a single data file instead of two is central to its alleged contribution to the art. (*See supra*, Section II.D; EX1003, 1:36-59.) By contrast, independent claims 1 and 9 require synchronizing the data segments of *separate* data files. Sonohara thus cannot anticipate either claim. (EX2007 (Goodrich), ¶¶66-79.) *In re Chudik*, 851 F.3d 1365, 1372 (Fed. Cir. 2017) "[A] prior art reference that 'must be distorted from its obvious design' does not anticipate a patent claim.").

Indeed, enabling the two data file limitations to be met because the image data and sound data in Sonohara "originate from" separate files (Pet., 40) would, as a practical matter, render the claim limitation of two data files superfluous. This is because whether the claim limitation is met would, in most instances, hinge not on what is being synchronized (which is the entire focus of the patent and claims), but on how the source of the data being synchronized was created in the first instance.

That is, under Petitioner's view, the first and second data file limitations can be met merely because the alleged content-related data segments were purportedly

stored in separate data files *at any time in the past*. So if one were to record audio and video using a device that stores them in separate data files, and then perform the claimed synchronization, then one would infringe. By contrast, if one were to happen to record audio and video using a device that stores them in the same data file, and then perform the claimed synchronization, then one would not infringe. Thus, whether the two data file limitations are met would hinge on happenstance rather than deliberate actions of would-be infringers. Indeed, because such an interpretation of the relationship between the "content-related . . . data segments" and the two distinct data files would render the two data files limitations essentially "void, meaningless, or superfluous," it should be found to be excluded as a matter of claim construction. *Wasica Finance GmbH v. Continental Automotive Sys., Inc.*, 853 F.3d 1272, 1288 n.10 (Fed. Cir. 2017) (rejecting a claim construction because it "would effectively remove [claim limitations] from the claim, as it would make them optional or potentially nonexistent"); *see also Intel Corp. v. Qualcomm Inc.*, 21 F.4th 801, 809-10 (Fed. Cir. 2021) (collecting cases, including *Duncan v. Walker*, 533 U.S. 167, 174, (2001) (refusing to adopt a statutory construction that "would render the word 'State' insignificant, if not wholly superfluous")).

Excluding such an interpretation as a matter of law is also supported by the intrinsic evidence. Synchronizing content-related data segments from two distinct data files — as opposed to data that was at any time in the past stored in two distinct

data files in a different order and format, which is how Petitioner is interpreting the claims — is central to the invention. The inventors expressly define "content-related . . . data segments" in the context of the data files from which they were obtained, two different data files are required in every claims, and every embodiment disclosed in the '794 patent describes synchronizing data segments that came from corresponding data files. (*See* EX1001, 3:65-7:20, Figs. 1-4, Title, Abstract; *supra*, Section V.A.2.) *See VirnetX*, 767 F.3d at 1317-19.

As with the Abbott reference, Dr. Freedman's declaration merely parrots the Petition. (EX1005, ¶¶125-132.) *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9, at 15 (Aug. 24, 2022) (an expert declaration that repeats conclusory assertions of the petition is "entitled to little weight"). Petitioner thus fails to show that Sonohara discloses synchronizing data segments from two distinct data files. Because this claim limitation is in the two petitioned independent claims, Petitioner cannot prevail on its anticipation argument based on Sonohara (Ground 3) for any petitioned claims.

Petitioner makes several obviousness arguments for Sonohara (Ground 4). (Pet., 45-46, 49, 51; EX1005, ¶¶138-140, 150-152, 155-156.) They are not directed to the above deficiencies, but instead to the "chronological sequences" and "assignment rule" limitations. (*Id.*) Petitioner's obviousness arguments thus fail for the same reasons its anticipation arguments fail.

Further, like with its obviousness arguments for Abbott, Petitioner's obviousness arguments for Sonohara fail as a matter of law because Petitioner does not explain how Sonohara should be modified, provide a rationale to modify the Sonohara reference to arrive at the claimed invention, or explain why the POSITA would have a reasonable expectation of success in implementing the modification. *In re Stepan Co.*, 868 F.3d 1342, 1345-46 (Fed. Cir. 2017).

In all cases, Sonohara is an exceptionally poor reference for an obviousness argument against the '794 patent. Sonohara, which has a priority date of 1992, predates all the problems that led to and were solved by the '794 patent, namely, the need to quickly and efficiently order and align data segments transmitted over the Internet to meet changing consumer needs. (*See supra*, Section II.A.) The alleged data segments in Sonohara to be synchronized are not transmitted separately over the Internet, but are instead always stored together on a recording medium. (EX1003, Fig. 4.) Moreover, the core premise of Sonohara, and a key part of its alleged innovation, is the creation of a *single* data file that contains both the audio and video data. (*Id.*, 3:21-24, 8:19-26.) This is done to *avoid* the very synchronization challenges that the '794 patent overcomes. (*Id.*) A Sonohara-based obviousness argument would require undoing this central tenet, and so must fail.

C. Sonohara Does Not Disclose An "Assignment Rule"

The patentee disclaimed the use of assignment rules that assign each of the content-related second data segments to one of the content-related first data segments "by using exact timing information." (*Supra*, Section V.A.3.) This disclaimer was necessitated by statements made by the patentee to overcome obviousness rejections based on the Shin and Rosenau references. (*Id.*) Because Sonohara uses exact timing information to align the first and second content-related data segments, just as in Shin and Rosenau, it cannot meet the "assignment rule" claim limitation.

Shin described synchronizing the data segments of two data streams by using reference timestamps for each data stream to calculate on out-of-synchness **ΔT** between them, and then adding or subtracting this offset to the starting timestamps of each data segment in one of the data streams. (EX2011, 1:20-2:59, 7:36-8:67, Figs. 6A-6D.) Thus, the starting time of every data segment in one of the data streams (which was set by each data segments' timestamp) was modified by a certain amount of time (which was computed using timestamps) to synchronize the data segments from the two data streams. (*Id.*)

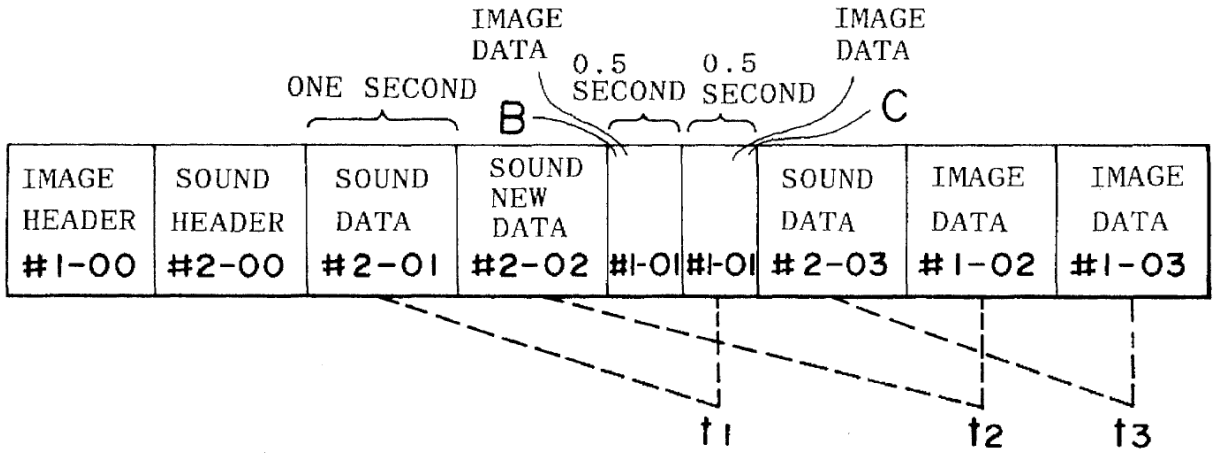
Rosenau tracks how out-of-synch the audio and video content are using the timestamps in the content and a system clock, and once the level of asynchronicity passes a threshold time, a video frame is either repeated or skipped to

(approximately) re-synchronize the audio and video. (EX2012, 5:65-6:59, Figs. 3B, 3C.) During prosecution, Shin's and Rosenau's use of exact timing information to align data segments from separate data streams was expressly described by the patentee as not constituting an "assignment rule." (*Supra*, Section V.A.3.)

Sonohara also aligns the alleged data segments using exact timing information. In particular, Sonohara discloses that "unit times" of the audio and image data, which Petitioner maps to the content-related data segments, are stored in the single data file **1**. (EX1003, 1:51-2:8.) These unit times are assigned track numbers (which designate the unit times as being audio data or image data) and identifying numbers (which identify and distinguish the unit times within the audio data track and image data track, respectively). (*Id*.) Every unit time, in both tracks, has the same time duration. (*Id*.) In fact, the unit time is 1 second in every embodiment of Sonohara. (*Id.*, 5:57-65, Figs. 7-8.)

Sonohara describes the reproduction of the audio and video unit times, *at specific points in time*, with reference to Figure 8 (reproduced below):

FIG.8



(*Id.*, Fig. 8.) Sonohara states:

> ***At the time*** when the data identifying number of the image data is identified with the data 30 identifying number of the sound data, the image data and sound data are read in synchronism from the region 42. For example, in the example shown in FIG. 8, ***at the time t1***, the sound data **#2-01** for one second and the new image data **#1-01** for 0.5 seconds and the image data **#1-01** for 0.5 seconds are read in synchronism.
>
> . . .
>
> Further, in the example shown in FIG. 8, ***at time t2***, the sound data **#2-02** for one second and the image data **#1-02** for one second are read in synchronism.

(*Id.*, 7:29-51 (emphases added).) In effect, Sonohara discloses outputting corresponding unit times (**#1-02** and **#2-02**) — which have a predetermined, constant

time duration (1 second) — at specific, pre-set times (**t1** and **t2**). Sonohara thus relies on exact timing information — the duration of the unit times and **t1** and **t2** — to assign the alleged content-related data segments to one another. Accordingly, Sonohara's technique for reproducing unit times is of the same kind disclosed in Shin and Rosenau, and also does not constitute an "assignment rule." (Goodrich (EX2007), ¶¶80-84.)

Petitioner seeks to avoid this conclusion by emphasizing that the header in the data file **1** of Sonohara maintains a listing of the track and identifying numbers of the unit times. (Pet., 48-50.) But the identifying numbers, as their name suggests, are merely used to identify (and thus distinguish) the unit times from one another, so that they can be reproduced at particular times. The same is true for the track numbers, which simply distinguish between audio unit times and image unit times. When it comes to reproducing the audio and image data, the exact timing information of the unit times and when they are output is central to the synchronization.

This is best illustrated by considering what would happen if the unit times were not all the same length or if they were not all output at exact times. For instance, if the audio data were stored in 1 second increments, while the image data were stored in 2 second increments, then outputting them based on track and identifying numbers would not result in synchronization. Similarly, if the duration

of the audio data increments varied while the video data increments were the same length of time, following the alleged assignment rule would not result in synchronization. Alternatively, if all the audio data and image data were stored in 1-second increments but were output every 0.5 seconds (instead of every 1 second), then the content would not be presented on chronological order (as the claims of the '794 patent require) because half the content would be skipped over. As these hypotheticals illustrate, Sonohara's techniques only work by using exact timing information to align the unit times of audio and image data.

This contrasts with the assignment rule of the '794 patent. The Figure 1 embodiment discloses aligning every audio data segment with every other video data segment. (EX1001, 3:65-5:34, Fig. 1.) Nothing about the precise duration of the data segments or exact times at which they are output is disclosed, nor does it need to be. It could be that every audio data segment is twice as long as every video data segment. There could be a much more complex relationship, where the first audio segment is 5 seconds long and the next is 10 seconds, while the corresponding video data segments are 4 seconds, 1 second, 2 seconds, and 8 seconds, respectively.

What this embodiment of the '794 patent shows, which applies broadly, is that the assignment rule can achieve synchronization independent of timestamps, precise durations, or other exact timing information. This aspect of assignment rules is core to the '794 patent, and is the basis over which references like Shin and Rosenau were

distinguished. Sonohara is distinguishable for the same reason. (Goodrich (EX2007), ¶¶80-89.)

Petitioner purports to make an obviousness argument related to the assignment rule. (Pet., 49, 51.) But it is based solely in Sonohara, and is merely a conclusory (and illogical) assertion that if Sonohara does not teach the limitation, then the limitation is rendered obvious because Sonohara teaches the limitation. (*Id.* (“”[T]o the extent *Sonohara* does not explicitly disclose an *assignment rule*, a POSITA would have recognized that *Sonohara’s* control information in the header renders obvious an *assignment rule*, because the control information in the header couples together segments with the same identifying number so that they are output together (i.e., the control information in the header performs the same function of *assigning each one of the content-related second data segments to one of the content-related first data segments*.”) (emphasis original).) Petitioner does not explain how Sonohara should be modified, provide a rationale to modify the Sonohara reference to arrive at the claimed invention, or explain why the POSITA would have a reasonable expectation of success in implementing the modification. The Petition is thus insufficient as a matter of law. *In re Stepan Co.*, 868 F.3d 1342, 1345-46 (Fed. Cir. 2017). (Goodrich (EX2007), ¶¶90-91.)

Dr. Freedman does not address any of these failures, as his declaration contains the same illogical assertion that Sonohara renders obvious the “assignment

rule" claim limitation because it performs the same function, which is really an anticipation argument. (EX1005, ¶156.) Dr. Freedman also cites an additional purported prior art reference (which is not mentioned or analyzed in the Petition), but only to support his assertion that assigning data segments with one another was known by the POSITA at the time of the invention of the '794 patent. (*Id.*) Dr. Freedman provides no analysis to support this assertion, much less the other required elements of a proper obviousness analysis. (*Id.*)

In all cases, the problem with Sonohara is that it uses exact timing information to align the first and second content-related data segments, which is not permitted. (*Supra*, Section V.3.) Thus, a Sonohara-based obviousness argument would need an analysis of how and why Sonohara would be modified to *remove* this functionality. Neither Petitioner nor Dr. Freedman provide this analysis. Indeed, neither acknowledges the failure of Sonohara to meet the assignment rule limitations.

D. Sonohara Does Not Disclose An "Assignment Rule" That Is Not Based on a Timestamp

Claims 20 and 21 of the '794 patent further limit claims 1 and 9, respectively, by specifying that "the assignment rule is not based on a timestamp." (EX1001, claims 1, 9.) Sonohara does not meet this claim limitation because the "assignment rule" that Petitioner alleges relies on is based on two timestamps: (1) the unit times

of audio data and image data, which are all the same exact time duration, and (2) the specific points in time at which corresponding unit times are reproduced.

Petitioner's expert, Dr. Freedman, states that "[i]n the context of the '794 patent, a *timestamp* or "time code" (*see* '794 Patent (EX1001), 6:47) would be understood to be an absolute time or time range, e.g., 0:00.00-0:01.00. (EX1005 (Freedman), ¶167 (emphasis original).) Applying this understanding of a timestamp, which Petitioner adopts (Pet., 55 n.2), the alleged "assignment rule" is based on two different timestamps. That is, Sonohara discloses outputting corresponding unit times (e.g., **#1-02** and **#2-02**) that have a predetermined, constant time duration (e.g., 1 second) — at specific, pre-set times (**t1** and **t2**) — to assign the alleged content-related data segments to one another. (EX1003, 7:29-51.) The unit times correspond to a time range, which is a timestamp. And the pre-set times correspond to absolute times, and so are also timestamps. It is the combination of having unit times with an exact time duration and reproducing them at pre-set time that constitutes the alleged assignment rule. (Pet., 54-55, 57.) Because this teaching of Sonohara is

"based on a timestamp" in two different ways (applying Dr. Freedman's definition of a timestamp), and so cannot meet the limitation.[4] (Goodrich (EX2007), ¶¶92-94.)

Petitioner asserts that this limitation is also rendered obvious in view of Sonohara, but provides no analysis whatsoever. (Pet., 54-55, 57.) Dr. Freedman does the same. (EX1005, ¶¶166-169, 178.) This is insufficient. *In re Stepan Co.*, 868 F.3d 1342, 1345-46 (Fed. Cir. 2017).

VII. CONCLUSION

For the reasons stated above, the Petition fails to show that any challenged claim is unpatentable.

Dated: April 17, 2023

By: /*Christine E. Lehman*/
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[4] To be clear, the alleged assignment rule is not "based on a timestamp" simply because the unit times *have* an exact time duration, but because the synchronization of the unit times using the alleged assignment rule would not occur properly if the unit times did *not have* the same durations. (*Supra*, Section VI.C.)

CERTIFICATE OF COMPLIANCE

The undersigned hereby certifies that Patent Owner's Response consists of 13,784 words, excluding the table of contents, table of authorities, certificate of service, table of exhibits, and this certificate of compliance. The Response complies with the type-volume limitation of 14,000 words as mandated in 37 C.F.R. § 42.24. In preparing this certificate, counsel has relied on the word count of the word-processing system used to prepare this paper (Microsoft Word).

Dated: April 17, 2023

Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing **PATENT OWNER'S RESPONSE** was served on April 17, 2023, via electronic mail, as agreed to by counsel, upon the following counsel for Patent Owner:

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