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 PRELIMINARY RESPONSE

**TABLE OF CONTENTS**

# 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 |

VL Collective IP LLC ("Patent Owner") submits this Preliminary 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").

## I. INTRODUCTION

Petitioner's request for *inter partes* review should be denied because there are clear distinctions between the asserted references and the petitioned claims.

As an initial matter, Petitioner's Grounds are premised on an overbroad interpretation of the claims. Indeed, Petitioner does not propose any terms for construction, despite there being express definitions of key claim terms in the specification. Under any reasonable interpretation of the claims, there are clear gaps in Petitioner's mapping of the references to the claims. Petitioner tries to conceal them by breaking each claim limitation into multiple, sometimes disjointed sub-limitations. But a careful reading of the references and a close analysis of their purported application to the claims shows that Petitioner's anticipation arguments fail.

This is because 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 audio and video data that make up a stream of audiovisual content 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.

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 a stream of data segments, which is the central focus of the '794 patent.

In short, Petitioner fails to show that there is a reasonable likelihood that it will prevail on any challenged claims. Accordingly, institution should be denied.

## II. BACKGROUND

### A. Overview of the '794 Patent

In the early 2000s, the inventors of the '794 patent realized that the way that audiovisual content (e.g., television shows and movies) was transmitted to consumers was fundamentally changing. For decades, content had been transmitted to consumers primarily through televisions. Moreover, within each global region (e.g., the United States or Europe), television content was encoded in a single

formatting standard (e.g., the PAL standard in Europe and the NTSC standard in the United States) that could be played by all televisions. (Ex. 1001, 1:23-33.)

But with the increasing importance of the Internet, the types of devices to which content could be transmitted was proliferating. (*See id.*, 1:34-43.) Content was now being streamed to computers, laptops, PDAs, and other electronic devices. These new devices 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. (*See 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.

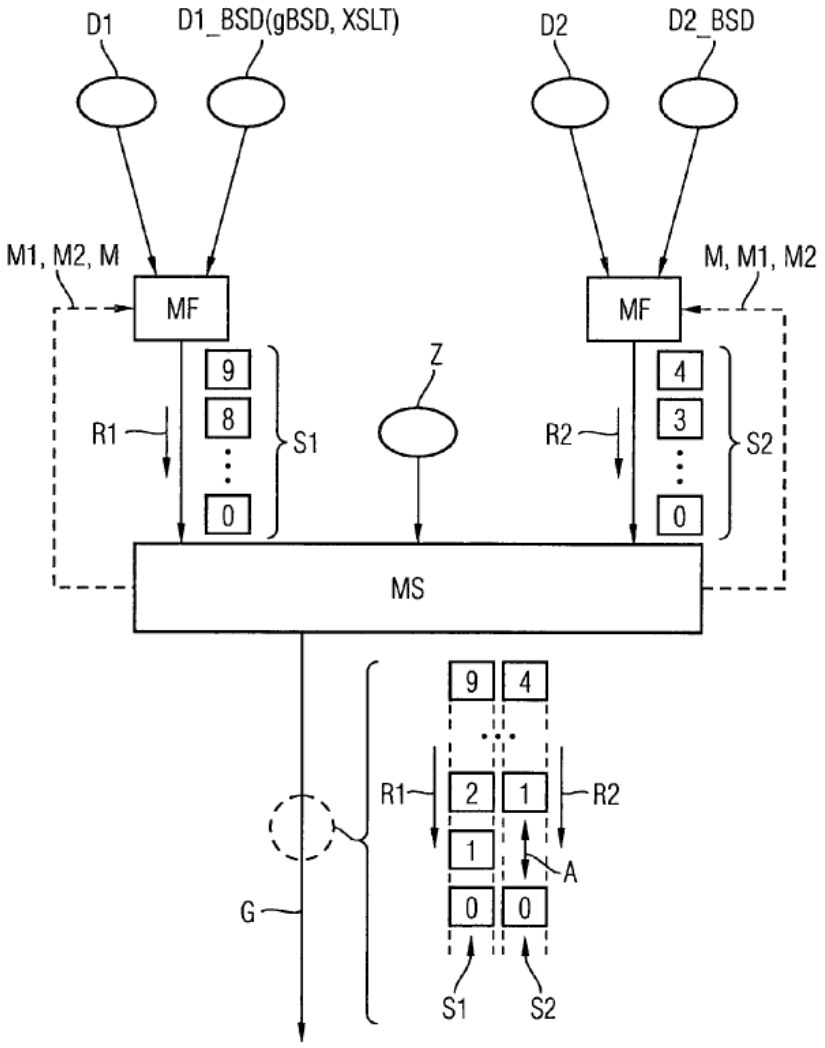
The inventors also knew that it would be beneficial to be able to change the quality of content *during a stream*. (*See id.*, 1:64-2:20.) That is, when an Internet connection is weak, send lower quality content; when the connection is strong, send higher quality content. Different content formats were thus not just necessitated by different device capabilities. Even for the same device and during a single stream, it was advantageous to be able to vary the quality of the transmitted 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, for example, a movie's audio and video data was broken up into numerous "segments" that might be stored on various Internet servers. (*See 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 until the entire file had been downloaded.

Prior to the innovations of the '794 patent, however, there was not a suitable method for aligning the various audio and video segments that comprised a piece of content. The need was all the greater when switching between content formats midstream (e.g., to account for changing Internet bandwidth) or skipping to different points within a piece of content. (*See id.*, 1:56-2:9.) Techniques existed but had a large overhead, and so could be slow and resource intensive. (*See id.*, 2:4-12.) These techniques generally used timestamps or other exact timing information to synchronize the data segments. (*See id.*, 2:42-43; Ex. 1002, '794 File History, 259-60 (2012/04/11 Amendment, pp. 8-9), 273 (2012/11/29 Final Rejection, p. 6), 334-36 (2012/11/29 Response After Final Rejection, pp. 13-15), 396 (2013/08/01 Notice of Allowance, p. 5).)

The '794 patent improves upon prior implementations. It describes a novel technique that uses "assignment rules" to govern the order and alignment of data segments. More specifically, assignment rules 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). The application of assignment rules enables data segments from different data files to be output sequentially, chronologically, and synchronously. (*See* Ex. 1001, 2:36-3:3, claims 1, 9.) These assignment rules are not based on timestamps or other exact timing information. (*See id.*, 2:42-43.)

Figure 1 of the '794 patent demonstrates the operation of an exemplary assignment rule. **D1** represents a video data file. (*Id.*, 3:67-4:5.) It is fragmented into video data segments numbered **0** through **9**. (*Id.*, 4:9-53.) **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 indicates that the audio segments are twice as long timewise as the video segments. So, to maintain the proper alignment between the audio and video segments of different lengths, the assignment rule in Figure 1 dictates that each audio data segment is assigned to every second video data segment. Thus, 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 illustrative assignment rules are described in the specification. (*See id.*, 5:35-6:42, Figs. 2, 4-5.) 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. (*See id.*)

Today, online video streaming is ubiquitous, and the ability to alter the format of content mid-stream has been standardized and is known as "adaptive bitrate streaming." There are two main protocols for this type of delivery: Dynamic

Adaptive Streaming over HTTP ("DASH") and HTTP Live Streaming ("HLS"). These protocols are used by all major streaming services (e.g., Netflix, Amazon Prime Video, Disney+) and stream the vast majority of online video.

The contributions of the '794 patent to online video technology has been recognized by the video streaming industry. MPEG LA, which pioneered the concept of technology-specific patent pools and has created and maintained patent pools that efficiently license key technologies worldwide, launched a patent pool for DASH in November 2016. (Ex. 2001, 16.) The '794 patent was submitted for inclusion into MPEG LA's DASH patent pool, evaluated by MPEG LA's patent experts, and declared as essential to using DASH to stream content. Indeed, the '794 patent is one of just 10 U.S. patents that have been deemed essential to DASH, and its importance to the streaming technology and foundational nature is evidenced by the fact that it has the earliest invention date of all patents in the pool. Numerous companies have taken a license to the '794 patent to obtain the right to use its technology to stream video. (*E.g.*, Ex. 2002, 1.)

### B. The Claims of the '794 Patent

The '794 patent claims novel methods and systems that simplify how audio and video data are synchronized before playback, resulting in faster rendering and lower overhead. Exemplary method claim 1 and system claim 9 are shown below:

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.

9. A device for synchronizing content-related first data segments of a first data file and content-related second data segments of a second data file, comprising:

a synchronization device configured to output each of the content-related first data segments and the content-related second data segments, sequentially, according to their chronological sequence, each of the content-related second data segments being output together with an associated one of the content-related first data segments based upon of an assignment rule for assigning each one of the content-related second data segments to each one of the content-related first data segment.

(Ex. 1001, claims 1, 9.)

### C. Overview of Abbott (Ex. 1004)

Abbott primarily describes an object hierarchy for flexibly creating content streams. (Ex. 1004, 5:46-12:46.) The basic building block in the hierarchy is an atom, which is a file that contains content data (e.g., audio or video data). (*Id.* at 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.

Abbott's object hierarchy enables functionality ranging from the straightforward delivery of audio and video data for a movie, to inserting commercials into a TV show at predefined times, to mixing and matching various media sources to create new content. (*Id.*, 8:11-10:55, Figs. 3-5.) Notably, while audio and video data can be loosely related to one another through their inclusion in

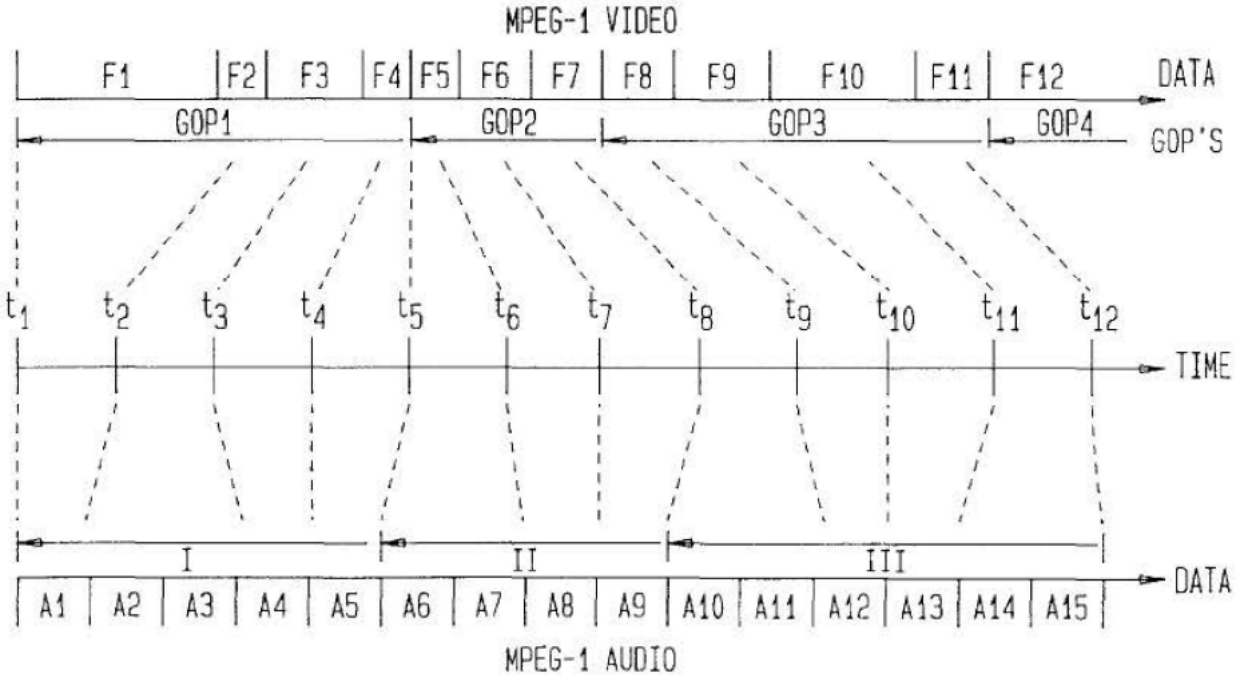
series and groups, Abbott's object hierarchy does not have a means for defining relationships between specific portions of audio and the corresponding portions of video.

In addition to its object hierarchy, 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.) In particular, because of technical difficulties involved with jumping to literally *any* point in time in content, Abbott describes using indexes to ensure that the content only jumps to points in time where it is easier and faster to render the 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.*)

The way this works is that, 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; thus, 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 enable proper synchronization between audio and video data when jumping throughout content because, as described above, Abbott's object hierarchy does not otherwise interrelate particular portions of audio and video data.

*FIG. 9*




(*Id.*, Fig. 9.)

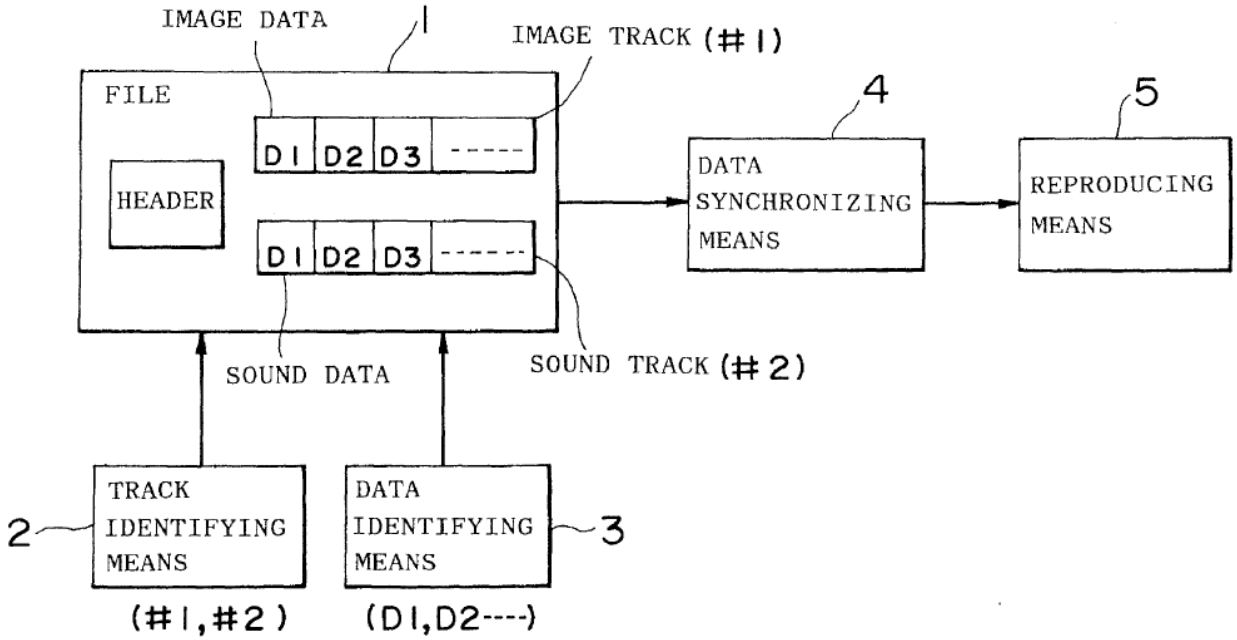
Thus, when the user jumps to a different point in content, Abbott's indexing enables the content to more quickly render in a synchronized manner (at the start of a video GOP and the closest-in-time audio frame). Importantly, once this index-enabled synchronization has been performed, playback resumes according to the object hierarchy configurations, and the indexes are not used until another jump in content is made. (*See, e.g.*, *id.*, 18:66-19:1 (describing using indexes only when jumping to points in content), 18:53-57 (same); *see also* 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).) This is in sharp contrast to the '794 patent, where assignment rules are used to interrelate *each* second data segment with its corresponding first data segment. (Ex. 1001, claims 1, 9.)

**D. Overview of Sonohara (Ex. 1003)**

Sonohara discloses techniques to address some of the difficulties of reproducing audio and video data — such as on a CRT monitor and a loud speaker — in synchronicity when they are stored in separate data files. (Ex. 1003, 1:11-39.) Specifically, Sonahara notes that rendering the content simultaneously 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.)

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




The image and sound data in the file (**1**) are identified as separate tracks (**#1** and **#2**). (*Id.*, 1:59-62.) Further, each unit time (e.g., 1 second) of the audio and video tracks are separately identified (**D1**, **D2**, **D3**, etc.). (*Id.*, 1:62-65.) Header information in the file can be used to synchronously reproduce the unit times of the image and sound data. (*Id.*, 1:66-2:4.)

Thus, unlike the '794 patent, which describes techniques for synchronizing 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. (*Supra*, section II.A.) Indeed, Sonohara claims a foreign priority date of November 2, 1992, which predates the '794 patent and the video streaming context in which it arose by more than a decade.

## 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, but for purposes of its Preliminary Response, does not dispute this assumed priority date.

## IV. LEVEL OF ORDINARY SKILL

Petitioner sets forth a level of ordinary skill. (Pet., 6.) Patent Owner reserves the right to dispute Petitioner's definition if an IPR is instituted. For present

purposes, this Preliminary Response establishes that Petitioner's arguments fail even under its preferred definition of the level of ordinary skill.

## V. RELATED MATTERS

Patent Owner is asserting the '794 patent in the following district court actions:

- *Starz Entertainment, LLC et al. v. VL Collective IP LLC et al.*, No. 21-cv-1448-JLH (D. Del.)
- *VideoLabs, Inc. et al. v. Amazon.com, Inc. et al.*, No. 22-00079-ADA (W.D. Tex.)
- *VideoLabs, Inc. et al. v. Netflix, Inc.*, No. 22-229-CFC (D. Del.)

## VI. CLAIM CONSTRUCTION

The inventors of the '794 patent acted as their own lexicographers and expressly defined several claim terms. Additionally, certain claim scope was disclaimed during prosecution.

Despite this, Petitioner's position is that "no claim term requires construction beyond their plain and ordinary meaning." (Pet., 9.) Petitioner is incorrect, and appears to have ignored the narrowing definitions and disclaimers to better its chances of fitting its asserted references into the claims of the '794 patent. Notably, Petitioner is not presently accused of patent infringement by Patent Owner, and so does not face the need to balance the benefits of a broad claim interpretation for

invalidity purposes against the disadvantages for infringement purposes. Petitioner's failure to adequately consider the proper meaning of key claim terms results in a fatally flawed petition.

Set forth below is Patent Owner's preliminary claim construction analysis, which addresses certain claim terms that are pertinent to Petitioner's alleged grounds of unpatentability. Patent Owner reserves all rights to rely on additional claim constructions should an IPR be instituted.

### A. Patent Owner's Claim Construction Analysis

Patent Owner offers the following constructions at this time:

| Term | Patent Owner's Proposed Construction |
|---|---|
| Preambles (claims 1, 9[1]) | The preambles are construed to be limiting. The first data file and the second data file are distinct from each other. |
| 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 |
| output / outputting (claims 1, 9) / (claim 1) | transmitted, stored together, or passed on to a processing unit / transmitting, storing together, or passing on to a processing unit |

[1] The proposed constructions apply for the identified claims and their dependent claims.

Patent Owner's first construction stems from well-established case law about when preambles are limiting. The other two constructions reflect express lexicographic definitions set forth in the specification of the '794 patent.

**1. 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. |

Patent Owner proposes that the preambles of claims 1 and 9 are limiting, and that in addition to the limitations set forth in the preamble, the referenced "first data file" and "second data file" are distinct from each other (i.e., they cannot be the same data file).

"In general, a preamble limits the invention if it recites essential structure or steps, or if it is 'necessary to give life, meaning, and vitality' to the claim." *Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (quoting *Pitney Bowes, Inc. v. Hewlett–Packard Co.*, 182 F.3d 1298, 1309 (Fed. Cir. 1999)). "[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." *Shoes by Firebug LLC v. Stride Rite Children's Grp., LLC*, 962 F.3d 1362, 1367 (Fed. Cir. 2020). "Likewise, when the

preamble is essential to understand limitations or terms in the claim body, the preamble limits claim scope." *Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002).

Here, the preambles provide antecedent basis for key claim elements and recite essential limitations that inform the meaning and scope of the body of the claims. They introduce the terms "content-related first data segments" and "content-related second data segments," which are then referenced in the body of the claims: "*the* content-related first data segments" and "*the* content-related second data segments." (Ex. 1001, claims 1, 9 (emphasis added).) The preambles also describe the relationship between the content-related data segments and their respective data files: "content-related first data segments *of a* first data file" and "content-related second data segments *of a* second data file. (*Id.* (emphasis added).)

The relationship between data segments and their respective data files is an important one that is described throughout the specification. (*Id.*, 3:67-5:9, Figs. 1-3.) As explained below (*infra*, section VI.A.2), this relationship is incorporated into the construction of the term "content-related . . . data segments," which is a term used repeatedly in the body of the claims. (Ex. 1001, claims 1, 9.) The relationship informs how and why the first and second data segments are "sequentially output . . . according to their chronological sequence. (*Id.*; *infra*, section VI.A.2.) Finally, claims 1 and 9 recite a method and device respectively for "synchronizing" these

data segments, and the body of the claim describes how the synchronizing is performed.

The preambles are thus "essential to understand[ing]" which "content-related . . . data segments" the claim body is referring to and give meaning and structure to elements in the claim's body — which renders them limiting. *See Catalina Mktg. Int'l, Inc.*, 289 F.3d at 808.

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) (collecting cases); *see also Gillette Co. v. Energizer Holdings, Inc.*, 405 F.3d 1367, 1373 (Fed. Cir. 2005) ("The terms 'first, second, and third' are terms to distinguish different elements of the claim[.]"). It also makes little practical sense in the context of the '794 patent for the first and second data files to be the same file, as the claim would then require synchronizing the file with itself. (Ex. 1001, claims 1, 9.)

Finally, in two of the litigations in which the '794 patent is being litigated, the parties have agreed to Patent Owner's proposed construction, either using the identical words or highly similar language that capture the same meaning. (Ex.

2003, 2; Ex. 2004, 22.) To date, there have not been any other claim construction proceedings for the '794 patent.

For all these reasons, the preambles of claims 1 and 9 should be determined to be limiting, and the "first data file" and "second data file" should be required to be distinct from each other.

**2. "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 accurately and unambiguously reflects. Specifically, in the Detailed Description section of the specification, the '794 patent uses definitional language to describe the meaning of "content-related" as it applies to data segments: "The term 'content-related' is understood to mean . . . ." (Ex. 1001, 4:14-15.)

When a term in the specification "is set off by quotation marks," as is the case here, it is "often a strong indication that what follows is a definition." *Sinorgchem Co., Shan-dong 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) ("Here, the 'express language' of the specification 'requires' that the term 'gradually' '*shall be understood to mean* that the alkane mobile phase solvent is incrementally removed from the column over a period of time by continuously adding a final mobile phase solvent . . . .'") (emphasis in original, citations omitted). 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."

However, the words that follow this definitional language cannot be mechanistically adopted as the construction. This is because the ensuing language (reproduced below) includes the phrase "syntactical meaning," the meaning of which is inherently context specific. For instance, certain rules of syntax govern the English language, while a very different syntax applies in the context for computer programming languages. The correct understanding of "syntactical meaning" — and thus of the meaning of "content-related . . . data segments" must thus be discerned by the ensuing examples.

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 S1 is meant *data segments of the first data file D1 which have a content-related meaning for the first data file* D1, 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 S1 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"*.

(Ex. 1001, 4:14-22, 49-60 (emphasis added).)

The specification thus makes clear, through its definitional language and use of consistent and repeated examples, that for "content-related . . . data segments," *succeeding* data segments within a data file are 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). It is the relationship between data segments that provide them with "syntactical meaning" within a data file.

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 data file. Patent Owner's proposed construction captures these relationships between the data segments and their files by including their sequential, chronological nature. Merely affording the term its plain and ordinary meaning, as Petitioner proposes, would not.

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." (Ex. 1001, 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. (*See, e.g.*, *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 — for example, 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. (*See 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 proposed construction thus captures the meaning that was assigned to the term by the inventors.[2]

[2] In the district court litigations where the parties have begun the claim construction process, there is agreement that the inventors acted as lexicographers and defined

Accordingly, the term "content-related . . . data segments" should be construed as "data segments ordered in a file such that they will present the file's contents in their intended presentation order when rendered sequentially."

**3. "output" / "outputting"**

| Term | Patent Owner's Proposed Construction |
|---|---|
| output / outputting (claims 1, 9) | transmitted, stored together, or passed on to a processing unit / transmitting, storing together, or passing on to a processing unit |

Here again, the patentee uses language that clearly indicates lexicography: "In this context the term 'output' is understood to mean that first and second data segments are, for example, transmitted, stored together or passed on to a processing unit." (Ex. 1001, 2:43-46.) *Sinorgchem Co., Shan-dong v. Int'l Trade Comm'n*, 511 F.3d 1132, 1136 (Fed. Cir. 2007); *Chevron U.S.A. Inc. v. Univ. of Wy. Research Corp.*, 978 F.3d 1361, 1366 (Fed. Cir. 2020). Patent Owner's construction adopts

---

this term but disagreement over its precise definition. (Ex. 2003, 4; Ex. 2005, 9.) But only Patent Owner's construction accurately reflects the meaning the inventors ascribed to the term and expresses it clearly so that it can be consistently applied, whereas the competing construction omits key aspects of the term's definition, is vague, and invites confusion and disagreement.

the definitional words without further modification, as there is no need for additional clarity.

And while the definition of "output" in the specification is prefaced with the words "for example," the examples that follow are commensurate with the full scope of the term conveyed by the specification. For instance, in the context of flexibly streaming content, that data segments will be output by transmitting them (e.g., to a display device), storing them together (e.g., in a buffer before rendering), or passing them on for processing (e.g., by the video processor). (Ex. 1001, 1:56-2:12, 2:24-3:10.) The definition of "output" consists of these pre-rendering steps.

Notably, in the two district court litigations where claim construction has begun, the parties all stipulated to the construction of "output" and "outputting" that Patent Owner proposes here. (Ex. 2003, 1; Ex. 2005, 4.)

The terms "output" and "outputting" should thus be construed as "transmitted, stored together, or passed on to a processing unit" and "transmitting, storing together, or passing on to a processing unit," respectively.

## VII. THE PETITIONER HAS NOT SHOWN A REASONABLE LIKELIHOOD THAT IT WILL PREVAIL ON ANY OF THE CHALLENGED CLAIMS

### 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 shown, 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 is required by independent claims 1 and 9. (*See supra*, section II.B; Ex. 1001, claims 1, 9.) At most, Abbott 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 plainly insufficient to meet the claim limitation requiring "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*." (Ex. 1001, claim 1 (emphasis added); *see id.*, claim 9.)

Petitioner cites to the disclosures in Abbott that describe *creating* video and audio data index files that indirectly create relationships between audio frames and video GOPs. (Pet., 21-28 (citing Abbott (Ex. 1004), 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 the limitations of claims 1 or 9.

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 given credit for Abbott's limited disclosures of the use of the index files, its anticipation argument is still unavailing. 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." (Ex. 1004, 18:66-19:1 (emphasis added); *see also id.*, 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, nor could it. (*See, e.g.*, *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* Ex. 1005 ("Freedman Decl."), ¶ 96.) Abbott thus 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 the index files of Abbott 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. (Ex. 1004, 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. (Ex. 1001, claims 1, 9.)

The expert declaration of Dr. Immanuel Freedman adds nothing of substance to Petitioner's analysis of this claim limitation; it merely repeats the petition using slightly different words. (Ex. 1005, ¶¶ 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. (*See* Ex. 1001, claims 1, 3, 5, 9, 12-13, 15, 20-21.) Petitioner's anticipation argument based on Abbott (Ground 1) thus fails.

Because Petitioner's purported obviousness arguments for Abbott (Ground 2) do not address this shortcoming, much less remedy it, they also do not justify institution. (Pet., 27-30; Ex. 1005, ¶¶ 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); *see also id.*, 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. (*See 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.

Petitioner has thus failed to establish that Abbott discloses or renders obvious the limitation in independent claims 1 and 9 of outputting each of the second data segments together with an associated first data segment based on an assignment rule. Because this limitation is in all petitioned claims, Petitioner has failed to show a reasonable likelihood that it will prevail with respect to Abbott (Grounds 1 and 2).

### B. Sonohara Does Not Disclose Synchronizing Data Segments From Two Distinct Data Files

Sonohara describes 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; Ex. 1003, 1:36-59.) By contrast, independent claims 1 and 9 of the '794 patent require synchronizing the data segments of *separate* data files. Sonohara thus cannot anticipate either claim.

The preamble of claim 1, which is limiting (*supra*, section VI.A.1), recites "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*." (Ex. 1001, claim 1 (emphasis added).) The preamble is followed by a single step that achieves the claimed synchronization by, *inter alia*, "sequentially outputting . . . *the* content-related first data segments and *the* content-related second data segments." (*Id.* (emphasis added).) Claim 9's limiting preamble similarly recites "A device for synchronizing *content-related first data segments of a first data file* and *content-related second data segments of a second data file*," and is followed by a description of the device as "configured to output each of *the* content-related first data segments and *the* content-related second data segments." (*Id.*, claim 9 (emphasis added).) Claims 1 and 9 thus both require outputting the first and second data segments of

first and second data files. The first and second data files are distinct and cannot be the same data file. (*Supra*, section VI.A.1.)

The only parts of Sonohara that Petitioner cites as allegedly meeting this claim limitation is the specification's description of an "image file" and "sound file" and their depiction in Figure 4. (Pet., 40-42 (citing Ex. 1003, 4:12-20, Fig. 4 (files denoted with the numbers "11" and "12").) But these image and sound files are not the files from which the alleged data segments come from. Indeed, Petitioner does not point to any supposed data segments from these data files as meeting any claim limitations that require data segments. Petitioner instead relies on the alleged data segments that are in the *single* data file. (*Id.*, 38-39 ("*Sonohara's* use of *segments* of the image data and audio data is depicted in Figure 1 and Figure 7.") (citing Ex. 1003, Figs. 1 (single data file with image data segments and sound data segments denoted with the number "1"), 7.) Petitioner divides how it addresses the Preamble limitation — 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 hole in their claim mapping, but it is readily apparent once revealed.

Petitioner argues that this limitation is met because the image data and sound data "originate from" separate files. (Pet., 40.) But the claims require synchronizing the content-related data segments "of" a first data file and a second data file. It is

thus not enough that the underlying information that comprises the data segments was at some point in the past stored in two separate files. The data segments that are being synchronized must be from distinct data files. It is indisputable that the data segments that are synchronized in Sonohara are not.

As with the Abbott reference, Dr. Freedman's declaration merely parrots the Petition. (Ex. 1005, ¶¶ 125-132.) 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 show a reasonable likelihood of success for its anticipation argument based on Sonohara (Ground 3) for any petitioned claims. (*See* Ex. 1001, claims 1, 3, 5, 9, 12-13, 15, 20-21.)

Petitioner makes several obviousness arguments for Sonohara (Ground 4). (Pet., 45-46, 49, 51; Ex. 1005, ¶¶ 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. (*See, e.g.*, Ex. 1003, 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. (*See 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.

Accordingly, Petitioner has not established that it is likely to prevail with respect to Sonohara (Grounds 3 and 4).

## VIII. CONCLUSION

For the reasons stated above, institution of the IPR should be denied.

Dated: October 7, 2022 By: /*Christine E. Lehman*/

Christine E. Lehman
PTO Reg. No. 38,535
**Counsel for Patent Owner**

## CERTIFICATE OF COMPLIANCE

The undersigned hereby certifies that Patent Owner's Preliminary Response (the "POPR") consists of 8,143 words, excluding the table of contents, certificate of service, this certificate of compliance, or table of exhibits. The POPR 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: October 7, 2022

Respectfully submitted,

/*Christine E. Lehman*/
Christine E. Lehman
PTO Reg. No. 38,535
**Counsel for Patent Owner**

## CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing **PATENT OWNER'S PRELIMINARY RESPONSE** was served on October 7, 2022, via electronic mail, as agreed to by counsel, upon the following counsel for Patent Owner:

Raghav Bajaj
raghav.bajaj.ipr@haynesboone.com
David L. McCombs
david.mccombs.ipr@haynesboone.com
HAYNES & BOONE, LLP
2323 Victory Ave. Suite 700
Dallas, TX 75219

Roshan Mansinghani
roshan@unifiedpatents.com
Ellyar Y. Barazesh
ellyar@unifiedpatents.com
Unified Patents, LLC
4445 Willard Ave., Suite 600
Chevy Chase, MD 20815

Dated: October 7, 2022

/*Jaime F. Cardenas-Navia*/
Jaime F. Cardenas-Navia
*Pro Hac Vice Forthcoming*