

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HULU, LLC,
AMAZON.COM, INC., and
NETFLIX, INC.,
Petitioners,

v.

REALTIME ADAPTIVE STREAMING LLC,
Patent Owner.

Case IPR2018-01187
Patent No. 9,769,477

PATENT OWNER'S RESPONSE

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EXHIBIT LIST

Exhibit No.	Description
2001	Declaration of Kayvan B. Noroozi in Support of Motion for Admission <i>Pro Hac Vice</i> .
2002	Declaration of Kenneth A. Zeger, Ph.D.
2003	Transcript of Oral Deposition of James Storer, Ph.D, taken in IPR2018-01187 on May 8, 2019.
2004	Digital Compression and Coding of Continuous-Tone Still Images – Requirements and Guidelines (JPEG Standard)

I. Introduction

It is axiomatic that unpatentability cannot be found where the Petition fails to explain how the prior art, alone or combined, reads on to and discloses each and every limitation of the challenged claims. The instant Petition fails at that crucial level. The Petition never identifies a specific “first asymmetric data encoder” that is “configured to” compress faster than a “second asymmetric data encoder.” And Petitioner’s expert, Dr. Storer, was unable to provide any further detail under cross-examination. Rather than identify any “first encoder” that would be “configured” to be faster than any “second encoder,” Dr. Storer merely stated that *any* encoder could constitute the “first” or “second” encoders. *Infra* at IV. That assumes that the claim simply requires *two encoders*, whereas in fact the claim requires one encoder that is “configured to” compress faster than a second encoder. *Infra* at IV-V. Indeed, the Petition simply attempts to read “configured to” out of the claim—contravening numerous Federal Circuit precedents. And by stating that *either* of Imai’s encoders could compress at a faster rate than the other one, the Petition *actually concedes that Imai cannot meet Claim 1*: to admit that either encoder could be faster is to admit that neither encoder is configured to be faster than the other. Ex. 2002 ¶61.

Moreover, the Petition entirely fails to recognize—and address—the distinct requirements of independent Claim 20 and its dependents, which require

compression at a higher *ratio*, rather than a higher *rate* (or speed), as recited in Claim 1.

The Petition thus fails to show that the prior art either taught the challenged claims or rendered them obvious.

The Petition also fails to provide an adequate motivation to combine, notwithstanding the Federal Circuit's decision in *Realtime v. Iancu*, 912 F.3d 1368 (Fed. Cir. 2019). The motivation to combine inquiry is necessarily fact-specific. A simpler combination entails a lower hurdle than a more complex one. In *Realtime v. Iancu*, the Federal Circuit merely addressed the adequacy of the petition's showing that an ordinary artisan would have "turned to" a secondary reference in order to "better understand or interpret" the primary reference's compression algorithms. *Id.* at 1374 ("This is enough evidence to support a finding that a person of ordinary skill in the art *would have turned to Nelson*, a well-known data compression textbook, *to better understand or interpret O'Brien's compression algorithms.*") (emphasis added). The Federal Circuit did **not** hold that the motivation to combine evidence in *Realtime v. Iancu* was sufficient to prove that an ordinary artisan would have **modified** the primary reference in light of the secondary reference. To the contrary, the theory accepted in that case relied entirely on the teachings of the primary reference alone to meet all claim elements, and did not require any modification to the primary reference. *Id.* By contrast, the

combinations at issue here requires substitutions and modifications to Imai in view of Pauls. But the Petition does not demonstrate *why* an ordinary artisan would have been motivated to make those specific proposed modifications, as the law requires.

Thus, as this Response demonstrates, the Petition cannot prevail.

II. Background of the '477 patent and challenged claims

Petitioners challenge Claims 1-6, 9-14, 20-22, and 25-27 of U.S. Patent No. 9,769,477. The Petition's challenge is based on the following Grounds:

Ground	References	Basis	Challenged Claims
Ground 1	Imai	Obviousness (§103)	1, 3-5, 12-14
Ground 2	Pauls	Obviousness (§103)	1, 3-6, 9-14
Ground 3	Imai and Pauls	Obviousness (§103)	1, 3-6, 9-14
Ground 4	Imai, Pauls, and Chao	Obviousness (§103)	2, 11, 20-22, 25-27

The '477 patent “is directed to a system and method for compressing and decompressing based on the actual or expected throughput (bandwidth) of a system employing data compression” Ex. 1001 at 7:66-8:3. The invention seeks to “provide[] a desired balance between execution speed (rate of compression) and efficiency (compression ratio).” *Id.* at 8:24-27. For example, where the speed of the encoder causes a “bottleneck” because “the compression system cannot maintain the required or requested data rates,” “then the controller will command the data compression system to utilize a compression routine providing *faster compression* . . . so as to mitigate or eliminate the bottleneck.” *Id.* at 14:14-24.

Claim 1 is directed to a system that selects among “asymmetric data compression encoders” where “a first asymmetric data compression encoder . . . is *configured to compress . . . at a higher data compression rate* than a second asymmetric data compression.” Claim 1 of the '477 patent recites:

Element	Claim 1
1[PR]	A system, comprising:
1[A]	a plurality of different asymmetric data compression encoders, wherein each asymmetric data compression encoder of the plurality of different asymmetric data compression encoders is configured to utilize one or more data compression algorithms, and
1[B]	wherein a first asymmetric data compression encoder of the plurality of different asymmetric data compression encoders <i>is configured to compress</i> data blocks containing video or image data <i>at a higher data compression rate</i> than a second asymmetric data compression encoder of the plurality of different asymmetric data compression encoders; and
1[C]	one or more processors configured to: determine one or more data parameters, at least one of the determined one or more data parameters

	relating to a throughput of a communications channel measured in bits per second; and
1[D]	select one or more asymmetric data compression encoders from among the plurality of different asymmetric data compression encoders based upon, at least in part, the determined one or more data parameters.

The specification of the '477 patent makes clear that “data compression rate” refers to the “execution speed of the algorithm.” *Id.* at 1:63-67. Thus, Claim 1 and its dependents require a “first asymmetric data compression encoder” that is “configured to compress” at a *higher execution speed* than a “second asymmetric data compression encoder.”

Independent Claim 20, by contrast, requires “a first *video data compression encoder . . . configured to compress* at a higher compression ***ratio*** than a second data compression encoder.” Thus, unlike Claim 1, which recites a compression *rate* (i.e., speed), Claim 20 recites compression *ratio* (i.e., size of the compressed data compared to the uncompressed data). Claim 20 further requires “at least one of the *video data compression encoders*” to be “configured to utilize an arithmetic data compression algorithm.” Claim 20 recites:

Element	Claim 20
20[PR]	A system comprising;
20[A]	a plurality of <i>video</i> data compression encoders;
20[B]	wherein at least one of the plurality of video data compression encoders is configured to utilize an asymmetric data compression algorithm, and
20[C]	wherein at least one of the plurality of video data compression encoders is configured to utilize an <i>arithmetic data compression algorithm</i> ,
20[D]	wherein a first video data compression encoder of the plurality of video data compression encoders is <i>configured to compress at a higher compression ratio</i> than a second data compression encoder of the plurality of data compression encoders; and
20[E]	one or more processors configured to: determine one or more data parameters, at least one of the determined one or more data parameters relating to a throughput of a communications channel; and
20[F]	select one or more video data compression encoders from among the plurality of video data compression encoders based upon, at least in part, the determined one or more data parameters.

III. Petitioners' proposed claim constructions

The Board does not construe claim terms unnecessary to resolve the controversy. *Shenzhen Liown Electronics Co. v. Disney Enterprises, Inc.*, IPR2015-01656, Paper 7 at 10 (Feb. 8, 2016) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

Petitioners have proposed constructions for the terms “asymmetric data compression encoder[s]” and “data blocks.” Pet. 7-9. These terms do not require construction in order to resolve the parties' dispute. Rather, as this Response demonstrates, the Board should deny the Petition in full regardless of Petitioners' proposed. Accordingly, the Board need not construe “asymmetric data compression encoder[s]” or “data blocks.”

IV. Ground 1 fails to explain what would be the “first asymmetric data encoder” and what would constitute the “second asymmetric data compression encoder”

A Petition cannot establish unpatentability, based on anticipation or obviousness, where it fails to articulate *how* the prior art teaches a particular claim limitation. *See, e.g., Comcast Cable Commc'ns, LLC v. Rovi Guides, Inc.*, IPR2017-00956, 2017 WL 4102214, at *6 (Sept. 15, 2017) (“Comcast does not explain how this disclosure meets the claim limitation of control circuitry on a mobile device processing data ‘to identify content’ of television programming ‘to generate a first graphical user interface.’”); *Arris Int'l Plc v. Sony Corp.*, IPR2016-

00827, 2016 WL 6594910 (Sept. 28, 2016); *Cao Grp., Inc. v. The Proctor & Gamble Company*, IPR2014-00797, 2014 WL 6706553, at *5 (Nov. 26, 2014) (“Patent Owner contends that the Petitioner has not established anticipation of every element of the claims because Petitioner does not adequately explain how Gaglio discloses either the pressure limitation or the viscosity and tackiness limitation that is required by each of the claims. We agree.”).

The Federal Circuit has held that obviousness based on a prior art combination cannot be reached absent a clear explanation or evidence “showing [] *how* the combination of the two references was supposed to work.” *Personal Web Tech. v. Apple*, 848 F.3d 987, 994 (Fed. Cir. 2017) (emphasis original). As the Federal Circuit explained in *Personal Web*, “such a clear, evidence-supported account *of the contemplated workings* of the combination is a *prerequisite* to adequately explaining and supporting a conclusion that a relevant skilled artisan would [1] have been *motivated* to make the combination and [2] *reasonably expect success* in doing so.” *Id.* (number and emphasis added).

Where a Petition relies on combining elements of the prior art, it must explain “how any specific combination would operate or read on” the claims. *ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc.*, 694 F.3d 1312, 1327-28 (Fed. Cir. 2012). In other words, it is not enough for the Petition to simply point to some aspect of the prior art and allege that it teaches or suggests a given limitation

in the challenged claim; the Petition fails unless it further explains *how* the cited aspect of the prior art in fact teaches the limitation in question. Conclusory or vague assertions will not do. *KSR Intern. Co v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (“Rejections on obviousness grounds cannot be sustained by mere conclusory statements.”); *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (“It is of the utmost importance that petitioners in the IPR proceedings adhere to the requirement that the initial petition *identify ‘with particularity’* the ‘evidence that supports the grounds for the challenge to each claim.’”) (emphasis added) (quoting 35 U.S.C. § 312(a)(3)).

Thus in *Harmonic Inc. v. Avid Tech., Inc.*, the Federal Circuit affirmed the Board’s finding that the Petition’s mere reference to certain teachings in the prior art, without an explanation as to how those teachings met the elements of the challenged claim, were fatally conclusory. 815 F.3d 1356, 1363 (Fed. Cir. 2016) (finding that “Harmonic *does not explain how Haskell’s control of bit rate teaches the specific claim limitation*”) (emphasis added).

To the same effect, the Federal Circuit made clear in *Magnum Oil Tools Int’l, Ltd.* that “[t]o satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements.” 829 F.3d 1364, 1380 (Fed. Cir. 2016). “The petitioner must instead articulate *specific reasoning*, based on evidence of record, to support the legal conclusion of obviousness.” *Id.* (emphasis added).

The Board has therefore not hesitated to reject a petition's allegations where they are found to be conclusory, and the Federal Circuit has routinely affirmed such Board decisions. *Harmonic*, 815 F.3d at 1363; *Wasica Fin. GmbH v. Cont'l Auto. Sys., Inc.*, 853 F.3d 1272, 1286 (Fed. Cir. 2017); *Securus Techs., Inc. v. Glob. Tel*Link Corp.*, 701 F. App'x 971, 976–77 (Fed. Cir. 2017); *Duke Univ. v. BioMarin Pharm. Inc.*, 685 F. App'x 967, 978–79 (Fed. Cir. 2017).

Here, limitation 1[B] requires specifying which of at least two encoders is the “first asymmetric data compression encoder” that is “configured to compress . . . video or image data” and which is the “second asymmetric data compression encoder” that is configured to likewise compress video or image data. Ex. 1001 at Cl. 1[B].

Moreover, the two recited encoders cannot simply be interchanged because they have differing characteristics. Ex. 2002 ¶48. Namely, the “first asymmetric data compression encoder” must be “*configured* to compress . . . video or image data at a *higher data compression rate* than a second asymmetric data compression encoder.” Ex. 1001 at Cl. 1[B] (emphasis added); Ex. 2002 ¶48. Thus, the Petition must identify a specific first encoder that is configured to compress at a higher rate than a specific second encoder. Petitioners therefore cannot meet their burden to show “how the combination of the two references [is] supposed to work” by

merely pointing to several encoders and alleging that some unspecified encoder would satisfy the claims' limitations. *Personal Web Tech.*, 848 F.3d at 994.

But the Petition never attempts to specify any encoder that would constitute the "first" encoder for purposes of the claims, or any encoder that would constitute the "second" encoder. Ex. 2002 ¶40. The Petition's allegations are thus inadequate because they fail to specify a particular "first" encoder and a "second" encoder, as the claims require. *Id.* at ¶41.

And while Patent Owner sought to clarify the matter with Petitioner's expert in deposition, Dr. Storer's deposition testimony failed to elucidate the issue, and only confirmed that the Petition and his declaration suffers from a fatal flaw. Although Dr. Storer was asked many times in many ways to identify what, in Imai, he contends is "a first asymmetric data compression encoder" for purposes of Claim 1 and its dependents, he refused to do so. Instead, Dr. Storer merely perpetuated the Petition's fatally vague and non-committal stance on the issue, repeatedly stating that the "first asymmetric data compression encoder" would be whichever encoder was "faster."

Q...I'm curious if there's any encoder that you suggest is the first asymmetric data compression encoder that Imai teaches?

A. Sure. So Imai actually includes a number of different approaches, but certainly one, such as in Figure 5, where on the fly, Imai is going to now determine what encoder will ensure this throughput, right? What

encoder will do the best job. So, for example, it even talks about making an encoding schedule in adapting on the fly.

So, for example, if right now an encoder is not fast enough, it's not doing the job that's necessary in order to guarantee that throughput, or it could also be that it's not getting enough compression ratio. Okay?

But if that encoder, for example, is not fast enough -- okay? -- because the data type is changed; Imai mentions different kinds of data types that could be coming through, then that will change to a different encoder. *And that encoder that is faster*, for example, *would correspond to a first encoder, and the one that is slower*, that is being replaced -- for example, in that example, *would correspond to a second encoder*.

Ex. 2003 at 66:13-67:9. As noted, the inadequacy with that testimony is that it simply states that the “first encoder” could be *any* encoder in Imai, whereas the claim requires a particular “first encoder” that is, by design, *configured to be faster* than a different particular “second encoder.”

Dr. Storer's cross-examination confirmed that the Petition does not have any theory that would actually meet those requirements. No matter how the question was asked, or how many times, Dr. Storer continued to avoid naming any particular encoder that he and Petitioners contend maps onto “first asymmetric data compression encoder” of Claim 1. Instead, he simply continued to assert that it would be the “faster” encoder. *See, e.g., id.* at 69:24-70:20, 76:5-80:9. Thus, Dr.

Storer refused to do any more than restate Claim 1's requirement that the first encoder compress "at a higher data compression rate." Pet. 20 ("The '477 Patent uses the term 'data compression rate' to refer to the execution or algorithmic speed of a compression encoder.").

Such a vague theory of obviousness is impossible for the Board to evaluate. Without providing any specific theory as to what constitutes the first and second encoders of Claim 1, and how the first is configured to be faster than the second, the Board cannot determine whether the prior art discloses the recited encoders, much less discloses them configured as in the claims.

The reason for the Petition's and Dr. Storer's evasiveness is clear: It is impossible to tell which encoder in Imai would be faster because the asserted art does not disclose the compression rate (i.e. speed) of any encoder relative to any other encoder. *Infra* at V.B.2 and VI.B (explaining that the prior art's purported disclosures regarding compression rate actually refer to other characteristics of the encoders) Ex. 2002 ¶42.

And the Petition does not disclose sufficient information to determine which encoder would be faster. Ex. 2002 ¶43. It only refers to the algorithms encoders may employ by the names of their encoding standards and output data rate. But, as Dr. Storer testified, it is not possible to know whether an encoder employing any one algorithm or encoding standard mentioned in the prior art will encode faster

than another without knowing specific details of the implementation. *Id.* For example, when asked to compare the speed of ATRAC 2 and MPEG Layer 3, he responded “these issues depend on implementation:”

Is it -- to achieve a particular compression ratio with a particular set of audio data, would it usually be faster to compress with MPEG layer 3 or ATRAC 2?

[objections and repeating of question]

THE WITNESS: So, again, it seems like pretty much the same question you asked before, and the answer would begin the same way, that the question is almost phrased the wrong way. *And this would apply not just to audio, but would apply to audio standards, but certainly also would apply to video standards* and the example I gave with motion compensation. It would apply to audio standards, for example, in the example that -- that -- that Imai gives in paragraph 1 -- 690, even with respect to a given standard that ***these issues depend on the implementation.***

Id. at 88:22-89:16; *see also id.* at 87:7-14 (“Q. Would it be faster to compress data with MPEG layer 3 or ATRAC 2? A. So, no disrespect to your question, but the way you phrased it doesn’t actually match up with the technology. We mentioned earlier that both MPEG and ATRAC are standards, and those standards can be implemented to run faster or slower and also in a tradeoff to achieve more or less compression.”). And he provided the same answer when asked to compare the

speeds of other encoders using algorithms mentioned in the asserted art, such as MPEG and H.263. at 96:19-97:5 (“[Y]ou could very well have a faster -- an H.263 coder that was faster than -- they worked faster on the same data as an MPEG coder and vice versa -- okay?”).

Moreover, Dr. Storer testified that a POSITA would not necessarily know which of two encoders is faster even if their output rate or compression ratios are disclosed:

Q....Can a person of ordinary skill in the art reliably know that an encoder that achieves a high compression ratio on a given piece of data would have a lower compression rate than an encoder that achieves a lower compression ratio on that same data?

[Objection and repeating of question]

THE WITNESS: So, first of all, you said -- you prefaced your question before asking it -- and thank you for repeating it -- that you were specifically using ‘compression rate’ as its -- the term that's used in the Fallon patent. [defines ‘Fallon Patent’]

So returning to my -- for example, my paragraph 124 that comes -- that is now addressing this claim element that uses the term ‘compression rate,’ and it says [reads definition].

So, for example, let’s take the world of -- it’s almost simpler to think about lossless compression, methods like, you know, PKzip or gzip or other things like that. If I had two methods and one of them ran faster

and typically produced smaller output, I mean, obviously you would just always use the second method, right?

So, generally, it's sort of common sense that the reason I may be looking at more than two methods is because there's this tradeoff. *Some of them will run slower but typically give smaller output, and some of them will run faster but may not give quite as small output.*

Ex. 112:8-113:22.

Thus, the Petition's vagueness creates an obviousness theory that even Dr. Storer cannot evaluate: whereas the "first asymmetric data compression encoder" of the claims must be "faster" than a "second" encoder, the prior art discloses encoders by referring to their encoding standards and output rates, and does not permit any finding that any one of Imai's encoders would be "configured" to be faster than any other on a systematic and predictable basis. The Petition's failure to map the disclosures in the prior art to the claims thus prevents it from meeting its burden to show that the art discloses the encoders of Claim 1.

Ground 1 should thus be rejected for the simple reason that the Petition does not even identify the recited encoders. *See, e.g., Comcast Cable*, 2017 WL 4102214, at *6; *Arris Int'l*, 2016 WL 6594910; *Cao*, 2014 WL 6706553, at *5; *ActiveVideo*, 694 F.3d 1327-28 (a party asserting obviousness must "explain . . . how any specific combination would operate or read on the asserted claims");

Personal Web, 848 F.3d at 994 (A party seeking to demonstrate obviousness must explain “how the combination of the two references [is] supposed to work”).

V. **Ground 1 does not show that Imai discloses or suggests “a first asymmetric data compression encoder . . . *configured* to compress data blocks containing video or image data *at a higher data compression rate* than a second asymmetric data compression encoder”**

A. **Limitation 1[B] requires two asymmetric data compression encoders, with the first encoder being *configured* to compress video or image data *faster* than the second encoder**

Claim 1 further requires that its “first asymmetric data compression encoder” be *configured* to compress data “at a higher data compression rate” than the “second asymmetric data compression encoder.” See Ex. 1001 at Cl. 1[B] (“a first asymmetric data compression encoder . . . *configured* to compress . . . *at a higher data compression rate* than a second asymmetric data compression encoder”). Petitioners define “data compression rate” as “the execution or algorithmic speed of a compression encoder.” Pet. 20. They further contend that “it is the throughput of the asymmetric data compression encoder **measured by the amount of input data that it can compress per unit of time** at a given compression ratio.” Pet. 21 (emphasis added). Thus, under Petitioners’ definition of “data compression rate,” Claim 1 requires “a first asymmetric data compression encoder” that is configured to compress more *input data* per unit of time at a given compression ratio than a “second asymmetric data compression encoder.” Ex. 2002

¶47.

Moreover, the requirement that the “first asymmetric data compression encoder” is “*configured* to compress . . . at a higher data compression rate than a second asymmetric data compression encoder” means the relationship between the first and second encoders’ compression rates cannot arise as a side effect of some other design choice, or by chance. Ex. 2002 ¶48. Rather, the claim’s recitation of “*configured*” requires that the “first encoder” must compress at a higher rate than the “second encoder” *because it is designed to do so. Id.*

To that effect, the Federal Circuit has distinguished “configured to” as narrower than “capable of” or “suited to.” For instance, in *Apex Eyewear*, the court distinguished “configured to” from the broader terms “capable of” or “suitable for.” *See Aspex Eyewear v. Marchon Eyewear*, 672 F.3d 1335, 1349 (Fed. Cir. 2012) (construing “adapted to” in the narrower sense of “configured to,” “made to,” or “designed to,” rather than in the “broader sense” of “capable of” or “suitable for.”). It thus concluded that an apparatus or method that “simply . . . can be made to serve [the] purpose” recited in the claim is **not** a method that is “*configured to accomplish the specified objective*” of the claim. *Id.* (emphasis added).

The Federal Circuit has likewise contrasted “configured to” and “capable of” or “suited for” in other decisions. *See In re Man Mach. Interface Techs.*, 822 F.3d

1282, 1286 (Fed. Cir. 2016) (distinguishing between “configured to” and “capable of” or “suited for”) (citing *Apex*); *In re Giannelli*, 739 F.3d 1375, 1379 (Fed. Cir. 2014) (same).

And district courts have also construed “configured to” in a manner that requires design for the purpose for which the claim element is “configured” and excludes an arrangement or capability arising as a side effect of another design choice. *See, e.g., Intellectual Ventures I v. Altera*, 2013 WL 3913646, at *7 (D. Del. July 26, 2013) (construing “configured to” as “to set up for operation especially in a particular way”); *SIPCO v. Abb*, 2012 WL 3112302, at *7 (E.D. Tex. July 30, 2012) (construing “configured to” as “actually programmed or equipped with hardware or software to”).

Here too, the meaning of “configured to” requires that the “first asymmetric data compression encoder” be *designed* to accomplish the specified objective of “compress[ing] . . . at a higher data compression rate than a second asymmetric data compression encoder.” Ex. 2002 ¶48. The “first asymmetric data compression encoder” cannot “compress . . . at a higher data compression rate than a second asymmetric data compression encoder” as a mere side effect of another design choice. *Id.*

That understanding is further supported by the '477 patent itself, which uses “configured to” to convey a purposeful design rather than a side effect or

accidental arrangement. Ex. 2002 ¶49. For example, the specification describes design features that can more efficiently use space on a disk, followed by the statement: “In this way, a system can be configured to achieve greater speed, while not sacrificing disk space.” Ex. 1001 at 18:26-41; Ex. 2002 ¶50. Similarly, the specification describes a “programmable logic device” being “configured for its environment.” Ex. 1001 at 16:37-40. A “programmable” device is not “configured *for its environment*” on accident, but rather is intentionally programmed to operate in a specific and consistent manner with that environment in mind. Ex. 2002 ¶51. Thus, in both these instances, the “configuring” is an intentional design choice through programmed logic rather than mere happenstance. *Id.* at ¶52. Moreover, the design is for the specific purpose for which the “system” or “programmable logic device” is “configured”: to “achieve greater speed” or be programmed “for its environment,” respectively. *Id.* at ¶53. The configuring is not the side effect of a design choice with some other purpose. *Id.*

Moreover, the “configured to” limitation cannot be met by either (1) an accidental difference in compression rates; or (2) a difference in compression rates arising as a side effect of some other design choice, because the invention relies on the *predictable* relationship between the compression rates of the “first asymmetric data compression encoder” and the “second asymmetric data compression encoder.” *Id.* at ¶54. The invention would not function if the relationship were

reversed. *Id.* Specifically, the specification describes switching from an encoder having a relatively slow compression rate to one having a “faster rate of compression” when the “throughput falls below a predetermined threshold” “so as to increase the throughput.” Ex. 1001 at 8:12-18. If the arrangement or configuration of the encoders were reversed, the opposite would occur: the system would switch from the relatively fast encoder to the relatively slow encoder, *reducing* the throughput and *exacerbating* the bottleneck at the encoder it was seeking to alleviate. Ex. 2002 ¶55. Thus, the specification’s description of the invention makes clear that the predictable arrangement of the encoders is crucial, and that a difference in two encoders’ compression rates that is not specifically planned would not suffice for the “first asymmetric data compression encoder” and the “second asymmetric data compression encoder” to serve their purposes. *Id.* at ¶56.

Accordingly, limitation 1[B] requires (1) “a first asymmetric data compression encoder” that is (2) designed to (3) compress more input data per unit of time than (4) “a second asymmetric data compression encoder.” *Id.* at ¶57.

B. The Petition's allegations do not even attempt to show one encoder that is "*configured to*" compress at a higher rate than another encoder, and thus cannot demonstrate obviousness

Limitation 1[B] specifically requires encoders compressing "video or image data." The Petition implicitly recognizes that Imai contains no such teaching. So the Petition proposes to modify Imai to include video encoders. Pet. 19-20, 24.

By contrast, however, the Petition never even attempts to demonstrate that Imai—either unmodified or modified—would meet the requirement of having a specific "first" encoder that is *configured to* compress the video or image data at a higher rate than a specific "second" encoder.

1. Petitioners' argument that limitation 1[B] would be met by chance reads "*configured to*" out of the limitation

The Petition first argues that if Imai were to use at least two encoders, it is likely that *one of them would be faster than another* by mere happenstance. Pet. 21 ("A POSITA would have understood that it is only a remote possibility that any two different asymmetric data compression encoders would have the same execution speed, and therefore the obvious result of including two or more different asymmetric compression encoders is that one encoder would have a higher data compression rate than another encoder.").

But as explained above, caselaw from the Federal Circuit and district courts, and the patent's specification confirm that "*configured to*" is used to show

purposeful design rather than arrangements that arise by chance or some other design choice. *Supra* at V.A.

Thus, a system that includes two asymmetric data compression encoders that *happen* to compress at different rates would not have a “**first** asymmetric data compression encoder” that is “**configured** to compress . . . at a higher data compression rate than a **second** asymmetric data compression encoder” as required by limitation 1[B]. Ex. 2002 ¶60.

Indeed, by stating that **either** of Imai’s encoders could compress at a faster rate than the other one, the Petition **actually concedes that Imai cannot meet Claim 1:** to admit that either encoder could be faster is to admit that neither encoder is configured to be faster than the other. Ex. 2002 ¶61.

The Board’s decision in *Commvault v. Realtime Data*, IPR2017-02178, is instructive. There, the Board addressed a system claim which, under the Board’s construction, recited a processor configured to make a “binary choice between compressing a given data block using the single data compression encoder and compressing that data block using the one or more content-dependent data compression encoders.” Paper 13 at 4-5 (July 19, 2018). The petition offered an example of a circumstance where the reference would choose only one of the two types of encoders to compress a data block—a page of either text or image data. *Id.* The Board rejected the theory because “[e]ven if Petitioner is correct that it is

possible, under the right circumstances, for the [asserted reference] to operate in a way that results in compressing an entire page of text or in compressing an entire page of non-text data, [the reference] *does not teach or suggest* the required binary choice between those two outcomes because its system is capable of compressing portions of a page using one method and other portions of the same page using a different method.” *Id.* at 5-6 (emphasis added).

Here too, the mere *possibility* that Imai *might* sometimes operate with one encoder that operates at a higher compression rate than another encoder (and at other times operate with the other encoder operating at a higher rate) does not teach or suggest a “*first* asymmetric data compression encoder” that is “*configured* to compress . . . at a higher data compression rate than a *second* asymmetric data compression encoder.” Ex. 2002 ¶62.

The Board should thus find that the Petition cannot meet Claim 1 because the Petition fails to meet the requirement of a *first* encoder that is *configured to* compress at a higher rate than a *second* encoder. *Id.* at ¶63.

2. The Petition’s argument that Imai teaches “different asymmetric data compression encoders” that have “different data compression rates” is both inadequate and unsupported

The Petition further argues that a POSITA “would have appreciated from Imai’s various teachings that the different asymmetric data compression encoders

have different data compression rates, with some encoders having higher rates than others.” Pet. 22.

As a threshold matter, that allegation is again inadequate: it does not demonstrate that Imai has a specific *first* encoder that is *configured to* compress at a higher rate than a specific *second* encoder, as Claim 1 requires. *See supra* at V.A.

Moreover, none of the Petition’s citations in support of its allegation that Imai teaches “asymmetric compression encoders that have different execution speeds,” Pet. 21, actually contain such a teaching. Ex. 2002 ¶64. In fact, the Petition points to no teaching in Imai regarding compression *rate* according to its own definition, *i.e.*, *speed* of compression measured by input data compressed per unit of time. *See supra* at V.A; Ex. 2002 ¶64.

a) Imai’s use of “compression rate”

Instead, the Petition obfuscates and misdirects with a specious quotation from Imai that uses the term “compression rate” but *not in the way the ‘477 patent does*. Ex. 2002 ¶65. Specifically, the Petition states that Imai “compares and contrasts different asymmetric data compression encoders in terms of their ‘compression rate,’ and identifies several asymmetric data compression algorithms that ‘provide[] a high compression rate,’ referring to MPEG layer 3 and ATRAC 2 as ‘example[s].” Pet. 21 (citing Ex. 1005 at [0068]). On that basis it concludes that Imai teaches “a first encoder that uses an asymmetric compression algorithm

(MPEG layer 3) and is configured to compress data at a higher compression rate than a second encoder using another asymmetric algorithm (ATRAC 2).” *Id.* at 22.

But the full quoted sentence reads: “Furthermore, example of the coding method, which provides **a relatively less bit rate of the resulting coded data (i.e., which provides a high compression rate)**, are MPEG layer 3 and ATRAC 2.” Ex. 1005 at [0068] (emphasis added). The reference to “a relatively less bit rate” makes clear that Imai’s use of “compression rate” refers to the compression *ratio*, i.e., to *how much* the data was compressed, rather than the compression *rate* in the undisputed meaning of the ‘477 patent and Claim 1, i.e., *how quickly* the data was compressed. Ex. 2002 ¶67. Because the *degree* of compression is high, the amount of data that is output from the encoder is low, and thus it provides “a relatively less bit rate of the resulting coded data.” *Id.*

Indeed, Dr. Storer admitted on cross examination that Imai does not use the phrase, “compression rate,” as it is used in the claims. When asked to resolve the tension between (1) his earlier testimony that there is generally an inverse relationship between compression ratio and speed of compression, Ex. 2003 at 110:1-5; and (2) Imai equating “a relatively *less* bit rate of the resulting coded data” with “a *high* compression rate;” Dr. Storer admitted that Imai was using the term differently:

Q. In paragraph 68 in Imai -- that's on page 33 --it refers to relatively less bit rate of the resulting coded data and equates that with a high compression rate. And I'm wondering why the encoder with the lower bit rate of the resulting coded data would have the high compression rate.

[Question repeated]

THE WITNESS: So the paragraph also -- it should be read in context of the one preceding it. But to answer your question, *the term 'data compression rate' is not standard in the art. It's used in different ways.*

Ex. 2003 at 114:14-115:4.

Thus, despite the specious word matching, the cited teachings do not pertain to the encoders' "compression rate" under the undisputed definition of "compression rate" in the '477 patent and Claim 1, including the Petition's own definition. *Supra* at V.A; Ex. 2002 ¶69.

The Petition's assertion that Imai teaches "a first encoder that uses an asymmetric compression algorithm (MPEG layer 3) and is configured to compress data at a higher compression rate than a second encoder using another asymmetric algorithm (ATRAC 2)" is thus entirely unsupported. Pet. 22. Indeed, Dr. Storer testified on cross examination that it was not even possible to say whether MPEG layer 3 is faster than ATRAC 2. *Supra* at IV. This teaching cannot teach or suggest limitation 1[B].

b) Imai's reference to "amount of computation for decoding"

Next, the Petition argues that ATRAC is "a relatively faster compression algorithm" and that "Imai teaches including asymmetric compression encoders that have different execution speeds." *Id.* at 21. But the only evidence the Petition points to is Imai's statement that ATRAC "requires a not so large amount of computation for **decoding**." *Id.* (quoting Ex. 1005 at [0068]) (emphasis added). Again, that is not a teaching regarding the speed of *encoding*, *i.e.*, "compression rate." Ex. 2002 ¶71. The quoted sentence is describing the computation necessary for "decoding." *Id.* And, according to the Petition, "compression rate" refers to the "algorithmic speed of a compression **encoder**," rather than the speed of a *decoder*. Pet. 20 (emphasis added). Thus, the Petition's discussion of ATRAC is entirely off the mark. Ex. 2002 ¶73.

c) Imai's reference to "64 Kbps, 32K bps, 24 Kbps"

The Petition also asserts that "Imai explains that ATRAC 2 can encode at various compression rates (*e.g.*, '64 Kbps, 32K bps, 24 Kbps')." Pet. 22 (quoting Ex. 1005 at [0069]). The quoted sentence in Imai, however, actually states: "Therefore, here, for example, all the encoders 531 to 53N perform encoding with ATRAC 2, while data rates of **coded data outputted from the encoders** are 64 Kbps, 32 Kbps, 24 Kbps, . . . , respectively." Ex. 1005 at [0069] (ellipsis original)

(emphasis added). Thus, the bitrates do not describe “compression rates,” as the Petition asserts, but *output* rates from the encoder. Ex. 2002 ¶75. Output rates do not meet the Petition’s definition of “compression rate” because they do not describe the “amount of *input* data that [the encoder] can compress per unit of time.” Pet. 21 (emphasis added); Ex. 2002 ¶75. The Petition provides no argument or evidence to the contrary.

And Dr. Storer agrees. *Id.* at ¶76. When asked about the significance of the same numbers that the Petition offers as examples of “compression rates,” he testified that the numbers refer to the rate of the *output data* and that they only relate to compression rate insofar as there is a general relationship between compression rate and compression ratio:

Q. In paragraph 69, is the reference to 64, 32 or 24 Kbps, are those measurements of the compression rate in kilobytes per second?

[Objection]

THE WITNESS: So, first of all, these aren't measurements It's a reference to a particular method. That method has the property that one second -- let's say -- *take the 64 Kbs example. One second of input will produce 64 kilobytes of output, so that particular number would certainly directly address compression ratio as opposed to how the term “compression rate” is used* without taking into account compression ratio, but compression rate does take it into account.

Ex. 2003 at 105:4-106:13. Thus, the parties are in agreement that *the only purported examples of compression rates cited in the Petition* are not in fact compression rates at all.

Thus, the Petition's argument that a POSITA would include encoders of varying compression rates fails at two levels. First, it is irrelevant because it does not even allege that a specific encoder would be *configured to* compress at a higher rate than another specific encoder, as the claim requires. Ex. 2002 ¶78. Second, it is also unsupported because the assertion relies on a crucial unsupported statement: that Imai teaches or suggests using encoders with varying compression rates. Every purported reference to compression rate the Petition cites is actually describing something else. *Id.* at ¶77. Under similar circumstances, the Federal Circuit has made clear that the obviousness theory cannot be accepted. *In re Magnum Oil Tools International*, 829 F.3d at 1380 (“To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements.”).

3. The Petition's suggested modification runs contrary to Imai's goal of ensuring that audio data can be reproduced in real time

Finally, the Petition argues that a POSITA would have included “encoders having higher and lower data compression rates” because he “would have recognized that adjusting the output rate of the compression encoder would impact the throughput of the compression encoder, particularly if the compression ratio of

the encoder is fixed.” Pet. 22-23. The only support it offers is Imai’s teaching of lowering the output bit rate to accommodate a slow network to ensure the client can “reproduce the transmitted signals in real time.” *Id.* at 22 (noting that Imai recognizes that the “transmission rate of a communication channel . . . ‘varies due to the amount of traffic’” and thus “Imai selects a ‘coding method which can provide the coded data having a bit rate not higher than the detected transmission rate’”) (citing Ex. 1005 at [0145]).

But Imai teaches lowering the output bitrate by compressing the data *more*, not faster or slower. Ex. 2002 ¶81. Imai increases the *compression ratio* so that the output bitrate is reduced to a rate that can be transmitted by the network in real time, i.e., so that the “coded data ha[s] a bit rate not higher than the detected transmission rate.” Ex. 1005 at [0145]; Ex. 2002 ¶83. Imai’s teaching thus provides no support for modifying the *speed* of compression, as the Petition suggests, “particularly if the compression ratio of the encoder is fixed.” Pet. 22-23; Ex. 2002 ¶¶ 84-85.

In contrast to Imai’s solution of increasing the *degree* of compression, the Petition’s suggested approach of modifying the *speed* of compression would be ineffectual at best and counterproductive at worst. *Id.* at ¶88. No POSITA would modify the modify Imai in the manner the Petition suggests. *Id.*

As the Petition acknowledges, Imai is concerned with the situation in which the *network*—not the *encoder*—forms a bottleneck and slows the transmission such that the audio cannot be reproduced in real time. *Id.* at 22 (“Imai explains that the transmission rate of a communication channel between the server and client ‘varies due to the amount of traffic’ being sent across the channel, and that this can impact the ability of the client to reproduce the transmitted signals in real-time.”) (citing Ex. 1005 at [0145]); Ex. 2002 ¶89. Specifically, Imai is concerned that “if the transmission rate of the network 2 is reduced down smaller than the data rate of the coded data, transmission of the coded data becomes so late that audio signals cannot be reproduced in real time.” Ex. 1005 at [0145]; Ex. 2002 ¶90.

Lowering the output bitrate of the encoder by *slowing* the encoder while keeping the compression ratio fixed would exacerbate the problem that Imai is concerned with: that the data cannot be “reproduced in real time.” Ex. 1005 at [0145]; Ex. 2002 ¶91. Dr. Storer’s suggestion of lowering the speed of compression to reduce output bitrate provides an illustration of the problem. Ex. 1003 ¶141 (“[A] 32 kbps encoder could be created using a 64 kbps encoder that runs at half its normal execution speed. It would follow that the 64kbps encoder would have a higher data compression rate than the 32 kbps encoder.”). If an encoder outputs data at 64 kbps when operating at real time, then each 64 kilobits of output data would represent one second of audio or video input. Ex. 2002 ¶94. If

the compression ratio of the encoder were 2:1, then each second of audio or video input data would consist of 128 kilobits prior to encoding. *Id.* If the same encoder were to run at half its compression rate, it would produce 32 kbps of output data at the same 2:1 compression ratio. *Id.* But, because the compression ratio has not changed, it would still take 64 kilobits of output data to encode the 128 kilobits of input data that represents each second of audio or video input. *Id.* Thus, the 32 kilobits output *each second* would represent *only half a second of audio or video*. *Id.*

The result is that it would take *two hours to watch a one-hour video*, or *six minutes to listen to a three-minute song*. *Id.* Thus, lowering the output rate by lowering the compression rate would prevent the audio or video signal from being reproduceable in real time. Pet. 22-23; Ex. 2002 ¶95. The Petition's approach would thus be counterproductive to Imai's concerns. Ex. 2002 ¶96.

And *increasing* the speed of the encoder would be pointless in the situation Imai describes. Ex. 2002 ¶97. Increasing the speed of compression would only increase the output bitrate, which the network already cannot transmit fast enough in the situation described. Ex. 1005 at [0145]; Ex. 2002 ¶98.

Intentionally modifying the *compression rate* of the encoder would only be useful if *the encoder*—not the network or the decoder—is the bottleneck in the system. Ex. 2002 ¶101. Dr. Storer agrees that increasing the speed of the encoder is

pointless if the communication channel is the bottleneck: “If you simply increase the speed, it’s not going to help if the compression ratio is not enough, if you can’t physically put it down the channel.” Ex. 2003 at 81:11-13; *see also id.* at 85:22-86:1. And the Petition points to no teaching from Imai that even addresses the scenario in which the encoder is the bottleneck. Ex. 2002 ¶102. Thus, the Petition does not point to any reason why Imai suggests *configuring* the system such that “a first asymmetric data compression encoder . . . [would] compress data blocks containing video or image data at a higher data compression rate than a second asymmetric data compression encoder.” *Id.* at ¶104.

Thus, modifying compression speed of one encoder while keeping a constant compression ratio would only further bottleneck transmission—the very problem Imai sought to solve—and hinder the ability of the system to send audio data that could be reproduced in real time—the goal Imai sought to achieve. Neither Imai nor Petitioners suggest a beneficial reason why a “POSITA would have recognized that adjusting the output rate of the compression encoder would impact the throughput of the compression encoder, particularly if the compression ratio of the encoder is fixed.” Pet. 22-23; Ex. 2002 ¶100.

The Petition does not—and cannot—argue that Imai’s solution of compressing the data *more* to address low network bandwidth suggests limitation 1[B]. *See* Paper 22 at 19 (“Imai specifically discloses that the encoders are

constructed to encode the audio signal with different coding methods from each other, thus, the different rates of encoding would not be happenstance.”). It does not make the argument because it specifically notes that its motivation applies “particularly if the compression ratio of the encoder is fixed.” Pet. 22-23; Ex. 2002 ¶106. It cannot make the argument because a choice to use an encoder because it provides a different compression ratio is not a choice to *configure* the system *because of the encoder’s compression rate*. Ex. 2002 ¶107. In other words, a design choice to include multiple encoders in order to take advantage of differing compression *ratios might* have the *side effect* of including encoders that have differing compression *rates*. *Id.* at ¶108. But such a choice is not made *with the specific purpose of* including a first encoder that is “*configured to*” compress more quickly than a second encoder, because the choice does not depend on or make use of the difference in compression rates. *Id.* Because any difference in compression rates would arise as the side effect of another design choice, increasing compression ratio cannot constitute a reason why a POSITA would *configure* the system in a manner that meets limitation 1[B]. *Id.*

Simply put, there is *no evidence or argument* as to any potential benefit the POSITA would achieve by seeking to increase *or* decrease the compression rate of an encoder to address a slow network. The Petition’s silence on that crucial point is fatal. *See In re Nuvasive, Inc.*, 842 F.3d 1376, 1384 (Fed. Cir. 2016) (reversing

finding of motivation to combine where there was no articulation why the proposed modification “would benefit a PHOSITA”). Moreover, such a modification would in fact be counterproductive or pointless.

VI. Ground 2 fails to show that Pauls teaches or suggests “a first asymmetric data compression encoder . . . configured to compress . . . at a higher data compression rate than a second asymmetric data compression encoder” as required by Claim 1

As with Ground 1, Ground 2 also fails to meet limitation 1[B], namely (1) “a first asymmetric data compression encoder” that is (2) designed to (3) compress more input data per unit of time than (4) “a second asymmetric data compression encoder.” *Supra* at V.A.

A. Ground 2 fails to identify what would constitute the “first asymmetric data encoder” and what would constitute the “second asymmetric data compression encoder”

As with Ground 1, Ground 2 again fails to specify any encoder that would constitute the “first” encoder and any encoder that would constitute the “second” encoder for purposes of meeting Claim 1’s requirements, and should be rejected on that basis alone.

B. Ground 2 points to no disclosure or discussion of compression rates of any encoder or algorithm

The Petition’s Ground 2 cannot show that Pauls meets limitation 1[B] for the additional reason that it points to no disclosures at all from Pauls regarding “compression rates” according to its own definition, i.e., “the execution or

algorithmic speed of a compression encoder” “measured by the amount of input data that it can compress per unit of time at a given compression ratio.” Pet. 20-21; Ex. 2002 ¶113.

As alleged evidence that Pauls teaches encoders with various compression rates, the Petition points to Pauls's disclosures regarding compression *ratios*, repeating the same error discussed above with respect to Imai and Ground 1. *Id.* at 39-40. Specifically, the Petition points to Pauls's statement that “[e]ach of the aforementioned encoding algorithms have associated different levels or percentages of compression.” *Id.* at 39 (quoting Ex. 1007 at [0010]). The Petition also points to the rate at which the encoders “render” or output video. *Id.* (“For example, FIG. 5 teaches that H.263 *renders video* at a bit rate of 8–24 Kbps, MPEG *renders video* at a bit rate of 1.5 Mbps, and MPEG2 *renders video* at a bit rate of 2.0 Mbps.”) (emphasis added).

Both of those assertions fail to demonstrate that Pauls meets limitation 1[B] under the Petition's own definition of “compression rate.” Ex. 2002 ¶113.

1. “different levels or percentages of compression”

First, Pauls's discussion of “different levels or percentages of compression” does not disclose “compression *rate*,” i.e., compression *speed*, as Claim 1 requires. *Id.* at ¶114. Instead, “different levels or percentages of compression” is a clear reference to compression *ratio*, which Claim 1 does not recite. *Id.* Specifically,

percentage of compression gives a number analogous to a compression ratio. *Id.*

For example, a compression ratio of 2:1 might alternatively be referred to as a 50% compression. *Id.* The reference to compression ratio is also evident from the preceding sentences, which refer to “reducing the amount of data to be transmitted.” Ex. 1007 at [0010]; Ex. 2002 ¶115. The “data to be transmitted” is “reduc[ed]” because the *degree* of compression is higher. *Id.* Thus, “different levels or percentages of compression” is not a teaching about compression rate. *Id.* at ¶114.

2. Pauls's Fig. 5 bitrates

Second, the Petition's description of the speeds at which the encoders mentioned in Fig. 5 “render,” or output, video also fails to describe their compression rates. Pet. 39; Ex. 2002 ¶116. Indeed, Pauls's description of Fig. 5 explicitly states that it depicts “encoding algorithms and the bit rate of the data *after* encoding (or compression).” Ex. 1007 at [0024] (emphasis added); Ex. 2002 ¶117. Thus, Figure 5's bitrates likewise disclose output bitrates. Ex. 2002 ¶116.

And Dr. Storer agrees that the bitrates disclosed in Figure 5 refer to output bitrates. When discussing the meaning of his statement in paragraph 176 of his declaration that “MPEG 2 renders video at a bit rate of 2 Mbps” he explained that “In this profile where it renders video at the bit rate of 2 megabits per second – that's Mbps – **what that means is that for one second of uncompressed video**

coming into the encoder, the output from the encoder would be at the rate of 2 megabits -- 2 megabits would come out in that second.” Ex. 2003 at 154:10-15.

But the Petition admits the compression rate of an encoder is “measured by the amount of **input** data it can compress per unit of time”—not the rate at which it outputs that data. Pet. 21 (emphasis added). Thus, Pauls’s description of the bitrate of compressed, *output* data does not disclose the speed at which an encoder compresses *input* data. Ex. 2002 ¶119.

Accordingly, the Petition points to no part of Pauls that discloses, teaches, or even mentions the compression rates of any encoders. *Id.* at ¶120. Thus, Pauls also cannot demonstrate unpatentability of Claim 1 because the Petition’s Ground 2 theory likewise fails to demonstrate that limitation 1[B] is met.

C. Ground 2 further fails because it also fails to meet the “configured to” requirement of Claim 1

As with Ground 1, the Petition’s Ground 2 theory again alleges that Pauls meets limitation 1[B] through happenstance. Pet. 40 (“POSITA would have understood that it is only a remote possibility that any two different asymmetric data compression encoders would have the same execution speed, and therefore the obvious result of including two or more different asymmetric compression encoders is that one encoder would have a higher data compression rate than another encoder.”).

But as demonstrated, the “*configured to*” requirement of Claim 1 cannot be met by mere happenstance. Ex. 2002 ¶123. Rather, it demands deliberate configuration with respect to the compression rates of the first and second “asymmetric data compression encoder[s].” *Id.*; *supra* at V.A. Thus, by arguing that Pauls arrives at the limitation by chance, the Petition actually admits that Pauls does not disclose limitation 1[B]. Ex. 2002 ¶124. The Petition’s Ground 2 theory should be rejected on that additional basis.

Moreover, as with Imai, the Petition does not and cannot argue that the disclosure of including encoders with different compression ratios meets limitation 1[B]. As explained above, a choice to use an encoder because it provides a different compression ratio is not a choice to *configure* the system *because of the encoder’s compression rate*. *Supra* at V.B.3.

And the Petition points to no disclosure from Pauls indicating that the system is “*configured to*,” or with the purpose of, having one encoder compress more quickly than another. Ex. 2002 ¶125. Indeed, the Petition points to no *mention* of encoding speed, *supra* at VI.B, or any reason to modify an encoder’s speed, so it could not possibly disclose a reason to configure the system in accordance with limitation 1[B]. Ex. 2002 ¶126. Accordingly, the Petition cannot demonstrate that Pauls discloses limitation 1[B].

VII. Ground 3 fails to explain why a POSITA would make its alleged modifications

An obviousness combination must be made with respect to particular combinations of art and provide specific motivations for *why* a POSITA would combine that art. *In re Nuvasive*, 842 F.3d at 1384 (where a petition merely states that a POSITA would have been motivated to combine the prior art references but fails to articulate a “reason *why*,” the petition’s “arguments amount to nothing more than conclusory statements” that cannot support a finding of obviousness) (emphasis original); *Commvault Systems, Inc. v. Realtime Data LLC*, IPR 2017-2007, Paper 11 at 16 (March 15, 2018) (“The failure of Petitioner to address, let alone argue, why a person of ordinary skill would combine [the references] is enough to deny the petition”).

The articulated reason to combine must be in reference to the specific combination of prior art elements the POSITA would allegedly bring together, and the manner in which he or she would do so. *See KSR Int'l*, 550 U.S. at 418-19 (“[I]t can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.”).

It is not sufficient to allege that the prior art *could* be combined; rather, the petition must show why it *would* be combined. *See Personal Web Tech.*, 848 F.3d

at 993-94 (“Obviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention.”) (emphasis original; internal citations and quotations omitted); *Apple, Inc. v. Realtime Data LLC*, IPR 2016-01737, Paper 57 at 59 (March 13, 2018) (granting motion to amend in full in part because petitioner did not adequately “articulate a *reason why* a person of ordinary skill in the art would combine the prior art references”) (emphasis original).

Moreover, “[r]ejections on obviousness grounds cannot be sustained by mere conclusory statements.” *KSR*, 550 U.S. at 418; *In re Magnum Oil Tools International*, 829 F.3d at 1380 (“To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.”).

Ground 3 suggests that a POSITA would incorporate the video encoders mentioned in Pauls into Imai’s system. Pet. 53 (“A POSITA would thus have been motivated to combine the systems of Imai and Pauls to utilize the numerous video and image data compression encoders of Pauls to enable video compression in Imai’s system.”).

At the same time, Ground 3 *also* argues that a POSITA would modify Pauls to incorporate “Imai’s detailed teachings regarding determining the bandwidth of a

communications channel to Pauls' system that selects from multiple video data compression encoders to fine-tune Pauls' video transmission system." *Id.*

Thus the Petition proposes to combine certain elements from Pauls into Imai, and certain elements from Imai into Pauls. But the Petition does not explain why a POSITA would have been motivated to make such a combination. Ex. 2002 ¶128. For instance, the Petition does not explain why the POSITA would modify Pauls at all, much less to incorporate Imai's "detailed teachings regarding determining the bandwidth of a communications channel." Pet. 53; Ex. 2002 ¶129.

Instead, the Petition notes that Imai states that it *could* be modified for video encoding "to create a video encoding and transmission system" and then jumps to the conclusion that a POSITA *would* use the encoders mentioned in Pauls. *See Id.* 53 ("As Imai explicitly applies its teachings to video encoding, a POSITA would logically *look towards* other prior art references involving data encoding and video encoding techniques to create a video encoding and transmission system. **One such prior art reference is Pauls**, which includes extensive teachings specific to video.") (emphasis added).

That reasoning amounts to no more than an assertion that a POSITA—in the Petition's words—would "look towards" Pauls. *Id.* But the Federal Circuit has made clear that that is not enough. The appellate court's decision in *Personal Web* directly controls. 848 F.3d at 993. There, the Board concluded that a POSITA

would have been motivated to combine two references, Wodhill and Stefik, because “the combination of Woodhill and Stefik *would have allowed for* the selective access features of Stefik to be used with Woodhill’s content-dependent identifiers feature.” *Id.* (emphasis original). The Federal Circuit rejected that reasoning, and held: “***that is not enough***: it does not imply a motivation to pick out those two references and combine them to arrive at the claimed invention.” *Id.* at 993-94 (emphasis added).

Here, as in *Personal Web*, the conclusion of the Petition’s logic is simply that a POSITA would “look towards” Pauls, *i.e.*, that the POSITA perhaps ***could have*** incorporated Pauls’s encoders into Imai. But the Petition’s logic does not lead to the conclusion that the POSITA ***would have*** done so, and certainly provides no reason ***why*** the POSITA would have been motivated to do so. Ex. 2002 ¶133-39. Instead, the Petition’s logic simply rests on the assertion that video encoders ***could*** be used in Imai, which cannot support the conclusion that a POSITA ***would*** have sought to use the particular encoders mentioned by Pauls. *Personal Web*, 848 F.3d at 993-94.

And any allegation that a POSITA seeking to modify *Imai* to include video encoders cannot justify modifying *Pauls* at all. Thus, it cannot provide a reason why a POSITA would modify Pauls to incorporate Imai’s “detailed teachings regarding determining the bandwidth of a communications channel.” *See In re*

Nuvasive, Inc., 842 F.3d at 1384 (reversing finding of motivation to combine where there was no articulation why the proposed modification “would benefit a PHOSITA”).

Rather than providing an actual motivation for its *specific* proposed modifications, the Petition merely relies on two generic alleged reasons why the POSITA would have *generally* combined Imai and Pauls. Both are inadequate.

The Petition first argues that a motivation to combine exists because Imai and Pauls address a similar problem with similar solutions. Pet. 52 (“Indeed, both references are used for the same purpose: encoding data at a server for transmission to a client over a distributed network such as the Internet.”); *id.* (“They both teach encoding the data using encoding methods that achieve data compression using asymmetric techniques.”); *id.* (“Also, both references choose an encoding method based upon the type of data being transmitted.”); *id.* (“Further, both teach choosing the encoding method based upon a throughout of the communications channel connecting the client.”); *id.* (“Imai and Pauls discuss implementing their inventions on known computer systems.”).

But simply alleging that two prior art references are directed to the same general field of art and the same general problem is not evidence of a motivation to combine, as the Federal Circuit has held. *Securus Tech., Inc. v. Global Tel*Link Corp.*, No. 2016-2573, 2017 WL 2992516, at *4 (Fed. Cir. July 14, 2017) (holding

that “a broad characterization” of two prior references “as both falling within the same alleged field of ‘telecommunications monitoring and control,’ without more, is not enough for Securus to meet its burden of presenting a sufficient rationale to support an obviousness conclusion.”) (citing *Microsoft Corp. v. English, LLC*, 662 F. App’x 981, 990 (Fed. Cir. 2016) (“[The] Board correctly concluded that [the petitioner] did not articulate a sufficient motivation to combine. With respect to [certain challenged claims], [the petitioner] gave no reason for the motivation of a person of ordinary skill to combine [the two references] except that the references were directed to the same art or same techniques. . . .”)). Rather, the Petition’s statements simply allege that the references pertain to the same broad subject matter—the entire field data encoding and transmission systems. As the Federal Circuit has emphasized, “[s]uch short-cut logic would lead to the conclusion that **any and all** combinations of elements known in this broad field would automatically be obvious, without the need for any further analysis”—a clearly absurd and untenable result. *Id.* (emphasis added). In sum, the mere fact that two references broadly deal with related material is not evidence of a motivation to combine. *Id.* Rather, such “generic” evidence is inadequate because it “bears no relation to any **specific combination** of prior art elements.” *ActiveVideo*, 694 F.3d 1328 (emphasis added). Simply put, the allegation that the references pertain to similar subject matter is not a reason why a POSITA would have been motivated to

combine specific elements of those references to arrive at the claimed inventions, as the Petition has alleged.

Accordingly, the Petition's reliance on mere similarities between Imai and Pauls is not a basis for a motivation to implement the specific encoders mentioned by Pauls into Imai's system, or Imai's bandwidth teachings into Pauls. *Securus Techs.*, 701 Fed. Appx. at 974 (affirming Board's finding of non-obviousness where petitioner "only offered conclusory testimony from its expert . . . that the skilled artisan would combine the references because they were in the same field of art").

The Petition next argues that a POSITA would combine the references because she "would have a reasonable expectation of success . . . given that audio and video compression technologies were well known" and doing so would be "simple" and "would have predictable results." Pet. 53; *see also id.* at 54 ("A POSITA would have found it obvious to incorporate Pauls' videos-specific compression encoders into Imai using her ordinary skill because a POSITA at the time of the alleged invention would have known how to make use of off-the-shelf implementations of standards-based video encoders and could use those encoders within Imai's multi-compressor system.").

But again, the Petition's allegations as to the reasonable expectation of success or predictability of results say nothing about why a POSITA would

combine the elements “in the way the claimed new invention does.” *See KSR Int'l*, 550 U.S. 418-19. Standing alone, they are allegations about “what a skilled artisan would have been *able* to do, rather than what a skilled artisan would have been *motivated* to do at the time of the invention.” *Polaris Industries, Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1068-69 (Fed. Cir. 2018).

And the assertion that the proposed combination would have been “simple” is likewise a legally inadequate basis to find a motivation to combine. *InTouch Techs., Inc. v. VGO Commc'ns, Inc.*, 751 F.3d 1327, 1348–49 (Fed. Cir. 2014) (“Dr. Yanco’s testimony was nothing more than impermissible hindsight; she opined that all of the elements of the claims disparately existed in the prior art, but failed to provide the glue to combine these references. While she opined that the references were like separate pieces *of a simple jigsaw puzzle*, she did not explain what reason or motivation one of ordinary skill in the art at the time of the invention would have had to place these pieces together.”) (emphasis added); *In re Van Os*, 844 F.3d 1359, 1361 (Fed. Cir. 2017) (“This type of finding, without more, tracks the *ex post* reasoning *KSR* warned of and fails to identify any actual *reason* why a skilled artisan would have combined the elements in the manner claimed.”) (emphases original); *In re Stepan Co.*, 868 F.3d 1342, 1346 (Fed. Cir. 2017) (rejecting the Board’s reliance on a “routine optimization” rationale as an inadequate basis for a motivation to combine) (collecting cases).

No matter how “simple” it would have been to incorporate encoders mentioned in Pauls into Imai, that is not a *reason why* a POSITA would have done so. At best, the alleged simplicity of the proposed substitution—if accepted—“say[s] no more than that a skilled artisan, once presented with the two references, would have understood that they *could be* combined. And that is not enough: it does not imply a motivation to pick out those two references and combine them to arrive at the claimed invention.” *Personal Web*, 848 F.3d at 993–94 (emphasis original).

The Federal Circuit’s decision in *Realtime Data v. Iancu*, 912 F.3d 1368 (Fed. Cir. 2019), is not to the contrary. *See* Paper 22 at 32 (citing *Realtime*). There, the Court found that evidence that a POSITA would have “turned to” the secondary reference was sufficient because the secondary reference was being used “to better understand or interpret” the primary reference’s compression algorithms. 912 F.3d at 1374 (“This is enough evidence to support a finding that a person of ordinary skill in the art *would have turned to Nelson*, a well-known data compression textbook, *to better understand or interpret O’Brien’s compression algorithms.*”) (emphasis added). Here, by contrast, the Petition argues that a POSITA would “utilize the numerous video and image data compression encoders of Pauls to enable video compression in Imai’s system.” Pet. 53. Yet the logic of proffered motivations only indicates why a POSITA would “turn to” Pauls—not

why a POSITA would *use the encoders* from Pauls in Imai’s system (or make any modification to Pauls at all). Unlike in *Realtime*, Petitioners’ proffered motivations—that a POSITA would “turn to” Pauls—does not match its proffered combination—that she would *use those particular encoders* or modify Pauls in any way.

In sum, Ground 3 fails because it does not explain *why* a POSITA would make either of the modifications it alleges.

VIII. Ground 3 further fails because it does not purport to address any of the flaws in Grounds 1 and 2

Ground 3 provides no additional analysis of Claim 1’s limitations other than to argue that the modifications render obvious the “compress . . . video or image data” element. Pet. 54 (“To the extent Patent Owner argues that Imai does not adequately teach compressing video or image data, Claim 1 is still obvious in view of the combination of Imai with Pauls . . .”). It otherwise relies on the Ground 1’s flawed analysis of Claim 1 and thus fails to show obviousness for the same reasons as Ground 1. *Id.* (As explained in Ground 1, Imai teaches all limitations of Claim 1.”).

Moreover, Ground 3’s modification to Imai does not address the Petition’s failure to show that Imai teaches or suggests the limitations of 1[B]. Even if the combination is accepted—which it should not be—and the encoders mentioned in

Pauls are included in Imai, Pet. 53, the combination would still fail because the Petition fails to make the necessary showings with respect to *Pauls*'s encoders as well as Imai's. *Supra* at V, VI. Thus, including Pauls's encoders could not address the Imai's failures because neither reference teaches or suggests the elements of limitation 1[B].

And Ground 3's second modification, incorporating Imai's teachings regarding determining bandwidth in Pauls, Pet. 53, does not address the elements of limitation 1[B] at all.

Accordingly, Ground 3 must fail even if the combination is accepted.

IX. Ground 3 and 4 do not explain *how* a POSITA would combine the references

To support an allegation of obviousness, it is not sufficient for a petition to merely show that all of the elements of the claims at issue are found in separate prior art references. *Personal Web*, 848 F.3d at 991 (holding that such evidence "would not be enough").

After all, "[i]nventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known" *KSR Int'l*, 550 U.S. at 418-19.

The petition must thus go further, (1) “to explain how specific references could be combined,” (2) “which combination(s) of elements in specific references would yield a predictable result,” and (3) “how any specific combination would operate or read on” the claims. *ActiveVideo*, 694 F.3d at 1327-28; *Dell, Inc. v. Realtime Data, LLC*, IPR2016-01002, Paper 71 at 15 (October 31, 2017) (upholding validity of all claims because petitioner’s combination theory failed to articulate “how specific references could be combined, which combination(s) of elements in specific references would yield a predictable result, or how any specific combination would operate or read on the asserted claims,” citing *ActiveVideo*); *Commvault Systems, Inc. v. Realtime Data LLC*, IPR 2017-2007, Paper 11 at 13 (March 15, 2018) (declining to institute a trial where the petition “fails to demonstrate how a person of ordinary skill in the art could combine the prior art”).

Grounds 3 and 4 fail to explain *how* a POSITA would combine the references because neither Ground states how any encoders in the resulting combination would map onto the encoders recited in the claims.

Ground 3 alleges that a POSITA would “incorporate Pauls’ video-specific compression encoders into Imai.” Pet. 54. But it does not indicate which of those encoders would constitute the “first asymmetric data compression encoder,” or

which would constitute the “second asymmetric data compression encoder” recited by Claim 1 and its dependents.

Ground 4 alleges that a “POSITA would have been motivated to combine Chao’s arithmetic video data compression encoder with the systems of Imai and Pauls,” Pet. 62, but provides no indication whether Chao would operate as the “first asymmetric data compression encoder” or the “second asymmetric data compression encoder” for purposes of the claims that depend from Claim 1. It likewise fails to say which encoder would constitute “a first video data compression encoder” or “a second data compression encoder,” as required by Claim 20 and its dependents. *See* Ex. 1001 at Cl. 20[D].

Ground 4 also states that “Pauls teaches using asymmetric video compression algorithms including H.263 and JPEG, which both have optional arithmetic algorithm modes” without indicating which algorithm would be modified to use its “optional arithmetic mode,” or which other encoders would be included in the resulting system. Pet. 59; *see also id.* at 61 (listing additional encoders mentioned in Pauls without saying which would be included or modified to use an “optional arithmetic encoding mode”). As with the modification involving Chao, Ground 4 offers no indication of how the Paul’s encoder modified to use “optional arithmetic encoding” would map onto Claims 1 and 20 or their dependents. It does not say whether Paul’s modified encoder would be a “first

asymmetric data compression encoder” or a “second asymmetric data compression encoder” for purposes of the claims that depend from Claim 1, or whether it would be “a first video data compression encoder” or “a second data compression encoder,” as required by Claim 20 and its dependents. Ex. 1001 at Cl. 20[D].

Accordingly, Grounds 3 and 4 cannot meet Petitioners’ burden to explain “how any specific combination would operate or read on” the claims, and must be rejected. *ActiveVideo Networks*, 694 F.3d at 1327-28 (Fed. Cir. 2012); *see also KSR*, 550 U.S. at 418-19 (2007) (“[I]t can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field *to combine the elements in the way the claimed new invention does.*”) (emphasis added); *Dell, Inc.*, IPR2016-01002, Paper 71 at 15; *Dell, Inc.*, IPR2016-00972, Paper 71 at 10-11, 15-16; *Commvault Systems, Inc.*, IPR2017-2007, Paper 11 at 13.

X. Ground 4 does not address the tradeoffs inherent in its motivation to combine

Where the benefit motivating a combination entails costs as well, Petitioners must show that the benefits justify the costs. A motivation to combine cannot be sufficiently alleged based merely on the purported benefits that would result from a proposed trade off; obviousness cannot be found where the petition fails to consider—much less evaluate—the countervailing harms or losses from the proposed tradeoff. *See Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n.

8 (Fed. Cir. 2000) (“*the benefits, both lost and gained, should be weighed against one another.*”) (emphasis added); *Id.* at 1349 (“Trade-offs often concern what is feasible, not what is, on balance, desirable. Motivation to combine requires the latter.”).

For example, in *Apple v. Realtime Data*, IPR2016-01737, Paper 57 (March 13, 2018), Apple’s expert opined that making a modification to the base reference would save time and reduce the amount of flash memory need by using more RAM instead. *Id.* at 57. Apple contended the modification would be “cost-effective.” *Id.* at 58. But the Board found that RAM was more expensive than flash memory at the time of the invention, so using RAM instead of flash memory would increase costs, undercutting Apple’s cost effectiveness rationale. *Id.* Because Apple did not show the benefits were worth the costs, the Board found that Apple had failed to show *why* the combination would be made. *Id.* at 58-59.

Both Ground 4 theories suggest that a POSITA would configure the system to use an arithmetic algorithm, whether by configuring it to use the “arithmetic mode” of an algorithm mentioned in Pauls or by combining it with Chao. Pet. 60 (“A POSITA would have known of arithmetic data compression encoders . . . and known that such encoders could be used to complement or as a substitute to other well-known asymmetric encoders used in Imai and Pauls.”); *id.* at 61 (alleging that “Pauls teaches asymmetric data encoders that have optional arithmetic coding

modes”); *id.* at 63 (alleging “it would have been obvious to substitute Chao’s video encoder for Pauls’ H.263 video encoder”).

Notably, both Ground 4 theories require a modification to the prior art—whether by including Chao as a video encoder or by modifying one of the encoders mentioned in Pauls. Pauls does not disclose the use of an arithmetic mode of any of its encoders. Ex. 2002 ¶141. Thus, the Petition must explain *why* a POSITA would modify the art to use an arithmetic mode.

According to the documents Petitioners cite to describe the benefits of arithmetic encoding, such encoding also entails costs in the form of reduced speed. *Id.* at ¶144. For example, Petitioners cite the ‘477 patent’s statement that algorithmic encoding “possess the highest degree of algorithmic effectiveness,” Pet. 60, but omit the end of that sentence, which states that it “is the slowest to execute.” Ex. 1001 at 5:11-13. *See also* Ex. 1018 at 39 (“[Arithmetic coding’s] [r]untime performance *is* significantly slower than Huffman coding, however, due to the computational burden imposed on the encoder and decoder.”) (emphasis original); Ex. 2002 ¶145. Chao also raises the concern of reduced speed, stating that the choice whether to use “either Arithmetic, Run Length, or Huffman, of [sic] Huffman and Run Length combined” depends on “the amount of compression desired against the invested time required to get that level of compression.” Ex. 1016 at 54; Ex. 2002 ¶147. And Dr. Storer also admitted on cross-examination that

JPEG's arithmetic coding mode "is slower." Ex. 2003 at 185:4-7 ("Q. Does Pauls mention the arithmetic mode of JPEG? [objection] A. . . . [I]t's well-known that JPEG has an arithmetic coding option. It's well-known that that is slower; it takes more time, does a little better in terms of compression or quality.").

Moreover, the H.263 specification states that its arithmetic coding option does "not apply to certain types of pictures." Ex. 1020 at 38 (listing several types of pictures for which Arithmetic coding cannot be used). Nor can it be "used in combination with certain other modes." *Id.* at 39; Ex. 2002 ¶148.

But the Petition makes no attempt to explain *why* a POSITA would consider the benefits of arithmetic encoding to justify the costs of decreased speed and compatibility; Ex. 2002 ¶150. Instead, it assumes that the correct balance between encoding speed and algorithmic effectiveness is whatever leads to its combination—a strong indicator of hindsight bias. The Petition's failure to consider the costs of arithmetic encoding is fatal to its motivation to use Chao's encoder and its motivation to configure the Imai/Pauls system to use the arithmetic option of other encoders. *See Winner Int'l Royalty Corp.*, 202 F.3d at 1349.

XI. Ground 4 further fails because it does not purport to address the additional limitations of Independent Claim 20 or any of the flaws in Grounds 1- 3

Ground 4 provides no additional analysis of Claim 1's limitations. And the only analysis of independent Claim 20's limitations is directed to the limitation

reciting “at least one of the plurality of different asymmetric data compression encoders is configured to utilize an arithmetic algorithm.” Pet. 61-63. Ground 4 otherwise relies the flawed analysis of Claim 1 in Grounds 1-3, and thus cannot meet the burden to show obviousness for the same reasons. *Id.* at 61. As explained in Section VIII with respect to Ground 3, merely modifying the encoders does not address the Petition’s failure to show that Imai or Pauls teach or suggest the limitations of 1[B].

And Ground 4’s reliance on Grounds 1-3 is especially inadequate because those Grounds only address Claim 1 and its dependents, whereas Ground 4 also alleges obviousness of *independent* Claim 20 and its dependents. Pet. 3.

Ground 4 totally overlooks Claim 20’s limitations other than the requirement of an encoder “configured to utilize an arithmetic algorithm.” *Id.* at 61 (“*Claim 20 and Claim 2 include all limitations of independent Claim 1 and have the additional requirement that ‘at least one of the plurality of different asymmetric data compression encoders is configured to utilize an arithmetic algorithm.’*”) (emphasis added).

For instance, independent Claim 20 differs from Claim 1 in that it requires “a plurality of *video* data compression encoders; wherein” “a first *video* data compression encoder . . . is configured to compress at a *higher compression ratio*

than a second data compression encoder” *Compare* Ex. 1001 at Cl. 20[A],[D] *with* Ex. 1001 at Cl. 1[B] (emphasis added).

As explained above, “configured to” in the claims specifies intentional design. *Supra* at V.A. Thus, the Petition must explain why a POSITA would *configure* “a first video data compression encoder” to compress “at a higher *compression ratio* than a second data compression encoder.” Ground 4 contains *no discussion at all of the “compression ratio” limitation*—not present in Claim 1—much less any explanation of *why* a POSITA would *configure* the system to meet the limitation. Ground 4 should be rejected as to Claim 20 and its dependents on that basis alone.

Ground 4 also fails to address Claim 20’s recitation of “a plurality of *video* data compression encoders” or “a first *video* data compression encoder,” neither of which is recited by Claim 1. *Compare* Ex. 1001 at Cl. 20[A],[D] *with* Ex. 1001 at Cl. 1. That omission is especially problematic because Ground 4 relies in part on Pauls’s disclosure of JPEG as “arithmetic data compression algorithm” that would be used by one of the encoders, Pet. 59, 60, but points to no reason why a POSITA would use JPEG in a “video data compression encoder.” Neither Pauls nor Imai disclose a “video data compression encoder” using JPEG, and in fact, JPEG is not a video standard at all. Indeed, the JPEG standard does not even mention video encoding or motion. Ex. 2004; Ex. 2002 ¶152. So it is not obvious why a POSITA

would choose to use it in a “video data compression encoder.” Ex. 2002 ¶153.

Thus, the Petition’s failure to address the limitations specific to Claim 20 prevents it from meeting its burden to show obviousness.

Thus, in addition to failing to remedy the failures of Grounds 1-3 with respect to Claim 1, Ground 4 fails show that the combination renders obvious (1) “a plurality of video data compression encoders” wherein (2) a “first video data compression encoder”; is (3) “configured to compress,” (4) “at a higher compression ratio than a second data compression encoder” as required by Claim 20.

Accordingly, the Petition offers no theory of how Ground 4’s combination or modifications could read on the claims, as it must. *ActiveVideo*, 694 F.3d at 1327-28 (a party asserting obviousness must “explain . . . how any specific combination would operate or read on the asserted claims”).

XII. Conclusion

For the reasons above, the Petition should be denied in full.

Respectfully submitted,

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CERTIFICATION OF WORD COUNT

The undersigned hereby certifies that the portions of the above-captioned **PATENT OWNER'S RESPONSE** specified in 37 C.F.R. § 42.24 have 13,990 words, in compliance with the 14,000 word limit set forth in 37 C.F.R. § 42.24(b)(2). This word count was prepared using Microsoft Word 365.

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CERTIFICATION OF SERVICE

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