

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,

Petitioner,

v.

ADVANCED CODING TECHNOLOGIES LLC,

Patent Owner.

Patent No. 9,986,303

Filing Date: March 13, 2015

Issue Date: May 29, 2018

Inventors: Hideki Takehara and Motoharu Ueda

Title: VIDEO IMAGE CODING DATA TRANSMITTER,
VIDEO IMAGE CODING DATA TRANSMISSION METHOD, VIDEO IMAGE
CODING DATA RECEIVER, AND VIDEO IMAGE CODING
DATA TRANSMISSION AND RECEPTION SYSTEM

PATENT OWNER'S PRELIMINARY RESPONSE

Case No. IPR2025-00999

TABLE OF CONTENTS

	<u>Page(s)</u>
I. INTRODUCTION	1
II. THE '303 PATENT	2
III. THE ALLEGED PRIOR ART	7
A. Demircin	7
B. Chen	8
IV. CLAIM CONSTRUCTION	9
V. LEVEL OF ORDINARY SKILL IN THE ART	9
VI. PETITIONER HAS NOT DEMONSTRATED A REASONABLE LIKELIHOOD OF SUCCESS FOR THE GROUNDS ADVANCED IN THE PETITION, AND THE PETITION SHOULD BE DENIED	10
A. Ground 1: Claims 1-2 Are Not Obvious Over Demircin	12
1. The Petition Does Not Show that Demircin Discloses “ <i>a basic hierarchy and a supplementary hierarchy being set in units of the group of pictures,</i> ” as Required by Claim [1.5.3]	12
2. The Petition Does Not Show that Demircin Renders Claim 2 Obvious	14
B. Grounds 2 and 3: Claims 1-2 are Not Obvious Over Chen Alone or in View of Karczewicz	14
1. The Petition Does Not Show that Chen Alone or in View of Karczewicz Discloses “ <i>a basic hierarchy and a supplementary hierarchy being set in units of the group of pictures,</i> ” as Required by Claim [1.5.3]	14
2. The Petition Does Not Show that Chen Alone or in View of Karczewicz Renders Claim 2 Obvious	15
VII. CONCLUSION	16

TABLE OF AUTHORITIES

	Page(s)
Cases	
<i>Apple, Inc. v. Contentguard Holdings, Inc.</i> , IPR2015-00355, Paper 9 at 9-10 (P.T.A.B. June 26, 2015)	10
<i>Broadcom Corp. v. Emulex Corp.</i> , 732 F.3d 1325 (Fed. Cir. 2013)	11
<i>Graham v. John Deere Co. of Kansas City</i> , 383 U.S. 1 (1966).....	10
<i>Innogenetics, N.V. v. Abbott Lab'ys.</i> , 512 F.3d 1363 (Fed. Cir. 2008)	12
<i>Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.</i> , 821 F.3d 1359 (Fed. Cir. 2016)	11
<i>KSR Int'l Co. v. Teleflex Inc.</i> , 550 U.S. 398 (2007).....	10
<i>Los Angeles Biomedical Rsch. Inst. at Harbor-UCLA Med. Ctr. v.</i> <i>Eli Lilly & Co.</i> , 849 F.3d 1049 (Fed. Cir. 2017)	11
<i>Pers. Web Techs., LLC v. Apple, Inc.</i> , 848 F.3d 987 (Fed. Cir. 2017)	11
<i>Stratoflex, Inc. v. Aeroquip Corp.</i> , 713 F.2d 1530 (Fed. Cir. 1983)	10
<i>In re Van Os</i> , 844 F.3d 1359 (Fed. Cir. 2017)	11

LIST OF EXHIBITS

Exhibit No.	Description of Document
2001	Google LLC’S Second Amended Invalidity and Subject Matter Eligibility Contentions in <i>Advanced Coding Techs. LLC v. Google LLC</i> , Case No. 2:24-cv-00353-JRG (E.D. Tex.), dated April 11, 2025
2002	Advanced Coding Technologies LLC’s Fourth Amended Disclosure of Asserted Claims and Infringement Contentions in <i>Advanced Coding Techs. LLC v. Google LLC</i> , Case No. 2:24-cv-00353-JRG (E.D. Tex.), dated December 20, 2024
2003	Advanced Coding Technologies LLC’s Disclosure of Asserted Claims and Infringement Contentions in <i>Advanced Coding Techs. LLC v. Google LLC</i> , Case No. 2:24-cv-00353-JRG (E.D. Tex.), dated July 5, 2024

I. INTRODUCTION

On May 12, 2025, Google LLC (“Petitioner” or “Google”) submitted a Petition (Paper 1, “Petition” or “Pet.”) to institute *inter partes* review (“IPR”) of U.S. Patent No. 9,986,303 (Ex. 1001, the “’303 Patent”), challenging claims 1-2 (the “Challenged Claims”). The Petition asserts that (i) the Challenged Claims are rendered obvious over U.S. Patent Application Publication No. 2008/0181302 (“Ex. 1005” or “Demircin”); (ii) the Challenged Claims are rendered obvious over U.S. Patent Application Publication No. 2012/0016965 to Chen et al. (“Ex. 1029” or “Chen”); and (iii) Claim 1 is rendered obvious over Chen in view of U.S. Patent No. 6,765,963 to Karczewicz et al. (“Ex. 1036” or “Karczewicz”). Pet. at 1.

The Board should deny institution of the Petition for the following reasons. The Petition fails to show how Demircin discloses “a basic hierarchy *and* a supplementary hierarchy being set in units of the group of pictures.” The Petition merely describes that Demircin’s base layer combined with the enhancement layer form *one* hierarchy set in units of GOPs of four pictures each, as shown in FIG. 1 of Demircin. Because Petitioner identifies only three B-frames (i.e., only inter predicted pictures) out of each 4 frame GOP as supplementary video image coding data, such data cannot be a supplementary hierarchy set in a unit of a GOP, which must “includ[e] *an intra coded picture* and a plurality of inter prediction coded pictures.” ’303 Patent, Claim 1 (emphasis added). In short, Demircin’s enhancement

layer only includes B-frames and thus lacks an intra coded picture required to form a full GOP. Therefore, the Petition is facially deficient because it ignores the plain language of this claim limitation that both the “basic hierarchy and [] supplementary hierarchy [are] set in units of the group of pictures.”

Similarly, the Petition fails to show how Chen discloses “a basic hierarchy *and* a supplementary hierarchy being set in units of the group of pictures” because it merely relies on Chen’s simple disclosure of the concept of a group of pictures, which ignores having two separate hierarchies structured as GOPs and therefore cannot disclose the plain language of this claim limitation that both the “basic hierarchy and [] supplementary hierarchy [are] set in units of the group of pictures.”

Accordingly, the Board should deny institution of the Petition.

II. THE ’303 PATENT

The ’303 Patent “relates to a video image coding data transmission technology and, more particularly, to a video image coding data transmission technology for transmitting video image coding data in real time.” ’303 Patent, 1:18-21.

The ’303 Patent discloses “basic video image coding data” in its relation to a “transmission structure of a video image based on the transmission rate”:

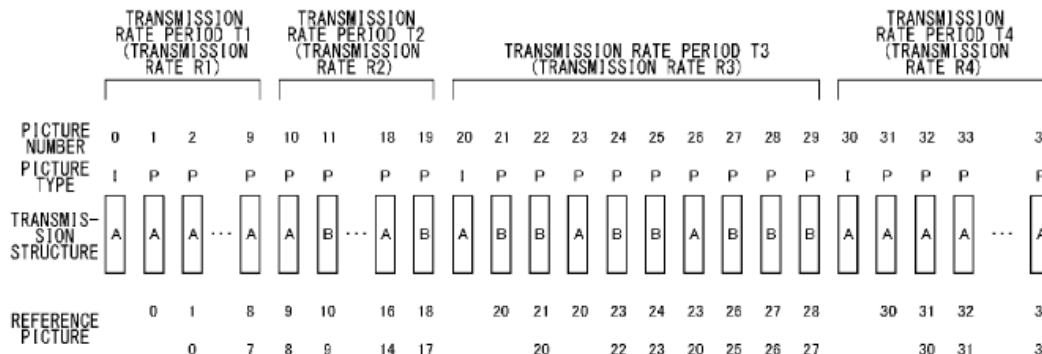
The predictive transmission structure setting unit 100 sets the transmission structure of a video image based on the transmission rate provided from the transmission rate acquisition unit 105 and also sets a prediction structure that indicates a reference relationship of each picture of

the video image. The transmission structure of the video image includes a basic hierarchy and a supplementary hierarchy. A basic hierarchy is a hierarchy for transmitting an overview video image, and a supplementary hierarchy is a hierarchy for transmitting an extension video image.

Id., 3:58-67. Depending on the transmission rate, the proportion of basic to supplementary video image coding data transmitted can be changed:

As described, the proportion of basic hierarchies to supplementary hierarchies can be changed in accordance with the transmission rate. ***When the transmission rate is sufficiently high (there is a margin), all basic hierarchies in the transmission rate are coded as basic hierarchical pictures.*** As the transmission rate becomes lowered (there is less margin), supplementary hierarchical pictures are increased, and the ratio of basic hierarchical pictures is reduced.

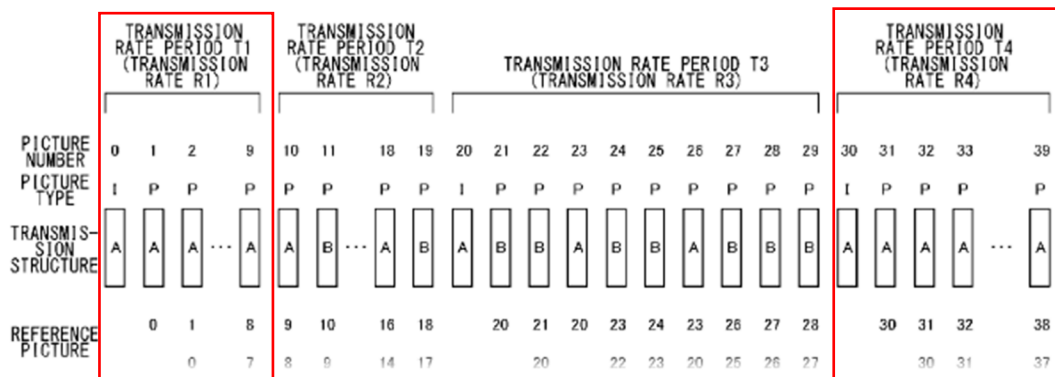
Id., 9:49-56 (emphasis added). The '303 Patent graphically describes this relationship in FIG. 4 and its corresponding disclosure:



Id., FIG. 4. In FIG. 4, basic hierarchical pictures comprising the basic video image coding data are represented as “A,” while supplementary hierarchical pictures comprising the supplementary video image coding data are represented as “B.” *Id.*,

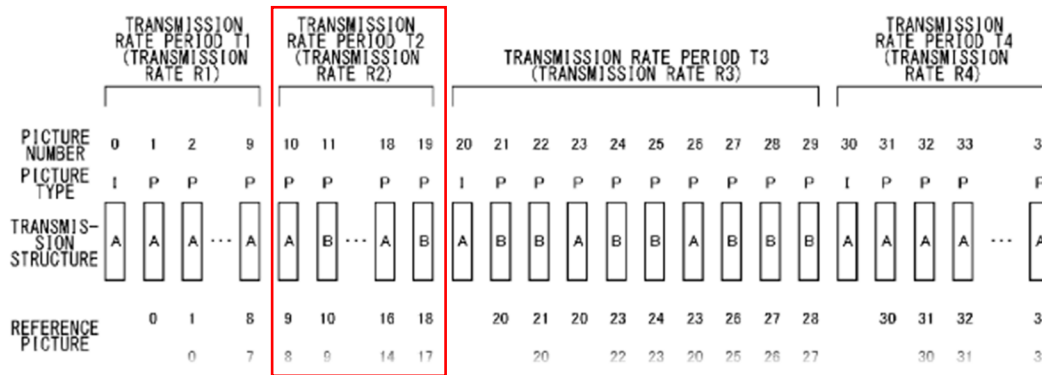
9:27-36 (“There are two types of transmission structures: a basic hierarchical picture (A) and a supplementary hierarchical picture (B).”). Additionally, FIG. 4 represents each picture as either “an I picture for performing intra coding” or “a P picture for performing inter prediction coding” although “instead of a P picture, a B picture may be used as a picture type,” which “perform[s] inter prediction coding in a bidirectional manner.” *Id.*, 9:18-26.

As described by the '303 Patent, FIG. 4 shows that when the transmission rate is sufficiently high to accommodate the data of all of the basic video image coding data, as is the case for both R1 at 4 Mbps or R4 at 6Mbps in the exemplary embodiment, only basic video image coding data will be transmitted, shown as “A” rectangles below.



Id., 8:65-9:7, FIG. 4 (annotated).

When the transmission rate drops to R2 at 2 Mbps, as shown below, supplementary video image coding data (i.e., lower quality predictive pictures) are interspersed with the basic video image coding data.



Id. (annotated.)

In the case of R3, as shown below, there is an even greater percentage of supplementary video image coding data or “B” rectangles than within R2 because R3 (800 kbps) is a lower transmission rate than R2 (2 Mbps).



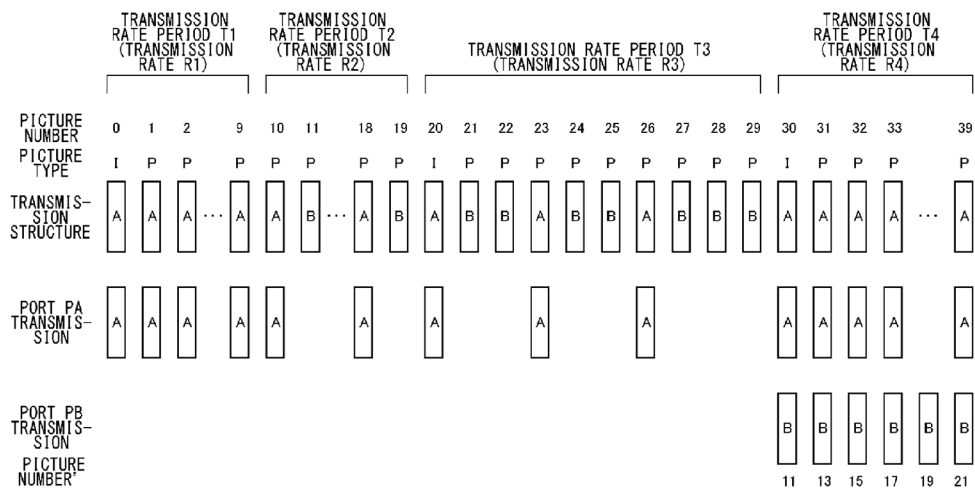
Id. (annotated.)

Therefore, if bandwidth or transmission rate decreases, FIG. 4 shows that more P pictures, which are predicted frames containing less data, are transmitted instead of some of the I pictures of the basic video image coding data, which contain more data. This enables the adaptation to available bandwidths, namely to send higher quality or lower quality video in real time. *Id.*, 1:64-67 (“[A] purpose of the

present invention is to provide a video image transmission technology capable of achieving real-time video image transmission and viewing of high-quality video images at the same time.”).

Moreover, as shown in FIG. 5 of the '303 Patent below, “‘Port PA transmission’ indicates basic hierarchical pictures transmitted from the port PA, and ‘Port PB transmission’ indicates supplementary hierarchical pictures transmitted from the port PB.”

FIG.5



Id., 11:46-52, FIG. 5.

III. THE ALLEGED PRIOR ART

A. Demircin

Demircin relates to “methods and systems for rate-adaptive transmission of video.” Ex. 1005, [0001].

Demircin’s “base layer provides a minimum level of video quality, and may provide compatibility with H.264/AVC.” *Id.*, [0035], [0022]). Demircin also discloses “[o]ne or more enhancement layers provide additional quality in an incremental manner, also referred to as progressive refinement. Decoding of the first enhancement layer requires availability of the base layer. Decoding of each subsequent enhancement layer requires availability of all previous enhancement layers, as well as the base layer.” *Id.*, [0035].

As depicted in Demircin’s FIG. 1, Demircin’s enhancement layer pictures have corresponding base layer pictures to which they are added to in order to provide higher quality for those respective enhanced pictures (i.e., a base layer and two enhancement layer pictures that can be added exist for each of A, B, C, D, etc.):

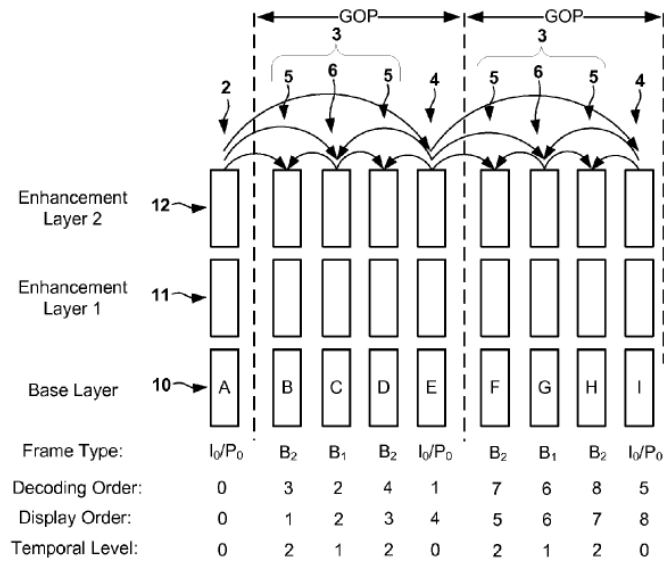


FIG. 1

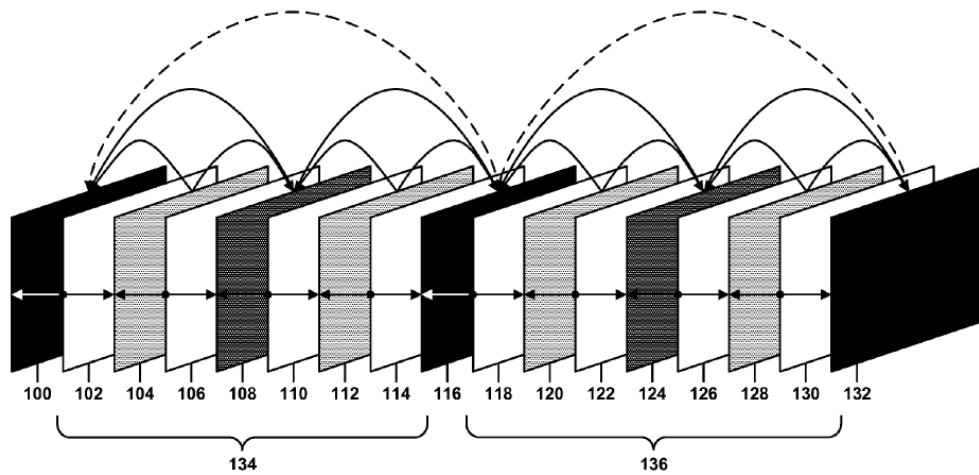
Id., FIG 1 (annotated).

Therefore, the system of Demircin combines the base layer and enhancement layer comprised of network abstraction layer (“NAL”) units consistent with Scalable Video Coding (“SVC”) techniques. *Id.*, [0035].

B. Chen

Chen “relates to storage and transport of encoded video data.” Ex. 1029, [0002].

Chen discloses “a conceptual diagram illustrating a sequence of coded video frames 100-132,” FIG. 3, where “frames are shaded differently to indicate positions within a hierarchical prediction structure” and “Frames 116, 132 form key frames of groups of pictures (GOPs) 134, 136” in this one hierarchical structure:



Id., [0116], FIG. 3.

IV. CLAIM CONSTRUCTION

For the purposes of this Preliminary Response only, Patent Owner believes that no formal construction is presently necessary. Pet. at 8-9.

V. LEVEL OF ORDINARY SKILL IN THE ART

For the purposes of this Preliminary Response only, Patent Owner utilizes Petitioner's proposed level of skill in the art: "at least a bachelor's degree in computer science, electrical engineering, computer engineering, or a related field, with 2-3 years of experience in digital video processing, or a related field. Additional graduate education could substitute for professional experience, and *vice versa*." Pet. at 7 (citations omitted).

**VI. PETITIONER HAS NOT DEMONSTRATED A REASONABLE
LIKELIHOOD OF SUCCESS FOR THE GROUNDS
ADVANCED IN THE PETITION, AND THE PETITION
SHOULD BE DENIED**

The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) so-called secondary considerations where in evidence. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18 (1966); *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1537 (Fed. Cir. 1983).

The Board has held that a failure to identify the differences between the claimed subject matter and the prior art is fatal to an obviousness challenge. *See, Apple, Inc. v. Contentguard Holdings, Inc.*, IPR2015-00355, Decision Denying Institution of *Inter Partes* Review, Paper 9 at 9-10 (P.T.A.B. June 26, 2015) (denying institution for failure to identify the differences between the claimed subject matter and the prior art).

In arriving at an obviousness determination, the Board must sufficiently explain and support the conclusions that the prior art references disclose all the

elements recited in the Challenged Claims and a relevant, skilled artisan not only could have made, but would have been motivated to combine all the prior art references in the way the patent claims and reasonably expected success. *Pers. Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017). That is, even if all the claim elements are found across a number of references, an obviousness determination must consider whether a person of ordinary skill in the art would have the motivation to combine those references. *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1368 (Fed. Cir. 2016); *Los Angeles Biomedical Rsch. Inst. at Harbor-UCLA Med. Ctr. v. Eli Lilly & Co.*, 849 F.3d 1049, 1067 (Fed. Cir. 2017) (vacating and remanding an obviousness determination, in part, because the Board did not make factual finding as to whether there was an apparent reason to combine all three prior art references to achieve the claimed invention and whether a person of skill in the art would have had a reasonable expectation of success from such a combination). This combinability determination, as supported by an articulated motivation to combine, requires a plausible rationale as to why those prior art references would have worked together. *Broadcom Corp. v. Emulex Corp.*, 732 F.3d 1325, 1335 (Fed. Cir. 2013). Absent some articulated rationale, a “common sense” finding is no different than the conclusory statement “would have been obvious.” *In re Van Os*, 844 F.3d 1359, 1361 (Fed. Cir. 2017). Of additional importance, “knowledge of a problem and motivation to solve it are entirely different

from motivation to combine particular references” *Innogenetics, N.V. v. Abbott Lab’ys.*, 512 F.3d 1363, 1373 (Fed. Cir. 2008).

A. Ground 1: Claims 1-2 Are Not Obvious Over Demircin

**1. The Petition Does Not Show that Demircin Discloses
“a basic hierarchy and a supplementary hierarchy
being set in units of the group of pictures,” as Required
by Claim [1.5.3]**

Claim 1.5.3 of the ’303 Patent recites “a basic hierarchy and a supplementary hierarchy being set in units of the group of pictures.”

The Petition is deficient because it fails to describe how Demircin discloses that both a basic hierarchy *and* a supplementary hierarchy are set in units of groups of pictures (GOPs). *See* Pet. at 42-44. Instead, the Petition merely describes that the base layer combined with the enhancement layer form *one* hierarchy set in units of GOPs of four pictures each, as shown in FIG. 1 of Demircin:

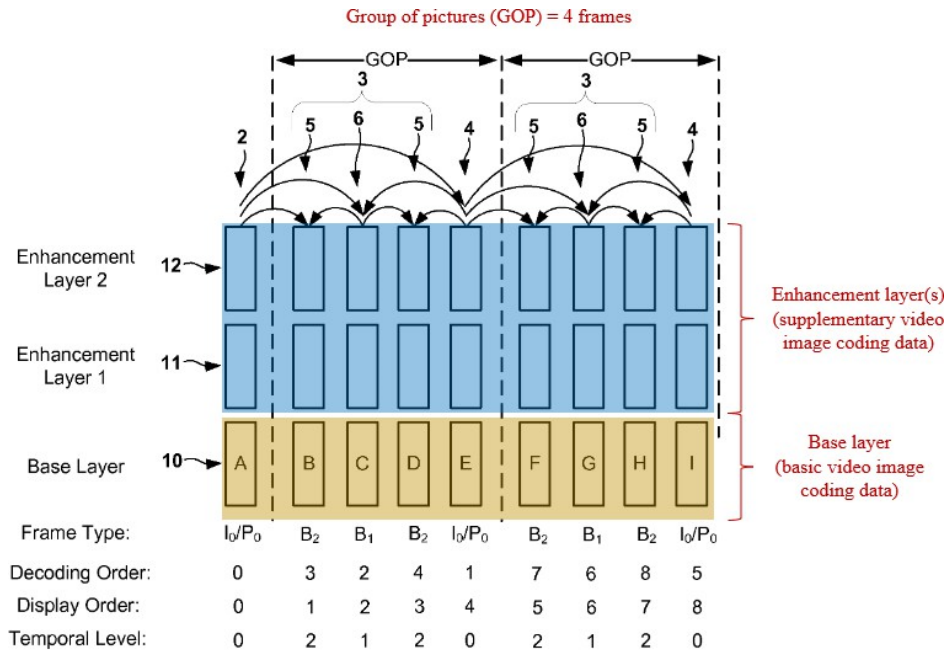


FIG. 1

Pet. at 43 (citing Demircin, FIG. 1 (modified and annotated)).

But those GOPs of 4 frames each are a combination of one I-frame/P-Frame that is purportedly basic video image coding data and three B-frames that are purportedly supplementary video image coding data, not a GOP corresponding to any one type of basic or supplementary hierarchies.

Petitioner ignores that Demircin’s enhancement layer described in FIG. 1, which Petitioner relies on as disclosing the claimed supplementary hierarchy, cannot be its own hierarchical group of pictures. As recited by Claim 1.5.2, “a group of pictures includ[es] an intra coded picture and a plurality of inter prediction coded pictures.” ’303 Patent, Claim 1. Notably, this recitation of Claim 1.5.2 provides the antecedent basis for Claim 1.5.3’s recitation of “the group of pictures” and thus the

same requirement of “an intra coded picture and a plurality of inter prediction coded pictures” in a GOP applies. Demircin’s enhancement layer only includes B-frames and thus lacks an intra coded picture required to form a full GOP. Therefore, the Petition is facially deficient because it ignores the plain language of this claim limitation that both the “basic hierarchy and [] supplementary hierarchy [are] set in units of the group of pictures.”

Therefore, the Petition is deficient because it fails to show that Claim 1.5.3 is disclosed or rendered obvious by Demircin.

2. The Petition Does Not Show that Demircin Renders Claim 2 Obvious

The Petition relies on its arguments for Claim 1 to render obvious at least Claims [2.6.1], [2.7], and [2.9]-[2.16]. Pet. at 49-54. Therefore, for at least the same reasons as described for Claim 1, the Petition fails to show how Claim 2 is rendered obvious over Demircin.

B. Grounds 2 and 3: Claims 1-2 are Not Obvious Over Chen Alone or in View of Karczewicz

1. The Petition Does Not Show that Chen Alone or in View of Karczewicz Discloses “*a basic hierarchy and a supplementary hierarchy being set in units of the group of pictures,*” as Required by Claim [1.5.3]

Claim 1.5.3 of the ’303 Patent recites “a basic hierarchy and a supplementary hierarchy being set in units of the group of pictures.”

Ground 2 of the Petition is deficient for the same reasons as Ground 1. In fact, the Petition does not even attempt to show how Chen or Karczewicz¹ discloses this limitation. The Petition merely states that “Chen depicts ‘a conceptual diagram illustrating a sequence of coded video frames 100-132’” and “Chen further states that ‘[f]rames 116, 132 form key frames of groups of pictures (GOPs) 134, 136, respectively.’” Pet. at 67 (citing Ex. 1029 ¶¶ 116, 152, 36-37, 67, 101, 119). The Petition merely relies on Chen’s simple disclosure of the concept of a group of pictures. Such a disclosure is not sufficient to show two separate hierarchies, each structured as GOPs. As a result, the Petition is deficient for ignoring the plain language of this claim limitation that both the “basic hierarchy and [] supplementary hierarchy [are] set in units of the group of pictures.”

Therefore, the Petition is deficient because it fails to show that Claim 1.5.3 is disclosed or rendered obvious by Chen alone or in view of Karczewicz.

2. The Petition Does Not Show that Chen Alone or in View of Karczewicz Renders Claim 2 Obvious

The Petition relies on its arguments for Claim 1 to render obvious at least Claims [2.P]-[2.2], [2.5], [2.6.1], [2.7], and [2.9]-[2.16]. Pet. at 70-76. Therefore, for at least the same reasons as described for Claim 1, the Petition fails to show how

¹ The Petition only relies on Karczewicz for certain limitations of Claim 2. *See* Pet. at 73, 75.

Claim 2 is rendered obvious over Chen alone or in view of Karczewicz.

VII. CONCLUSION

For the foregoing reasons, Patent Owner respectfully requests that the Board deny institution of the Petition in its entirety.

Respectfully submitted,

Dated: September 12, 2025 By: /Peter Lambrianakos /
Peter Lambrianakos (Reg. No. 58,279)
Email: plambrianakos@fabricantllp.com
Lead Counsel for Patent Owner
Vincent J. Rubino, III (Reg. No. 68,594)
Email: vrubino@fabricantllp.com
Back-Up Counsel for Patent Owner
Joseph M. Mercadante (Reg. No. 64,077)
Email: jmercadante@fabricantllp.com
Julian G. Pymonto (Reg. No. 75,999)
Email: jpymonto@fabricantllp.com
Back-Up Counsel for Patent Owner
FABRICANT LLP
411 Theodore Fremd Avenue
Suite 206 South
Rye, New York 10580
Tel. 212-257-5797
Fax. 212-257-5796

CERTIFICATE OF WORD COUNT

The undersigned hereby certifies that the portions of the above-captioned PATENT OWNER'S PRELIMINARY RESPONSE specified in 37 C.F.R. § 42.24 has 2,624 words in compliance with the 14,000 word limit set forth in 37 C.F.R. § 42.24. This word count was prepared using Microsoft Word for Office 365.

Respectfully submitted,

September 12, 2025

By: /Peter Lambrianakos /
Peter Lambrianakos (Reg. No. 58,279)
Lead Counsel for Patent Owner
FABRICANT LLP
411 Theodore Fremd Avenue
Suite 206 South
Rye, New York 10580
Tel. 212-257-5797
Fax. 212-257-5796
Email: plambrianakos@fabricantllp.com

CERTIFICATE OF SERVICE

A copy of the foregoing Patent Owner's Preliminary Response have been served on Petitioner's counsel of record as follows:

Raghav Bajaj
Email: raghav.bajaj@lw.com
LATHAM & WATKINS LLP
300 Colorado Avenue, Suite 2400
Austin, Texas 78701

Doug Lumish
Email: doug.lumish@lw.com
Linfong Tzeng
Email: linfong.tzeng@lw.com
LATHAM & WATKINS LLP
140 Scott Drive
Menlo Park, California 94025

Patricia Young
Email: patricia.young@lw.com
LATHAM & WATKINS LLP
1271 Avenue of the Americas
New York, New York 10020

Joseph H. Lee
Email: joseph.lee@lw.com
LATHAM & WATKINS LLP
650 Town Center Drive, 20th Floor
Costa Mesa, California 92626

Attorneys for Google LLC

September 12, 2025

By: /Peter Lambrianakos /
Peter Lambrianakos (Reg. No. 58,279)
Lead Counsel for Patent Owner