

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD. AND
SAMSUNG ELECTRONICS AMERICA, INC.,
Petitioners

v.

MAXELL, LTD.,
Patent Owner

Inter Partes Review No. IPR2025-01312
U.S. Patent No. 7,952,645

**PETITIONER'S OPPOSITION TO
PATENT OWNER'S CONTINGENT MOTION TO AMEND**

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PETITIONER’S EXHIBIT LIST

Exhibit No.	Description
1001	U.S. Patent No. 7,952,645 (“the ‘645 patent”).
1002	File History of U.S. Patent No. 7,952,645.
1003	Declaration of Dr. Dan Schonfeld.
1004	U.S. Patent App. Pub. No. 2004/0156545 (“Kim”).
1005	U.S. Patent No. 5,808,697 (“Fujimura”).
1006	ITU “Recommendation ITU-R BT.1298*; Enhanced wide-screen NTSC TV transmission system” (1997) (retrieved from https://www.itu.int/dms_pubrec/itu-r/rec/bt/R-REC-BT.1298-0-199710-W!!PDF-E.pdf).
1007	Definition of “signal” from <i>Chambers Dictionary of Science & Technology</i> (2007).
1008	Definition of “according to” from <i>The New Oxford American Dictionary</i> (2nd ed. 2005).
1009	Definition of “according to” from <i>Webster’s New College Dictionary</i> (2005).
1010	Definition of “according to” from <i>The Chambers Dictionary</i> (10th ed. 2007).
1011	Patent Owner’s responsive claim construction brief from <i>Maxell, Ltd., v. Lenovo Group Ltd.</i> , No. 6:21-cv-01169 (W.D. Tex. Jun. 13, 2022).
1012	Patent Owner’s sur-reply claim construction brief from <i>Maxell, Ltd., v. Lenovo Group Ltd.</i> , No. 6:21-cv-01169 (W.D. Tex. Jul. 11, 2022).
1013	Patent Owner’s infringement contentions cover pleading from <i>Maxell, Ltd. v. Samsung Elecs. Co., Ltd.</i> , No. 5:25-cv-00052 (E.D. Tex.).
1014	Patent Owner’s ‘645 patent infringement contentions claim chart from <i>Maxell, Ltd. v. Samsung Elecs. Co., Ltd.</i> , No. 5:25-cv-00052 (E.D. Tex.).
1015	Petitioner’s “Sotera plus” Stipulation.
1016	Complaint from <i>Maxell, Ltd. v. Samsung Elecs. Co.</i> , No. 5:23-cv-00092 (E.D. Tex. Sept. 7, 2023).
1017	Order from <i>Maxell, Ltd. v. Samsung Elecs. Co.</i> , No. 5:23-cv-00092 (E.D. Tex. Mar. 21, 2025).
1018	Order from <i>Maxell, Ltd. v. Samsung Elecs. Co.</i> , No. 5:23-cv-00092 (E.D. Tex. Jul. 9, 2025).

Exhibit No.	Description
1019	Order from <i>Maxell, Ltd. v. Samsung Elecs. Co.</i> , No. 5:23-cv-00092 (E.D. Tex. May 2, 2025) (public version).
1020	Order from <i>Maxell, Ltd. v. Samsung Elecs. Co.</i> , No. 5:23-cv-00092 (E.D. Tex. Sept. 18, 2025) (public version).
1021	Excerpts of the trial transcript from <i>Maxell, Ltd. v. Samsung Elecs. Co.</i> , No. 5:23-cv-00092 (E.D. Tex. May 22, 2025).
1022	Letter from Maxell to Samsung dated July 7, 2021.
1023	Email thread between Maxell and Samsung from July 2021 to January 2022.
1024	Letter from Maxell to Samsung dated December 29, 2021.
1025	IPR2024-00867, Paper 40 (Petitioner’s Response to Patent Owner’s Request for Authorization to File Materials from Related Matters).
1026	IPR2024-00717, Paper 33 (Order Denying Patent Owner’s Request for Authorization to File Materials).
1027	IPR2024-00828, Paper 42 (Petitioner’s Response to Patent Owner’s Motion to Submit Supplemental Information).
1028	IPR2024-00828, Paper 47 (Petitioner’s Sur-reply to Patent Owner’s Motion to Submit Supplemental Information).
1029	IPR2024-00828, Paper 50 (Order Denying Patent Owner’s Motion to Submit Supplemental Information).
1030	IPR2024-00735, Paper 41 (Petitioner’s Opposition to Motion to Submit Supplemental Information).
1031	U.S. Patent No. 7,046,302 (“Konuma”).
1032	Petitioner’s Motion to Stay Pending <i>Inter Partes</i> Review from <i>Maxell, Ltd. v. Samsung Elecs. Co.</i> , No. 5:25-cv-00052 (E.D. Tex. Oct. 24, 2025).
1033	“Order Focusing Patent Claims and Prior Art” from <i>Maxell, Ltd. v. Samsung Elecs. Co.</i> , No. 5:25-cv-00052 (E.D. Tex. Aug. 18, 2025).
1034	Law360 article, “Stewart Says New Patent Policies Aim to Bring Stability,” dated Sept. 8, 2025.
1035	Supplemental Declaration of Dr. Dan Schonfeld Regarding Patent Owner’s Motion to Amend.
1036	U.S. Patent App. Pub. No. 2006/0258289 (“Dua”).
1037	Joint Claim Construction Statement from <i>Maxell, Ltd. v. Samsung Elecs. Co.</i> , No. 5:25-cv-00052 (E.D. Tex. Jan. 28, 2026).

Exhibit No.	Description
1038	Supplemental Declaration of Dr. Dan Schonfeld Regarding Patent Owner’s Response.
1039	U.S. Patent No. 8,139,157 (“Someya”).
1040	U.S. Patent No. 8,792,039 (“Hirooka”).
1041	U.S. Patent No. 8,184,200 (“Biswas”).
1042	U.S. Patent No. 6,148,103 (“Nenonen”).
1043	Definition of “when” from <i>The New Oxford American Dictionary</i> (2nd ed. 2005).
1044	Definition of “when” from <i>Webster’s New College Dictionary</i> (2005).
1045	Definition of “controller” from <i>Dictionary of ICT</i> (4th ed. 2004).
1046	Definition of “controller” from <i>Wiley Electrical and Electronics Engineering Dictionary</i> (2004).
1047	U.S. Patent No. 6,125,371 (“Bohannon”).
1048	Markus P.J. Fromherz, <i>Model-Based Computing for Design and Control of Reconfigurable Systems</i> , AI MAGAZINE, Winter 2004.
1049	A.S. Bishell, <i>Designing the Control Architecture for Algorithm Specific Custom Processors on FPGAs</i> , Elecs. N.Z. Conf. (Nov. 2007).
1050	Joel Johnson, <i>Drive Safe</i> , POPULAR MECHANICS, May 2006.
1051	Matthew Turk, <i>Perceptual Interfaces</i> , EMERGING TOPICS IN COMPUTER VISION, 2004.
1052	Definition of “pixel” from <i>Dictionary of Computer Vision and Image Processing</i> (2005).
1053	International Organization for Standardization, <i>Digital imaging — Specification guideline for digital cameras</i> , ISO 18383:2025, (2nd ed. 2025).
1054	Sony, <i>What is a pixel and how does it form a picture?</i> , Sony USA (May 1, 2024), https://www.sony.com/electronics/support/articles/00342545 .
1055	Transcript of deposition of Patent Owner’s expert Dr. Matthew Turk (Jul. 21, 2026).

TABLE OF SUBSTITUTE CLAIMS¹

[9.pre]	9. A portable telephone comprising:
[9.a]	a battery which supplies power for components included in the portable telephone;
[9.b]	an input unit to which a video signal comprising one or more frames containing contents is input;
[9.c]	a detector which detects whether pattern portions other than contents are contained in a first frame of the one or more frames in the video signal input to the input unit, wherein the detector detects whether a first portion of the first frame contains the pattern portions based on both the first portion and contents in the first frame other than the first portion;
[9.d]	a corrector which, when controlled by a controller, corrects the video signal input to the input unit; and
[9.e]	the controller which controls the corrector to cause the corrector to correct the video signal input to the input unit when the pattern portions are not contained in the first frame, and which controls the corrector to cause the corrector not to correct the video signal when the pattern portions are contained in the first frame.
[10.pre]	10. The portable telephone according to claim 9, comprising:
[10.a]	a characteristic point detector which detects a level or distribution of at least one of luminance, hue and saturation of the video signal;
[10.b]	wherein the corrector corrects the video signal according to the level or distribution detected by the characteristic point detector.
[11.pre]	11. A portable telephone comprising:
[11.a]	a battery which supplies power for components included in the portable telephone;
[11.b]	an input unit to which a video signal comprising one or more frames containing contents is input;
[11.c]	a detector which detects whether pattern portions other than contents are contained in a first frame of the one or more frames in the video signal input to the input unit, wherein the detector

¹ Petitioner has lettered the substitute claims' limitations for ease of reference.

	detects whether a first portion of the first frame contains the pattern portions based on both the first portion and contents in the first frame other than the first portion,
[11.d]	and wherein the detector detects whether the first portion of the first frame contains the pattern portions based on comparing the first frame with a preceding frame of the one or more frames;
[11.e]	a characteristic point detector which detects a level or distribution of at least one of luminance, hue and saturation of the video signal input to the input unit;
[11.f]	a corrector which, when controlled by a controller, changes correction characteristics according to a result of detection that is output from the characteristic point detector, and corrects the video signal input to the input unit; and
[11.g]	the controller which controls the corrector to cause the corrector to change the correction characteristics in the corrector when the pattern portions are not contained in the first frame, and which controls the corrector to cause the corrector not to change the correction characteristics in the corrector when the pattern portions are contained in the first frame.
[12]	12. The portable telephone according to claim 9, wherein the detector detects whether the first portion of the first frame contains the pattern portions based on comparing the first frame with a preceding frame of the one or more frames.
[13.pre]	13. A portable telephone comprising:
[13.a]	a battery which supplies power for components included in the portable telephone;
[13.b]	an input unit to which a video signal comprising one or more frames containing contents is input;
[13.c]	a pattern portion detector which detects whether pattern portions other than contents are contained in a first frame of the one or more frames in the video signal input to the input unit, wherein the detector detects whether a first portion of the first frame contains the pattern portions based on both the first portion and contents in the first frame other than the first portion;
[13.d]	a no-picture area detector which detects whether the pattern portions are no-picture areas having a single color;

[13.e]	a corrector which, when controlled by a controller, corrects the video signal input to the input unit; and
[13.f]	the controller which controls the corrector to cause the corrector to correct the video signal input to the input unit when the pattern portions are not contained in the first frame and when the pattern portions are the no-picture areas,
[13.g]	and which controls the corrector to cause the corrector not to correct the video signal when the pattern portions in the first frame are not the no-picture areas.
[14.pre]	14. The portable telephone according to claim 9, wherein the detector detects whether the first portion of the first frame contains the pattern portions based on:
[14.a]	a first difference between: a first luminance level detected in the first portion of the first frame, and a second luminance level detected in a second portion, corresponding to the first portion, of a preceding frame; and
[14.b]	a second difference between: a third luminance level detected in the contents in the first frame other than the first portion, and a fourth luminance level detected in contents in the preceding frame other than the second portion.
[15]	15. The portable telephone according to claim 13, wherein the pattern portions are portions added to left and right of the contents or above and below the contents and displayed.
[16]	16. The portable telephone according to claim 13, wherein the no-picture areas have a black color or a white color.

I. INTRODUCTION

Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively, “Petitioner”) submit this opposition to Patent Owner’s contingent motion to amend (Paper 23, “Mot.”).

II. PATENT OWNER DOES NOT COMPLY WITH THE STATUTORY REQUIREMENTS.

A. Patent Owner Improperly Broadens the Substitute Claims.

“A patent owner may not seek to broaden a challenged claim in any respect that enlarges the scope of the claims of the patent.” *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 15 at 7 (Feb. 25, 2019) (precedential); *see also* 35 U.S.C. § 316(d)(3); 37 C.F.R. § 42.121(a)(2)(ii). “Likewise, a proposed substitute claim may not remove a feature of the claim in a manner that broadens the scope of the claims of the challenged patent.” *Lectrosonics*, Paper 15 at 7. “If a substitute claim is broader *in any respect*[,] it is considered to be broader than the original claim[,] even though it may be narrower in other respects.” *Sisvel Int’l S.A. v. Sierra Wireless, Inc.*, 81 F.4th 1231, 1241 (Fed. Cir. 2023) (citation modified).

Patent Owner’s amendments improperly enlarge the scope of the claims in various ways. First, substitute claim 12 deletes all of the substance of original claim 4, removing those features and broadening the claim’s scope in that regard. Mot. at 10-11. Second, substitute claim 14 does the same with respect to original claim 6 by deleting the limitations reciting “a characteristic point detector ...” and

“wherein when the no picture area detector has detected” *Id.* at 12-13. Third, substitute claim 14 is a substitute of original claim 6, which depends from original claim 5. *Id.* at 12. But substitute claim 14 depends from substitute claim 9, the substitute for original claim 1, rather than from substitute claim 13, the substitute of original claim 5. *Id.* at 3, 11-12. By changing the claim from which substitute claim 14 depends, Patent Owner has removed limitations from that claim such as limitation 5.c (“a no-picture area detector which detects ... no-picture areas having a single color”), broadening the claim in that regard. *Id.* at 11.

B. Patent Owner Fails to Show the Required Written Description Support.

1. Patent Owner Ignores the Japanese Parent Application and Several Claim Limitations.

Patent Owner must set forth “[t]he [written description] support in an earlier-filed disclosure for each claim for which the benefit of the filing date of the earlier-filed disclosure is sought.” 37 CFR § 42.121(b)(2); *Lectrosonics*, Paper 15 at 7.

The ’645 patent claims the benefit of the November 24, 2005 filing date of Japanese Patent Application No. 2005-338000. EX1001, 1. But Patent Owner has not attempted to show that the substitute claims have written description support in the Japanese application, as required. Mot. at 2-13.

Moreover, Patent Owner “must set forth written description support for each proposed substitute claim as a whole, and not just the features added by the

amendment.” *Lectrosonics*, Paper 15 at 7. “This applies equally to independent claims and dependent claims, even if the only amendment to a dependent claim is in the identification of the claim from which it depends.” *Id.* For many limitations, Patent Owner does not provide written description support and instead states “Originally filed claim.” Mot. at 7, 9, 11, 13. But Patent Owner cannot ignore these limitations, even if it has not amended them.

2. Patent Owner Has Not Shown Written Description Support for Various Specific Limitations.

The Board carefully applies the written description requirement to substitute claims. *See Danxiao Info. Tech. Ltd., v. Shenzhen Svakom Tech. Co.*, PGR2022-00050, Paper 36 at 24-25 (Jan. 19, 2024) (finding no written description support for the limitation, “the second time length is equal to two times of the first time length” even though the specification disclosed times of 5 and 10 seconds). Moreover, “to satisfy the written description requirement for a claimed genus, a specification must describe the claimed invention in such a way that a person of skill in the art would understand that the genus that is being claimed has been invented, not just a species of the genus.” *Carnegie Mellon Univ. v. Hoffmann-La Roche Inc.*, 541 F.3d 1115, 1124 (Fed. Cir. 2008).

Each of substitute independent claims 9, 11, and 13 recites that “the detector detects whether a first portion of the first frame contains the pattern portions based on both the first portion and contents in the first frame other than the first portion.”

Mot. at 4-5, 8, 11. The plain meaning of this limitation includes detecting whether the first frame contains pattern portions based on the first frame alone. As supposed written description support, Patent Owner cites the patent's 18:23-28, 18:29-40, and 18:41-49, which describe the process of Figure 33. *Id.* at 4-5, 7, 11; EX1001, 18:14-22. But that process considers two frames: the current frame and "the preceding frame." EX1001, 18:23-26 ("the difference ($\Delta P11$, $\Delta P12$, $\Delta P13$) from the preceding frame"), 18:33-38 ("the difference ($\Delta P21$, $\Delta P22$, $\Delta P23$) from the preceding frame"), Fig. 33 (steps S3303, S3304, S3305); *see also id.* at Figs. 35A-C ("difference between frames"), 36A-C (same). Patent Owner therefore has not shown adequate written description support for this limitation.

Next, independent substitute claim 13 includes limitations 13.f and 13.g,² which recite correcting the video signal "when the pattern portions are the no-picture areas" and not correcting the video signal "when the pattern portions ... are not the no-picture areas," where "the no-picture areas" refers to "no-picture areas having a single color" in limitation 13.d. Mot. at 11-12. As purported written description support, Patent Owner cites 22:58-23:12, which describes part of Figure 44 and builds on Figure 43, which describes setting the "wallpaper flag" and "no-picture flag" of Figure 44. *Id.*; EX1001, 22:22-62.

² Limitation numbering refers to the table of substitute claims above.

But Figure 43 discloses determining whether a no-picture area is black, not whether it is any other single color. EX1001, 22:53-57. It does so by determining that three points, P11, P12, and P13, have a luminance (*i.e.*, light output) value of 0. *Id.*, Fig. 43 (S4306). This is materially different than detecting a single color generally because Figure 43 considers the value of “luminance signal Y” at those three points, and different colors (*e.g.*, a certain red and a certain blue) can have the same luminance. *Id.*, 22:53-57; *see also id.*, 1:51-54 (separately reciting “luminance and color information”). To determine that P11, P12, and P13 are the same color for any color other than pure black and pure white, Figure 43 would have to consider additional information, such as “color-difference signals R-Y and B-Y,” which contain color information. *Id.*, 5:29-37. But that is *impossible* in the disclosed embodiments because “pattern portion detector 1511” receives only the luminance signal, not the R-Y or B-Y signals or other signals. *Id.*, Figs. 27, 37, 16:28-31. Assuming that the patent’s “video signal of the RGB form” has 256 possible values for each of red, green, and blue because the luminance signal Y has 256 possible values, a no-picture area could be one of over 16 million possible colors. *Id.*, 5:24-7:58. Figure 43 discloses detecting whether a no-picture area is pure black, but cannot detect 16 million other colors. Patent Owner therefore has not shown adequate written description support for this limitation.

III. SUBSTITUTE CLAIMS 9-12 AND 14 ARE OBVIOUS UNDER 35 U.S.C. § 103.

Substitute claims 9-12 and 14 are disclosed and rendered obvious by Fujimura (EX1005) combined with U.S. Patent App. Pub. No. 2006/0258289 (“Dua,” EX1036). The Petition’s Ground 2 establishes how Fujimura discloses and renders obvious claims 1-4. Any claim language not addressed below is disclosed or rendered obvious for the reasons set forth in that ground. This section is supported by the declaration of Dr. Dan Schonfeld (EX1035) and parts of that declaration are copied into this section.

Dua was filed on May 12, 2005, and therefore is prior art under at least 35 U.S.C. § 102(e) (pre-AIA). Dua discloses a “media player 100” with a “large high-resolution color display screen 102” that can “play video,” such as “MPEG” video. EX1036, ¶¶57-58, 75-76, 142, Figs. 2A, 2C. The media player can be a “cellular phone” and can “plac[e] phone calls.” *Id.*, ¶¶57-58. It would have been obvious to combine Dua and Fujimura for the reasons in Section III.F.

Patent Owner’s arguments that Kim, and Kim combined with Fujimura, do not disclose the substitute claims are inapplicable because Petitioner does not rely on Kim to show disclosure of the substitute claims. Mot. at 15-17, 19.

A. Claim 9.

1. Preamble 9.pre.

Dua discloses a *portable telephone*. Dua’s “media player 100” can be a

“cellular phone[]” that is “generally portable” and includes “cellular phone capability,” such as “placing phone calls.” EX1036, ¶¶57-58, Figs. 2A, 2C.

2. Limitation 9.a.

Dua discloses that media player 100 (*a portable telephone*) can include a “rechargeable lithium polymer battery” (*a battery*). EX1036, ¶59. The media player’s “RFID reader functionality utilizes the media player’s 100 battery power.” *Id.*, ¶94. And its screen displays “a battery-life indicator 602 for the media player.” *Id.*, ¶213, Fig. 12. A POSITA therefore would have understood that the *battery supplies power for components included in the portable telephone.*

3. Limitation 9.b.

Fujimura discloses “video signals” with “a series of frames” and “consecutive images” (*a video signal comprising one or more frames*). EX1005, Abstract, 1:3-6, 14:60-15:4, 3:56-61 (“image” refers to “one frame”). Each frame may include a “picture area” (*contents*). *Id.*, 13:42-44, Fig. 18.

4. Limitation 9.c.

In Fujimura, a given frame (*a first frame*) may contain “black non-picture bands above and below” the “picture area,” also referred to as “letterbox” bands (*pattern portions other than contents*). EX1005, 13:42-49, 1:51-55, Fig. 18. Fujimura discloses determining whether each scanning line in the frame has a number of “bright pixels” or “dark pixels” above a certain bright-pixel threshold or dark-pixel threshold. *Id.*, 14:7-36; Petition, 41-42. It does so to determine “the

starting and ending lines of the picture area in the image.” EX1005, 14:46-50, 13:53-58. In doing so, it determines whether the frame contains letterbox bands above and below the picture area (*detects whether pattern portions other than contents are contained in a first frame*). Because this process determines the starting and ending lines of the picture area, it also determines that the letterbox bands are contained above the starting line and below the ending line. That area above and below the picture area, collectively, is *a first portion of the first frame that contains the letterbox bands (pattern portions)*. Also, this process analyzes every scanning line in the frame. *Id.*, 14:13-36 (“each horizontal scanning line”). It is therefore based on both the letterbox bands and the picture area (*based on both the first portion and contents in the first frame other than the first portion*).

Patent Owner argues that Fujimura’s “individual scanning lines” do not satisfy this limitation, apparently focusing on the proposed new claim language, “a first frame.” Mot. at 17-18, 4-5. But the mapping above also relies on Fujimura’s “frames,” which include *a first frame*.

Patent Owner also argues that Fujimura’s letterbox detection is not pattern detection but does not explain why. Mot. at 17. Nonetheless, the patent describes letterbox bands as patterns. *See* EX1001, 16:7-12 (“pattern portions such as ... single-colored no-picture area”), 20:17-20 (“the pattern portions are black no-picture areas”), Figs. 36A-B, 45A-B. And Fujimura’s determination of the picture

area's starting and ending line numbers detects both the existence and boundaries of the letterbox bands. EX1005, 14:13-45.

5. Limitation 9.d.

Petitioner showed how Fujimura discloses “a controller which controls the corrector to cause the corrector to correct the video signal input” Petition, 45-48; *see also id.*, 43-45 (Fujimura's disclosure of “a corrector which corrects the video signal ...”). For the same reasons, Fujimura discloses *a corrector which, when controlled by a controller, corrects the video signal input*

Patent Owner argues that “Fujimura is silent as to any CPU used to implement the claimed corrector” (Mot. at 18), but the substitute claims do not recite a “CPU.” Mot. at 3-13. Patent Owner may contend that the “corrector” limitation of substitute claim 9 is a means-plus-function limitation with a corresponding structure of “CPU 7 or equivalents thereof.” *Id.* at 5. In that case, Fujimura discloses that primary mapper 12 and luminance contrast enhancer 2 (each a *corrector*) may be implemented in “a general-purpose processor,” which is at least an equivalent of a CPU, also a general-purpose processor. EX1005, 3:63-4:11; *see also* Petition, 45; EX1035, ¶22.

6. Limitation 9.e.

Fujimura discloses, for a given frame, “restrict[ing] the luminance and chrominance contrast enhancement ... to the picture area between the non-picture

bands.” EX1005, 13:64-14:1, 14:50-59 (“contrast enhancement operations ... are restricted to the ... picture area”); *see also id.*, Abstract, 2:49-52; Petition, 45-48. Thus, when there is a picture area in the first frame (*when the pattern portions are not contained in the first frame*), Fujimura *correct[s] the video signal*. And when there is a letterbox band in the frame (*when the pattern portions are contained in the first frame*), Fujimura *does not correct the video signal*. EX1035, ¶23.

a. Patent Owner’s Arguments Are Meritless.

Patent Owner’s argument that Fujimura “corrects the video signal, even when the letterbox portions are detected” is incorrect and reflects a faulty claim interpretation. Mot. at 18. As established above, Fujimura discloses restricting contrast enhancement to the picture area, meaning it does *not* perform contrast enhancement on the letterbox bands, *i.e.*, when the letterbox portions are detected. Thus, “when the pattern portions are contained in the first frame,” Fujimura does “not [] correct” the video signal, as recited by limitation 9.e.

Limitation 9.e allows Fujimura to correct the frame’s picture area because it also recites “correct[ing] the video signal input ... when the pattern portions are not contained in the first frame.” The plain meaning of this language encompasses not correcting the pattern portions of the frame and correcting the content portions.

Indeed, Patent Owner in the district court expressly construed “when” in the claim language “when the pattern portions are contained/not contained” to mean

“based on or upon determination that the pattern portions ... are contained/not contained.” EX1037, 19. Substituting this construction into limitation 9.e results in the language, “correct[ing] the video signal ... based on determination that the pattern portions are not contained in the first frame” and “correct[ing] the video signal based on determination that the pattern portions are contained in the first frame.” This language likewise allows for correcting some portions of the first frame and not correcting other portions of the first frame based on different determinations—that the portion under consideration is a pattern portion or not.

Moreover, the patent’s preferred embodiments include correcting some parts of a video signal and not correcting other parts. The specification discloses “exclud[ing] the pattern portions and conduct[ing] correction only in the contents display area.” EX1001, 20:12, 24:14-16. Likewise, it discloses that, “[i]f a pattern portion is contained, the picture quality enhancement processing for the video signal is stopped.” *Id.*, 16:5, 19:59-61, 19:64-66 (“processing is stopped in response to the detection of pattern portions”). In other words, the system corrected part of the video signal without a pattern portion and did not correct another part of the video signal with a pattern portion. EX1035, ¶27; *see also* EX1055, 63:18-65:10 (Patent Owner’s expert agreeing that these passages in column 19 describe correcting the video and then stopping).

Patent Owner’s argument implies a claim interpretation where, if the video

signal contains a pattern portion, none of the video signal can be corrected. But this interpretation excludes the specification's embodiments described above, in which part of a video signal that contains both content and a pattern portion is corrected. There is no "highly persuasive evidentiary support" for doing so.

Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583-84 (Fed. Cir. 1996); *Accent Packaging, Inc. v. Leggett & Platt, Inc.*, 707 F.3d 1318, 1326 (Fed. Cir. 2013) (doing so "is rarely, if ever, correct"). Thus, Fujimura discloses limitation 9.e.

B. Claim 10.

Petitioner showed how Fujimura discloses claim 2. Petition, 48-51. Substitute claim 10 adds only "portable telephone," addressed above for preamble 9.pre. The mapping in the Petition for claim 2 otherwise still applies to claim 10.

C. Claim 11.

1. Preamble 11.pre.

See preamble 9.pre (*a portable telephone*).

2. Limitation 11.a.

See limitation 9.a (*a battery for the portable telephone*).

3. Limitation 11.b.

See limitation 9.b (*a video signal comprising one or more frames*).

4. Limitation 11.c.

See limitation 9.c (*a detector which detects whether pattern portions ...*).

5. Limitation 11.d.

See limitation 9.c (*detect whether the first portion of the first frame contains the pattern portions*). Fujimura further discloses that its process for detecting letterbox bands “can be adapted to change the starting and ending line numbers only if the change persists for a certain number of consecutive images” (*based on comparing the first frame with a preceding frame of the one or more frames*).

EX1005, 14:66-15:2. Determining whether a change in the starting and ending line numbers has persisted for consecutive images necessarily (inherently) includes *comparing the current frame (the first frame) to a preceding frame*, either directly or indirectly, to determine if the change exists in both frames or not. For example, if Fujimura detects that the change has persisted in the current frame and the previous frame, it has determined that the frames are the same in that regard and therefore at least indirectly *compar[ed] the first frame with a preceding frame*.

It also would have been obvious to a POSITA to directly compare the current frame (*the first frame*) with the previous frame (*a preceding frame*) in implementing Fujimura’s disclosure of determining whether a change in the starting and ending line numbers “persists for a certain number of consecutive images.” EX1005, 14:66-15:2. A POSITA could have done so by, for example, comparing the starting and ending line numbers for two consecutive frames to see if they are equal. If they are, the change has persisted across those two frames.

Motivation to do so would have arisen from a desire to choose a straightforward and common sense implementation of determining equivalence of the line numbers of those two frames, as Fujimura discloses. EX1035, ¶37.

Patent Owner’s argument that Fujimura does not disclose this limitation ignores the Fujimura disclosures cited above. Mot. at 18-19.

6. Limitation 11.e.

See Petition, 52, 48-50 (*a characteristic point detector*).

7. Limitation 11.f.

See limitation 9.d (*a corrector controlled by a controller*).

8. Limitation 11.g.

See limitation 9.e (*correct the video signal when the pattern portions are not contained in the first frame and do not correct the video signal when the pattern portions are contained in the first frame*).

Fujimura discloses enhancing luminance using a “mapping function” that defines a mapping of each input luminance value to an output luminance value (*correction characteristics*). Petition, 43-44, 53-54; EX1005, Figs. 3A-B. The mapping function changes from image to image and block to block within an image. Petition, 53-54. Thus, when there is a picture area in the frame (*when the pattern portions are not contained in the first frame*), Fujimura corrects the video signal and the mapping function (*correction characteristics*) is *changed*, from the previous image and from block to block within the image. EX1035, ¶42.

When Fujimura foregoes luminance enhancement, it applies no function or an “identity function,” which it distinguishes from a mapping function. Petition, 56. Thus, when there is a letterbox band in the frame (*when the pattern portions are contained in the first frame*), Fujimura does not correct the video signal and the mapping function (*correction characteristic*) is *not changed*. *Id.*, 56-57.

D. Claim 12.

See limitation 11.d.

E. Claim 14.

1. Preamble 14.pre

As described for limitation 9.c, Fujimura discloses determining that letterbox bands (*pattern portions*) are above and below the picture area. For purposes of this claim, the upper and lower letterbox area, collectively, plus the picture area’s starting line is *the first portion of the first frame*.

2. Limitation 14.a.

And as described for limitation 9.c, Fujimura detects the starting line of the picture area in the current frame by detecting that its number of bright pixels is above a bright-pixel threshold, *i.e.*, that the line has a sufficient number of bright pixels (*a first luminance level detected in the first portion of the first frame*).

EX1005, 14:13-22. As described for limitation 11.d, Fujimura discloses determining whether changes to the starting and ending line numbers persist for “a certain number of consecutive images.” *Id.*, 14:66-15:2. Thus, Fujimura discloses

determining the same starting line number for two consecutive frames. Detecting the starting line of the picture area at the same line number in the previous frame therefore detects *a second luminance level detected in a second portion, corresponding to the first portion, of a preceding frame.* EX1035, ¶46.

Determining that the starting line number is the same between two consecutive frames at least indirectly determines that each of those lines has a number of bright pixels (*luminance level*) that is above the bright-pixel threshold and therefore within the range above the threshold. Thus, it at least indirectly determines that the *difference between the luminance level* of each of those lines is not more than that range. EX1035, ¶47.

3. Limitation 14.b.

And as described for limitation 9.c, Fujimura detects the ending line of the picture area in the current frame by detecting that its number of dark pixels is below a dark-pixel threshold, *i.e.*, that it is too bright to be part of the lower letterbox band (*a third luminance level detected in the contents in the first frame other than the first portion*). See EX1005, 14:25-36. As described above, Fujimura discloses determining the same ending line number for two consecutive frames. Detecting the ending line of the picture area at the same line number in the previous frame therefore detects *a fourth luminance level detected in contents in the preceding frame other than the second portion.* EX1035, ¶48.

Determining that the ending line number is the same between two consecutive frames at least indirectly determines that each of those lines has a number of bright pixels (*luminance level*) that is within a range of brightness that disqualifies them as being part of the lower letterbox band. Thus, it at least indirectly determines that the *difference between the luminance level* of each of those lines is not more than that range. EX1035, ¶49.

F. Combining Fujimura and Dua

It would have been obvious to a POSITA to combine the functionality of Fujimura cited above and in the Petition with Dua's media player 100. A POSITA could have done so by, for example, adding Fujimura's pattern detection and video correction components (*e.g.*, luminance contrast enhancer 2, letterbox signal detector 46, and vertical limiter 47) and corresponding functionality to Dua's media player 100. A POSITA could have done so by, for example, using the media player's CPU 109 and memory 106 "to execute instructions and to carry out various operations" of the cited Fujimura functionality. EX1036, ¶¶59-60, Fig. 1.

Doing so would have been within the skill and knowledge of a POSITA, would have led to predictable results, would have created a reasonable expectation of success, and would have been compatible with Dua. For example, Fujimura applies to any "other video apparatus," which would include Dua's media player 100. EX1005, 1:3-6. And because Dua's media player is capable of processing

and “manipulat[ing]” video for purposes such as: 1) “dynamically converting media file formats;” 2) playback on a “large high-resolution color display screen;” and 3) playing video formats such as MPEG and AVI, a POSITA would have understood that it also could implement the pattern detection and video correction of Fujimura. EX1036, ¶¶58, 75, 142; EX1035, ¶51.

Motivation for such a combination arises first from Fujimura’s disclosure that it is desirable to account for “non-picture bands at the top and bottom” of the screen (*i.e.*, letterbox bands) so that enhancement mapping functions are not “calculated or selected incorrectly.” EX1005, 1:51-55, 2:48-51. This would have motivated a POSITA to include Fujimura’s letterbox detection and correction logic functionality in Dua. Relatedly, Dua discloses that its media player may “browse movie trailers,” which a POSITA would have understood often are displayed with letterbox bands, especially given the aspect ratio of Dua’s display 102. EX1036, ¶168, Figs. 2A, 2C. This would have further motivated a POSITA to include Fujimura’s video correction that accounts for letterbox bands. EX1035, ¶52.

More motivation arises from Fujimura’s teaching that applying the same mapping function to “all parts of the image” can cause “excessive contrast compression at the black and white ends of the scale.” EX1005, 1:7-25. This would have motivated a POSITA to implement Fujimura’s avoidance of such enhancement in the letterbox bands of an image. EX1035, ¶53.

Further motivation arises from Fujimura’s disclosure of “prevent[ing] contrast enhancement from being adversely affected by, for example, isolated letterbox detection errors,” which would have motivated a POSITA to implement Fujimura’s consideration of “a certain number of consecutive images.” EX1005, 14:66-15:4; *see also* limitation 11.d, claim 14; EX1035, ¶54.

IV. THE SUBSTITUTE CLAIMS ARE PATENT INELIGIBLE UNDER 35 U.S.C. § 101.

A claim is patent ineligible if: (1) it is directed to a patent-ineligible concept such as an abstract idea, and (2) it lacks an “inventive concept” sufficient to ensure that the claim amounts to significantly more than a claim upon the abstract idea itself, thus transforming it into a patent-eligible claim. *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208 (2014). The Federal Circuit has “repeatedly held that claims that organize, alter, or manipulate data, without more, are patent ineligible.” *Longitude Licensing Ltd. v. Google LLC*, No. 2024-1202, 2025 WL 1249136, at *2 (Fed. Cir. 2025). All of the substitute claims are patent ineligible.

A. *Alice* Step One: the Substitute Claims Are Directed to an Abstract Idea.

While *Alice* step one requires considering the claims in light of the specification, one must “avoid importing concepts from the specification into the claims.” *Longitude*, 2025 WL 1249136, at *4; *see also Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1149 (Fed. Cir. 2016) (“The § 101 inquiry must

focus on the language of the Asserted Claims themselves.”). The substitute claims can be boiled down to two steps: (1) determining whether a video signal includes a pattern portion; and (2) based on that determination, either correcting the video or not. The claims therefore are directed to the abstract idea of potentially correcting video data based on pattern detection.

Specifically, pattern recognition is abstract idea. *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass’n*, 776 F.3d 1343, 1347 (Fed. Cir. 2014) (“recognizing certain data within the collected data set” is an abstract idea); *see also Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016) (“we have treated analyzing information ... without more, as essentially mental processes within the abstract-idea category”). Data transformation also is an abstract idea. *Longitude*, 2025 WL 1249136, at *2; (“improving image quality by adjusting various aspects of an image based on features of the main object in the image” is an abstract idea); *see also Hawk Tech. Sys., LLC v. Castle Retail, LLC*, 60 F.4th 1349, 1357 (Fed. Cir. 2023) (“converting information from one format to another—including changing the format of video data or compressing it—is an abstract idea”); *Adaptive Streaming Inc. v. Netflix, Inc.*, 836 F. App’x 900, 903 (Fed. Cir. 2020) (“encoding and decoding image data and ... converting formats ... are by themselves abstract ideas”). Conditional logic also is an abstract idea. *See Sanderling Mgmt. Ltd. v. Snap Inc.*, 65 F.4th 698, 703 (Fed. Cir. 2023)

(“identify[ing] when a condition is met” is an abstract idea); *In re Brown*, 645 F. App’x 1014, 1017 (Fed. Cir. 2016) (applying hair designs according to head shape “is an abstract idea”); *see also Dropbox, Inc. v. Synchronoss Techs., Inc.*, 815 F. App’x 529, 532-533 (Fed. Cir. 2020) (providing a resource “only if” a condition is satisfied is directed to an abstract idea).

Moreover, the Federal Circuit has found similar claims to be directed to abstract ideas. In *Longitude*, the claims were directed to an abstract idea recited “image processing” that included “acquiring the properties” of certain “image data,” “acquiring correction conditions corresponding to the properties,” and using those correction conditions for “adjusting the picture quality.” 2025 WL 1249136, at *2. The substitute claims are similar because they recite processing a video signal, which can include a single frame or image, based on its properties (*i.e.*, whether it includes a pattern portion), and using certain “correction characteristics.” *See* limitation 11.f.

Likewise, in *Hawk Tech.*, the claims were directed to an abstract idea because they recited “receiving, displaying, converting, storing, and transmitting digital video using result-based functional language.” 60 F.4th at 1357. The substitute claims similarly recite receiving and converting digital video using result-based functional language, such as “a video signal comprising one or more frames containing contents is input,” “detect[ing] whether pattern portions other

than contents are contained ...,” and “correct[ing] the video signal ... when the pattern portions are not contained ...” This language is result-based because it does not recite *how* to perform the input, detection, or correction. *See id.* at 1357-58.

Moreover, when analyzing whether a claim is directed to an abstract idea, courts often consider whether the claim is directed to an idea that can be performed “performed by a human, mentally or with pen and paper.” *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1318 (Fed. Cir. 2016); *see also Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass’n*, 776 F.3d 1343, 1347 (Fed. Cir. 2014) (abstract idea where “humans have always performed these functions”). The substitute claims also are directed to an idea that can be accomplished by a human. The recited “video signal” can be a single frame (image). *See, e.g.*, limitation 9.b. The human mind can manually detect patterns in an image, such as the black bars of the patent’s Figures 36A-B. And humans have been manually correcting images since the early days of painting and photography. Humans also can manually correct digital images using retouching software. *See Longitude*, 2025 WL 1249136, at *2. Humans likewise can manually refrain from correcting an image upon detection of a pattern.

The recitation of various modules such as an “input unit,” “detector,” “characteristic point detector,” and “corrector” does not lead to a different

conclusion because the specification treats these modules either as black boxes or, where it describes any of their technical aspects, as non-limiting embodiments.

Dropbox, 815 F. App’x at 533; EX1001, Fig. 4 (showing “characteristic point detector[s]” as blocks), 24:43-47 (the specification embodiments are only preferred embodiments), 15:60-62 (the “present invention may be applied to any ... video processing apparatus by which a video image can be viewed”). “This is not enough to modify the focus of the claims.” *Dropbox*, 815 F. App’x at 533.

B. *Alice* Step Two: the Substitute Claims Do Not Recite an Inventive Concept.

Alice’s step two examines whether the claims include an “inventive concept,” *i.e.*, an element or combination of elements sufficient to ensure that the claims amount to significantly more than a patent upon the abstract idea itself. 573 U.S. at 217-18. An “inventive concept” must be more than a “well-understood, routine, conventional” activity. *Id.* at 225.

Nothing in the substitute claims transforms their abstract idea into a patent-eligible invention. The patent admits that video correction was known, so the limitations reciting such correction cannot be an inventive concept. EX1001, 1:31-34 (“correcting the luminance signal”), 1:45-50 (“picture quality correction”). Detecting patterns in a video signal also was well known and therefore cannot be an inventive concept. *See* Petition, 21-23, 39-42 (the Kim and Fujimura prior art references disclosing detecting patterns in video). Generating histograms from a

video signal also was known, so the recited detection of “a level or distribution” of luminance, hue, or saturation also cannot be an inventive concept. *Id.*, 29-30; EX1004, Fig. 2 (luminance histogram). Selective video correction based on pattern detection also was known and therefore cannot be an inventive concept. *See* Petition, 27-28 (Kim), 45-48 (Fujimura). In short, all of the steps of the substitute claims are simply “conventional steps, specified at a high level of generality” and therefore do not supply an inventive concept. *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1341 (Fed. Cir. 2017).

The substitute claims’ recited components such as an “input unit,” “detector,” “characteristic point detector,” “corrector,” and “controller” also are not inventive concepts because the claims describe them functionally and their functions were well-understood and conventional, as established above. *Alice*, 573 U.S. at 225. The patent confirms that the substitute claims require only conventional computer components. *See* EX1001, 15:60-62, 3:39-44 (the “present invention may be applied to any ... video processing apparatus by which a video image can be viewed” such as “a portable telephone,” “a PDA,” and “a mobile TV”). Because nothing in the substitute claims requires anything other than “conventional computer ... components operating according to their ordinary functions,” they do not recite an inventive concept. *Hawk Tech.*, 60 F.4th at 1358.

Moreover, “there is a critical difference between patenting a particular

concrete solution to a problem and attempting to patent the abstract idea of a solution to the problem in general.” *Elec. Power Grp.*, 830 F.3d at 1356.

Substitute claims 9-12 and 14 try to patent the abstract idea of pattern-based video correction by encompassing every possible “pattern portion” and every possible type of video correction, not just those combinations that would lead to undesirable result. These substitute claims are substantially more general than the embodiments describing, for example, luminance correction in video with vertical black bands resulting from a change in aspect ratio from 4:3 to 16:9. EX1001, 1:41-50, 16:5-25, 18:62-64, Figs. 36A-C. These substitute claims therefore improperly try to patent the abstract idea in general. *See also Hawk Tech.*, 60 F.4th at 1358 (step two not satisfied where “the claims fail to specify precisely what the parameters are and the parameters at most concern abstract data manipulation”).

V. CONCLUSION

The Board should deny Patent Owner’s motion to amend.

Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned certifies pursuant to 37 C.F.R. §§ 42.6(e) and 42.105 that on August 4, 2026, a true and correct copy of the foregoing document was served by emailing (with consent) a copy to the following attorneys for the Patent Owner:

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