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Paper 14
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD, and
SAMSUNG ELECTRONICS AMERICA, INC.
Petitioner,

v.

CELLECT, LLC,
Patent Owner.

IPR2020-00474
Patent 6,982,740 B2

Before JAMESON LEE, TERRENCE W. McMILLIN, and GARTH D. BAER, *Administrative Patent Judges*.

LEE, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

A. Background and Summary

Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc. ("Petitioner") filed a Petition (Paper 2, "Pet.") requesting an *inter partes* review of claims 1, 2, and 13 ("the challenged claims") of U.S. Patent No. 6,982,740 B2 (Ex. 1001, "the '740 Patent"). Cellect, LLC ("Patent Owner") filed a Preliminary Response (Paper 6, "Prelim. Resp."). Petitioner filed a Reply (Paper 9) and Patent Owner filed a Sur-Reply (Paper 12).

An *inter partes* review may not be instituted unless "the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a). Further, a decision to institute may not institute on fewer than all claims challenged in the petition. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018). After considering the evidence and arguments presented by the parties, we determine that Petitioner has not shown a reasonable likelihood of prevailing on at least 1 of the challenged claims of the '740 patent.

Accordingly, the Petition is *denied*, and no *inter partes* review is instituted.

B. Real Parties-in-Interest

Each party identifies itself as the only real party-in-interest. Pet. 7; Paper 4, 1.

C. Related Matters

The parties indicate that the '740 patent is the subject of the following district court case: *Cellect, LLC v. Samsung Electronics Co., Ltd. et al.*, 1-19-cv-

00438 (D. Colo.) Pet. 7; Paper 4, 1.[1] Petitioner also has filed a request for ex parte reexamination of the '740 patent, in Reexamination Control No. 110797-0036-503. Pet. 8; Paper 4, 1. Additionally, Petitioner has filed petitions for *inter partes* review of these patents which it regards as related to the '740 patent: U.S. Patent 6,043,839 (IPR2020-00472); U.S. Patent 6,275,255 (IPR2020-00473); U.S. Patent 9,186,052 (IPR2020-00475, IPR2020-00512); U.S. Patent 9,198,565 (IPR2020-00476); U.S. Patent 9,667,896 (IPR2020-00477); U.S. Patent 6,982,742 (IPR2020-00559, IPR2020-00560, IPR2020-00561); U.S. Patent 6,424,369 (IPR2020-00562, IPR2020-00563, IPR2020-00564); U.S. Patent 6,452,626 (IPR2020-00565, IPR2020-00566, IPR2020-00567); U.S. Patent 6,862,036 (IPR2020-00568, IPR2020-00569); U.S. Patent 7,002,621 (IPR2020-00571, IPR2020-00572). Pet. 8.

D. The '740 Patent

The '740 patent relates to a reduced area imaging device. Ex. 1001, Abstr. It states the following:

> It is one object of this invention to provide reduced area imaging devices which take advantage of "camera on a chip" technology, but rearrange the circuitry in a stacked relationship so that there is a minimum profile presented when used within a surgical instrument or other investigating device.

Id. at 3:19–24. The '740 patent further states as follows:

> In accordance with the present invention, reduced area imaging devices are provided. The term "imaging device" as used herein describes the imaging elements and processing circuitry which is used to produce a video signal which may be accepted by a standard video device such as a television or video monitor accompanying a personal computer. The term "image sensor" as used herein describes the components of a solid state imaging device which captures images and

[1] That action has been stayed by order of the district court. Paper 10 (Appx. A).

> stores them within the structure of each of the pixels in the array of pixels found in the imaging device. As further discussed below, the timing and control circuits can be placed either on the same planar structure as the pixel array, in which case the image sensor can also be defined as an integrated circuit, or the timing and control circuitry can be placed remote from the pixel array.

Id. at 4:38–52. The term "timing and control circuits" refers to "electronic components which control the release of the image signal from the pixel array." *Id.* at 4:61–64.

Figs. 1a and 1b show a first arrangement of the imaging device:

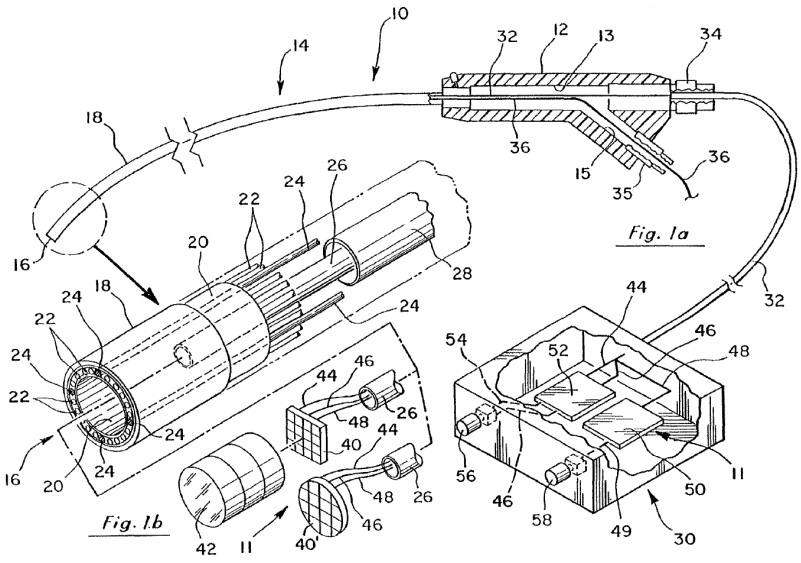

Fig. 1a shows a fragmentary cross-sectional view of a generic endoscope and a fragmentary perspective view of a control box each incorporating elements of a reduced area imaging device. *Id.* at 7:34–38. Fig. 1b is a fragmentary partially exploded view of the distal end of the endoscope and it specifically illustrates the arrangement of an image sensor. *Id.* at 7:39–42.

As shown in Fig. 1a, endoscope 10 is provided which incorporates imaging device 11 shown in Fig. 1b. *Id.* at 8:40–42. As shown in Fig. 1b, image sensor 40 is placed within the central channel defined by inner tube 20, and cable 26 is used to house the conductors which communicate with image sensor 40. *Id.* at 9:14–17.

Intermediate support tube 28 may be placed concentrically outside of cable 26 and concentrically within inner tube 20 to provide support for the cable as it traverses through the inner channel defined by inner tube 20. *Id.* at 9:17–21. Image sensor 40 is illustrated as being planar and square. *Id.* at 9:41–42. Alternatively, the image sensor can be planar and round, as shown and designated by 40′. *Id.* at 9:42–46.

The image signal transmitted from the image sensor on conductor 48 is referred to as a pre-video signal and is received by video processing board 50. *Id.* at 9:64–10:2. Video processing board 50 carries out all the conditioning of the pre-video signal and places it in a form so that it may be viewed directly on a standard video device, television or standard computer video monitor. *Id.* at 10:2–5. The signal produced by video processing board 50 is referred to as a post-video signal. *Id.* at 10:6–7.

Figs. 2a and 2b show a second arrangement of the imaging device:

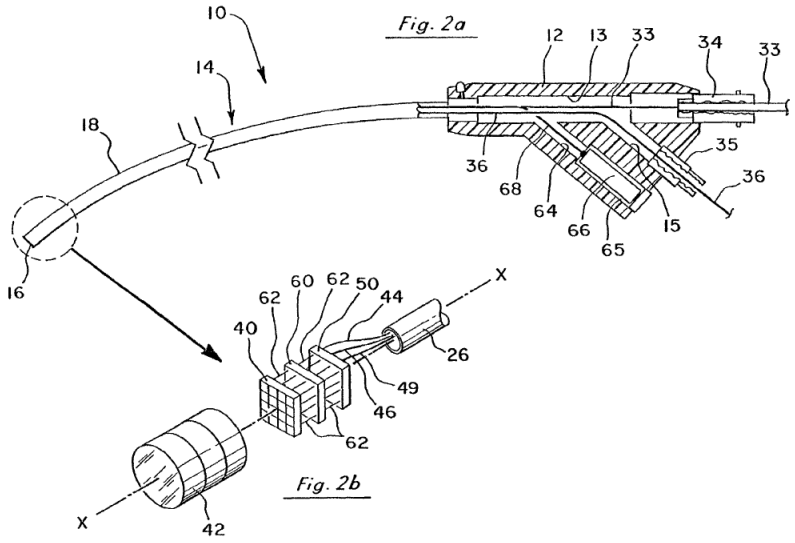

Fig. 2a shows a fragmentary cross-sectional view of the same endoscope shown in Fig. 1a but with a different arrangement of the imaging device at the distal end of the endoscope. *Id.* at 7:44–47. Fig. 2b is a fragmentary partially exploded view of

the distal end of the endoscope shown in Fig. 2a and it illustrates the different arrangement of the image sensor. *Id.* at 7:48–50.

In the arrangement shown in Fig. 2b, video processing board 50 is placed directly behind image sensor 40. *Id.* at 10:29–30. If necessary, one or more supplementary boards 60 may be provided which further contain processing circuitry to process the image signal and present it in a form which may be directly received by a desired video device. *Id.* at 10:36–40. Imaging elements on boards 50 and 60 must be able to be placed on one or more circuit boards which are longitudinally aligned with image sensor 40 along longitudinal axis XX. *Id.* at 10:42–46.

Fig. 4a is a schematic diagram of a circuit board embodiment that includes both array of pixels 90 and the timing and control circuits 92 (*id.* at 7:62–64, 12:63–65) and it is reproduced below:

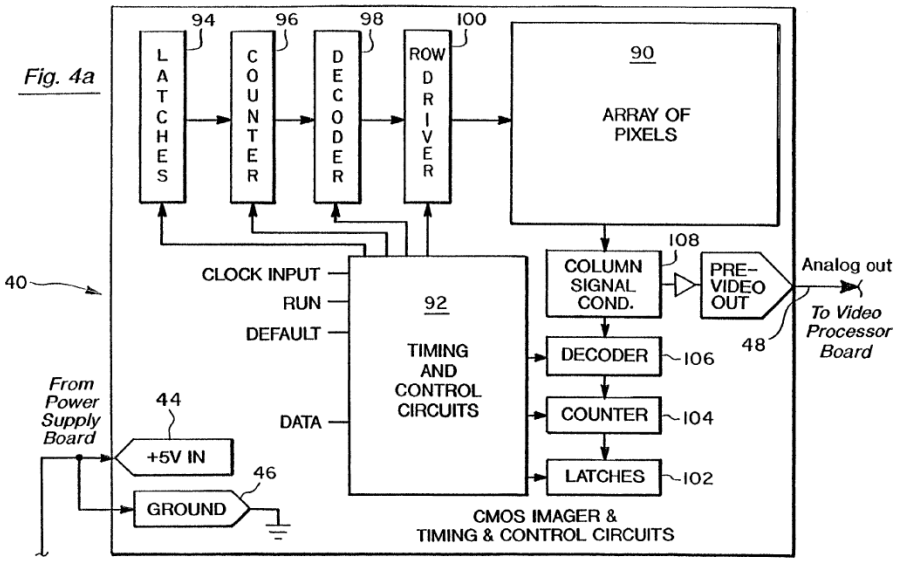

Fig. 4a illustrates the image sensor and the timing and control circuits being placed on the same planar structure. *Id.* at 12:39–41. The '740 patent describes that, alternatively, the timing and control circuits may be separated from the pixel array and placed on video processing board 50. *Id.* at 12:39–43.

E. Illustrative Claims

Of the challenged claims, claims 1 and 13 are independent and reproduced below:

> 1. A reduced area imaging device comprising:
>
> an image sensor lying in a first plane and including an array of pixels for receiving images thereon, said image sensor further including circuitry means on said first plane and coupled to said array of pixels for timing and control of said array of pixels, said image sensor producing a pre-video signal;
>
> a first circuit board lying in a second plane and communicating with said image sensor by at least one pre-video conductor inner-connecting said image sensor and said first circuit board, said first circuit board including circuitry means for converting said pre-video signal to a post-video signal for reception by a standard video device;
>
> a power supply coupled with said image sensor for driving said array of pixels and said timing and control means, and electrically coupled to said first circuit board for driving said first circuit board; and
>
> a time select switch electrically communicating with said first circuit board and remote from said first circuit board for selectively varying integration periods to produce an image of a desired brightness, said switch having a plurality of settings enabling selective control to produce the image of a desired brightness.

Id. at 20:61–21:17.

> 13. A method of viewing an object with an imaging device, said method comprising the steps of:
>
> providing an image sensor including an array of pixels, circuitry means coupled to said array of pixels for timing

and control of said pixels, said image sensor producing a pre-video signal;

providing first circuitry means for receiving said pre-video signal from said image sensor and for converting said pre-video signal to a post-video signal which may be received by a standard video device;

viewing the object and determining a desired level of brightness to be viewed;

providing a time select switch remote from the image sensor and circuitry means; and

adjusting a charge integration period of the imager by manipulating time select switch to maximize desired brightness of the image.

Id. at 22:41–58.

F. Evidence

Petitioner relies on the following evidence:[2]

References		Date	Exhibit
Tanaka	U.S. Patent No. 4,700,219	issued Oct. 13, 1987	Ex. 1009
Tomoyasu	JP H7-275198 (Japanese Unexamined Patent Application Publication)	Published Oct. 24, 1995	Ex. 1021
Swift	WO 95/34988 (International Published Pat. App.)	published Dec. 21, 1995	Ex. 1005
Ackland	U.S. Patent No. 5,835,141	issued Nov. 10, 1998	Ex. 1006
Adair	WO 99/18613 (International Published Pat. App.)	April 15, 1999	Ex. 1018

[2] The ’740 patent issued from Application 09/971,749, filed Oct. 4, 2001, which is a continuation-in-part of Application 09/586,768, filed Jun. 1, 2000, which is a continuation-in-part of Application 09/368,246, filed Aug. 3, 1999, which is a continuation-in-part of Application 08/976,976, filed Nov. 24, 1997.

Petitioner also relies on the Declaration of Dean P. Neikirk, Ph.D. Ex. 1004.

G. Asserted Grounds of Unpatentability

Petitioner asserts that the challenged claims are unpatentable on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Basis
1, 2, 13	103	Adair, Tomoyasu
1, 2, 13	103	Swift, Ackland, Tomoyasu
1, 2, 13	103	Swift, Ackland, Tomoyasu, Tanaka

II. ANALYSIS

A. Level of Ordinary Skill

Petitioner asserts that on or before 6/1/2000, a person of ordinary skill in the art ("POSITA"), would have had a minimum of "a Bachelor's degree in Electrical Engineering, Physics, or a related field," and "approximately two years of professional experience in the field of imaging devices." Pet. 18 (citing Ex. 1004 ¶¶ 42–45). Patent Owner has not proposed a description of the level of ordinary skill in the art or disputed Petitioner's articulation.

We adopt Petitioner's articulation of the level of ordinary skill in the art, but delete the qualifier "a minimum of" for the level of education, to keep that level from being vague and extending to a range that corresponds to the skill level of an expert. Thus, we regard the level of ordinary skill as being at the level of a person with "a Bachelor's degree in Electrical Engineering, Physics, or a related field," and "approximately two years of professional experience in the field of imaging devices."

B. Claim Construction

For petitions filed on or after November 13, 2018, we use the same claim construction standard that would be used to construe the claim in a civil action

under 35 U.S.C. § 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. 37 C.F.R. § 42.100(b) (2019). The Petition here was filed on February 15, 2020. Paper 2. We apply the claim construction standard from *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc) ("the *Phillips* standard").

Claim terms are generally given their ordinary and customary meaning as would be understood by one with ordinary skill in the art in the context of the specification, the prosecution history, other claims, and even extrinsic evidence including expert and inventor testimony, dictionaries, and learned treatises, although extrinsic evidence is less significant than the intrinsic record. *Phillips*, 415 F.3d at 1312–1317. Usually, the specification is dispositive, and it is the single best guide to the meaning of a disputed term. *Id.* at 1315.

The specification may reveal a special definition given to a claim term by the patentee, or the specification or prosecution history may reveal an intentional disclaimer or disavowal of claim scope by the inventor. *Id.* at 1316. If an inventor acts as his or her own lexicographer, the definition must be set forth in the specification with reasonable clarity, deliberateness, and precision. *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998). The disavowal, if any, can be effectuated by language in the specification or the prosecution history. *Poly-America, L.P. v. API Indus., Inc.*, 839 F.3d 1131, 1136 (Fed. Cir. 2016).

Only those claim terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017);

Wellman, Inc. v. Eastman Chem. Co., 642 F.3d 1355, 1361 (Fed. Cir. 2011); *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

For purposes of this Decision, we need to determine, for independent claim 1, the meaning of the recitation "circuitry means on said first plane and coupled to said array of pixels for timing and control of said array of pixels," and for independent claim 13, the meaning of the recitation "circuitry means coupled to said array of pixels for timing and control of said pixels." We start by noting that the two recitations are very similar, but that the first additionally specifies the location of the element to be "on said first plane." Also, both include the physical connection requirement of "coupled to said array of pixels." These location and coupling requirements do not affect the meaning of the rest of each means clause recitation. Thus, we focus on and discuss the meaning of these means clause recitations without the location and physical connection parts: "circuitry means for timing and control of said array of pixels" for claim 1, and "circuitry means for timing and control of said pixels" for claim 13. Although the clause in claim 13 refers to "said pixels" and not "said array of pixels," the antecedent basis on claim 13 for "said pixels" is the array of pixels. Thus, in that respect the clauses are the same, whether the reference is to "said pixels" as in claim 1 or "said array of pixels" as in claim 13.

"circuitry means for timing and control of said array of pixels,"/ "circuitry means for timing and control of said pixels"

Section 112, paragraph 6, of Title 35, United States Code, expressly provides:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim *shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof*.

35 U.S.C. § 112, sixth paragraph (emphasis added).[3] This above-quoted rule of construction applies regardless of the identity of the tribunal attempting to interpret a claim, *e.g.*, the United States Patent and Trademark Office or a United States District Court. *In re Donaldson Co.*, 16 F.3d 1189, 1193 (Fed. Cir. 1994) (en banc). Further, the following explanation from the Federal Circuit is instructive:

> Section 112, paragraph 6 allows for a limited exception [to the particularly pointing out and distinctly claiming requirement of Section 112, second paragraph], permitting "a claim [to just] state the function of the element or step, and the 'means' covers the 'structure, material, or acts' set forth in the specification and equivalents thereof." [*Typhoon Touch Techs., Inc. v. Dell, Inc.*, 659 F.3d 1376, 1383 (Fed. Cir. 2011)]. The trade-off for allowing such claiming is that "the specification must contain sufficient descriptive text by which a person of skill in the field of the invention would 'know and understand what structure corresponds to the means limitation.'" *Id*. at 1383–84 (quoting *Finisar Corp. v. DirecTV Grp., Inc*., 523 F.3d 1323, 1340 (Fed. Cir. 2008)).

Function Media, LLC v. Google, Inc., 708 F.3d 1310, 1317 (Fed. Cir. 2013). Likewise, "[t]he point of the requirement that the patentee disclose particular structure in the specification and that the scope of the patent claims be limited o that structure and its equivalents is to avoid pure functional claiming." *Aristocrat Technologies Australia Pty Ltd. v. International Game Technology*, 521 F.3d 1328, 1333 (Fed. Cir. 2008). Indeed, "[i]f the specification is not clear as to the structure that the patentee intends to correspond to the claimed function, then the patentee has not paid the price but is rather attempting to claim in functional terms unbounded by any reference to structure in the specification." *Medical*

[3] Section 4(c) of the America Invents Act ("AIA") re-designated 35 U.S.C. § 112, sixth paragraph, as 35 U.S.C. § 112(f). Because the '740 patent has a filing date prior to September 16, 2012, the effective date of AIA, we refer to the pre-AIA version of 35 U.S.C. § 112.

Instrumentation & Diagnostics Corp. v. Elekta AB, 344 F.3d 1205, 1211 (Fed. Cir. 2003).

First, we determine whether the language at issue constitutes a means-plus-function recitation under 35 U.S.C. § 112, sixth paragraph. The Federal Circuit has explained as follows: "To determine whether § 112, para. 6 applies to a claim limitation, our precedent has long recognized the importance of the presence or absence of the word 'means.'" *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015) (en banc). Use of the word "means" in a claim element creates a rebuttable presumption that 35 U.S.C. § 112, sixth paragraph applies. *Id.* Here, not only is the word "means" used, but also the particular format and phraseology specifically referred to by statute, i.e., means "for performing a specified function." Thus, there is a presumption that the recitation sets forth a means-plus-function element under 35 U.S.C. § 112, sixth paragraph.

That presumption may be rebutted if the claim additionally recites structure sufficient to perform the described functions in their entirety. *TriMed, Inc. v. Stryker Corp.*, 514 F.3d 1256, 1259 (Fed. Cir. 2008). "Sufficient structure exists when the claim language specifies the exact structure that performs the functions in question without need to resort to other portions of the specification or extrinsic evidence for an adequate understanding of the structure." *Id.* at 1259–60.

On whether the recitation at issue constitutes a means-plus-function element under 35 U.S.C. § 112, sixth paragraph, Petitioner takes both positions, applying both the plain and ordinary meaning and, if 35 U.S.C. § 112, sixth paragraph applies, designating the function and corresponding structure. Pet. 19–21. In support of the position that it is not a means-plus-function element, Petitioner asserts: "With respect to the 'circuitry means' recited in the Challenged Claims, the Federal Circuit has held 'when the structure-connoting term 'circuit' is coupled

with a description of the circuit's operation, sufficient structural meaning generally will be conveyed to [POSITAs], and § 112(6) presumptively will not apply.' *Linear Tech. v. Impala Linear*, 379 F.3d 1311, 1320 (Fed. Cir. 2004)." Pet. 19. Patent Owner contends that the recitation at issue here is a means-plus-function element under 35 U.S.C. § 112, sixth paragraph. Prelim. Resp. 12–13. We agree with Patent Owner.

Linear Tech does not stand for the proposition that the word "circuit" or "circuitry," if found in a claim, always conveys structure, sufficiently definite and exact, to keep a claim recitation from being a means-plus-function element under 35 U.S.C. § 112, sixth paragraph. First, the case involves absence of the word "means," and the opposite presumption, i.e., that the recitation is not a means-plus-function element. On that basis alone, *Linear Tech* is distinguishable.

Second, the specification of the '740 patent refutes the idea that "circuit" or "circuitry" conveys a specific or exact structural arrangement. The '740 patent states "[t]he terms 'timing and control circuits' or 'circuitry' as used herein refer to the *electronic components* which control the release of the image signal from the pixel array." Ex. 1001, 4:61–64 (emphasis added). The word "circuit" or "circuitry" can be no more specific than "timing and control circuits" or "timing and control circuitry." On the basis of the specification, "circuit" or "circuitry" broadly denotes electronic components and not the identity or specific arrangement of such components.

Third, *Linear Tech* is further distinguishable, because there was expert testimony there that one with ordinary skill in the art who has read the claims "would have an understanding of, and would be able to draw, structural arrangements of the circuit elements defined by the claims." *Linear Tech.*,

379 F.3d at 1320. Here, Petitioner has provided no such testimony from a technical witness.[4]

For the foregoing reasons, Petitioner has not rebutted the presumption that the recitation defines a means-plus-function element under 35 U.S.C. § 112, sixth paragraph. We conclude that both "circuitry means for timing and control of said array of pixels" and "circuitry means for timing and control of said pixels" are, in the context of the '740 patent, means-plus-function elements under 35 U.S.C. § 112, sixth paragraph.

Petitioner identifies the recited function as "timing and control of the array of pixels." Pet. 20. Patent Owner identifies the recited function as "controlling release of the image signal from the pixel array." Prelim. Resp. 12–13. Both Petitioner and Patent Owner are correct. Petitioner is correct because, literally, "timing and control of [the] array of pixels" is expressly stated in the clause at issue in claim 1 as what the circuitry means is "for," and is also similarly stated in claim 13. Patent Owner is also correct because the specification of the '740 patent particularly defines "timing and control circuits" and "[timing and control] circuitry" as "electronic components which control the release of the image signal from the pixel array." Ex. 1001, 4:61–64. The function identified by Petitioner is defined in the specification as meaning the function identified by Patent Owner. The parties are effectively referring to the same function in the context of the specification of the '740 patent.

[4] Petitioner's technical witness, Dr. Neikirk, does not take a position as to whether this limitation is a means-plus-function limitation. Ex. 1004 (Neikirk Decl.) ¶¶ 69–71.

As for the corresponding structure described in the specification, Petitioner identifies Box 92 in Fig. 4a, which is labeled as "Timing and Control Circuits 92." Pet. 20. Fig. 4a is a schematic diagram and reproduced below:

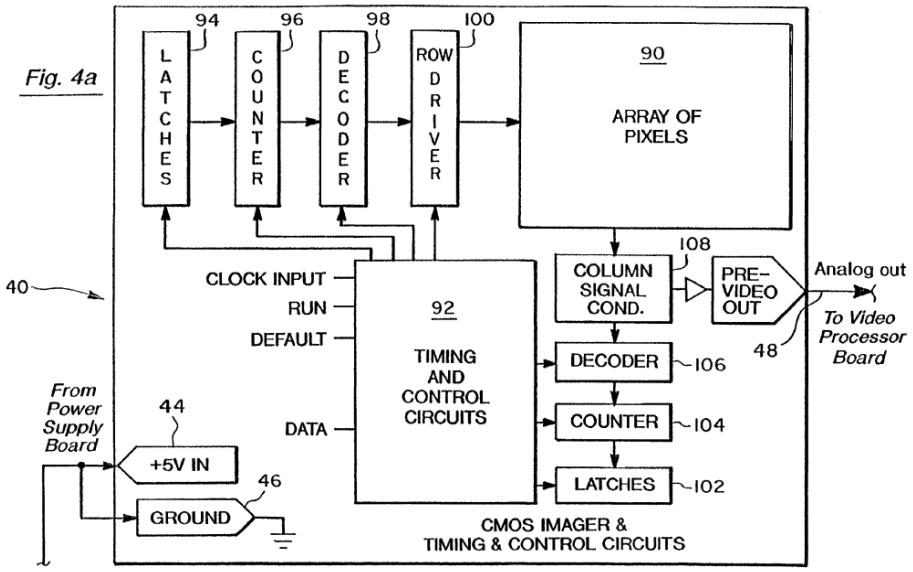

Fig. 4a shows a circuit board/planar structure which includes the array of pixels and the timing and control circuitry. Ex. 1001, 7:62–64.

Patent Owner, on the other hand, identifies the corresponding structure as Timing and Control Circuits 92 together with the counters, decoders, and latches shown in Fig. 4a. Prelim. Resp. 13 (citing Ex. 1001, 13:36–38). Patent Owner asserts that Petitioner's identification is deficient as it "lacks the necessary latches, decoders and counters specifically identified in the '740 patent and which are needed to control the release of the signals from the image sensor." Prelim. Resp. 13.

For purposes of this decision, we need not decide whether the counters, decoders, and latches shown in Fig. 4a are necessarily a part of the described structure for the claimed "circuitry means for timing and control of said array of pixels" or "circuitry means for timing and control of said pixels." We agree with

Petitioner and Patent Owner that Timing and Control Circuits 92 as shown in Fig. 4a is at least a part of the described structure for the claimed "circuitry means for timing and control of said array of pixels" and "circuitry means for timing and control of said pixels." Indeed, the specification of the '740 patent expressly states that "[t]he timing and control circuits 92 are used to control the release of the image information or image signal stored in the pixel array." Ex. 1001, 13:36–38.

We need to ask, however, what specific structure would have been recognized by one with ordinary skill in the art as described by Box 92 in Fig. 4a, labeled as Timing and Control Circuits. If nothing specific would have been recognized as described, then Box 92 in Fig. 4a is merely a black box and does not convey sufficient structure, to correspond, even if in part, to the claimed "circuitry means for timing and control of said array of pixels" of claim 1 or "circuitry means for timing and control of said pixels" of claim 13. *See Augme Technologies, Inc. v. Yahoo! Inc.*, 755 F.3d 1326, 1338 (Fed. Cir. 2014) ("Simply disclosing a black box that performs the recited function is not a sufficient explanation of the algorithm required to render the means-plus-function term definite."); *cf. Technology Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1338 (Fed. Cir. 2008) ("the absence of internal circuitry [for a black box] in the written description does not automatically render the claim indefinite"). "[T]he specification must contain sufficient descriptive text by which a person of skill in the field of the invention would 'know and understand what structure corresponds to the means limitation.'" *Typhoon Touch Technologies, Inc. v. Dell, Inc.*, 659 F.3d 1376, 1383–84 (Fed. Cir. 2011) (quoting *Finisar Corp. v. DirecTV Grp., Inc*., 523 F.3d 1323, 1340 (Fed. Cir. 2008)). That is not the case here, as discussed below.

The specification of the '740 patent does not describe what is contained within Box 92, labeled as Timing and Control Circuits. Petitioner has not

submitted any testimony from a technical witness that one with ordinary skill in the art would have known from the label in Box 92, i.e., Timing and Control Circuits, and how Box 92 interact with other components in Fig. 4a, what specific circuitry arrangement is described by such disclosure. Further, the specification of the '740 patent refers to "Timing and Control Circuits" broadly as "electronic components," rather than as any specific circuit arrangement or class of circuit arrangements. As noted above, the '740 patent states "[t]he terms 'timing and control circuits' or 'circuitry' as used herein refer to the *electronic components* which control the release of the image signal from the pixel array." Ex. 1001, 4:61–64 (emphasis added).

We are cognizant that the specification of the '740 patent includes the following paragraph:

> A further discussion of the timing and control circuitry which may be used in conjunction with an active pixel array is disclosed in U.S. Pat. No. 5,471,515 and is also described in an article entitled "Active Pixel Image Sensor Integrated With Readout Circuits" appearing in *NASA Tech Briefs, October* 1996, pp. 38 and 39. This particular article is also incorporated by reference.

Ex. 1001, 14:27–34. That does not constitute specific structural description for what goes into Box 92 in Fig. 4a of the '740 patent. Further, "material incorporated by reference cannot provide the corresponding structure necessary to satisfy the definiteness requirement for a means-plus-function clause." *Default Proof Credit Card System, Inc. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1301 (Fed. Cir. 2005). The patent referred to in the above-quoted text, U.S. Pat. No. 5,471,515, is also incorporated by reference into the '740 patent. Ex. 1001, 12:65–13:1.

For the foregoing reasons, nothing sufficiently specific is described by Box 92 in Fig. 4a, labeled as Timing and Control Circuits. Describing that Box 92

contains electronic components in general does not convey sufficiently specific corresponding structure for purposes of supporting a means-plus-function recitation in the claim. The specification of the '740 patent makes clear that Box 92, labeled as Timing and Control Circuits, is not limited to any particular specific structure, but represents "electrical components" in general that control the release of the image signal from the pixel array. Thus, for the means-plus-function elements "circuitry means for timing and control of said array of pixels" and "circuitry means for timing and control of said pixels," we determine that the specification of the '740 patent does not sufficiently describe a corresponding structure.

Accordingly, the scope of independent claims 1 and 13 is uncertain, and we do not know what specific structure corresponds to "circuitry means for timing and control of said array of pixels" and "circuitry means for timing and control of said pixels." The same is true with respect to dependent claim 2, which depends from claim 1.

C. Alleged Obviousness of Claims 1, 2, and 13 over Adair and Tomoyasu

Because, as we determined above, the specification of the '740 patent describes no corresponding structure sufficiently specific for the means-plus-function claim elements "circuitry means for timing and control of said array of pixels" and "circuitry means for timing and control of said pixels." it is uncertain what the applied prior art must teach or suggest to render obvious any challenged claim. If the scope of the claims cannot be determined without undue speculation, as is the case here, the differences between the claimed invention and the prior art cannot be ascertained. *See BlackBerry Corp. v. MobileMedia Ideas, LLC*, IPR2013-00036, Paper 65 at 19–20 (PTAB Mar. 7, 2014) (citing *In re Steele*, 305 F.2d 859, 862–63 (CCPA 1962) and reasoning that "the prior art grounds of

unpatentability must fall, *pro forma*, because they are based on speculative assumption as to the meaning of the claims"). Thus, Petitioner has shown no reasonable likelihood that it would prevail in establishing obviousness of any challenged claim over Adair and Tomoyasu.

D. Alleged Obviousness of Claims 1, 2, and 13 over Swift, Ackland, and Tomoyasu

For the same reasons discussed above for these claims in the context of the alleged ground of unpatentability over Adair and Tomoyasu, Petitioner has shown no reasonable likelihood that it would prevail in establishing obviousness of any challenged claim over Swift, Ackland, and Tomoyasu.

E. Alleged Obviousness of Claims 1, 2, and 13 over Swift, Ackland, Tomoyasu, and Tanaka

For the same reasons discussed above for these claims in the context of the alleged ground of unpatentability over Adair and Tomoyasu, Petitioner has shown no reasonable likelihood that it would prevail in establishing obviousness of any challenged claim over Swift, Ackland, Tomoyasu, and Tanaka.

F. Patent Owner's Assertions based on 35 U.S.C. §§ 314(a) and 325(d)

Patent Owner asserts that we should exercise discretion under 35 U.S.C. §§ 314(a) and 325(d) not to institute review. Prelim. Resp. 16–60. The arguments made under 35 U.S.C. § 314(a), however, have been withdrawn by Patent Owner and are no longer before us for consideration. Paper 11, 1. We need not reach the arguments made by Patent Owner under 35 U.S.C. § 325(d) because we have determined that Petitioner has not shown a reasonable likelihood that it would prevail in establishing unpatentability of any claim and we decline institution for that reason.

III. CONCLUSION

Petitioner has not shown a reasonable likelihood that it would prevail in establishing unpatentability of at least 1 challenged claim of the '740 patent.

IV. ORDER

It is

ORDERED that the Petition is *denied*, and no *inter partes* review is instituted on any claim over any alleged ground of unpatentability.

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