

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.,
Petitioner,

v.

INTELLECTUAL VENTURES II LLC,
Patent Owner.

IPR2025-00339
U.S. Patent No. 7,916,180

**PETITIONER'S AUTHORIZED REPLY
TO PATENT OWNER'S PRELIMINARY RESPONSE**

In its POPR (Paper 8), Patent Owner (PO) seeks to avoid the prior art by importing unrecited limitations, and by mischaracterizing the prior art.

I. PO’s narrow construction of “*combine data of a frame...to provide an image having a relatively high resolution*” is not supported by the specification.

Claim 1 limitation	Petitioner’s Construction	PO’s Construction
“ <i>combine data of a frame from at least one of the plurality of channels to provide an image having a relatively high resolution</i> ”	“ <i>data of a frame</i> ”: “data of an image frame” (Pet. 8)	“an image formed from multiple high resolution images with different fields of view acquired simultaneously” (POPR, 24-28)

PO argues that “the ‘*image having a relatively high resolution*’ formed by “*combin[ing] data of a frame*’ corresponds to an image formed ***from multiple high resolution images*** with different fields of view acquired simultaneously.” POPR, 24. PO’s proposed construction contradicts the surrounding claim language and imports unrecited limitations not supported by the specification. Claim 1 does not include any language that can be reasonably read to include PO’s requirement for “*the data of a frame*”—the source of the combination—to be “multiple high resolution images.” PO’s arguments turn on its head the claim term “*having a relatively high resolution*”—this term is a requirement for the composite image ***resulting from the combining***, not a source requirement for the “*data of a frame*” to be combined. PO does not contest that Matsushima combines images having different fields of view acquired simultaneously from a plurality of channels. Pet.,

57-58.

PO's proposed construction also lacks specification support. PO asserts that the description of a "foveal image sensor" in the '180 patent's Background functions as a "disclaimer" that necessitates PO's imposed requirements to the source "*data of a frame*" to be combined. POPR, 25-26 (citing Ex.1001, 2:10-16, 2:21-24). PO's position is neither relevant nor correct. The claim does not recite a "foveal image sensor" and none of the prior art uses "foveal image sensors." As such, no construction is necessary to resolve any dispute related to "foveal image sensors." Further, nothing in those background passages constitutes "a clear and unmistakable disclaimer" to justify PO's unsupported source requirement for the "*data of a frame*" to be combined. *Thorner v. Sony*, 669 F. 3d 1362, 1366-67 (Fed. Cir. 2012) ("To constitute disclaimer, there must be a clear and unmistakable disclaimer.").

Instead, the cited portions of the '180 patent simply describe a foveal image sensor using pixels of different sizes in different regions of the sensor to "acquire[s] both a wide and narrow field of view" with "high resolution only in the narrow field of view." Ex.1001, 2:10-24. Even if these passages inform proper scope, at most they disclaim the use of a foveal image sensor, and cannot be a disclaimer related to "*combin[ing] data of a frame from at least one of the plurality of channels to provide an image having a relatively high resolution data*

of frame” as recited in claim 1. *See id.* Further, PO has not identified any of the references cited by the Examiner during prosecution as supporting its erroneous disclaimer argument, and PO has not shown that it obtained allowance by arguing that the claims require “the simultaneous capture of multiple high resolution images in different fields.” POPR, 27-28.

PO does not dispute that Matsushima teaches combining images with different fields of view acquired simultaneously, and the combination results in “*an image having a relatively high resolution.*” Instead, PO relies on an improperly imported requirement of “multiple high resolution images” for “*data of a frame*” to distinguish the multi-channel imaging system of Matsushima. Under this unsupported theory, PO has to (i) further exclude source images having ***different*** resolutions from “*data of a frame*”, and (ii) mischaracterize Matsushima as “combining a single ***high*** resolution image from one field of view with a ***low*** resolution image from another field of view,” each contrary to the record. POPR, 24. PO’s exclusion of source images having ***different*** resolutions contradicts the express disclosure of the ’180 patent that the two image sensors may have either different dimensions/ resolutions or the same dimension/resolution. *See, e.g.,* Ex.1001, 24:22-25 (claim 3 reciting image sensors having the same dimension/resolution), 24:26-29 (claim 4 reciting images sensors having ***different*** dimensions/resolutions). Furthermore, PO’s mischaracterization of Matsushima

contradicts the express disclosure of Matsushima that image sensors of the same size/resolution are used for multiple channels. Pet., 38 (citing Ex.1007, [0021] (“**CCDs of the same size**, that is, the same number of pixels.”); Ex.1003, ¶126); *see also* Pet. 59-60 (Matsushima teaches image sensors having the same dimension as recited in claim 3).

The Board should adopt Petitioner's proposed construction that “*data of a frame*” means “data of an image frame,” and apply plain and ordinary meaning to the other terms of limitation [1.2.3]. Pet. 8 (citing Ex.1001, 20:19-21, 9:1-8; Ex.1003, ¶76). Petitioner's proposed construction is supported by the surrounding claim language and the specification. Pet. 8; Ex.1001, 20:19-21 (“[t]he data from all sensors can be digitally combined to provide a much greater dynamic range ***within one frame of digital camera data***”), 9:1-8 (image processor “generate[s] or composite[s] an image based on ***data from one or more*** of the camera channels,” including “an embodiment...based ***at least in part on the images from*** the first and second camera channels”).

As detailed in the Petition, Matsushima teaches this limitation under the correct construction, by *combining data of a frame* (data of an image frame 62A and data of an image frame 62B from image sensors of the same size) *from at least one of the plurality of channels* (first and second imaging systems 12A and 12B) *to provide an image having a relatively high resolution* (an image frame of FIG. 6

with improved image quality). Pet. 57-58 (analysis for [1.2.3]) (citing Ex.1007, [0007], [0048]-[0051], [0021], Ex.1003, ¶¶169-171); 59-60 (analysis for claim 3).

II. PO seeks a construction of “*during a frame*” (claim 22) that is not supported by the specification.

Claim 22 limitation	Petitioner's Construction	PO's Construction
<i>“independently controlling simultaneous data acquisition with each of the first and second channels during a frame”</i>	<i>“during a frame”</i> : “during a period of time when data for an image frame is acquired” (Pet. 7)	<i>“during a frame”</i> : “at some point between the beginning and end of the exposure interval during which an image sensor captures a single image” (POPR, 30)

PO narrowly construes “*during a frame*” to mean “at some point between the beginning and end of the exposure interval during which an image sensor captures a single image,” thereby excluding data acquisition that occurs “*during*” the entire “*frame*” period. POPR, 30. PO's construction contradicts the claim language and the specification of the '180 patent, contradicts its own preliminary infringement contention for the '180 patent (Ex.1068, 19), and contradicts the well-known principle that a frame period is not limited to the period “between the beginning and end of the exposure interval.” Ex.1021, 20.

First, PO's narrow construction contradicts the claim language “*data acquisition with each of the first and second channels during a frame*.” The period “*during a frame*,” corresponds to the *entire* period for *data acquisition with channels*, which includes not only the *entire* period of the integration time, but

also additional periods for converting analog signal to provide digital image data for the frame. There is no basis to read “*during a frame*” more narrowly.

Petitioner's construction is consistent with the well-known principle in the art that “frame period” is defined as “the time lapsed between *successive image readouts*,” (Ex.1021, 20), which is not limited to a period “between the beginning and end of the exposure interval” as incorrectly asserted by PO. *Compare*, POPR, 40 (incorrectly limiting “*during a frame*” to exclude the time for retrieving accumulated signal charges and sequentially outputting from the image sensors). Indeed, the '180 patent specification never describes an “exposure interval,” how it relates to data acquisition, or how the “beginning and end of the exposure interval” is excluded from the data acquisition.

Second, PO admits that Matsushima and Yu each teach integration time control, and it “would have been expected” to operate in a “snap-shot” mode, which the '180 patent describes as an example mode for integration time control. POPR, 54 (arguing that “rolling mode” of integration time control is not inherent in Matsushima because “a sensor can be operated in a ‘snap-shot’ mode”); 58 (“Yu’s sensor would have been expected to operate in a ‘snap-shot’ mode”). To distinguish from Matsushima and Yu, PO has to argue that the “*data acquisition ... during a frame*” requires “rolling mode” and excludes “snap-shot” mode. This directly contracts the description of '180 patent:

In contrast to exposure control, which is used by conventional digital cameras to manage dynamic range, the digital camera systems of an embodiment use *integration time control* to control the time the electrical signal is integrated on a charge storage device (capacitance) within a sensor (pixel).... *The integration time control can be executed (depending on readout configuration) according to a number of techniques, for example, rolling mode and/or snap-shot mode* to name a few.

Ex.1001, 20:29-51. Here, contrary to PO's proposed interpretation, the '180 patent lists "rolling mode" and "snap-shot mode" as *alternative examples* for integration time control by using "*and/or*," and does not suggest excluding one or the other. PO's attempt to selectively require one example while excluding an expressly-listed alternative should be rejected. *See Helmsderfer v. Bobrick*, 527 F.3d 1379, 1383 (Fed. Cir. 2008) ("a construction that excludes [a] preferred embodiment is rarely, if ever correct"). PO provides no direct support, either from the '180 patent or any contemporaneous references, that "*data acquisition...during a frame*" is limited to one mode of integration time control while excluding the other.

PO's attempt to exclude one specifically-disclosed mode of integration time control also contradicts its own infringement contention, which points to "Auto Exposure Control [that] *controls the integration time* of each image sensor independently." Ex.1068, 19. There, PO does not require "rolling mode" and exclude "snap-shot mode," as its improper construction does here.

Petitioner's Authorized Reply to Patent Owner's Preliminary Response
IPR2025-00339 (U.S. Patent 7,916,180)

Respectfully submitted,

Date: July 1, 2025

/Jonathan R. Bowser/

HAYNES AND BOONE, LLP
2801 N. Harwood Street, Ste 2300
Dallas, Texas 75201
Customer No. 27683

Jonathan R. Bowser
Lead Counsel for Petitioner
Registration No. 54,574

PETITIONER'S EXHIBIT LIST

Ex.1001	U.S. Pat. No. 7,916,180 to Olsen et al. ("the '180 patent")
Ex.1002	Prosecution History of U.S. Pat. No. 7,916,180 (U.S. Application No. 11/788,279)
Ex.1003	Declaration of Mr. Michael Guidash under 37 C.F.R. § 1.68
Ex.1004	<i>Curriculum Vitae</i> of Mr. Michael Guidash
Ex.1005	U.S. 6,611,289 to Yu et. al
Ex.1006	U.S. 7,365,780 to Miyazaki
Ex.1007	JP Application Publication No. JP2003-319231 to Matsushima (Certified English Translation + Declaration + Japanese)
Ex.1008	U.S. 2005/0128323 to Choi
Ex.1009	Eastman Kodak Company, Kodak CMOS Image Sensors White Paper (November 10, 2000) (retrieved from https://web.archive.org/web/20010611235410/http://www.kodak.com/US/plugins/acrobat/en/digital/ccd/cmos.pdf)
Ex.1010	U.S. 7,206,136 to Labaziewicz et al.
Ex.1011	U.S. 7,733,414 to Kobayashi
Ex.1012	Dave Litwiller, CCD vs. CMOS: Facts and Fiction, Photonics Spectra (January 2001)
Ex.1013	US Application Pub. No. 2004/0239771 to Habe
Ex.1014	EP Application Pub. No. EP0858208 to Weldy et al.
Ex.1015	IV's Preliminary Infringement Contentions, <i>Intellectual Ventures II, LLC v. Tesla, Inc.</i> , No. 6:24-cv-188-ADA (WDTX)
Ex.1016	Texas Instruments, TC255P 336- × 244-PIXEL CCD IMAGE SENSOR (March 2003)
Ex.1017	IV's Complaint, <i>Intellectual Ventures II, LLC v. Tesla, Inc.</i> , No. 6:24-cv-188-ADA (WDTX)
Ex.1018	Proposed Scheduling Order, <i>Intellectual Ventures II, LLC v. Tesla, Inc.</i> , No. 6:24-cv-188-ADA (WDTX)
Ex.1019	Statistics on District Court Timing

Petitioner's Authorized Reply to Patent Owner's Preliminary Response
IPR2025-00339 (U.S. Patent 7,916,180)

Ex.1020	Interim Procedure for Discretionary Denials in AIA Parallel District Court Litigation, June 21, 2022
Ex.1021	Eastman Kodak Company, Solid State Image Sensors Terminology, Application Note, DS 00-001, Revision 0 (December 8, 1994) (https://web.archive.org/web/20030413064955/http://www.kodak.com/global/plugins/acrobat/en/digital/ccd/applicationNotes/terminology.pdf)
Ex.1022	US 7,830,435 to Guidash
Ex.1023	Eastman Kodak Company, Charge Coupled Device (CCD) Image Sensors, CCD Primer, MTD/PS-0218, Revision No. 1 (May 29, 2001) (https://web.archive.org/web/20030422183725/http://www.kodak.com/global/plugins/acrobat/en/digital/ccd/applicationNotes/chargeCoupledDevice.pdf)
Ex.1024	Szeliski, Image Mosaicing for Tele-Reality Applications (May 1994)
Ex.1025	Mann et al., On Being 'Undigital' with Digital Cameras: Extending Dynamic Range By Combining Differently Exposed Pictures (May 1995)
Ex.1026	Debevec et al., Recovering High Dynamic Range Radiance Maps from Photographs (August 3, 1997)
Ex.1027	PCT Pub. No. WO2001/010110 to Stark
Ex.1028	Yang et al., A 640 x 512 CMOS Image Sensor with Ultrawide Dynamic Range Floating-Point Pixel-Level ADC, IEEE Journal of Solid-State Circuits, VOL. 34, NO. 12 (December 1999)
Ex.1029	CCD Electronic Shutters, Interactive Java Tutorial, October 22, 2002 (https://web.archive.org/web/20021028042044/https://micro.magnet.fsu.edu/primer/java/digitalimaging/ccd/shutter/index.html)
Ex.1030	The Panorama Factory -- What is 35mm equivalent focal length (http://www.panoramafactory.com/equiv35/equiv35.html)
Ex.1031	Camera & Imaging Products Association, Guideline for Noting Digital Camera Specifications in Catalogs, October 11, 2005
Ex.1032	London etc., Photography, Eighth Edition, January 1, 2004

Petitioner's Authorized Reply to Patent Owner's Preliminary Response
IPR2025-00339 (U.S. Patent 7,916,180)

Ex.1033	American National Standards Institute (ANSI), ANSI/I3AIT 10.7000-2004 American National Standard for Photography - Digital Still Cameras - Guidelines for Reporting Pixel-Related Specifications, June 24, 2004
Ex.1034	Eastman Kodak Company, Shutter Operations for CCD and CMOS Image Sensors, Application Note, MTD/PS-0259, Revision 1 (October 23, 2001) (retrieved from https://web.archive.org/web/20030419002619/http://www.kodak.com/global/plugins/acrobat/en/digital/ccd/applicationNotes/ShutterOperations.pdf)
Ex.1035	RESERVED
Ex.1036	U.S. Pat. No. 4,831,403 to Ishida et al.
Ex.1037	U.S. Pat. No. 7,443,427 to Takayanagi
Ex.1038	RESERVED
Ex.1039	e2v Technologies, CCD Sensors Technical Note: Glossary of Terms (2003)
Ex.1040	Ralph E. Jacobson et al., The Manual of Photography: photographic and digital imaging, 9th Edition (2000)
Ex.1041	U.S. Pat. No. 6,215,597 to Duncan et al.
Ex.1042	O'Donnell, The Practical Use of the Exposure Triangle (retrieved from https://creativeraw.com/practical-use-exposure-triangle-explained/)
Ex.1043	U.S. Pat. No. 2,953,983 to Larson
Ex.1044-1045	RESERVED
Ex.1046	Comparison of Provisional Application No. 60/604,854 and '180 Patent Specification
Ex.1047	Provisional Application No. 60/604,854, filed on August 25, 2004
Ex.1048	Provisional Application No. 60/695,946, filed on July 1, 2005
Ex.1049	Provisional Application No. 60/795,946 filed on April 28, 2006
Ex.1050	Prosecution History of U.S. Application No. 11/212,803 (abandoned)
Ex.1051	U.S. Application No. 11/212,803 (published as US 2006/0054782)

Petitioner's Authorized Reply to Patent Owner's Preliminary Response
IPR2025-00339 (U.S. Patent 7,916,180)

Ex.1052	Reserved
Ex.1053	Statistics on District Court Timing (Dec. 31, 2024)
Ex.1054	WDTX 2024 Statistical Public Report, available at https://www.txwd.uscourts.gov/court-information/district-statistics/
Ex.1055	Amended Order Assigning the Business Of the Court (Judge Moses, Jan. 31, 2025)
Ex.1056	LexMachina docket report
Ex.1057	LexMachina docket report
Ex.1058	"Albright Worried Multipatent Trials Ask Too Much Of Jurors," Law360 (Dec. 18, 2020), at https://www.law360.com/articles/1337976/albright-worriedmultipatent-trials-ask-too-much-of-jurors
Ex.1059	Bifurcation Order – Videolabs, Inc. v. Asustek Computer, Inc. 6:22-cv-00720-ADA (WDTX)
Ex.1060	Joint Claim Construction Statement, <i>Intellectual Ventures II, LLC v. Tesla, Inc.</i> , 1:24-cv-884-ADA, ECF No. 37 (WDTX) (March 28, 2025)
Ex.1061	"The economic contributions of Tesla to the California economy, 2018–2021," IHS Markit (Oct. 2022), available at https://digitalassets.tesla.com/tesla-contents/image/upload/Tesla-California-Economic-Impact-Final-Report-October-2022
Ex.1062	"Tesla's 'American-made' cars won't get hit as hard by the auto tariffs," CNN.com, https://www.cnn.com/2025/03/29/cars/american-made-cars-tesla-auto-tariffs/index.html , retrieved Apr. 14, 2025
Ex.1063	"An Assessment of the Impact of the Inter Partes Review Process under the Patent Trial and Appeal Board on the US Economy," The Perryman Group, available at https://www.perrymangroup.com/publications/report/2021/9/23/an-assessment-of-the-potential-impact-of-expanding-inter-partes-review-ipr-under-the-america-invents-act-on-the-us-economy/
Ex.1064	'180 Patent Assignment Recordation

Petitioner's Authorized Reply to Patent Owner's Preliminary Response
IPR2025-00339 (U.S. Patent 7,916,180)

Ex.1065	"Tesla's California Footprint," https://www.tesla.com/blog/teslas-california-footprint (retrieved Apr. 25, 2025)
Ex.1066	"FAQs for Interim Processes for PTAB Workload Management," available at https://www.uspto.gov/patents/ptab/faqs/interim-processes-workload-management (retrieved May 13, 2025).
Ex.1067	Notice of <i>Sotera</i> Plus Stipulation for Defendant Tesla, Inc., <i>Intellectual Ventures II, LLC v. Tesla, Inc.</i> , 1:24-cv-884-ADA, ECF No. 56 (WDTX) (May 20, 2025)
Ex.1068 (NEW)	Exhibit 7 to IV's Preliminary Infringement Contentions, <i>Intellectual Ventures II, LLC v. Tesla, Inc.</i> , No. 6:24-cv-188-ADA (WDTX)

CERTIFICATE OF SERVICE

The undersigned certifies, under 37 C.F.R. § 42.6, that service was made on the Patent Owner as detailed below.

Date of service July 1, 2025

Manner of service Electronic Email: BTheiss@vklaw.com;
DGolub@vklaw.com; RODonnell@vklaw.com;
RLeonard@vklaw.com; rigby@intven.com

Documents served **Petitioner's Authorized Reply to Patent Owner's Preliminary Response; Exhibit 1068.**

Persons served Brandon R. Theiss
Daniel H. Golub
Ryan W. O'Donnell
Robert D. Leonard
VOLPE KOENIG
30 S. 17th Street, Suite 1800
Philadelphia PA 19103

Russell J. Rigby
Intellectual Ventures II LLC
3150 139th Avenue Southeast Building 4
Bellevue, WA 98005

/Jonathan R. Bowser/
Jonathan R. Bowser
Lead Counsel for Petitioner
Registration No. 54,574