

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.

Petitioner

v.

IMMERVISION, INC.

Patent Owner

Case IPR2023-00472

Patent No. 10,795,120

PATENT OWNER'S SUR-REPLY TO PETITIONER'S REPLY

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EXHIBIT LIST

Exhibit No.	Description
2001	Declaration of Michael Lebby, Ph.D.
2002	October 12, 2023 Deposition Transcript of David Kessler, Ph.D.
2003	Defendant Apple Inc.'s Invalidity Contentions and Exhibit B-1 thereto from <i>ImmerVision, Inc. v. Apple, Inc.</i> , Case No. 1:21-cv-01570 (D. Del.)
2004	U.S. Pat. App. Pub. No. 2012/0314296 ("Shabtay")
2005	U.S. Pat. No. 6,844,990 ("the '990 Patent")
2006	Chapter 1 of "Smart Mini-Cameras," (Tigran V. Galstian, ed., 2014)
2007	Chapters 6, 9, and 17 of José Sasián, "Introduction to Lens Design" (2019)
2008	"Imaging Optics A Technical Resource for Imaging Solutions" published by Edmund Optics, V173A
2009	Chapter 8 of Rudolf Kingslake & R. Barry Johnson, "Lens Design Fundamentals," (2 nd ed., 2010)
2010	Chapter 11 of Warren J. Smith, "Warren J. Smith's Modern Optical Engineering," (3 rd ed., 2000)
2011	<i>Curriculum vitae</i> of Michael Lebby, Ph.D.
2012	Excerpts of Plaintiff's Initial Infringement Contentions from <i>ImmerVision, Inc. v. Apple, Inc.</i> , Case No. 1:21-cv-01570 (D. Del.)

I. INTRODUCTION

Petitioner sidestepped its obligation to make its case for unpatentability in the Petition by advancing a convoluted theory about downward trending slopes instead of analyzing features explicitly recited in the ‘120 Patent claims.

Petitioner’s Reply blames Patent Owner as an excuse to now introduce evidence it should have presented from the beginning. Patent Owner’s arguments did not relate to claim construction (as Petitioner suggests), and even if they did, the evidence shows Petitioner’s awareness of the position long before initiating this proceeding. This late evidence (presented in Sections I and III of the Reply and paragraphs 21-33 of Dr. Kessler’s new declaration) should therefore be disregarded. But the new material cannot demonstrate unpatentability of the challenged claims even if it were timely submitted. Dr. Kessler’s failure to properly evaluate the references and his self-contradictory and shifting testimony make his evidence too unreliable to credibly satisfy Petitioner’s burden.

Petitioner also attempts to salvage its downward slope theory by consistently pulling quotations out of context from the Patent Owner Response or the ‘120 Patent’s intrinsic record. For example, Patent Owner argued that the downward slope in the ‘120 Patent’s Fig. 7 had no significance to claim 1, not that Fig. 7 was wholly inapplicable, as Petitioner implies. None of Petitioner’s cherry-picked lines, when considered in context, supports its position that Fig. 7’s downward

curve portion relates to the challenged claims. Nor does Petitioner's futile argument to discredit Fig. 6 for supposedly relating to post-capture processing rather than lens characteristics. The '120 Patent specification, as a whole, demonstrates it is the lens design, including aspects of Fig. 6, that compensates for drops in relative illumination or MTF.

Patent Owner therefore requests the PTAB find claims 1-7 of the '120 Patent *not* unpatentable.

II. ARGUMENT

A. Petitioner Was Well Aware of the Evidence Required to Show Claim 1's Alleged Unpatentability

Section III of Petitioner's Reply discusses evidence (paragraphs 21-33 of Dr. Kessler's second declaration (Ex. 1023)) that should have been presented in the Petition. Section I constitutes Petitioner's attempt to justify the belated submission – framing the issue as a new claim construction dispute and professing to have been caught entirely unaware. Petitioner is wrong on both counts. Patent Owner questioned whether the Petition cited adequate evidence showing the prior art met the challenged claims' express terms. But even if the dispute were considered a matter of claim interpretation, Petitioner clearly had prior knowledge and should have addressed it at the Petition stage.

1. The Dispute is Not Over Claim Construction, but Evidence Sufficiency

Petitioner mischaracterizes the Patent Owner Response as advancing a “new claim construction” Petitioner should be allowed to rebut using newly submitted evidence (Reply at 3-4), which is nothing more than Petitioner’s attempt to circumvent its obligation to make its case for unpatentability *in the petition*.

Intelligent Bio-Systems, Inc. v. Illumina Cambridge, Ltd., 821 F.3d 1359, 1369-70 (Fed. Cir. 2016). The Petition raised a single claim construction issue: whether to afford patentable weight to the clause “the lower or higher object to image magnification being used to compensate, at least in part, for a lower image quality due to at least one of a drop of relative illumination or a drop of MTF in a zone of the image” in claim 1. Pet. at 9-12. Patent Owner responded solely by explaining why the clause should be evaluated in view of the prior art.¹ POR at 14-17. This claim construction dispute has nothing to do with Petitioner’s submission of new evidence.

Patent Owner separately questioned the sufficiency of Petitioner’s evidence in view of *express claim language*. Specifically, Petitioner failed to identify magnification zones in Thibault or provide relative illumination or MTF data for

¹ Petitioner notably offers no rebuttal on the issue of patentable weight. *See generally* Reply.

either Matsusaka or Kim, despite claim 1's explicit recitation of these characteristics. *See e.g.*, POR at 25-27, 28-31, 32-35; Pet. at 31-32, 58-60, 78-80. Far from being an unanticipated claim construction position, Patent Owner's arguments related to evidentiary gaps in the Petition, which Petitioner should not be permitted to fill at the reply stage. *See e.g., Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1367-68 (Fed. Cir. 2015) (finding no error in PTAB rejection of reply arguments relying "on previously unidentified portions of a prior-art reference to make a meaningfully distinct contention"); *Google LLC v. Nobots LLC*, IPR2022-00940, Paper No. 38 at 24-26 (PTAB Nov. 29, 2023) ("it is not appropriate in a reply to introduce entirely new argument and evidence that is necessary to address evidentiary gaps successfully identified by a patent owner, and which could have been previously presented by a petitioner"); *see also* Patent Trial and Appeal Board Consolidated Trial Practice Guide (Nov. 2019) at 73 ("Petitioner may not submit new evidence or argument in reply that it could have presented earlier, e.g. to make out a prima facie case of unpatentability").

The PTAB should therefore reject Petitioner's excuse of a "new claim construction" for submitting untimely evidence with its Reply. But even if Patent Owner's arguments could be viewed as some form of claim construction, the result should be the same since Petitioner was aware of such an interpretation and failed to address it in the Petition, as explained in more detail below.

2. **Regardless of How Petitioner Characterizes the Dispute, Petitioner Knew Before Filing the Petition**

A petitioner cannot use new evidence in a reply that could have been presented in the petition. *See e.g., Kingston Tech. Co. v. SPEX Techs., Inc.*, 798 F. App'x 629, 635 (Fed. Cir. 2020) (“the Board’s rules prohibit a petitioner from submitting new evidence or new argument in reply that the petitioner could have presented earlier”); Consolidated Trial Practice Guide at 74-75 (“It is also improper for a reply to present new evidence (including new expert testimony) that could have been presented in a prior filing”). Petitioner was well aware of the evidence needed to show claim 1’s unpatentability ahead of the Petition.

First, Petitioner’s knowledge is demonstrated by its own provision of the correct evidence in certain instances. For example, claim 1 directly calls for zones of magnification, necessitating that Petitioner identify such zones in the prior art. Ex. 1001 at cl. 1. Petitioner did ***not*** provide this evidence for Thibault, ***despite recognizing and identifying the required zones when analyzing Matsusaka and Kim*** elsewhere in the Petition. Pet. at 58-59, 78-80; Ex. 1003 at ¶¶ 164-165, 195-196; POR at 20-21, 25-27; Ex. 2001 at ¶ 82. Similarly, claim 1 discusses relative illumination and MTF, implicating the importance of that information to analyzing the claim. Ex. 1001 at cl. 1. Petitioner discussed Thibault’s relative illumination plot but failed to present similar information for the other two references despite the claim language (and the alleged ease with which the data could be generated).

Pet. at 32; Ex. 1003 at ¶ 124; Ex. 2002 at 61:14-64:12; POR at 30, 33-34; Ex. 2001 at ¶¶ 96, 102.

Second, Petitioner served Patent Owner with invalidity contentions in the parallel district court case *more than a month before commencing this proceeding*. Ex. 2003 at 22. In those contentions, Petitioner identified high and low magnification zones and discussed their relationship to a relative illumination plot. *See e.g., id.* at 30-32. Nearly six weeks before filing the Petition, Petitioner was analyzing the prior art in the *same way* it now contends it “could not reasonably have anticipated and preemptively addressed.” Reply at 3.

Third, over two months before the Petition’s filing date, Patent Owner served Petitioner with initial infringement contentions in the parallel district court case. Ex. 2012 at 5-7. Those contentions analyzed accused devices under claim 1 by identifying magnification zones in the measured resolution plots and comparing them with measured MTF curves for the respective devices. *See e.g., id.* at 11-12. This methodology matches Petitioner’s approach in the invalidity contentions and the Petition’s deficiencies identified by the Patent Owner Response. *See e.g., Ex.* 2003 at 22; POR at 25-27, 28-31, 32-35.

Petitioner has no excuse for not identifying magnification zones in Thibault or Matsusaka’s MTF curve up front in the Petition. That late evidence and Petitioner’s arguments related thereto should be disregarded. *See e.g., Ariosa*, 805

F.3d at 1367; *Colas Sols., Inc. v. Blacklidge Emulsions, Inc.*, 759 F. App'x 986, 989-90 (Fed. Cir. 2019) (affirming PTAB disregard of new petitioner theory of obviousness based on overlapping ranges when petition relied on inherency); *Google*, IPR2022-00940, Paper No. 38 at 24-26.

Petitioner's cited cases are inapposite, as they deal either with arguments of which a petitioner was previously unaware prior to institution of a proceeding (*Axionics, Inc. v. Medtronic, Inc.*, 75 F.4th 1374, 1383-84 (Fed. Cir. 2023) (vacating PTAB decision disregarding reply evidence addressing previously unknown claim construction); *Hamilton Beach Brands, Inc. v. f'real Foods, LLC*, 908 F.3d 1328, 1338-39 (Fed. Cir. 2018) (finding petitioner had adequate opportunity to address Board-raised claim construction)) or reply arguments that do not change the theory of unpatentability (*Apple Inc. v. Andrea Elecs. Corp.*, 949 F.3d 697, 706-07 (Fed. Cir. 2020) ("Apple's reply relies on the same algorithm from the same prior art reference to support the same legal argument"))).

This is not a situation where Petitioner's Reply merely provides further explanation of an argument first expressed in the Petition – the Petition ignored the magnification zones and/or the relative illumination/MTF curves in favor of a theory comparing downward slopes of resolution to Fig. 7 of the '120 Patent. Pet. at 31-32, 60, 80; POR at 25-27, 30, 33-35. The newly submitted evidence is part of a new theory of which Petitioner was aware before filing the Petition and should

have been addressed therein. The present circumstance is more akin to *Arios*, as Petitioner is relying on previously unidentified aspects of the references. 805 F.3d at 1367. Notably, Petitioner is not simply pointing to express disclosures readily apparent within the references – Petitioner performed detailed calculations and computer modeling to obtain the relevant information. Ex. 2001 at ¶¶ 74, 78, 82; Ex. 1023 at ¶¶ 23, 29.

Due to the complex nature of the new evidence and the fact Petitioner knew it should have been provided with the Petition, the PTAB should disregard the new evidence and the related portions of the Reply (specifically Reply sections I and III and Ex. 1023, ¶¶ 21-33).

B. Petitioner Distorts the Intrinsic Record and Patent Owner’s Response to Justify Its Shortcut Analysis for Claim 1

Petitioner defends its decision to analyze downward slopes in the prior art rather than the claimed magnification zones and their relationship to relative illumination or MTF by cherry-picking select language from the intrinsic record and the Patent Owner Response without proper context.

1. Petitioner Exaggerates Fig. 7’s Importance Through Selective Misquotations

Petitioner alleges an inconsistency between the ‘120 Patent’s examination (where Figs. 6 and 7 were cited as support for an amendment to claim 1) and Patent Owner’s purported position that “FIG. 7 of the ‘120 Patent is ‘a separate and

different approach.” Reply at 7. Petitioner mischaracterizes Patent Owner’s arguments to manufacture this supposed inconsistency. Patent Owner never wholesale disavowed Fig. 7’s relevance – the dispute is over *one particular aspect* of the curve in Fig. 7. See e.g., POR at 10 (“Fig. 7 *partially* embodies a different, complementary concept to the compensation scheme described above”) (emphasis added). Patent Owner demonstrated that a downward curve portion’s mere existence, such as the segment of Fig. 7’s curve relied upon by Petitioner, cannot be equated to the claimed element of using a magnification zone to compensate for poor relative illumination or MTF. See e.g., *id.* at 10, 19-23 (“the concept of actively increasing relative illumination by dropping resolution *is a separate and different approach*² to improving image quality than using resolution magnification to compensate for low MTF or relative illumination”) (emphasis added); Ex. 2001 at ¶¶ 88-91, 97, 105 (e.g., “the *downward slope* in Fig. 7 is *used for a different purpose*”) (emphasis added). There is no inconsistency between Patent Owner’s actual argument here and the ‘120 Patent’s prosecution history. That one aspect of Fig. 7 (the downward curve segment used to actively raise

² The “separate and different approach” refers to particular aspects of the curves, not the entirety of Fig. 7, which Petitioner’s selective quotation misleadingly implies.

illumination) differs from the “compensate” concept in claim 1 does not mean other aspects of Fig. 7 lack any relevance.

In response to there being no relative illumination or MTF curve in the ‘120 Patent relating to the Fig. 7 lens embodiment, Petitioner alleges the plots shown in Figs. 4 and 5 “are intended to apply to all embodiments.” Reply at 8. But the support comes from a quote *omitting the critical language*:

The exact values of the relative illumination with respect to the field of view vary between each embodiment of the present invention, but the *overall shape having a value around 100% at 0° shown at center 410 and under 80% at the maximum field angle shown at position 420* is present in all families of miniature wide-angle lenses according to the present invention.

Ex. 1001 at 5:59-65 (emphasis added). The description skipped by the Reply describes the nature of the “shape” that is present in “all families” – one having specific relative illumination values at the center and maximum field angles. *Id.*; *see also id.* at 6:1-8. When considered in full context, the ‘120 Patent does not support Petitioner’s contention that Fig. 4 or 5 may be used to accurately assess correspondence with the resolution curve in Fig. 7.

Petitioner further contends that claim 1 recites that either “lower or higher object to image magnification” is used to compensate, but Fig. 6 supposedly only shows a zone where resolution is higher. Reply at 8-9. According to Petitioner,

Fig. 7 must represent the other case. *Id.* First, as Patent Owner previously explained, a downward curve does not necessarily implicate a zone of lower object to image magnification. POR at 19-21; Ex. 2001 at ¶¶ 83-87. Petitioner is continuing its improper attempt to conflate a downward curve with a zone of magnification.

Second, Petitioner ignores that Fig. 6 shows an example where a zone having lower object to image magnification compensates for a drop of relative illumination or MTF in a zone of the image. The Fig. 6 resolution curve exhibits a zone of lower magnification from the center to about 52° in the field of view. Ex. 2001 at ¶ 58. This zone is strategically located opposite to a zone in Fig. 4 where relative illumination is poor and opposite to a zone in Fig. 5 where the MTF is poor. *Id.* at ¶¶ 59-62. By compressing the image near its center, more space or pixels can be made available for the zone near the edge where the relative illumination or MTF is lower (there is a finite imaging space available – decreasing resolution in one zone necessarily increases resolution in another and *vice versa*). Ex. 2001 at ¶¶ 56-62. In other words, aligning a zone having a higher object to image magnification with a zone having poor relative illumination or MTF can compensate for the drop in image quality, and the corollary is placing a zone having a lower object to image magnification opposite to the zone having poor

relative illumination or MTF can have the same effect.³ *Id.*; *see also* Ex. 1024 at 71-74 (§ IV.F.3).

Petitioner's arguments related to Fig. 7 are nothing more than an attempted justification for Petitioner's improper reliance on the plot's downward slope instead of features explicitly recited in the claims (*i.e.*, magnification zones and relative illumination/MTF).

2. Petitioner's Explanation for Disregarding Fig. 6 is Not Supported by the '120 Patent's Specification

Petitioner asserts that Patent Owner's focus on Fig. 6 in the '120 Patent "makes little technical sense" because, according to Dr. Kessler, the sentence at column 6, lines 24-27 suggests "it is the processing of the image data after it is captured by the sensor that compensates for the lower image quality," not the lens. Reply at 10; Ex. 1023 at ¶ 14. This is a baffling misreading of the '120 Patent by

³ The zone "with a lower or higher object to image magnification" is independent of the zone having "lower image quality...." *See e.g., Alcon Research, Ltd. v. Watson Labs., Inc.*, 2017 U.S. Dist. LEXIS 21400 at *21 (D. Del. Feb. 15, 2017) (use of "an" before "average particle size" in claim 14 suggested term was different from "a particle size" in claim 1). The question is how the magnification zone relates to the "lower image quality" zone. *See e.g.,* Ex. 2001 at ¶ 66.

Dr. Kessler resulting from either overlooking or willingly ignoring portions of the patent and Dr. Lebby's declaration.

The '120 Patent recognizes that low relative illumination and low MTF can affect image quality. Ex. 1001 at 1:60-62, 2:1-3; Ex. 2001 at ¶¶ 50-51; POR at 3-4. In these regions exhibiting poor illumination or MTF characteristics, the '120 Patent compensates by having its *lens project the related image data onto more pixels* of the image sensor. See e.g., Ex. 1001 at 2:45-55 (e.g., “the *targeted resolution curve* of the miniature wide-angle lens is *configured to offset*, at least in part, *the drop of relative illumination* from the miniature wide-angle lens *by increasing the number of pixels imaged* in the zone where the relative illumination is lower”) (emphasis added); Ex. 2001 at ¶ 52 (e.g., “By capturing more details in these areas, image quality can still be maintained despite low relative illumination or MTF”); POR at 4. The '120 Patent further explains that it is the “*targeted resolution curve* used to at least partially *compensate*” the relative illumination or MTF, and the resolution curve is a characteristic *of the lens*. Ex. 1001 at 3:18-21 (emphasis added); see also 2:6-13 (“embodiments of the current invention describe miniature wide-angle *imaging lenses*...maintaining a *good balance between image quality parameters*, including MTF, relative illumination, and resolution”); 6:13-19 (“the *shape of the targeted resolution curve* is intentionally designed to *compensate* for the drop” of relative illumination or

MTF) (emphasis added); Ex. 2001 at ¶ 53 (showing how the lens targeted resolution dictates the number of pixels capturing a degree from the field of view); POR at 4-5. The ‘120 Patent unequivocally credits the lens structure for the compensation aspect, **not** post-capture image processing.

Dr. Kessler bases his incorrect conclusion that image data processing is responsible for compensating lower image quality on an isolated single sentence from the ‘120 Patent specification. Reply at 10, Ex. 1023 at ¶ 14. The immediately preceding sentence states that “By ***having more imaging pixels in this zone***, this ***compensates*** for the lower image quality in this zone either due to the lower relative illumination or the lower MTF.” Ex. 1001 at 6:21-24 (emphasis added). The quoted sentence recites “The final ***resulting image*** can ***then be processed*** to create a resulting image with constant image quality across the whole field of view.” *Id.* at 6:24-27 (emphasis added). The foregoing demonstrates that the image processing subsequently ***obtains a better result due to the compensation provided by the lens***, not that the processing provides the benefit of the invention, (a known solution that increased unwanted noise). *See e.g.*, Ex. 2006 at 28; POR at 3. The ‘120 Patent specification simply does not support Petitioner’s and Dr. Kessler’s excuse for disregarding Fig. 6.

C. Petitioner's Late Evidence Does Not Rectify the Petition's Deficiencies

As explained above in section II.A, Petitioner's new evidence relating to identifying magnification zones in Thibault and providing MTF curves for Matsusaka should be disregarded since Petitioner failed to include it in the original Petition despite clear knowledge of its necessity. However, even if the PTAB is inclined to consider this belated evidence, Petitioner still fails to prove unpatentability of claim 1.

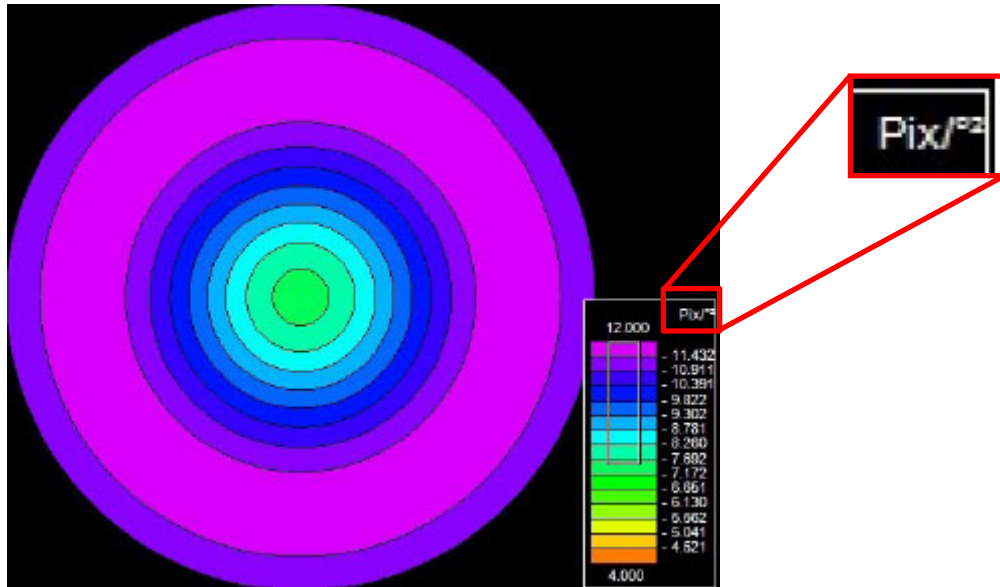
1. Petitioner's Newly Identified Magnification Zones in Thibault Do Not Align Well with Relative Illumination Characteristics and Dr. Kessler Contradicts His Own Testimony

The Reply shows three magnification zones in Thibault's resolution curve: a low magnification zone from the center to $\sim 33\text{-}34^\circ$, a high magnification zone from there to about 80° , and a second low magnification zone from about 80° to the edge of the field of view. Reply at 16. Leaving aside whether Dr. Kessler's belated demarcation of zones is accurate, the comparison with the relative illumination curve shows a misalignment. Specifically, the *worst relative illumination area* of Thibault's lens occurs between about $80\text{-}85^\circ$ in the field of view. *Id.*; Ex. 1023 at ¶ 25; Ex. 2001 at ¶ 70; POR at 11-12. This *coincides with a low magnification zone* as shown in Dr. Kessler's annotated Thibault resolution plot. Reply at 16; Ex. 1023 at ¶ 25.

This behavior indicates the magnification zones in Thibault are **not** being used to compensate for a drop in relative illumination. This is unsurprising since Thibault's stated goal is to use magnification to emphasize a particular area of importance (the estimated location of objects of interest in the field of view) rather than adjusting for relative illumination changes. Ex. 1004 at 8; Ex. 2001 at ¶¶ 68-69; Ex. 2005 at 3:43-4:10; POR at 11. Accordingly, Petitioner has not adequately demonstrated that Thibault teaches or suggests the claimed correlation between magnification and compensating for a lower image quality due to a drop in relative illumination.

Dr. Kessler also incorrectly argues that the “surfacic resolution over the full circular panomorph image shown at the bottom of FIG. 6 is simply another way to visualize the location of the zones of magnification” and is “consistent with and an alternative visualization of [Dr. Lebby's] ‘horizontal line.’” Ex. 1023 at ¶¶ 22-23; *see also* Reply at 13. This stems from Dr. Kessler's erroneous prior statement that “surfacic resolution” refers to “the number of pixels that are associated with a given degree of the surface area of the lens.” Ex. 1003 at ¶ 87, FN2. Had Dr. Kessler reviewed Thibault's Fig. 6 more closely, he would have realized that the “surfacic resolution” in the bottom image is **not equivalent** to the image position derivative curve at the top.

The first clue is the surfacic resolution image legend (reproduced and annotated below) shows the units as pixels per degree *squared*, not pixels per degree, as in the upper plot. Ex. 1004 at 7.



The second clue is the outer colored band in the surfacic resolution image does not match the resolution indicated at the edge by the image position derivative plot. In the upper plot, the resolution is below 10 (pixels/degree) for the final ~10-12 degrees in the field of view. *Id.* But the color of the outermost band in the surfacic resolution image indicates a value between 10.911 and 11.432 (pixels/degree squared) for this segment, clearly demonstrating a disconnect. *Id.*

This leads to an internal conflict in Dr. Kessler’s analysis. Dr. Kessler’s original declaration asserted that “some zones have higher resolution (e.g., *purple* and magenta zones).” Ex. 1003 at ¶ 118 (emphasis added). When evaluating the image position derivative curve in the same manner as the other references, Dr.

Kessler clearly shows a zone of lower magnification at the edge between about 80-90°. Ex. 1023 at ¶ 23. This contradicts his prior assertion that a purple zone in the surfacic resolution image is a zone of “higher resolution,” since the outer edge of the lens is portrayed in this color.⁴ Dr. Kessler’s analysis is too flawed and evolving to reliably demonstrate unpatentability in view of the belated evidence.

2. Petitioner’s New Evidence of MTF Curves for Matsusaka is Unreliable

For the first time, the Reply provides alleged MTF plots for Matsusaka at six spatial frequencies, and purports to compare these plots to the previously presented magnification zone layout. Reply at 18-19. But the MTF data for Matsusaka is unreliable for at least two reasons.

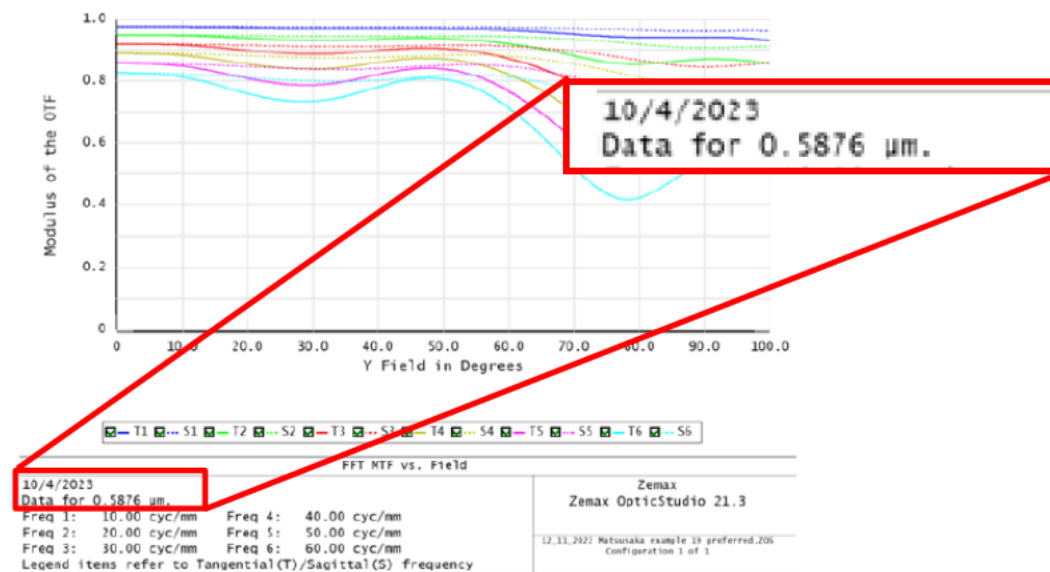
First, Dr. Kessler has conspicuously changed parameters between his resolution plot and his MTF plot. In his original declaration, Dr. Kessler modeled Matsusaka’s Example 19 lens using a weighted average of three common visible wavelengths (0.486133 μm (“blue”), 0.587562 μm (“yellow”), and 0.656273 μm (“red”)) and calculated resolution therefrom, as shown in his data below. Ex. 1018 at 2; Ex. 1003 at ¶¶ 95-98.

⁴ Dr. Kessler confirms this by dropping “purple” when he argues his prior opinion is confirmed. Ex. 1023 at ¶ 24.

Wavelengths : 3		
Units: μm		
#	Value	Weight
1	0.486133	0.500000
2	0.587562	1.000000
3	0.656273	0.500000

(excerpt from Ex. 1018 at 2)

However, when plotting MTF, Dr. Kessler inexplicably uses a monochromatic wave definition at 0.5876 μm :



Ex. 1023 at ¶¶ 29, 32; Reply at 18-19. This change is unusual because not only is MTF plotting possible using weighted wavelengths (*see e.g.*, Ex. 1010 at Figs. 6, 13, 20, 29 (plotting MTF using weighted visible light spectra)), but MTF can significantly differ depending on the wavelength(s) used for measurement (*see e.g.*, Ex. 2008 at 17 (showing MTF curve variations using “white” light and monochromatic 470 nm light); Ex. 2004 at Figs. 4-6, ¶ [0069] (showing MTF spread for various visible wavelengths)).

Dr. Kessler has not made what a POSA would consider an “apples to apples” comparison when evaluating Matsusaka’s resolution against MTF. Based on the information Dr. Kessler shared, he generated the resolution plot using a weighted spectra spanning the visible range but plotted MTF under a single wavelength. Ex. 1018 at 2; Ex. 1003 at ¶¶ 95-98; Ex. 1023 at ¶¶ 29, 32. To do a proper analysis, Dr. Kessler should have at least consistently used the same wavelength information across both sets of data. The record lacks evidence of Matsusaka’s MTF curves using the same weighted spectra as the resolution plot, which likely significantly differ from Dr. Kessler’s findings.

Second, Dr. Kessler still has not corrected his data to account for Matsusaka’s proper field of view. Dr. Lebby explained that Dr. Kessler’s resolution data relied on a 100° half field of view instead of Matsusaka’s given value of 104.183°. Ex. 2001 at ¶¶ 56 (FN3), 73; Ex. 1005 at ¶ [0411]; Ex. 1003 at ¶ 164; Ex. 1018 at 1. Dr. Kessler brushed this off as “not indicative of anything” and allegedly “went back into [his] models and corrected these minor issues,” finding “the outcome did not substantively change.” Ex. 1023 at ¶ 27, FN3. But Dr. Kessler does not provide the allegedly corrected data to prove his understanding, and despite the supposed corrections, Dr. Kessler plotted his new MTF data for Matsusaka only to 100° instead of to Matsusaka’s stated edge of field. *Id.* at ¶ 29.

Petitioner and Dr. Kessler have not credibly shown the claimed correlation of magnification zones and MTF within Matsusaka, even with their belated evidence.

III. CONCLUSION

For at least the reasons recited above and in the October 27, 2023 Patent Owner Response, Patent Owner requests that the PTAB find the challenged claims not unpatentable.

Date: March 13, 2024

Respectfully submitted,

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CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. §§ 42.24(c)(4) and 42.24(d), the undersigned certifies that, according to the “Word Count” tool in Microsoft Word, which was used to prepare this paper, the number of words in this Patent Owner’s Sur-Reply to Petitioner’s Reply is 4,442.

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CERTIFICATE OF SERVICE UNDER 37 CFR § 42.6(e)

I hereby certify that true copies of the foregoing PATENT OWNER'S SUR-
REPLY TO PETITIONER'S REPLY and accompanying exhibit have been served
in their entireties this 13th day of March 2024, by electronic mail on Petitioner's
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