UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

OPTIMUM IMAGING TECHNOLOGIES LLC	§	
	§	
v.	§	Case No. 2:19-CV-00246-JRG
	§	
CANON INC.	§	

CLAIM CONSTRUCTION MEMORANDUM OPINION AND ORDER

Before the Court is the Opening Claim Construction Brief (Dkt. No. 69) filed by Plaintiff Optimum Imaging Technologies LLC ("Plaintiff" or "OIT"), with associated exhibits. Also before the Court are the Responsive Claim Construction Brief (Dkt. No. 73) filed by Defendant Canon Inc. ("Defendant" or "Canon"), as well as Plaintiff's Reply (Dkt. No. 77), also with associated exhibits.

On May 20, 2020, the Court held a claim construction hearing to determine the proper construction of the disputed claim terms in United States Patent Nos. 7,612,805 (the "'805 Patent") and 8,451,339 (the "'339 Patent") (collectively the "Asserted Patents"). The Court has considered the arguments made by the parties at the hearing and in their claim construction briefs and supporting documents. The Court issues this Memorandum and Order construing disputed limitations in light of these considerations.

I. LEGAL PRINCIPLES

It is understood that "[a] claim in a patent provides the metes and bounds of the right which the patent confers on the patentee to exclude others from making, using or selling the protected invention." *Burke, Inc. v. Bruno Indep. Living Aids, Inc.*, 183 F.3d 1334, 1340 (Fed. Cir. 1999). Claim construction is an issue of law for the court to decide. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 970–71 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996).

"It is a bedrock principle" of patent law is that "the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Innova/Pure Water Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). To determine the meaning of the claims, the initial focus is always the intrinsic evidence. *Id*. at 1313; *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 861 (Fed. Cir. 2004); *Bell Atl. Network Servs. v. Covad Commc'ns. Group*, 262 F.3d 1258, 1267 (Fed. Cir. 2001). The intrinsic evidence includes the claims themselves, the specification, and the prosecution history. *Phillips*, 415 F.3d at 1314; *C.R. Bard, Inc.*, 388 F.3d at 861. The general rule is that each claim term is construed according to its ordinary meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the patent. *Phillips*, 415 F.3d at 1312–13; *Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003.)

"The claim construction inquiry . . . begins and ends in all cases with the actual words of the claim." *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998). Further, a term's context in the asserted claim can be instructive. *Phillips*, 415 F.3d at 1314. Other asserted or unasserted claims can also aid in determining the claim's meaning, because claim terms are typically used consistently throughout the patent. *Id*. Differences among the claim terms can

also assist in understanding a term's meaning. *Id*. For example, when a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim does not include the limitation. *Id*. at 1314–15.

"[C]laims 'must be read in view of the specification, of which they are a part.'" *Id*. (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc)). The specification "is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Id*. (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)); *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002). But, "[a]lthough the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims." *Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) (quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988)); *see also Phillips*, 415 F.3d at 1323. "[I]t is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited." *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004).

The prosecution history is also instructive in claim construction because it is evidence of how the U.S. Patent and Trademark Office ("USPTO") and the inventor understood the patent as the claims were formed. *Phillips*, 415 F.3d at 1317 ("Nonetheless, the prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be."). However, caution must be taken where the

prosecution history is unclear or ambiguous. *Id*. at 1318; *see also, Athletic Alternatives, Inc. v. Prince Mfg.*, 73 F.3d 1573, 1580 (Fed. Cir. 1996) (ambiguous prosecution history may be "unhelpful as an interpretive resource").

Although extrinsic evidence can also be useful, it is "less significant than the intrinsic record in determining the legally operative meaning of claim language." *Phillips*, 415 F.3d at 1317 (quoting *C.R. Bard, Inc.*, 388 F.3d at 862). Generally, extrinsic evidence such as technical dictionaries, treatises and expert testimony is "less reliable than the patent and its prosecution history in determining how to read claim terms." *Id*.

There are "only two exceptions to [the] general rule" that claim terms are construed according to their plain and ordinary meaning: "1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of the claim term either in the specification or during prosecution." *Golden Bridge Tech., Inc. v. Apple Inc.*, 758 F.3d 1362, 1365 (Fed. Cir. 2014) (quoting *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)); *see also GE Lighting Solutions, LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014) ("[T]he specification and prosecution history only compel departure from the plain meaning in two instances: lexicography and disavowal."). The standards for finding lexicography or disavowal are "exacting." *GE Lighting Solutions*, 750 F.3d at 1309.

To act as his own lexicographer, the patentee must "clearly set forth a definition of the disputed claim term," and "clearly express an intent to define the term." Id. (quoting *Thorner*, 669 F.3d at 1365); see also Renishaw, 158 F.3d at 1249. The patentee's lexicography must appear "with reasonable clarity, deliberateness, and precision." *Renishaw*, 158 F.3d at 1249.

To disavow or disclaim the full scope of a claim term, the patentee's statements in the specification or prosecution history must amount to a "clear and unmistakable" surrender. *Cordis*

Corp. v. Boston Sci. Corp., 561 F.3d 1319, 1329 (Fed. Cir. 2009); *see also Thorner*, 669 F.3d at 1366 ("The patentee may demonstrate intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope."). "Where an applicant's statements are amenable to multiple reasonable interpretations, they cannot be deemed clear and unmistakable." *3M Innovative Props. Co. v. Tredegar Corp.*, 725 F.3d 1315, 1326 (Fed. Cir. 2013).

The parties raise a number of issues related to the antecedent basis of various claim elements under 35 U.S.C. § 112, ¶ 2.[1] The Supreme Court of the United States has "read [35 U.S.C.] § 112, ¶ 2 to require that a patent's claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910 (2014). "[I]ndefiniteness is a question of law and in effect part of claim construction." *ePlus, Inc. v. Lawson Software, Inc.*, 700 F.3d 509, 517 (Fed. Cir. 2012). As a challenge to the patent validity under the statute, the failure of any claim in suit to comply with § 112 must be shown by clear and convincing evidence. *BASF Corp. v. Johnson Matthey Inc.*, 875 F.3d 1360, 1365 (Fed. Cir. 2017); *Sonix Tech. Co. v. Publ'ns Int'l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017). Whether a claim is indefinite is determined from the perspective of one of ordinary skill in the art as of the time the application for the patent was filed. *Nautilus*, 572 U.S. at 911.

Plaintiff takes the position that a person having ordinary skill in the relevant art would be someone with an electrical engineering degree with 3-5 years of relevant experience. Defendant proposes the same degree requirements, but allows for only 2-3 years of relevant experience. The

[1] Both of the patents-in-suit stem from applications filed prior to March 16, 2013. No party has taken the position that any claim qualifies for post-AIA treatment. Accordingly, citations throughout will be to the pre-AIA version of the statute.

Court finds that one of ordinary skill in this art would have an electrical engineering degree and three years of relevant experience.

II. AGREED TERMS

In their May 5, 2020 Joint Claim Construction Chart Pursuant to P.R. 4-5(d) (Dkt. No. 79-1), the parties have reached agreement as to the following terms:

Claim Term	Parties' Agreed Construction
D1: "the database" '805 claims: 1, 9, 18, 24 '339 claims: 1, 5, 14	Plain and ordinary meaning
D4: "the modified data file(s)" '805 claims: 1, 9, 24	Plain and ordinary meaning
D7: "the lens focal length" '805 claims: 9, 24	Plain and ordinary meaning
D12: "the camera database" '339 claims: 5	Plain and ordinary meaning

Claim Term	Parties' Agreed Construction
D16: "database management system" '805 claims: 1, 9, 18, 24 '339 claims: 1, 14	Plain and ordinary meaning
D18: "procedure" '805 claims: 1, 9, 18, 24	Plain and ordinary meaning
P1/D24: "a diffusion function of soft effect" '805 claims: 3, 20	Plain and ordinary meaning
D41: "the digital signal processor which applies at least one filtration algorithm to optimize the image and corrects the at least one optical aberration at the specific focal length in the zoom lens configuration" '339 claim: 14	Plain and ordinary meaning

III. DISPUTED TERMS

Because of the number of terms in dispute, the Court will utilize the D# and P# term codes utilized in the parties' May 5, 2020 Joint Claim Construction Chart Pursuant to P.R. 4-5(d). (Dkt. No. 79-1). In addition, the Court will address the terms in the order presented by the parties at the hearing.

<u>Group I</u>

A. P2/D23: "a color enhancing function"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
P2/D23: "a color enhancing function" '805 claims: 2, 19	Proposed construction: color changes to an image	Proposed construction: a special effects function that introduces color changes into the image in the data file

1. The Parties' Positions

The parties agree that "a color enhancing function" should be at least partly construed as "color changes to an image." Plaintiff proposed that construction, and Defendant includes that concept but seeks to also include additional limitations regarding how the color changes must be done and where the changes are stored.

2. Analysis

Much of the additional detail Defendant seeks to add into the construction of "a color enhancing function" is included within other limitations of the claims. The subject term appears in claims 2 and 19 which depend from claims 1 and 18 respectively, and both recite that an algorithm is applied "to a data file in order to satisfy a user specified special effects function." '805 Patent at 37:15-17, 40:26-28. There appears to be no need to add the details urged by Defendant, and doing so risks creating a redundancy that suggests a portion of the construction is superfluous, which is disfavored in claim construction. *Becton, Dickinson and Co. v. Tyco Healthcare Group, LP*, 616 F.3d 1249, 1257 (Fed. Cir. 2010); *Elekta Instrument S.A. v. O.U.R. Scientific Int'l, Inc.*, 214 F.3d 1302, 1305–07 (Fed. Cir. 2000).

The Court accordingly hereby construes "a color enhancing function" to mean "color changes to an image."

B. P3: "stop"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
P3: "stop" '339 claims: 3, 18	Proposed construction: a measure of exposure relating to the amount of light reaching the camera sensor	Proposed construction: an increment reflecting a halving or doubling of light exposure

At the May 20, 2020 hearing, the parties presented oral arguments as to this term and agreed that Defendant's proposal was correct. The Court accordingly hereby construes "stop" to mean "an increment reflecting a halving or doubling of light exposure."

C. P4: "vignetting"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
P4: "vignetting" '339 claims: 3, 15, 18	Proposed construction: darkening the corners of an image	Proposed construction: a type of aberration in which the corners of an image are exposed a stop less than the image's center area

1. The Parties' Positions

Plaintiff proposes a construction of "vignetting" as "darkening the corners of an image." (Dkt. No. 69 at 26.) Defendant takes the position that the patentee acted as his own lexicographer to define the term in the specification as, "[i]n the case of vignetting, a type of aberration in which the corners of an image are exposed a stop less than the image's center area, . . ." (Dkt. No. 73 at 26 citing '805 Patent at 9:60-63.)

2. Analysis

Defendant's proposal comes from a statement in the '805 Patent at 9:60-63. While the character of this statement is somewhat oblique, it does provide some indication of how the term

would be defined by one of ordinary skill. At the same time, the law counsels that importing limitations from the specification risks error. *See, e.g., Phillips*, 415 F.3d at 1323. Both parties seem to accept that "vignetting" involves darkening of the edges of an image. Defendant's proposal introduces quantitative character to the construction, but the patentee here was not so explicit. Accordingly, the Court hereby construes "vignetting" to mean "an effect in which the edges of an image are darker than the image's center."

D. D35: "identify[ing] specific optical aberrations"/ "identify at least one optical aberration"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D35: "identify specific optical aberrations" '805 claims: 1, 9, 18, 24 '339 claims: 1, 14	Proposed construction: plain and ordinary meaning	Proposed construction: identify… by using a database to compare an image aberration to reference images

1. The Parties' Positions

Plaintiff argues that one of ordinary skill would understand the terms "identify[ing] specific optical aberrations" and "identify at least one optical aberration" according to their plain and ordinary meaning. (Dkt. No. 69 at 26.) Plaintiff maintains that the language of the apparatus claims "refer[s] to having the capability to identify one or more specific aberrations to be corrected," and the language of the method claims refers to the "step of identifying one or more aberrations to be corrected." (*Id.*) Plaintiff specifically cautions that Defendant's proposed constructions exclude disclosed embodiments and reads in limitations from the specification such as "using a database," "compar[ing] an image," and "reference images." Finally, Plaintiff responds to the prosecution history arguments raised by Defendant, criticizing both the content of

Defendant's expert's opinions, and the qualification of Defendant's expert to comment on prosecution history.

Defendant relies on prosecution disavowal in urging that "identifying specific optical aberrations" must be limited to "identifying specific optical aberrations by using a database to compare an image aberration to reference images." (Dkt. No. 73 at 24–25.) Defendant argues that the patentee distinguished his invention in an August 23, 2012 amendment in the '339 patent prosecution by arguing that "[t]he present invention identifies the optical aberrations by using a database to compare image aberration to reference images." (*Id.* citing Dkt. No. 73-7, Ex. G at 13.) Defendant asserts that this statement constitutes a clear and unmistakable disavowal of systems and methods that identify aberrations without using a database to compare images, and this disavowal applies equally to the earlier filed and issued '805 patent. (Dkt. No. 73 at 25.)

2. Analysis

The parties do not seem to dispute that the underlying phrase "identifying specific optical aberrations" would be clear and unambiguous to one of ordinary skill. As such, Defendant's sole basis to urge the addition of limitations relating to the comparison to images in a database is through disclaimer. As the parties acknowledge, the standard for prosecution history disclaimer is that the restriction of claim scope must be "clear and unmistakable" to one of ordinary skill in the art. *Elbex Video, Ltd. v. Sensormatic Elecs. Corp.*, 508 F.3d 1366, 1371 (Fed. Cir. 2007) (quotations omitted); *Avid Tech. Inc. v. Harmonic, Inc.*, 812 F.3d 1040, 1045 (Fed. Cir. 2016). Prosecution disclaimer can arise from arguments made to the patent office during prosecution. *Biogen Idec, Inc. v. GlaxoSmithKline LLC*, 713 F.3d 1090, 1095 (Fed. Cir. 2013). In evaluating whether disclaimer arises from prosecution statements, the statements must be considered in the context of the entire prosecution. *Mass. Inst. of Tech. v. Shire Pharms., Inc.*, 839 F.3d 1111, 1119

(Fed. Cir. 2016). If the challenged statements are ambiguous or amenable to multiple reasonable interpretations, prosecution disclaimer does not limit the meaning of the claims. *Id*.

Here, the patentee was traversing a rejection over a prior art patent application to Alon, which the patentee characterized as referring to "digital filtration of a specific class of optical aberration with a specific type of digital filter and to the design process of optical elements in a lens apparatus." (Dkt. No. 73-7 at 10.) The patentee goes on to criticize the Alon reference as "solving a completely different set of problems, viz., a process for designers to design camera optics to control image blur, that are unrelated to the present invention." (*Id.*) After two additional pages of criticism of the Alon prior art, the patentee makes the following statement, which Defendant maintains acts as the disclaimer:

> Alon does not refer to the use of a microprocessor and system software to analyze optical aberrations in a digital camera system. Alon is concerned with a specific narrow set of aberration, i.e., image blur, that the present application is not concerned with. The present invention identifies the optical aberrations by using a database to compare image aberration to reference images. Alon does not use a database. In addition, the present invention uses the database (and a microprocessor and software) to identify specific solutions to specific optical aberrations. Once identified, the present invention selects a digital filtration algorithm to apply to the image file by using a DSP. Alon does not use a DSP to apply a filtration algorithm to correct specific optical aberrations.

(Dkt. No. 73-7 at 13.) Defendant's offered disclaimer does not meet the clear and unmistakable standard. Here, the patentee's first thrust is that the Alon prior art "does not refer to the use of a microprocessor and system software to analyze optical aberrations in a digital camera system. Alon is concerned with a specific narrow set of aberration, i.e. image blur, that the present application is not concerned with." (*Id.*) A reasonable interpretation of those sentences is that Alon does not use a microprocessor, does not use system software, and does not analyze optical aberrations but instead is concerned with image blur, which the patentee seems to believe is something other than an optical aberration. The patentee then states, "[t]he present invention

identifies the optical aberrations by using a database to compare image aberration to reference images. Alon does not use a database. In addition, the present invention uses the database (and a microprocessor and software) to identify specific solutions to specific optical aberrations." (*Id.*) The patentee does say that it uses a database, and that Alon does not use a database but it is not clear whether it is the use of the database in the first instance, or the use of the database for a particular purpose that is the point of distinction. Further, the patentee points out that "Alon does not use a DSP to apply a filtration algorithm to correct specific optical aberrations." (*Id.*) In doing so, the patentee raises yet another point of distinction between the claims and the Alon reference. Overall, the level of disclaimer present on this record is insufficient to warrant replacing "identifying specific optical aberrations" with "identifying specific optical aberrations by using a database to compare an image aberration to reference images."

Overall, Defendant has not demonstrated that its proffered disclaimer has redefined the disputed terms in a clear and unmistakable manner. The Court accordingly hereby construes "identify[ing] specific optical aberrations" and "identify at least one optical aberration" to each carry its plain meaning.

E. D36: "system software"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D36: "system software" '805 claims: 1, 9, 18, 24 '339 claims: 1, 14	Proposed construction: plain and ordinary meaning	Proposed construction: software which is executed by the microprocessor that controls the camera system

1. The Parties' Positions

Plaintiff urges a plain meaning construction of this term. (Dkt. No. 69 at 28.) Plaintiff maintains that one of ordinary skill "would understand 'system software' according to its plain

and ordinary meaning simply as software that provides the capabilities recited in the claims." (*Id.*) Plaintiff also points to the specification as confirming the plain and ordinary meaning of this term. (*Id.* citing '339 Patent 1:25-28, 6:38-43, 10:26-36.)

Defendant argues that throughout the claims, the "system software" is used to identify specific optical aberrations, access the database to identify specific corrections to the aberrations, and forward the data from the digital sensor to the digital processor. (*Id.*) Defendant also points out that the system software is executed by the microprocessor in the claims and that its construction is true to the functions listed in the specification and claims for the system software. (*Id.*)

2. Analysis

No party has provided any evidence or argument suggesting that the term "system software" is ambiguous or unclear to one of ordinary skill. Defendant here attempts to read specific functions into what appears to be a common generic term, "system software." Defendant does not allege disclaimer or lexicography. Defendant's citation of various attributes described in the specification does not justify reading such details into the claims; doing so would violate fundamental canons of construction prohibiting reading into the claims limitations from the specification. *See, e.g., Phillips*, 415 F.3d at 1323.

The Court accordingly hereby construes "system software" to have its plain meaning.

F. D37: "selects[selecting] a specific procedure"/D39: "selects a specific procedure to optimize the image and corrects the aberrations"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D37: "selects a specific procedure" '805 claims: 1, 9, 18, 24	Proposed construction: plain and ordinary meaning	Proposed construction: picks [picking] out a specific procedure to correct an optical aberration which corresponds to the identified specific correction, from a plurality of optical aberration correction procedures

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D39: "selects a specific procedure to optimize the image and corrects the aberrations" '805 claims: 1, 9, 18, 24	Proposed construction: plain and ordinary meaning	Proposed construction: picks [picking] out a specific procedure to correct an optical aberration which corresponds to the identified specific correction, from a plurality of optical aberration correction procedures, and corrects the aberrations by using the specific procedure

1. The Parties' Positions

Plaintiff argues that one of ordinary skill "would understand this claim language according to its plain and ordinary meaning as reflecting that the claimed inventions select a procedure to correct an image and in turn use the selected procedure to perform the correction." (Dkt. No. 69 at 29.) Plaintiff points to the specification where it discusses various ways to correct aberrations according to the capabilities of the recited systems and the steps of the recited methods. (*Id.* citing '805 Patent Figs. 2, 5, 7, 8, 10-15, 22, 24-29, 31, 32, 35; 10:3-11.) Plaintiff also relies on the discussion in the specification that "[d]ifferent types of aberrations require different types of filtration…." (*Id.* citing '805 Patent 31:50-54.)

Defendant counters with two sets of possible claim limitations and corresponding specification citations. (Dkt. No. 73 at 27–28.) Defendant cites different selection functions from

the specification and suggests that the claims be construed consistent with the specific selection procedures set forth in the specification as a way to resolve the ambiguity left open in the claims.[2] (*Id.*)

2. Analysis

Defendant once again does not dispute that the claim phrases at issue are unclear or ambiguous. Instead, Defendant asks that greater detail be drawn into the claim construction from the specification to give greater correspondence between the claims and the specification, which would violate claim construction canons. *See, e.g.*, *Phillips*, 415 F.3d at 1323.

The Court declines to do so, and accordingly hereby construes "selects [selecting] a specific procedure" and "selects a specific procedure to optimize the image and corrects the aberrations" to each carry its plain meaning.

G. D38: "algorithm"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D38: "algorithm" '339 claims: 1, 3, 4, 14, 16, 18	Proposed construction: plain and ordinary meaning	Proposed construction: software that contains a finite sequence of steps for solving a logical or mathematical problem or performing a task

1. The Parties' Positions

Plaintiff seeks a plain and ordinary meaning construction of "algorithm" as "one or more of the ways in which aberrations in images captured by the sensor may be corrected as described

[2] The Court perceives Defendant's argument to be a written description defense, which is not appropriate at claim construction.

in the specification." (Dkt. No. 69 at 29–30.) Plaintiff further clarifies that the plain meaning understanding of "algorithm" would be consistent with the meaning of the term "procedure." (*Id.*)

Defendant asserts that any appropriate construction of "algorithm" must clarify that the claimed algorithm must be comprised of software. (Dkt. No. 73 at 28–29.) Defendant disputes that one of ordinary skill would understand that the term "algorithm" might refer to one or more of the ways in which aberrations in images captured by the sensor may be corrected as described in the specification, without limiting the algorithm to a software implementation. Defendant relies heavily on '339 Patent claim 14, which provides "wherein the image file is forwarded to the digital signal processor which applies at least one filtration algorithm to optimize the image and corrects the at least one optical aberration . . . ." (*Id.*) Defendant reasons that one of ordinary skill knows that "a DSP is a specific type of processor dedicated to performing digital signal processing that executes instructions according to software programs and algorithms stored in memory. (*Id.*) Defendant points to the specification and prosecution history which describe the algorithms for correcting aberrations as software. (*Id.*)

2. Analysis

Defendant's primary argument here is that an "algorithm" must run on a processor and therefore must be software. However, the claims specifically reference a digital signal processor, which often carries out functions through a set of hard wired circuitry. As Plaintiff's expert notes, the specification discusses many different ways of accomplishing the various functions claimed using hardware in addition to software: "digital filtration is performed by employing the DSP hardware as well as specific software in order to attain specific aberration corrections." (Dkt. No. 69-D, citing '805 Patent 31:1-3.) These functions include mathematical functions where signals are filtered and manipulated: "[o]ne example of a digital filtration process is a fast Fourier

transform (FFT). The digital signal is modified by applying an algorithm to extract the frequency spectrum. The original function is then reconstructed by an inverse transformation of the original signal. The signal can be manipulated to perform various conversions." (*Id.* citing ’805 Patent 31:11-16.) There appears to be no basis to restrict the plain meaning of “algorithm” to a software-only construction.

The Court accordingly hereby construes “algorithm” to have its plain meaning.

H. D40: “a user specified special effects function”

Claim Term	Plaintiff’s Proposal	Defendant’s Proposal
D40: “a user specified special effects function” ’805 claims: 1, 18	Proposed construction: a user-selectable digital filter	Proposed construction: a user specified function that deliberately creates photographic distortions

1. The Parties’ Positions

Plaintiff proposes a construction for this term, “a user-selectable digital filter.” (Dkt. No. 69 at 30.) Plaintiff relies on the specification consistently describing “special effects in the context of the claims as user-selectable filters that may soften the focus, alter the colors, or otherwise change the image that is captured by the camera. (*Id.* citing ’805 Patent Figs. 11, 14, 12:45-65, 14:61-15:44, 32:40-48, 65-67, 33:15-21.) Plaintiff takes issue with Defendant’s “distortion” proposal, characterizing it as contradicting the specification because the chart in Col. 12 of the ’805 Patent lists “filter types that provide digital methods of correcting image problems or creating specific effects” and these filters are not limited to creating distortions as Defendant proposes. (*Id.*)

Defendant's proposed construction is "a user specified function that deliberately creates photographic distortions." (Dkt. No. 73 at 29–30.) Defendant maintains that the claimed "user specified special effects" function cannot be a digital filter because claims 1 and 18 of the '805 patent expressly distinguish between "a user specified special effects function" and an aberration correction technique applied through digital filtration. (*Id.*) Defendant points out that different terms that appear in a claim are generally presumed to have different meanings, and thus the user specified special effects function must be different from the digital filtration used to correct image aberrations.

2. Analysis

Neither side presents a compelling case for construction of this term beyond plain and ordinary meaning. Both parties appear to import limitations from the specification, without support, and neither proposal is more jury-accessible than the claim language itself. Plaintiff's proposal conflicts with other recitations in the same claims that relate to filters and filtration. *See, e.g.,* '805 Patent 36:57-60. Defendant's proposal violates basic claim construction maxims by constraining the claim to a preferred embodiment without intrinsic record support for doing so. *See Phillips,* 415 F.3d at 1323.

The Court therefore finds the term "a user specified special effects function" to have its plain meaning.

<u>Groups 2/3</u>

The Group 2 and Group 3 terms share the common schematic that Defendant mounts an indefiniteness challenge to each term, primarily based on what Defendant says are antecedent basis defects or specific ambiguities in the claims at issue. Defendant argues that the patentee failed to follow standard claim drafting practices that each term in a claim should be introduced

affirmatively, followed by references to that term that begin with "said" or "the" through the rest of the claim. *See* Manual of Patent Examining Procedure 2173.05(e) Lack of Antecedent Basis (January 2018). Defendant is correct that the U.S. Patent Office practice supports rejection of claims with antecedent basis defects. *Id.* However, violation of Patent Office practice does not constitute *per se* grounds for invalidity; instead, before a district court the law requires a clear and convincing showing that one of ordinary skill cannot reasonably ascertain claim scope. *Nautilus*, 572 U.S. at 910. It may be that antecedent basis defects or other errors are so profound that they produce an unresolved ambiguity, but Defendant makes no such showing for the terms offered for construction. Moreover, for almost all of these terms, Defendant offers an alternative construction that it sponsors in the event the offered term is not found indefinite. Defendant does not explain how it was able to reach its alternative constructions in the face of what it perceives as an unresolvable ambiguity in the claim terms. Defendant's expert offers an opinion that one of ordinary skill would conclude that each of its alternative constructions are appropriate, and thus that persons of ordinary skill are reasonably able to ascertain claim scope. At bottom, indefiniteness must be proven pursuant to the reasonable claim scope standard articulated in *Nautilus* and Defendant has not carried its clear and convincing burden.[3]

[3] The fact that the Court does not find a claim invalid does not permit Plaintiff to ignore the antecedent references in the claims. Every limitation in a claim is presumed to have significance and at trial Plaintiff must demonstrate infringement of an end-to-end system that includes each limitation in the asserted claims, and Defendant must similarly demonstrate invalidity of every limitation. *Limelight Networks, Inc. v. Akamai Techs., Inc.*, 572 U.S. 915 (2014) ("Each element contained in a patent claim is deemed material to defining the scope of the patented invention . . .)" *citing Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*, 520 U. S. 17, 29 (1997); *In re Gulack*, 703 F.2d 1381, 1385 (Fed. Cir. 1983).

I. D2: "the data"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D2: "the data" '805 claims: 1, 9, 18, 24	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite Alternative proposed construction: image data from the digital sensor

1. The Parties' Positions

Defendant challenges the definiteness of this term on two grounds. First, that the term is used inconsistently throughout the claims and specification. (Dkt No. 73 at 3–5.) Second, Defendant asserts that the term is used with no antecedent basis, compounding the ambiguity of the term. (*Id.*) Plaintiff responds that the claims themselves indicate that "the data" may contain various types of information, but are "data" nevertheless, citing claims 1 and 9 of the '805 Patent. (Dkt. No. 69 at 8.)

2. Analysis

Defendant's issue with consistency is answered by examination of the overall claim language. The claims are directed toward a pipelined system where system elements act on an image. At each stage, the image changes, and because this is a digital system, the data representing that image changes. For example, claim 1 of the '805 patent begins with an overall recitation of the image pipeline—a digital camera mechanism, an optical lens mechanism, a digital sensor, a microprocessor, a digital signal processor, an application specific integrated circuit, system software, a database management system, and a memory storage sub-system. '805 Patent at 36:51-55. The claim then introduces particular limitations describing the flow of information between these elements and predictably, "the data" changes as it moves through the circuitry designed to

correct and modify that data. Rather than creating an inconsistency, the claims recognize that the data can and should be altered as the claimed image correction system acts on the image.

As for the antecedent basis issue, as noted above, Defendant's indefiniteness challenge requires a clear and convincing showing that one of ordinary skill cannot reasonably ascertain claim scope. *Nautilus*, 572 U.S. at 910. Defendant makes no such showing, and its expert's opinion that Defendant's alternative proposed construction is appropriate suggests that those of ordinary skill can ascertain claim scope. In the end, Defendant has not proven indefiniteness under the standard articulated in *Nautilus* by clear and convincing evidence.

The Court accordingly hereby construes "the data" to have its plain meaning.

J. D3: "the image"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D3: "the image" '805 claims: 1, 9, 18, 24 '339 claims: 3, 14, 18	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite Alternative proposed construction: an image captured by the digital sensor

1. The Parties' Positions

Defendant challenges the definiteness of this term on two grounds. First, Defendant asserts that this term is indefinite because it is used inconsistently throughout the asserted claims and specification. (Dkt. No. 73 at 5-6.) Defendant argues that in claim 1 of the '805 patent, "the image" appears in the following limitation, "wherein the digital signal processor selects a specific procedure to optimize the image and corrects the aberrations." (Dkt. No. 73 at 5-6, citing '805 Patent at 37:1-3.) Defendant argues that there is no antecedent basis in the claims for "the image," rendering the claim indefinite. (Dkt. No. 73 at 5-6.) Second, Defendant also argues that the

specification recites various types of images and relies on its expert's opinion that the term is ambiguous. (Dkt. No. 73-1, Prentice Dec. at ¶¶ 27-29.)

Plaintiff counters with the argument that a person of ordinary skill would understand the term "the image" according to its plain and ordinary meaning to refer to an image that may be captured by the device. (Dkt. No. 69 at 8-9.) Plaintiff relies on its expert in support of the notion that "the image" is readily understood in the art. (Dkt. No. 69-D at ¶¶ 18-19.) Plaintiff points to the description in the specification describing the optimization of "the image" as the fundamental goal of the invention. *See, e.g.,* '805 Patent at Figures 7, 11-15, 22, 24-27, 31 and 34, and 6:32-59, 9:60-10:25, 14:5-27, 15:25-38, 16:30-45, 17:16-24, 22:23-34, 32:40-47, 33:1-31. Finally, Plaintiff points out that "the image" is a readily understood English term that carries no specialized meaning. (Dkt. No. 69 at 8-9.)

3. Analysis

Defendant's indefiniteness challenge is resolved through the recognition that the patents-in-suit are directed toward capturing and correcting an image. The claims reflect this fundamental concept throughout, as a system that takes in images containing errors, and through a series of processing blocks, corrects those errors. No party suggests that one of ordinary skill would not understand "the image" as a plain English term despite the fact that the content of "the image" may change as an image moves through the system and is corrected. As to Defendant's antecedent basis challenge, the preamble does include "A digital imaging system for image filtration comprising:" which does introduce the term "image." Even without that recitation, the whole of the claim is directed to the capture and processing of an image, and Defendant has not carried its clear and convincing burden to show that one of ordinary skill could not reasonably ascertain the scope of the claim pursuant to *Nautilus*.

The Court accordingly hereby construes "the image" to have its plain meaning.

K. **D5: "the original optical image"**

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D5: "the original optical image" '805 claims: 1, 9 '339 claims: 1, 14	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite Alternative proposed an unaltered image captured by the digital sensor

1. The Parties' Positions

Plaintiff relies primarily on the claim language itself in arguing that "the original optical image" should be construed according to its plain and ordinary meaning. (Dkt. No. 69 at 9.) Plaintiff explains that the plain meaning of this term refers to "an uncorrected image in contrast to the corrected/modified image and/or data." (*Id.* citing Dkt. No. 69-D, Brogioli Dec. at ¶¶ 22-23.) The Plaintiff further argues that the specification supports this plain meaning and cites, "[a]n effective software solution is one which brings the optical image quality to a level consistent with a benchmark…" and asserts that the "original image" is understood to be "the original uncorrected image prior to processing." (*Id.* citing '805 Patent 6:39-42, 10:26-35 and Dkt. No. 69-D, Brogioli Dec. at ¶ 23.)

Defendant argues that "the original optical image" contain aberrations corrected by the claimed system because earlier limitations recite the mechanisms that "optimize[s] the image and corrects the aberrations." (Dkt. No. 73 at 6.) Defendants assert then that the claim includes "some relationship between 'the image' and 'the original optical image,' but a POSA would not know

whether these terms are the same, or different, or how they are different." (*Id.*) Defendant asserts that this lack of clarity renders the claim indefinite.

2. Analysis

Defendant is correct that the upshot of the claimed system is to correct errors that exist in an image upon capture. Defendant is also correct that this limitation sits in a final wherein clause at the end of the claim, after any such corrections are made: "wherein the modified data file consisting of the digital data optimized from the aberrations that are corrected from the original optical image is stored in memory." *See, e.g.,* '805 Patent at 37:12-14. Defendant's argument then fails because the reference to the "aberrations . . . corrected from original optical image" naturally comports with the plain meaning of the term "original optical image" as advocated by the Plaintiff. Indeed, the entirety of the claimed system seems directed toward the progress of an image from its initial captured state to its final corrected state. Overall, Defendant has not carried its clear and convincing burden to show that one of ordinary skill could not reasonably ascertain the scope of this claim.

The Court accordingly hereby construes "the original optical image" to have its plain meaning.

L. D6: "the digital data"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D6: "the digital data" '805 claims: 1, 9 '339 claims: 1, 14	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite Alternative proposed construction: image data from the digital sensor

1. The Parties' Positions

Plaintiff argues that "the digital data" should be construed according to its plain and ordinary meaning. (Dkt. No. 69 at 10.) Plaintiff points to the claim language itself where the term appears in similar contexts such as: "wherein the modified data file consisting of the digital data optimized from the aberrations that are corrected from the original optical image is stored in memory." (*Id.*) Plaintiff also argues that "the claims describe a system capable of processing an image or data file to correct aberrations." (*Id.*) Plaintiff then reasons that one of ordinary skill "would understand that the term 'digital data' is used, according to its plain and ordinary meaning, to denote digital information within the modified file or image." (*Id.* citing Brogioli Dec. at ¶ 24). Plaintiff also relies on an example from the specification which calls out different uses of "digital data" in reference to digital information within an image file, "with more detail in the original image, it is possible to interpolate the digital data in the image file … to gain an additional stop or two of tonal range." (*Id.* citing '805 Patent 14:23-26.) In response to the Defendant's positions, Plaintiff asserts that Defendant's expert supports reading limitations in from the specification. (*Id.*)

Defendant argues that the distinction between the terms "digital data," "optical data," "digital and optical data," and "the data" is unclear and that this leaves one of ordinary skill unable to ascertain the scope of the claims. (Dkt. No. 73 at 7.) Defendant further argues that the term "digital data" itself is used inconsistently from limitation to limitation, citing as examples from claim 1 of the '805 patent: (1) "wherein the microprocessor is used to provide digital and optical data to the digital signal processor"; and (2) "wherein the modified data file consisting of the digital data optimized from the aberrations that are corrected from the original optical image is stored in memory." (*Id.* citing '805 Patent at 36:48-37:14). Defendant challenges Plaintiff's argument, suggesting that Plaintiff is giving the term two different meanings within the same claim depending

on which limitation the term appears in. (*Id.*) Defendant argues that Plaintiff's plain meaning of the term "the digital data" means both "digital information within the modified file or image" and "data related to an image that may be captured by the digital sensor." (*Id.* at 7-8.) Defendant argues that this inconsistency violates construction rules requiring that the same claim term should be afforded the same construction across claims. (*Id* at 8.) Finally, Defendant posits that the specification offers no guidance to one of ordinary skill regarding how to resolve the ambiguities in this claim term. (*Id.*)

2. Analysis

Plaintiff is correct that the claims at issue are directed to a system for correcting errors in a captured digital image. The claim language tracks data as it is moved through the system, being modified and corrected along the way, e.g. "wherein the system software forwards the data from the digital sensor to the digital processor," and "wherein the modified data file consisting of the digital data optimized from the aberrations that are corrected from the original optical image is stored in memory." '805 Patent at 36:66-67, 37:12-15. One of ordinary skill would understand that the term "digital data" is used to mean digital information as it moves through the system. As stated by Plaintiff's expert, "[t]he term digital data is simply used to denote digital information within the modified file or image and a POSA would understand that to be the case." (Dkt. No. 69-D, ¶24.)

Overall, Defendant has not carried its clear and convincing burden to show that one of ordinary skill could not reasonably ascertain the scope of this claim.

The Court accordingly hereby construes "the digital data" to have its plain meaning.

M. D17: "digital and optical data"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D17: "digital and optical data" '805 claims: 1, 9, 18, 24	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite Alternative proposed construction: image data from the digital sensor

1. The Parties' Positions

Plaintiff argues that one of ordinary skill would have no trouble understanding the term "digital and optical data" according to its plain meaning. (Dkt. No. 69 at 16). Plaintiff maintains that a skilled artisan "would understand this term to refer to data related to the image captured by the digital sensor consistently with the terms "the image file" and "the digital file" . . ., and data related to the aberrations that may be present in the image." *Id.* Plaintiff further asserts that a skilled artisan "would expect this data to be provided to the DSP for processing according to the capabilities recited by the claims at issue and the patent's specification and would understand the term in accordance with its plain and ordinary meaning. *Id.* citing (Dkt. No. 69-D (Brogioli Dec. at ¶ 28c)).

Defendant argues that these terms are indefinite because they lack antecedent basis and one of ordinary skill would not know how to differentiate the two terms, or several other claim terms such as "digital data," "the data," and "the image." (Dkt. No. 73 at 14-15.) Defendant cites the following portions of claim 9 of the '805 patent, "wherein the microprocessor is used to provide digital and optical data to the digital signal processor" in contrast with, "wherein the digital signal processor selects a specific procedure to optimize the image and corrects the aberrations" to show ambiguity. (Dkt. No. 73 at 15). Finally, Defendant accuses Plaintiff of proposing different plain and ordinary meanings for the terms. *Id.*

2. Analysis

No party has taken the position that the plain meaning of "digital and optical data" is unclear to one of ordinary skill. The claim language itself is straightforward, "providing digital and optical data to a digital signal processor…." The claim describes the provision of data to the digital signal processor as part of the overall claimed system. Defendant's perceived conflict in the claim is unfounded. The passages cited by Defendant from claim 9 of the '805 patent, "wherein the microprocessor is used to provide digital and optical data to the digital signal processor" and, "wherein the digital signal processor selects a specific procedure to optimize the image and corrects the aberrations" simply seem to be different parts of the image correction pipeline where data is provided to the digital signal processor and then the image represented by that data is optimized and corrected. (Dkt. No. 73 at 15).

As to Defendant's antecedent basis challenge, Defendant once again fails to illustrate an unresolved ambiguity that would prevent one of ordinary skill from reasonably interpreting the scope of the claims. It is not enough to suggest that the terms are subject to different interpretation; *Nautilus* is clear in its demand that the test for invalidity is whether one of ordinary skill would not be able to resolve differences and reasonably interpret the claim. Here, the use of standard terms such as "digital and optical data" seems well within the capability of one of ordinary skill. Moreover, the fact that the content of that data may change as the system works through its stages does not create an intractable ambiguity. Instead, such changes are the natural consequence of the claimed aberration correction system. (Dkt. No. 69-D, Brogioli Dec. at ¶ 29a ("A POSA would read this claim term in the context of the claims as a whole and in light of the problem that the inventor sought to solve, the correction of aberrations in images. The specification describes that numerous sources of information may be used in connection with the image processing capabilities

or steps recited by the claims to correct aberrations. A POSA would understand the term "optical data" to refer to information used in connection with the digital image data in order to correct aberrations in the images.").)

Overall, Defendant has not carried its clear and convincing burden to show that one of ordinary skill could not reasonably ascertain the scope of this claim.

The Court accordingly hereby construes "digital and optical data" to have its plain meaning.

N. D26: "optical data"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D26: "optical data" '805 claims: 1, 9, 18, 24	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite Alternative proposed construction: image data from the digital sensor

1. The Parties' Positions

Plaintiff argues that one of ordinary skill would read and understand the term "optical data" in the context of the claims as a whole and the problem that the inventor sought to solve, namely, the correction of aberrations in images. Plaintiff asserts that one of ordinary skill would understand the term "optical data" to mean "information used in connection with the digital image data in order to correct aberrations in the images." (Dkt. No. 69 at 21, citing Dkt. No. 69-D, Brogioli Dec. at ¶ 29a.) Plaintiff further relies on the specification as confirmation of the plain meaning of this term citing Figure 4 of the '805 Patent as showing "an embodiment in which lens data is stored in a database" and then citing a further description, "FIG. 4 shows a list of several different

wide-angle lenses in a database…. Each lens type presents a distinct formulation involving different sets of optical data that require different aberration corrections." (Dkt. No. 69 at 21, citing '805 Patent 30:38-43.)

Defendant challenges the definiteness of "optical data" primarily because the claims do not adequately define and distinguish "optical data" from "digital and optical data" or "data." (Dkt. No. 73 at 14-15.) Defendant asserts that this failure renders the entire claim indefinite for ambiguity.

2. Analysis

Defendant does not argue that the phrase "optical data" would be unclear or ambiguous to one of ordinary skill. Instead, Defendant's objection is a desire to require greater specificity surrounding the term "optical data" and its relationship with other claim elements. Defendant seeks additional specificity that the claim does not provide, and it would be improper to read in such specificity from the specification, assuming it existed. The claim term "optical data" is not unclear and its plain meaning suffices. As with all other claim elements, Plaintiff will be required to show that each and every element of the claims exists in the accused systems to prevail on infringement. *Limelight*, 572 U.S. at 915 ("Each element contained in a patent claim is deemed material to defining the scope of the patented invention . ..)" *citing Warner-Jenkinson*, 520 U. S. at 29; *In re Gulack*, 703 F.2d 1381, 1385 (Fed. Cir. 1983). Overall, Defendant has not carried its clear and convincing burden to show that one of ordinary skill could not reasonably ascertain the scope of this claim.

The Court accordingly hereby construes "optical data" to have its plain meaning.

O. D8: "the image file"/ D13: "the file"/ D11: "the modified image file"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D8: "the image file" '339 claims: 1, 14	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite Alternative proposed construction: a file that contains image data that was captured by the digital sensor

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D13: "the file" '339 claim: 14	Proposed construction: plain and ordinary meaning	Proposed construction: Same construction as "the image file"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D11: "the modified image file" '339 claim: 14	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite No alternative proposed construction

1. The Parties' Positions

Plaintiff argues that "the image file" should be given its plain meaning, referring generally to "data related to an image that may be captured by the digital sensor." (Dkt. No. 69 at 11, citing Dkt. No. 69-D, Brogioli Dec. at ¶ 20.) Plaintiff points to two instances in the claims themselves in support: "wherein when the image file is captured by the digital sensor the digital file is forwarded to the digital signal processor," (Claim 1) and "wherein the microprocessor uses system software to access the database to identify at least one optical aberration in the image file..." (Claim 14). *Id.* Plaintiff relies on the specification for plain meaning, citing "unfiltered image files" in

connection with the aberration correction systems and methods recited by the relevant claims. '339 Patent 6:54-58, 14:22-25. Plaintiff also assert that the "term 'the modified image file' should also be construed according to its plain and ordinary meaning consistent with 'the image file.'" (Dkt. No. 69 at 11-12.) Plaintiff asserts that the term "the modified image file" would be understood in the art "to mean 'the image file,' as processed according to the capabilities of the claim elements." (*Id.*)

Defendant takes the position that this term is indefinite because the claims do not adequately differentiate "image file" from "the image," "the data," "the original optical image," "digital data," and "digital and optical data." (Dkt. No. 73 at 8.) Defendant argues that Plaintiff's definition of "the image file" is generally "data related to an image that may be captured by the image sensor." (*Id.* at 8-9.) Defendant then complains that Plaintiff does not explain the difference between "the image file" and "the image." (*Id.* at 9.) Defendant also argues that the specification does not clarify the term, and "confuses the issue by having the term "image file" refer to various different types of files, including files that are stored in memory." (*Id.*)

The parties have agreed that the construction of "the file" should be the same as "the image file." (Dkt. No. 69 at 10; Dkt. No. 73 at 8.)

2. Analysis

Defendant's arguments seem tied to its perceived ambiguity over the difference between "the image file" and "the image." It is true that the patentee introduces the concept of an image file indirectly— "wherein when the image file is captured by the digital sensor the digital file is forwarded to the digital signal processor"— without affirmatively reciting the image file as a separate element. However, in the context of the system of the patents-in-suit which store data in a file structure, the distinction between "the image file" and "the image" is not difficult and is

resolved within the claim contextually. The Defendant's expert, Dr. Prentice, seems to readily recognize that the term "image file" is well understood in the art, and is well-supported in the specification. (Dkt. No. 73-1, Prentice Dec. at ¶49 ("In the specification, the term "image file" usually refers to the file that is stored in memory and, optionally, organized by metadata in an external database. *See, e.g.,* Fig. 12; Fig. 22; Fig. 35; col. 28:43-46; col. 28:61-63; col. 29:30-32; col. 29:36-40; col. 31:19-21; 31:54-62; col. 34:36-38; col. 36:27-30.")) Dr. Prentice opines that the claimed reference to "the image file" is unclear apparently because the claims do not say that the file is "stored in memory" and "it is sent directly from the digital sensor to the digital signal processor." (*Id.*) However, at no point in his declaration does Dr. Prentice suggest that the term "image file" is not well understood to those in the art or in need of further clarification save for Defendant's desire for additional specificity.

As to "the modified image file," the limitation in question recites, "the image file is captured by the sensor…wherein the image file is forwarded to the digital signal processor which applies at least one filtration algorithm to optimize the image… wherein the modified image file consisting of the digital data optimized… is stored in memory." '339 Patent at 39:32-34. The claim language itself makes clear that "the modified image file" is just what those words describe—the image file after it has been modified in the context of the overall claim. No further construction is required.

To the extent Defendant relies on its antecedent basis challenges, Defendant fails to demonstrate any ambiguity that one of ordinary skill cannot resolve. Overall, Defendant has not carried its clear and convincing burden to show that one of ordinary skill could not reasonably ascertain the scope of this claim.

The Court accordingly hereby construes "the image file," "the file," and "the modified image file" to each carry its plain meaning.

P. D9: "the digital file"/D10: "the modified digital file"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D9: "the digital file" '339 claim: 1	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite Alternative proposed construction: a file that contains image data that was captured by the digital sensor

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D10: "the modified digital file" '339 claim: 1	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite No Alternative construction proposed

1. The Parties' Positions

Plaintiff contends that one of ordinary skill would readily understand the terms "the digital file" and "the modified digital file" in claim 1 of the '339 Patent according to their plain meanings. (Dkt. No. 69 at 12.) Plaintiff's expert defines "digital file" as "data related to an image that may be captured by the digital sensor." (Dkt. No. 69-D at ¶20.) Plaintiff's expert then defines "modified digital file as, "the digital file," as one "processed according to the capabilities of the claim elements recited in claims 1 and 14 of the '339 Patent." (*Id.*) Plaintiff further cites the specification for the proposition that one of ordinary skill would have a plain and ordinary meaning

understanding of these claim terms. (Dkt. No. 69 at 12 citing ’339 Patent Fig. 7, steps 700-740; 31:49-54.)

Defendant argues that one of ordinary skill cannot understand how the scope of “the digital file” differs from the scope of other terms such as “the image file,” “the image,” “the data,” “the original optical image,” “digital data,” and “digital and optical data” and therefore the term is indefinite. (Dkt. No. 73 at 10.) Defendants assert that the claims lack a required distinction between a “the digital file” and “the image file” in the following limitation: “wherein when the image file is captured by the digital sensor the digital file is forwarded to the digital signal processor.” (*Id.* citing ’339 Patent at 37:51-54, Dkt. No. 73-1 at ¶ 58.) Defendant then reasons that the term “modified digital file” is ambiguous because “digital file” is ambiguous.

2. Analysis

The limitation in question reads, “wherein when the image file is captured by the digital sensor the digital file is forwarded to the digital signal processor.” ’339 Patent at 37:51-54. Defendant is correct that had the term “the digital file” been introduced affirmatively to provide a clearer antecedent basis, the claim would be easier to parse. However, ease of application is not the correct standard. Instead, *Nautilus* asks whether one of ordinary kill can reasonably ascertain the scope of the limitation. Here, neither Defendant nor its expert take the position that “the digital file” is unclear. Nor does Defendant point to any unresolvable ambiguity in the claim resulting from the antecedent basis issue Defendant raises.

As to the “modified digital file” term, the limitation in question actually defines the term. It reads, “wherein the modified digital file consisting of the digital data optimized from the at least one optical aberration that are corrected from the original optical image is stored in memory.” ’339

Patent at 37:58-61. Again, while it would have been more correct to recite the "modified digital file" affirmatively, the definition immediately follows the term and no ambiguity exists.

Overall, Defendant has not carried its clear and convincing burden to show that one of ordinary skill could not reasonably ascertain the scope of this claim for these terms.

The Court accordingly hereby construes "the digital file" and "the modified digital file" to each carry its plain meaning.

Q. D14: "using the application specific integrated circuit and the digital signal processor"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D14: "using the application specific integrated circuit and the digital signal processor" '805 claims: 1, 9, 18, 24	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite Alternative proposed construction: using both the application specific integrated circuit and the digital signal processor to correct the aberrations from the optical lens mechanism by applying digital filtration

1. The Parties' Positions

Defendant asserts that this term is indefinite because one of ordinary skill will not be able to distinguish the roles of the application specific integrated circuit and the digital signal processor in correcting aberrations as claimed. (Dkt. No. 73 at 12-13.) Defendant further argues that other claim limitations further blur the roles of these components such as: "wherein the digital signal processor selects a specific procedure to optimize the image and corrects the aberrations." (*Id.* citing '805 Patent at 37:1-3.) Defendant also asserts that the specification describes only embodiments where the ASIC and the DSP carry out aberration correction independently of one

another, and has no description of using both components together for such a correction. (*Id.* at 13 citing ’805 Patent at 17:36-46, 29:66-30:3, 30:62-67).

Plaintiff asserts that the meaning of the claim language is clear to those of ordinary skill and simply require that the application specific integrated circuit (“ASIC”) and the digital signal processor (“DSP”) are used in connection with the aberration correction recited by the claims. (Dkt. No. 69 at 14.) Plaintiff also relies on the specification in support of a plain meaning understanding of this claim language. (*Id.* at 14-15 citing ’805 Patent 12:2-7, 29:63-30:3, 17:36-38, 17:40-46, 30:62-67, Figs. 5, 7, 8.)

2. Analysis

This is term is found as part of the limitation “wherein the aberrations from the optical lens mechanism are corrected by applying digital filtration by using the application specific integrated circuit and the digital signal processor.” ’805 Patent at 36:57-61. Defendant does not take the position that this phrase is unclear. Instead, Defendant looks back into the specification and argues that it cannot determine the details of the roles of each of the application specific integrated circuit and the digital signal processor. However, the claims include only the requirement that each play a role, and the details of how responsibilities are assigned are not part of the claim limitation. Defendant argues that the specification is unclear as to how both components are used together and so attempts to read in specific details from the specification. Doing so would violate the fundamental prohibition against reading limitations in from the specification. *See Phillips*, 415 F.3d at 1323; *see also Cisco Sys., Inc. v. TQ Delta, LLC*, 928 F.3d 1359, 1364 (Fed. Cir. 2019) (“[I]t is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited.” (quoting *Liebel-Flarsheim Co.*, 358 F.3d at

913)). Defendant seems to be mounting a challenge to the written description support for this limitation. Defendant's written description issues may or may not have merit and presumably will be resolved at some point in this case; however, Defendant has not shown that its written description issues bear on claim construction.

Overall, Defendant has not carried its clear and convincing burden to show that one of ordinary skill could not reasonably ascertain the scope of this claim.

The Court accordingly hereby construes the phrase "using the application specific integrated circuit and the digital signal processor" to have its plain meaning.

R. D15: "the data are forwarded from the digital sensor to the digital signal processor by an application specific integrated circuit image"/"forwarding the data from a digital sensor to a digital signal processor by an application specific integrated circuit"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D15: "the data are forwarded from the digital sensor to the digital signal processor by an application specific integrated circuit"/ "forwarding the data from a digital sensor to a digital signal processor by an application specific integrated circuit" '805 claims: 1, 18	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite Alternative proposed construction: the application specific integrated circuit receives data from the digital sensor and transmits it to the digital signal processor

S. D28: "wherein the system software forwards the data from the digital sensor to the digital processor" / "wherein the data are forwarded from the digital sensor to the digital signal processor by an application specific integrated circuit" / "the microprocessor is used to provide digital and optical data to the digital signal processor"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D28: "wherein the system software forwards the data from the digital sensor to the digital processor" / "wherein the data are forwarded from the digital sensor to the digital signal processor by an application specific integrated circuit" / "the microprocessor is used to provide digital and optical data to the digital signal processor" '805 claims: 1, 9, 18, 24	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite Alternative proposed construction: wherein the data from the digital sensor is forwarded or provided to the digital signal processor by the system software; by the microprocessor; and by the application specific integrated circuit

1. The Parties' Positions

Plaintiff argues that these limitations are readily understood by those of ordinary skill when read in the context of the claims as a whole and the specification. (Dkt. No. 69 at 14-15, 22-23.) Plaintiff relies on the specification showing the general processing flow of the claimed system. (*Id.* citing '805 Patent at 30:23-27, 31:44-49.) Plaintiff argues that this kind of processing flow includes "forwarding" data between components and this would be readily understood by those of ordinary skill. (*Id.*) Plaintiff further argues that one of ordinary skill would expect data to be processed using a combination of circuitry working in conjunction with software and/or firmware according to a plain and ordinary meaning understanding of these terms, and movement of data and files would be an inherent part of the functioning of the recited components. (*Id.*) Plaintiff's expert opines that, "[a] POSA would further understand the "forwarding" language used throughout the asserted claims to refer generally to the movement of data throughout the system and not the specific flow of data into or out of any specific circuit." (Dkt. No. 69-D at 17.)

Defendant asserts that the claims describe three data pathways between the claimed digital sensor and the claimed digital signal processor. (Dkt. No. 73 at 13.) Defendant enumerates the data pathways dedicated to providing data from the digital sensor to the digital signal processor in claim 1 of the '805 patent as follows: (1) "wherein the microprocessor is used to provide digital and optical data to the digital signal processor;" (2) "wherein the system software forwards the data from the digital sensor to the digital processor;" and (3) "wherein the data are forwarded from the digital sensor to the digital signal processor by an application specific integrated circuit." (*Id.* citing '805 Patent at claim 1.) Defendant further argues that each path "requires a different component of the camera to perform the forwarding function—limitation (1) uses the microprocessor, limitation (2) uses the system software, and limitation (3) uses the ASIC." (*Id.*) Defendant urges that the claims are ambiguous as to "whether, how, and under what circumstances: (1) the microprocessor provides digital and optical data to the DSP; (2) the system software forwards data from the digital sensor to the DSP; and (3) the ASIC forwards data from the digital sensor to the DSP." (*Id.* at 14.) Defendant also argues that the claims are unclear as "to what 'the data' and 'the digital and optical data' being forwarded by each component refers," building on Defendant's earlier challenges to those claim terms. (*Id.*) Finally, Defendant takes issue with Plaintiff's position that the claims do not govern "the flow of data into or out of any specific circuit." (*Id.*).

2. Analysis

The claim language at issue is relatively straightforward - "the data are forwarded from the digital sensor to the digital signal processor by an application specific integrated circuit"/ "wherein the system software forwards the data from the digital sensor to the digital processor"/ "the microprocessor is used to provide digital and optical data to the digital signal processor." '805

Patent at claim 1. As Plaintiff argues, the limitations at issue describe the common flow of data within multi-component digital systems. (Dkt. No. 69-D, Brogioli Dec. at ¶ 28b). Plaintiff's expert further opines, "[t]he forwarding of data from a sensor to a digital signal processor, using an ASIC, is an elementary function of digital data processing and a POSA would have well understood many ways to forward this data. The specification describes, for example, that "[t]he digital image data is passed from the digital sensor to either the ASIC or microprocessor and then stored in memory ('805 Patent 30:1-3); and a POSA would also thus have understood that the ASIC may either be within or outside of the data path, involved in the flow of data within the system." (*Id.*)

Rather than challenging the plain meaning construction of the above limitations, Defendant argues that the claim requires three data pathways and the claim does not indicate the circumstances under which each carries data, which renders the claim indefinite. First, Defendant is incorrect about the number of pathways. A close reading of the claim reveals only two data pathways between the digital sensor and the digital signal processor. The first pathway limitation is clear - "wherein the data are forwarded from the digital sensor to the digital signal processor by an application specific integrated circuit." '805 Patent at 37:4-6. In the other pathway, "the microprocessor is used to provide digital and optical data to the digital signal processor." '805 Patent at 36:61-62. Defendant argues that there is a third pathway – "wherein the system software forwards the data from the digital sensor to the digital processor." '805 Patent at 36:66-67. However, this limitation merely requires that system software be used to transfer data, and that system software presumably runs on hardware such as the microprocessor or application specific integrated circuit, leaving just two pathways. (Dkt. No. 69-D, Brogioli Dec. at 32 ("A POSA would further expect data to be processed by the system according to its recited capabilities with

a combination of circuitry working in conjunction with software or firmware . . .”).) Accordingly, the claims actually recite only two data pathways.

The recitation of two data pathways still leaves open the Defendant’s challenge that the claim is ambiguous because one of ordinary skill will not know which pathway the claims require under particular circumstances. Defendant’s challenge is unfounded given that the proper interpretation of the claim does not require additional specificity as to when and how each pathway is to be utilized; the claims merely require that data is moved between the sensor and the digital signal processor in two ways.

Plaintiff’s argument that these limitations do not require data movement into or out of any component is not meritorious. Plaintiff argues that the “forwarding” language used throughout the asserted claims to refers generally to various modules operating on data “and not the flow of data into or out of any specific circuit.” (Dkt. No. 69 at 15.) Several of the limitations in question such as “the data are forwarded from the digital sensor to the digital signal processor by an application specific integrated circuit” directly address data movement and the role various components play. ’805 Patent at 37:52-54. While the Court finds that plain meaning is the appropriate construction, the parties must apply the plain meaning of the claims as written. All claim terms carry significance and must be applied in any infringement or validity analysis. *Limelight*, 572 U.S. at 915 (“Each element contained in a patent claim is deemed material to defining the scope of the patented invention . . .”.)(citations omitted); *Gulack*, 703 F.2d 1381, 1385.

Overall, Defendant has not carried its clear and convincing burden to show that one of ordinary skill could not reasonably ascertain the scope of this claim.

The Court accordingly hereby construes the phrases “the data are forwarded from the digital sensor to the digital signal processor by an application specific integrated circuit,”

"forwarding the data from a digital sensor to a digital signal processor by an application specific integrated circuit," "wherein the system software forwards the data from the digital sensor to the digital processor," "wherein the data are forwarded from the digital sensor to the digital signal processor by an application specific integrated circuit," and "the microprocessor is used to provide digital and optical data to the digital signal processor" to each have its plain meaning.

T. D20: "the lens focal length alternates from specific fixed focal length lens settings in a succession of steps" / D29: "the lens focal length alternates from specific fixed focal length settings" / D30: "a succession of steps"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D20: "the lens focal length alternates from specific fixed focal length lens settings in a succession of steps" '805 claims: 9, 24	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite Alternative proposed construction: "changing the lens focal length of a zoom lens from one specific focal length setting to another specific focal length setting" in "multiple steps that follow each other, each of which corresponds to a different focal length"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D29: "the lens focal length alternates from specific fixed focal length settings" '805 claims: 9, 24	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite Alternative proposed construction: changing the lens focal length of a zoom lens from one specific focal length setting to another specific focal length setting

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D30: "a succession of steps" '805 claims: 9, 24	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite Alternative proposed construction: multiple steps that follow each other, each of which corresponds to a different focal length

1. The Parties' Positions

Plaintiff advocates for a plain meaning construction of these terms. (Dkt. No. 69 at 18-20.) Plaintiff argues that one of ordinary skill "would expect a camera configured with a zoom lens to be capable of alternating the focal length of the zoom lens according to the normal operation of that type of lens as well as the description of zoom lenses and their operation in the specification, and would understand this term without going beyond its plain and ordinary meaning." (*Id.* citing '805 Patent 10:57-60; 11:44-60; 12:37-42; 25:30-65; 26:13-37; 31:63-32:10; 35:41-53). Plaintiff's expert opines that the plain meaning of "a succession of steps" in the context of the asserted claims refers generally to multiple steps that correspond to various zoom settings. (Dkt. No. 69-D at 23-24, Brogioli Dec. at ¶ 28e-f ("A POSA would know that in order to capture images using different focal lengths, the focal length of a zoom lens would change based on the amount of zoom used for any particular photo. A POSA would understand this language to refer to the manner in which a camera is capable of capturing images at different focal lengths reflecting different zoom settings or the corresponding step and the manner in which zoom lenses operate, consistently with the plain and ordinary meaning of this claim term.").)

Defendant argues that one of ordinary skill "would be uncertain as to what the terms "alternates" and "in a succession of steps" refer, and how they are related." (Dkt. No. 73 at 17.) Defendant asserts that the phrase "the lens focal length alternates," other than that the alternating

of the focal length must occur in a succession of steps. (*Id.*) Defendant questions "whether the alternation must occur from one setting, to another, and then back again, which is one definition of the word alternate; or whether the alternation must be predetermined or established by user interaction, or something else." (*Id.*) Defendant's only other argument is to assert that the specification does not offer insight into the appropriate definition of "alternating" the focal length because the word "alternating" does not appear in the specification in connection with a changing focal length. Defendant also challenges the plain meaning of "in a succession of steps" because Defendant asserts that the "claim language leaves ambiguous what the succession of steps do or how they are performed" and the specification offers no guidance on the subject because these terms do not appear in the specification. (*Id.*)

2. Analysis

Defendant's primary objection to a plain meaning construction of these terms is that the specification does not explain what "alternates" or "succession" entails. However, Defendant overlooks the meaning of these words themselves to one of ordinary skill, particularly in the context of this invention. Defendant does not suggest "lens focal length" would be unclear to one of ordinary skill. Defendant does not suggest that a camera that "alternates from specific fixed focal length lens settings" would be an unclear description to one of ordinary skill, save for Defendant's reservation about what "alternates" means. As to that subject, Defendant's expert seems to readily understand the meaning of "alternates" but expresses confusion about what forces trigger the move from one lens setting to another, or whether there is a pre-established sequence that must be followed. (Dkt. No. 73-1, Prentice Dec. at ¶¶141-145.) Defendant suggests that greater specificity is required, but the claims set the level of specificity. The claims do require a particular level of specificity, for example, "the lens focal length alternates from specific fixed

focal length settings" requires a focal length that alternates from fixed focal length settings. To read in additional limitations from the specification or extrinsic evidence would be a plain violation of claim construction principles. *Phillips*, 415 F.3d at 1323.

The parties' treatment of "succession of steps" seems to leave much unanswered. Plaintiff equates the steps with different focal length settings based on the extrinsic opinion of its expert. (Dkt. No. 69 at 19.) Defendant expresses confusion over what could ever constitute one step distinguished from another but does not address why the plain meaning of "succession of steps" would not suffice. (Dkt. No. 73 at 17.) Overall, there is no evidence that this plain English term would be ambiguous to one of ordinary skill.

As to Defendant's indefiniteness challenge, once again Defendant fails to demonstrate that the claim as written cannot be reasonably resolved by one of ordinary skill. *Nautilus*, 572 U.S. at 910. Accordingly, Defendant has not carried its clear and convincing burden to show that one of ordinary skill could not reasonably ascertain the scope of this claim.

The Court accordingly hereby construes "the lens focal length alternates from specific fixed focal length lens settings in a succession of steps," "the lens focal length alternates from specific fixed focal length settings," and "a succession of steps" to each carry its plain meaning.

U. D19: "optical aberrations are corrected with digital filtration to modify multiple images from different focal lengths in a succession of data files" / D31: "a succession of data files"/ D21: "creating data files corresponding to each focal length lens setting"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D19: "optical aberrations are corrected with digital filtration to modify multiple images from different focal lengths in a succession of data files"/"correcting optical aberrations with digital filtration to modify multiple images from different focal lengths in a succession of data files" '805 claims: 9, 24	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite Alternative proposed construction: optical aberrations are corrected with digital filtration to modify multiple images from different focal lengths in "multiple data files, each of which corresponds to a different step"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D31: "a succession of data files" '805 claims: 9, 24	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite Alternative proposed construction: multiple data files, each of which corresponds to a different step

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D21: "creating data files corresponding to each focal length lens setting" '805 claim: 24	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite Alternative proposed construction: creating multiple data files, each of which corresponds to a different step

1. The Parties' Positions

Plaintiff maintains that "optical aberrations are corrected with digital filtration to modify multiple images from different focal lengths in a succession of data files" / "correcting optical aberrations with digital filtration to modify multiple images from different focal lengths in a

succession of data file" should be accorded a plain meaning construction as "describing the capability of the system, or step of the method, of performing aberration correction using digital filtration and modifying multiple images from different focal lengths in a succession of data files." (Dkt. No. 69 at 17.) Plaintiff asserts that one of ordinary skill "would understand this language to refer to where different images could be captured with different applicable focal lengths for the images," and that the "data related to the images taken at different focal lengths, before and after the correction is applied, would likely be stored in separate data files." (*Id.*) Plaintiff further relies on the specification to confirm the plain meaning of this claim term, "unlike in fixed focal length lenses, the aberrations change at different focal lengths in zoom lenses, and the camera must track these changes." (*Id.* citing '805 Patent at 26:19-21, and 26:31-37.) Plaintiff also argues that the specification confirms that "in order to correct images taken with a zoom lens at different focal lengths, the claimed invention must be capable of correcting multiple aberrations in multiple images and image files according to the zoom settings that were used to capture each image. " (*Id.* citing Brogioli Dec. at ¶ 28e.) Plaintiff also addresses the "succession of data files," arguing that "in the context of the claims [this] refers to multiple files that are created when the system captures multiple images from multiple focal lengths consistently with the claim element above in which 'succession of steps' appears." (Dkt. No. 69 at 19.)

Defendant relies heavily on its argument that "succession of data files" is so ambiguous that it renders the claim indefinite. Defendant maintains that one of ordinary skill "would be unable to determine how, or under what conditions, the claimed method creates data files 'corresponding to' each focal length setting refers and how it relates to the multiple images." (*Id.*) Defendant argues that the intrinsic record "provides no guidance as to whether the 'succession of data files' are files containing the original images, files containing the modified images, or

something else entirely, such as files containing algorithms that aid in the processing of the images. (Dkt. No. 73 at 16, citing Dkt. No. 73-1, Prentice Dec. at ¶¶153-156.) Moreover, Defendant asserts that the specification is silent regarding how to create data files based upon a change. (Dkt. No. 73 at 16-17.)

2. Analysis

The primary dispute over these terms seems not to be the basic construction of the terms but rather how the various claim terms are to be carried out. For example, Defendant does not assert that "optical aberrations are corrected with digital filtration to modify multiple images from different focal lengths in a succession of data files" is in and of itself unclear. Instead, Defendant takes issue with how this is to be accomplished, asking that the construction include details that would explain how multiple images are used in the correction process and how the data files are created, and other implementation issues. Defendant alleges that the specification lacks sufficient detail to inform these processes but does not mount a challenge under 35 U.S.C §112, ¶1 for deficient written description or lack of enablement, choosing instead to seek indefiniteness pursuant to 35 U.S.C §112, ¶2. While Defendant's complaints about the specification may be problems with the patents-in-suit, the issue here is claim construction. Overall, Defendant has not carried its clear and convincing burden to show that one of ordinary skill could not reasonably ascertain the scope of this claim.

The Court accordingly hereby construes the terms "optical aberrations are corrected with digital filtration to modify multiple images from different focal lengths in a succession of data files," "correcting optical aberrations with digital filtration to modify multiple images from different focal lengths in a succession of data files," "a succession of data files," and "creating data files corresponding to each focal length lens setting" to each carry its plain meaning.

V. D22: "the microprocessor … forwards the at least one filtration algorithms to the digital signal processor"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D22: "the microprocessor … forwards the at least one filtration algorithms to the digital signal processor" '339 claim: 14	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite Alternative proposed construction: the microprocessor transmits to the digital signal processor at least one filtration algorithm used by the digital signal processor to process the image data

1. The Parties' Positions

Plaintiff asserts that this phrase should be interpreted according to its plain and ordinary meaning "that a DSP would typically carry out certain instructions to perform its designated functions." (Dkt. No. 69 at 20.) Plaintiff argues that the process of providing instruction to a digital signal processor "according to the capabilities recited by this claim element would be well understood by a POSA, who would also understand the nature of the filtration algorithm at issue." (*Id.*) Plaintiff relies upon the embodiment in Figures 2 and 7 and the specification as confirming the plain and ordinary meaning of the claim term. (*Id.* citing '339 Patent Fig. 2, 7, and 31:10-14, 31:49-54, 32:50-64.)

Defendant asserts this term is indefinite, arguing that one of ordinary skill "would be uncertain regarding what the "at least one filtration algorithm" is, where in the database it resides, how the microprocessor obtains the "at least one filtration algorithm" required to correct the identified optical aberrations from the database for forwarding, and how the microprocessor forwards the "at least one filtration algorithm" to the digital signal processor. (Dkt. No. 73 at 18.) Defendant further argues that the specification does not resolve these ambiguities. (*Id.*)

2. Analysis

The limitation at issue, "wherein the microprocessor . . . forwards the at least one filtration algorithms to the digital signal processor" is straightforward on its face. Defendant and its expert do not claim that one of ordinary skill would have any trouble understanding this plain English phrase. Instead, Defendant once again asks that additional detail be imported into the construction of this term. Defendant asserts that much of the details surrounding this phrase is missing from the specification. Whether that is true may well be an issue for the claim, but it is not a claim construction issue. Again, Defendant may believe that the claim suffers from a written description or enablement problem pursuant to 35 U.S.C §112, ¶1, but Defendant does not make that showing here. Defendant does assert indefiniteness under 35 U.S.C §112, ¶2, but Defendant has not carried its clear and convincing burden to show that one of ordinary skill could not reasonably ascertain the scope of this claim.

The Court accordingly hereby construes "the microprocessor … forwards the at least one filtration algorithms to the digital signal processor" to have its plain meaning.

<u>Group 4</u>

W. D27: "optical aberrations"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D27: "optical aberration[s]" '805 claims: 1, 9, 18, 24 '339 claims: 1, 2, 3, 4, 5, 14, 15, 17, 18	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite Alternative proposed construction: lens-specific imperfections

1. The Parties' Positions

Plaintiff advocates a plain and ordinary meaning construction for this term. "Optical aberration[s]" appears throughout the asserted claims ("wherein the system software is organized to identify specific optical aberrations . . ." and "identifying specific optical aberrations . . ."), and Plaintiff asserts that in "the context of the claims as a whole and recognizing the problem that the inventor sought to solve—the correction of aberrations in images—a POSA would understand this claim term as the aberrations to be corrected by the system or method described." (Dkt. No. 69 at 22.)

Defendant asserts the term is ambiguous, rendering the claim indefinite, because the claims use both the terms "optical aberrations" and "aberrations" but does not resolve what differences exist between them. (Dkt. No. 73 at 19.) Defendant also argues that claim 18 uses the phrase "digital or optical aberrations," which confirms that "optical aberrations" are a species of the broader "aberration" and that this leads to indefiniteness. (*Id.*) Defendant also relies on what is calls a contradiction where dependent claims 2 and 15 of the '339 patent specifically refer to "dust" as an "optical aberration," but the specification lists "dust" as an example of a digital aberration. (*Id.* citing '805 Patent at 8:3-8.)

2. Analysis

Essentially the entirety of the specification of the patents-in-suit is directed toward identifying and correcting optical aberrations. No party has provided evidence that this plain English phrase is unclear or ambiguous. Defendant asks for additional detail describing these optical aberrations and particularly how they differ from other errors that might appear in images or data, but the claims do not require such details and reading those details into the claims from the specification would violate fundamental claim construction canons. *Phillips*, 415 F.3d at 1323.

Overall, Defendant has not carried its clear and convincing burden to show that one of ordinary skill could not reasonably ascertain the scope of this claim.

The Court accordingly hereby construes "optical aberrations" to have its plain meaning.

X. D32: "a digital imaging system"/ D33: "a method of image filtration" / "the method"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D32: "a digital imaging system" '805 claims: 1, 2, 3, 9 '339 claims: 1, 2, 3, 4, 5, 14, 15, 16, 17, 18	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite - The claim is indefinite as being drawn to both an apparatus and method

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D33: "a method of image filtration" / "the method" '805 claims: 18, 19, 20, 24	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite - The claim is indefinite as being drawn to both an apparatus and method

1. The Parties' Positions

Defendant challenges all listed asserted claims as drawn to improper "hybrid claims." Defendant argues that the asserted claims begin with preambles that specify a "system" or "method," and then the claims recite both system elements and method steps, rendering them indefinite hybrid claims under *IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377, 1384 (Fed. Cir. 2005). (Dkt. No. 69 at 20-23.) Defendant notes that most of the asserted claims are apparatus claims directed to "a digital imaging system," and recite imaging system components,

such as “a digital camera mechanism,” “a digital signal processor,” etc. (Dkt. No. 69 at 20, citing ’805 Patent at claims 1, 9; ’339 Patent at claims 1, 14.) Defendant then argues that the claims also include “a sequence of ‘wherein’ clauses that set forth a series of incremental, ordered steps that describe a process that the imaging system carries out.” (*Id.*) Defendant isolates one example, arguing that claims 1 and 9 of the ’805 patent recite a step in which the digital signal processor “selects a specific procedure to optimize the image and corrects the aberrations.” (*Id.*) Defendant argues that this is not merely a description of the capability of the system, and is instead an active method step. (*Id.*) Defendant goes further, arguing that the selection “is expressly a “specific” one that optimizes the particular image and corrects the particular aberrations.” (*Id.* at 21.) Defendant also argues that the procedure selection limitation involves user action, as evidenced by Plaintiff’s infringement contentions. (*Id.*) Defendant also raises the same issues for the asserted method claims. (’805 Patent claims 18 and 24; Dkt. No. 69 at 22-23.) Defendant points out that these method claims recite “a method of image filtration,” but also recite the same apparatus elements as the system claims, such as the digital camera mechanism, the digital signal processor and the microprocessor. ’805 Patent claims 18 and 24.

Plaintiff responds by arguing that the law permits apparatus claims to recite structural claim elements and describe their functional capabilities, citing *Mastermine Software, Inc. v. Microsoft Corp.*, 874 F.3d 1307, 1315–16 (Fed. Cir. 2017) (rejecting indefiniteness argument and holding that the use of active verbs in a claim “represent permissible functional language used to describe capabilities of the "reporting module”); *Perdiem Co., LLC v. Industrack LLC*, 2016 U.S. Dist. LEXIS 87927, at *138 (E.D. Tex. July 7, 2016) (rejecting Defendants’ indefiniteness arguments because “the limitations at issue set forth functional capabilities or configurations”). (Dkt. No. 77 at 7-8.) Similarly, Plaintiff argues that the asserted method claims, claims 18-20 and 24 of the

’805 Patent, recite method elements but permissibly list components required to perform the method steps, citing *HTC Corp. v. IPCom GmbH*, 667 F.3d 1270, 1273, 1277–78 (Fed. Cir. 2012) (distinguishing claims that “merely establish those functions as the underlying network environment in which the mobile station operates”); *Alacritech, Inc. v. CenturyLink Commc’ns LLC*, 271 F. Supp. 3d 850, 886 (E.D. Tex. 2017); *Koninklijke KPN N.V. v. Samsung Elecs. Co. Ltd*., 2016 U.S. Dist. LEXIS 60689 (E.D. Tex. May 6, 2016). (Dkt. No. 77 at 7-8.)

2. Analysis

The key issue for hybrid claiming is whether the claim provides sufficient notice to the public to ascertain whether infringement occurs when the device is manufactured or occurs when the device is used. *IPXL Holdings L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377, 1384 (Fed. Cir. 2005). Often, in apparatus claims the issue reduces to whether functional limitations describe the capability of components in apparatus rather than method steps that recite actual use. *Microprocessor Enhancement Corp. v. Texas Instruments Inc.*, 520 F.3d 1367, 1375 (Fed. Cir. 2008) (stating that the claim “is clearly limited to a pipelined processor possessing the recited structure and capable of performing the recited functions”); *SFA Sys., LLC v. 1-800-Flowers.com, Inc.*, 940 F. Supp. 2d 433, 454–55 (E.D. Tex. April 11, 2013) (Davis J.)(“If the functional language of the claim merely describes ‘the structure and capabilities of the claimed apparatus,’ then the claim is sufficiently definite under 35 U.S.C. § 112 ¶ 2”).

Defendant fails to fully identify any element that would blur the line between apparatus and method infringement that creates an *IPXL* ambiguity. The functional limitations Defendant included as example method steps in apparatus claims can be interpreted as describing the functional capabilities of the recited components. For example, Defendant focuses on the ’805 Patent claims 1 and 9 recitation requiring that digital signal processor “selects a specific procedure

to optimize the image and corrects the aberrations." (Dkt. No. 69 at 20.) The claim thus requires that the system include a digital signal processor that is capable and prepared to make that selection. As such, Defendant has not carried its burden of demonstrating an *IPXL* ambiguity in the apparatus claims by clear and convincing evidence.

As to the method claims, '805 Patent claims 18 and 24, the recitation of structure in the preamble of the claim permissibly sets forth the environment and context of the method. *HTC Corp. v. IPCom GmbH*, 667 F.3d 1270, 1273, 1277–78 (Fed. Cir. 2012). Defendant does not provide a serious example of any *IPXL* ambiguity in the method claims.

Overall, Defendant has not carried its clear and convincing burden to show that one of ordinary skill could not reasonably ascertain the scope of this claim.

The Court accordingly hereby construes the phrases "a digital imaging system," "a method of image filtration," and "the method" to each carry its plain meaning.

Y. D34: "the method consisting of" / "the method . . . further comprising the step of"

Claim Term	Plaintiff's Proposal	Defendant's Proposal
D34: "the method consisting of" / "the method … further comprising the step of" '805 claims: 19, 20	Not indefinite Proposed construction: plain and ordinary meaning	Indefinite Alternative proposed construction: "the method consisting of / the method further . . . consisting of"

1. The Parties' Positions

Defendant here argues that the two transitional phrases used in claims 18 create a conflict that renders dependent claims 19 and 20 invalid. (Dkt. No. 69 at 22.) In particular, Defendant argues that independent method claim 18 recites a method "consisting of" a number of steps, which

is a term indicating a closed set of elements. (*Id.*) Defendant then argues that claims 19 and 20 which purport to add steps to "the method of claim 18" are invalid as indefinite. (*Id.*)

Plaintiff responds that claim 18 is not a closed claim, in part because "claims 19 and 20 demonstrate that the inventor did not intend for claim 18 to be closed." (Dkt. No. 77 at 8.) Plaintiff also argues that the prosecution history does not reflect any argument or reliance on any alleged closed nature of claim 18 to resist prior art. (*Id.*) Finally, Plaintiff offers that the specification refutes Canon's reading of the claim because it shows that the disclosed digital cameras have additional components beyond the allegedly closed set of elements recited in claim 18. (*Id.*)

2. Analysis

Claim 18 of the '805 Patent begins with the normal a "method of image filtration which comprises" preamble to recite the environment of the method. '805 Patent at 39:65. After listing that environment, the patentee then recites, "the method consisting of" and lists a number of method steps setting forth the substantive elements of the claim. '805 Patent at 40:7. The general rule is that "consisting" means a closed set of "the following elements and only the following elements." *See* Manual of Patent Examining Procedure (MPEP) § 2111.03 (9th ed. rev. 08.2017). Claims 19 and 20 then add dependent method step elements, including the transitional phrase "the method of claim 18 further comprising . . ." '805 Patent at 40:26-32. The fundamental issue here is whether a closed set independent claim may then include dependent claims that seek to add to the elements recited in that independent claim.

The law has long recognized the divide between "comprising" claims as open ended, and "consisting of" claims as closed sets. *Conoco, Inc. v. Energy & Envtl. Int'l, L.C.* 460 F.3d 1349 (Fed. Cir. 2006); *Vehicular Techs. Corp. v. Titan Wheel Int'l, Inc.*, 212 F.3d 1377, 1382 (Fed. Cir. 2000). There are cases that permit additional elements in a "consisting of" claim for non-essential

materials or impurities. *Norian Corp. v. Stryker Corp.*, 363 F.3d 1321, 1331–32 (Fed. Cir. 2004). There are also cases where the specification or prosecution history is used to refute the "heavy presumption" that consisting of is a closed claim. *Multilayer Stretch Cling Film Holdings, Inc. v. Berry Plastics Corp.*, 831 F. 3d 1350, 1357 (Fed. Cir. 2016). Here, Plaintiff makes a brief argument that the specification and prosecution history support a finding that claim 18 was to be an open-ended claim, but Plaintiff's argument is insufficient to overcome the presumption associated with the phrase "consisting of."

The MPEP at 2111.03 permits comprising claims to include elements of consisting claims as long as the "consisting" language is not the transitional phrase in the preamble. The idea here is that sub-elements of a comprising claim can be internally limited (typically in chemical practice where one reagent can be chosen from a closed group as in a Markush claim). Although Plaintiff could have argued that the "consisting of" transitional phrase here is well beyond the preamble, it seems more appropriate that the preamble is everything in claim 18 up to "the method consisting of." Moreover, the additional step added in claims 19 and 20 do add to the method recited in the "consisting of" group in claim 18 and so run directly afoul of the closed grouping following the "consisting of" phrase.

The *Multilayer Stretch* decision is instructive here where the Federal Circuit invalidated a dependent claim pending from a "consisting of" independent claim. *Multilayer Stretch*, 831 F. 3d at 1357. The court reasoned that it was logically inconsistent to permit a patentee to avail itself of the well-established closed presumption following use of a "consisting of" transitional phrase, and then to attempt to ignore that presumption. Plaintiff makes no showing that the additional limitations of claims 19 and 20 are anything other than impermissible additional limitations seeking to expand a closed "consisting of" claim. As a result, claims 19 and 20 cannot legally add

limitations to claim 18 and Defendant has carried its clear and convincing burden of proving claims 19 and 20 invalid as indefinite.

The Court accordingly hereby concludes that claims 19 and 20 are invalid.

IV. CONCLUSION

Having fully considered the evidence of record and the arguments of counsel, the Court hereby construes the contested claim terms as set forth in this opinion.

So ORDERED and SIGNED this 11th day of June, 2020.

RODNEY GILSTRAP
UNITED STATES DISTRICT JUDGE