

UNITED STATES PATENT AND TRADEMARK OFFICE

IN THE UNITED STATES PATENT TRIAL AND APPEAL BOARD

HAAG-STREIT AG
Petitioner

v.

EIDOLON OPTICAL, LLC
Patent Owner

CASE IPR: 2018-_____

U.S. PATENT NO. 6,547,394 B2

PETITION FOR *INTER PARTES* REVIEW

Mail Stop *Patent Board*
Patent Trial and Appeal Board
U.S. Patent and Trademark Office
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List of Exhibits

- Ex. 1001 United States Letters Patent No. 6,547,394 B2
- Ex. 1002 Declaration of Dr. Jianzhong Jiao, Ph.D.
- Ex. 1003 Prosecution history of U.S. Patent No. 6,547,394 B2
- Ex. 1004 European Patent Application No. 0 554 643 A1 (“*Longobardi*”)
- Ex. 1005 UK Patent Application GB 2 077 946 A (“*Devonshire*”)
- Ex. 1006 U.S. Patent No. 4,350,676
- Ex. 1007 U.S. Patent No. 4,518,579
- Ex. 1008 U.S. Patent No. 4,995,716
- Ex. 1009 U.S. Patent No. 5,225,859
- Ex. 1010 U.S. Patent No. 5,346,689
- Ex. 1011 U.S. Patent No. 6,193,401
- Ex. 1012 U.S. Patent No. 6,350,275
- Ex. 1013 U.S. Patent No. 6,596,016
- Ex. 1014 U.S. Patent No. 5,301,090
- Ex. 1015 U.S. Patent No. 5,660,461
- Ex. 1016 U.S. Patent No. 6,069,687

I. INTRODUCTION

Haag-Streit AG (“Petitioner”) hereby petitions for *inter partes* review of claims 1, 5, 6, 8-10, 14-16 and 19 (the “challenged claims”) of U.S. Patent No. 6,547,394 (“the ‘394 Patent”) (Ex. 1001) under 35 U.S.C. §§ 311–319 and 37 C.F.R. § 42. According to the assignment information contained in the records of the United States Patent & Trademark Office (the “USPTO”), the ‘394 Patent is assigned to, and therefore owned by, Eidolon Optical, LLC (the “Patent Owner”). For the reasons provided in detail below, the challenged claims should be found unpatentable and canceled.

II. MANDATORY NOTICES (37 C.F.R. § 42.8)

A. Real Parties-In-Interest (37 C.F.R. § 42.8(b)(1))

The real parties-in-interest in this matter are Petitioner Haag-Streit AG and its parent companies, Haag-Streit Holdings AG and Metall Zug AG.

B. Related Matters (37 C.F.R. § 42.8(b)(2))

As of the filing date of this Petition, Petitioner is unaware of any matters involving the ‘394 Patent currently pending in any United States court or administrative agency.

C. Lead and Backup Counsel (37 C.F.R. § 42.8(b)(3))

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D. Service Information (37 C.F.R. § 42.8(b)(4))

Please address all correspondence to Lead Counsel at the mailing address shown above. Petitioner also consents to electronic service by email.

III. GROUNDS FOR STANDING (37 C.F.R. § 42.104(a))

Petitioner hereby certifies that: (1) the '394 Patent issued on April 15, 2003 and so is eligible for *inter partes* review; (2) Petitioner has not been served with a complaint alleging infringement of any of the claims of the '394 patent and so is therefore not barred or estopped from requesting *inter partes* review of the '394 Patent on the grounds identified herein; and (3) Petitioner has not filed a complaint challenging the validity of the '394 Patent. This Petition is being filed in accordance with 37 C.F.R. § 42.106(a).

IV. IDENTIFICATION OF CHALLENGES

Petitioner asks that the Board review the accompanying prior art and analysis thereof, and the supporting evidence, institute a trial for *Inter Partes* Review of claims 1, 5, 6, 8-10, 14-16 and 19 of the '394 Patent, and cancel those claims as invalid under 35 U.S.C. § 102 or 35 U.S.C. § 103. More specifically, Petitioner requests cancellation of claims 1, 5, 6, 8, 9, 10, 14, 15, 16 and 19 of the '394 Patent on the following grounds:

Challenge #1: Claims 1, 5, 6, 8-10, 14 and 19 of the '394 Patent are unpatentable for being obvious under pre-AIA 35 U.S.C. § 103(a) over European Patent Application No. 0 554 643 A1 to *Longobardi* (Ex. 1004) in view of UK Patent Application GB 2 077 946 A to *Devonshire* (Ex. 1005). *Longobardi* was

published on August 11, 1993, and *Devonshire* was published on December 23, 1981. The earliest effective filing date in the United States to which the '394 Patent claims benefit and is entitled is October 20, 1998. As such, both *Longobardi* and *Devonshire* are prior art to the '394 Patent under pre-AIA 35 U.S.C. § 102(b).

Challenge #2: Claims 15 and 16 of the '394 Patent are anticipated under pre-AIA 35 U.S.C. § 102(b) by European Patent Application No. 0 554 643 A1 to Longobardi ("*Longobardi*"; Ex. 1004).

Challenge #3: Claims 1, 5, 6, 8-10, 14-16 and 19 of the '394 Patent are anticipated under pre-AIA 35 U.S.C. § 102(b) by UK Patent Application GB 2 077 946 A by Devonshire *et al.* ("*Devonshire*"; Ex. 1005).

V. BACKGROUND

A. Technology

Eye examinations are routinely made with a device known as an ophthalmoscope. The ophthalmoscope includes a light source providing light of a predetermined wavelength or wavelengths. Different parts of the eye, including the cornea, which includes epithelial tissue, the lens and the interior surface of the eye opposite the lens known as the fundus, can be illuminated to determine the

health of the eye. The fundus includes the retina, the optic disc, the macula, the fovea, and the posterior pole.

Ophthalmoscopes include different types of illumination devices such as an incandescent bulb, including those having a tungsten filament, a halogen bulb, a laser illumination device, and a light emitting diode. Ophthalmoscopes often include interference filters located between the illumination device and the eye to transmit light of a certain wavelength, particularly when the illumination device provides a white light. Since different parts of the eye are more clearly seen when examined with light of a certain wavelength, the interference filter provides the desired wavelength. For instance, certain parts of the eye are more easily seen when a fluorescein dye is applied to the eye and examined with a blue light.

B. The '394 Patent

According to the specification, the '394 Patent relates to "a device which is used to illuminate a patient's eye that has been administered with a fluorescent dye for the purpose of examining the eye for epithelial defects. The invention in its simplest form utilizes four components: a battery, an electrical resistor, an electrical switch and a blue light emitting diode." Ex. 1001 at 1:48-53.

C. Prosecution History

The '394 Patent issued from United States Patent Application No. 09/768,731 (“the ‘731 Application”), which was filed on January 24, 2001. The ‘731 Application is a continuation-in-part application of prior United States Patent Application No. 09/175,796, which was filed on October 20, 1998, and subsequently abandoned.

The prosecution history of the ‘394 Patent (Ex. 1003) is relatively brief, with the claims being allowed after the applicant’s response to the first Office Action. Ex. 1003 at 82-86. Original claims 1-3, 8, 11-16, 18 and 20 (which correspond exactly to claims 1-3, 8, 11-16, 18 and 20 of the ‘394 Patent) were rejected under 35 U.S.C. § 102(e) over U.S. Patent No. 6,340,868. *Id.* at 69-72. The remaining claims were objected to as being dependent upon a rejected base claim, but were deemed to be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims. *Id.*

In response to this rejection, the applicant did not amend the claims, but instead argued that the cited reference patent had an effective filing date after the priority date of the ‘731 Application. *Id.* at 78-81. In support of this argument, applicant asserted that

Under 35 U.S.C. § 120 (see also M.P.E.P. 201.11), Applicant is at least entitled to a priority date of October 21, 1997 for the use of Fluorescein and a blue LED to examine an eye. Accordingly, the

effective filing date of the present '731 Application for use of Fluorescein and a blue LED to examine the eye is October 21, 1997. All elements or step elements, respectively, of claims 1 and 15, listed in detail below, were taught and disclosed in [US Provisional Patent Application No. 60/063,131]. The invention of claims 1 and 15 in the '731 Application are therefore entitled to a prior date of at least October 21, 1997, which is prior to the filing date of [the cited reference].

Id. at 79. The examiner subsequently withdrew the rejection of the cited reference, and allowed all of the pending claims as originally filed. *Id.* at 82.

VI. PERSON OF ORDINARY SKILL IN THE ART

A United States patent is to be read and understood from the perspective of a person of ordinary skill in the relevant art (technical field) at the time the invention was made. Here, the relevant date is October 20, 1998, *i.e.* when the inventor named on the '394 Patent filed the original patent application to the subject matter now claimed in the '394 Patent and to which priority is claimed.

A person of ordinary skill in the art is a hypothetical person presumed to know the relevant prior art. *See, e.g., Gnosis S.p.A. v. South Alabama Med. Sci. Found.*, IPR2013-00116, Final Written Decision (Paper 68) at 9. Such a person is of ordinary creativity, not merely an automaton, and is capable of combining the teachings of the prior art. *See id.*, citing *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 420-21 (2007). The factors that may be used to determine the level of skill of

a person of ordinary skill in the art may include the education level of those working in the field, the sophistication of the technology, the types of problems encountered in the art, prior art solutions to those problems and the speed at which innovations in the art are made and implemented.

In this case, the '394 Patent is directed to “a device which is used to illuminate a patient’s eye that has been administered with a fluorescent dye for the purpose of examining the eye for epithelial defects.” Petitioner therefore submits that a person of ordinary skill should have at least some familiarity with the practical aspects of ophthalmologic instruments. Ex. 1002 at ¶ 31. Accordingly, Petitioner submits that a person of ordinary skill in the art of the '394 Patent as of October 20, 1998, would have had at least a bachelor of science or engineering degree in electrical or mechanical engineering, physics, optics, or a related field, and either an advanced degree (such as a masters) in such a subject or an equivalent amount of work experience, *i.e.* 2-3 years, in an area relating to ophthalmic instrument design and/or fabrication or a related technical field. Ex. 1002 at ¶ 31.

VII. CLAIM CONSTRUCTION

The following constructions of certain claim terms are proposed by Petitioner using the “broadest reasonable interpretation” standard currently

applicable for *inter partes* review. See 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs. v. Lee*, 579 U.S. ___, ___, 136 S. Ct. 2131, ___ (2016). If, however, the “plain and ordinary meaning” standard was applicable, Petitioner would still propose the same constructions for the same reasons as provided below.

1. “*ophthalmic illuminator*” (claims 1, 5, 6, 8-10 and 14)

This term appears in the preamble of claims 1, 5, 6, 8-10 and 14. The specification of the ‘394 Patent does not expressly define this term, but does disclose that “[t]he subject of this invention is a device which is used to illuminate a patient’s eye that has been administered with a fluorescent dye for the purpose of examining the eye for epithelial defects.” Ex. 1001 at 1:48-51. Petitioner therefore proposes that the claim term *ophthalmic illuminator* be construed to mean “*a device for illuminating a patient’s eye for ophthalmic examination.*” Ex. 1002 at ¶ 39.

VIII. IDENTIFICATION OF HOW EACH CHALLENGED CLAIM OF THE ‘394 PATENT IS UNPATENTABLE

As discussed in detail below, the challenged claims are unpatentable over the prior art for at least the following grounds.

A. Challenge #1: Claims 1, 5, 6, 8-10, 14 and 19 are obvious under pre-AIA 35 U.S.C. § 103(a) over *Longobardi* in view of *Devonshire*

Longobardi was published on August 11, 1993, and *Devonshire* was published on December 23, 1981. The earliest effective filing date in the United States to which the '394 Patent claims benefit and is entitled is October 20, 1998. As such, both *Longobardi* and *Devonshire* are prior art to the '394 Patent under pre-AIA 35 U.S.C. § 102(b).

“Obviousness” is when the claimed subject matter is not identically described, but would have been obvious, as a whole, to a person of ordinary skill in the art. 35 U.S.C. § 103(a); *see KSR Int'l, Inc. v. Teleflex, Inc.*, 550 U.S. 398, 406–07 (2007). A proper obviousness analysis requires the following steps: (1) determining the scope and content of the prior art; (2) ascertaining the difference(s) between the prior art and the claimed invention; (3) resolving the level of ordinary skill in the art; and (4) evaluating the objective evidence relevant to obviousness, if any. *See, e.g., Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966); *KSR*, 550 U.S. at 404.

When obviousness is based on information from a combination of sources, a relevant factor is whether a person of ordinary skill in the art would have been motivated to select and combine this information, and with a reasonable

expectation of achieving the desired result. *See, e.g., Merck & Cie v. Gnosis S.p.A.*, 808 F.3d 829, 833 (Fed. Cir. 2015), *cert. denied*, 137 S. Ct. 297 (2016).

As will be demonstrated in detail below, the combined teachings of *Longobardi* in view of *Devonshire* would have rendered the subject matter defined by claims 1, 5, 6, 8-10, 14 and 19 of the '394 Patent obvious and therefore unpatentable. In addition, a person of ordinary skill in the art would have been motivated to select and combine the respective teachings of *Longobardi* and *Devonshire* along the lines of the claimed invention, and by doing so, would have had a reasonable expectation of achieving the claimed invention. As a result, the challenged claims should be found unpatentable, and thereby consequentially canceled.

1. Claim 1

a. The preamble

The preamble of claim 1 of the '394 Patent recites “[a]n ophthalmic illuminator . . .” Ex 1001 at 4:12. To the extent that this preamble is deemed a limitation, a point Petitioner expressly does not concede, this limitation is expressly disclosed by *Longobardi*. Ex 1002 at ¶¶ 43-44.

More specifically, *Longobardi* discloses methods and apparatus for “the illumination of the fundus of the eye.” Ex. 1004 at 6:29-35. Among the specific uses exemplified by *Longobardi* for this apparatus is as a device capable of

performing fluoroscopic angiography. *Id.*, Ex. 1002 at ¶ 43. In particular, *Longobardi* teaches that its design is suitable for producing “portable fluoroscopic angiographs.” Ex. 1004 at 7:24-27. In accordance with advantageous embodiments of the claimed invention, the portable device’s “light source may be a light-emitting diode (LED), which emits radiation at a predetermined wavelength, instead of an incoherent light source.” Ex. 1004 at 7:28-33.

Accordingly, to the extent the preamble is limiting, this limitation is identically disclosed by *Longobardi*.

b. a battery

The first element of the ophthalmic illuminator of claim 1 is *a battery*. Ex. 1001 at col. 4:13. *Longobardi* identically discloses this limitation. Ex. 1002 at ¶¶ 46-48.

Longobardi discloses methods and apparatus for producing “a device for fluoroscopic angiography which uses a single light source of limited power, for example 20 W electric.” Ex. 1004 at 6:29-32. One such apparatus is presented in FIG. 1 of *Longobardi*. Ex. 1004 at 8:15-9:6; Ex. 1002 at ¶ 46. Referring to that FIG. 1, *Longobardi* teaches a device that comprises

a continuous light source **1** of low power, for example 20 W electric, housed in a main housing body **3**. . . . With an **electric power of 20 W** for the light source **1**, a continuous luminous intensity of 0.7 mW reaches the fundus of the patient's eye. **The electrical power and luminous intensity used are therefore very limited and do not**

cause any problems either in relation to the thermal effects on the interference filters or in relation to possible discomfort for the patient.

Ex. 1004 at 8:15-45 (emphasis added). Although not expressly stated by *Longobardi*, one skilled in the art would inherently understand that the electrical power generated by the disclosed device includes a battery. Ex. 1002 at ¶ 47. In addition, as *Longobardi* teaches that its device is designed to be a portable fluoroscopic angiograph without a large power supply unit or cooling system, one skilled in the art would understand that a battery operated power supply would be contemplated. Ex. 1004 at 7:24-27; Ex. 1002 at ¶ 47.

Longobardi therefore identically discloses the *battery* limitation of claim 1.

c. *an electrical resistor in circuit with the battery*

The second element of claim 1 is *an electrical resistor in circuit with the battery*. Ex. 1001 at 4:14. *Longobardi* does not expressly disclose an electrical resistor such as claimed; however, *Devonshire* does teach this feature. Ex. 1002 at ¶ 50. More specifically, much like *Longobardi*, the secondary reference of *Devonshire* discloses an indirect ophthalmoscope (an instrument for examining the eye) that includes a light source. Ex. 1005 at 1:3-4. *Devonshire* teaches that

the light projection system, and a converging lens used to form an aerial image of the fundus of the eye illuminated by the projection system, are combined in a single unit, which can be designed to be hand-held.

Ex. 1005 at 1:30-35. *Devonshire* further teaches that

The instrument has a housing 2 which is generally T-shaped and comprises a cylindrical tube 3 mounted across the wider end of a tapered tube 4. . . . The tube 4 may be attached to or form part of a hand grip which can contain a lamp bulb and battery, and optionally, **a dimmer control.**

Ex. 1005 at 1:76-79, 2:16-18 (emphasis added). It is known by those skilled in the art that a dimmer control is an *electrical resistor*. Ex. 1002 at ¶ 52. Moreover, one skilled in the art would understand that in order to properly function, the battery and dimmer control would necessarily be a part of the same electrical circuit. Ex. 1002 at ¶ 53.

As noted in section VI. above, a person of ordinary skill in the relevant art as of October 20, 1998, would have had at least a bachelor of science or engineering degree in electrical engineering, physics, optics, or a related field, and either an advanced degree (such as a masters) in such a subject or an equivalent amount of work experience, *i.e.* 2-3 years, in an area relating to ophthalmic instrument design and/or fabrication or a related technical field.

Taking the above into consideration, a person of ordinary skill in the relevant art would have been motivated at the time of the invention to combine the teachings of *Longobardi* with the dimmer control disclosed in *Devonshire*, particularly as the resulting device would be able to adjust and control the level (brightness) of light being output from the light-emitting diodes (LEDs). Ex. 1002

at ¶ 55. In addition, since one of the disclosed benefits of *Longobardi's* device is to produce a portable unit having a reduced level of illumination (to thereby eliminate patient discomfort during an examination procedure), the motivated person of ordinary skill in the art would have had a reasonable expectation of success in achieving the claimed device. Ex. 1004 at 8:15-45; Ex. 1002 at ¶ 56.

Accordingly, the combined teachings of *Longobardi* in view of *Devonshire* therefore disclose and render obvious the *electrical resistor in circuit with the battery* limitation of claim 1. Ex. 1002 at ¶ 57.

Finally, there is no evidence in the prosecution history of any secondary considerations that would overcome this very strong evidence that Claim 1 would have been obvious over *Longobardi* in view of *Devonshire*. Ex. 1002 at ¶ 58

d. *an electrical switch in circuit with the resistor*

The third element of claim 1 is *an electrical switch in circuit with the resistor*. Ex. 1001 at 4:15. *Longobardi* does not expressly disclose an electrical switch in circuit with the resistor such as claimed, however, in view of *Devonshire's* teaching, this limitation is met and rendered obvious. Ex. 1002 at ¶¶ 60-66.

As noted above *Longobardi* teaches a device that comprises

a continuous light source **1** of low power, for example 20 W electric, housed in a main housing body **3**. . . . With an **electric power of 20 W** for the light source **1**, a continuous luminous intensity of 0.7 mW

reaches the fundus of the patient's eye. **The electrical power and luminous intensity used are therefore very limited and do not cause any problems either in relation to the thermal effects on the interference filters or in relation to possible discomfort for the patient.**

Ex. 1004 at 8:15-45 (emphasis added).

Longobardi further teaches, with respect to the embodiment in FIG. 1A, that

The **light source consists of a set of three light-emitting diodes (LEDs) 1A, 1B, 1C.** The light-emitting diodes 1A, 1B, 1C are supported by a movable member 2 indicated by broken lines (for example a slide) in such a way that they can be aligned alternately with the mirror 11. By using LEDs which emit at predetermined wavelengths, it is thus possible to avoid the use of interference filters, further simplifying the structure of the equipment. This is because each LED emits at one of the wavelengths usable for the examination of the fundus of the eye, and the selection of the correct wavelength of the light source is made simply by positioning the correct LED in the optical path of the device. **The LEDs which are not in use may be kept switched off if necessary.**

Ex. 1004 at 9:39-57 (emphasis added). Moreover, because *Longobardi's* LEDs selectively respond to signals from the light switch (which is well known by those skilled in the art to be a type of *electrical switch*), a skilled artisan would have been motivated to place *Devonshire's* dimmer (*electrical resistor*) within the same circuit as *Longobardi's electrical switch* such as claimed in order to create a device capable of having the brightness of the LEDs in use adjusted. Ex. 1002 at ¶ 65.

As noted in section VI. above, a person of ordinary skill in the relevant art as of October 20, 1998, would have had at least a bachelor of science or engineering

degree in electrical engineering, physics, optics, or a related field, and either an advanced degree (such as a masters) in such a subject or an equivalent amount of work experience, *i.e.* 2-3 years, in an area relating to ophthalmic instrument design and/or fabrication or a related technical field.

Taking the above into consideration, a person of ordinary skill in the relevant art would have been motivated at the time of the invention to place *Devonshire's* dimmer (*electrical resistor*) within the same circuit as *Longobardi's* *electrical switch*, particularly as the resulting device would have been able to adjust and control the level (brightness) of light being output from the light-emitting diodes (LEDs). Ex. 1002 at ¶ 64. In addition, since one of the disclosed benefits of *Longobardi's* device is to produce a portable unit having a reduced level of illumination (to thereby eliminate patient discomfort during an examination procedure), the motivated person of ordinary skill in the art would have had a reasonable expectation of success in achieving the claimed device. Ex. 1004 at 8:15-45; Ex. 1002 at ¶ 64.

Accordingly, the combined teachings of *Longobardi* in view of *Devonshire* therefore disclose and render obvious the *electrical switch in circuit with the resistor* limitation of claim 1. Ex. 1002 at ¶ 66.

Finally, there is no evidence in the prosecution history of any secondary considerations that would overcome this very strong evidence that Claim 1 would have been obvious over *Longobardi* in view of *Devonshire*. Ex. 1002 at ¶ 67.

e. at least one light emitting diode . . .

The fourth element of claim 1 is *at least one light emitting diode, in circuit with the switch, for generating blue light energy in response to activation of the switch*. Ex. 1001 at 4:16-18. *Longobardi* identically discloses this element, and in the same arrangement as recited in the claim. Ex. 1002 at ¶¶ 68-79.

i. at least one light emitting diode, in circuit with the switch . . .

The first feature of this element is *at least one light emitting diode, in circuit with the switch*. Ex. 1001 at 4:16. *Longobardi* identically discloses this feature. Ex. 1002 at ¶ 69-73.

Longobardi expressly discloses “portable fluoroscopic angiographs” having a light-emitting diode (LED) light source, “which emits radiation at a predetermined wavelength, instead of an incoherent light source.” Ex. 1004 at 7:24-33. *Longobardi* further teaches, with respect to the embodiment in FIG. 1A, that “[b]y using LEDs which emit at predetermined wavelengths, it is thus possible to avoid the use of interference filters, further simplifying the structure of the equipment.” *Id.* at 9:47-50. “This is because each LED emits at one of the

wavelengths usable for the examination of the fundus of the eye, and the selection of the correct wavelength of the light source is made simply by positioning the correct LED in the optical path of the device.” Ex. 1004 at 9:50-55. *Longobardi* further teaches that “[t]he LEDs which are not in use may be kept switched off if necessary. *Id.* at 9:55-57. And, because the switch controls the amount of electrical current (on/off) to the LEDs, the LEDs and the light switch must be a part of the same electrical circuit. Ex. 1002 at ¶ 72.

Longobardi therefore identically discloses the *at least one light emitting diode, in circuit with the switch* limitation of claim 1.

ii. *at least one light emitting diode . . . for generating blue light energy in response to activation of the switch*

The second feature of this limitation is that the *at least one light emitting diode . . . generat[es] blue light energy in response to activation of the switch*. Ex. 1001 at 4:16-18. *Longobardi* identically discloses this feature too. Ex. 1002 at ¶¶ 74-79.

Referring again to FIG. 1A, *Longobardi* teaches that

By using LEDs which emit at predetermined wavelengths, it is thus possible to avoid the use of interference filters, further simplifying the structure of the equipment. This is because each LED emits at one of the wavelengths usable for the examination of the fundus of the eye, and the selection of the correct wavelength of the light source is made simply by positioning the correct LED in the optical path of the device.

Ex. 1004 at 9:47-55.

Longobardi further discloses that in accordance with the embodiment illustrated in FIG. 1, the device comprises

a continuous light source 1 of low power, for example 20 W electric, housed in a main housing body 3. The alignment source transmits a light beam R toward a filter carried by a **filter support ring 7. The said filter support ring may be fitted with various interference filters to be used for various types of observation. In particular, filters with pass bands centered on the typical absorption and fluorescence wavelengths of the various tracers (fluorescein, indocyanine green) used for observation of the various layers of the fundus of the eye may be disposed on said ring.** One of the filters carried by the ring 7 may be used both for alignment and for observation of the fluorescence phenomenon.

Ex. 1004 at 8:16-30 (emphasis added).

Longobardi further discloses that an “interference filter with a suitably predetermined pass band is interposed between the light source and the fundus of the eye. For retinal fluoroscopic angiography, two filters are normally used: one transmits blue light between 465 and 490 nm, representing the absorption peak of the excitation of fluorescein; the other transmits between 525 and 530 nm, where the emission peak of fluorescein is located.” Ex. 1004 at 4:7-15.

Furthermore, it is known by those skilled in the art that fluorescein dyes fluoresce when illuminated or irradiated with blue light. Ex. 1002 at ¶ 81.

Accordingly, one skilled in the art would understand *Longobardi's* teaching of

using fluorescein for imaging purposes would necessarily mean that the instrument emits blue light such as claimed.

Longobardi therefore identically discloses the *at least one light emitting diode . . . for generating blue light energy in response to activation of the switch* limitation of claim 1.

f. *a fluorescein dye administered to a patient's eye . . .*

The final element of claim 1 of the '394 patent is *a fluorescein dye administered to a patent's [sic, patient's] eye, the dye being responsive to the energy to fluoresce*. Ex. 1001 at 4:19-20. *Longobardi* identically discloses this limitation. Ex. 1002 at ¶¶ 81-82.

Longobardi expressly discloses “portable fluoroscopic angiographs” having a light-emitting diode (LED) light source, “which emits radiation at a predetermined wavelength, instead of an incoherent light source.” Ex. 1004 at 7:24-33. *Longobardi* further teaches that its device may incorporate a filter support ring fitted with various interference filters, and particularly filters with pass bands centered on the typical absorption and fluorescence wavelengths of the various tracers, including fluorescein. *Id.* at 8:19-28. *Longobardi* therefore identically discloses the *fluorescein dye administered to a patient's eye, the dye being responsive to the energy to fluoresce* limitation of claim 1.

2. Claim 5

Claim 5 depends directly from claim 1, and therefore contains all of the limitations of claim 1 as if recited fully therein. Accordingly, each of these limitations is expressly disclosed by *Longobardi* in view of *Devonshire* for the same reasons as provided with respect to claim 1 above in section **VIII.A.1.** (which is herein incorporated in its entirety by reference). Ex. 1002 at ¶ 83.

In addition to the elements recited in claim 1, claim 5 also requires two additional elements, *viz.*, (1) *a housing for integrating the battery, switch, resistor and diode into an integral package, the diode being positioned to generate blue light energy away from the package;* and (2) *a magnifier lens coupled to the housing for providing a magnified image of the patient's eye to a user of the illuminator.* Ex. 1001 at 4:31-37.

a. *a housing . . .*

The first element of claim 5 is *a housing for integrating the battery, switch, resistor and diode* of the claimed device. Ex. 1001 at 4:31-33. As will be explained below, the combined teachings of *Longobardi* in view of *Devonshire* render this claim obvious, and thereby unpatentable. More particularly, *Longobardi* discloses “a continuous light source **1** of low power, for example 20 W electric, housed in a **main housing body 3.**” Ex. 1004 at 8:16-18 (emphasis added). Although not expressly stated by *Longobardi*, one skilled in the art would

understand that the electrical power generated by the disclosed device would necessarily be a battery. Ex. 1002 at ¶ 86. More particularly, as *Longobardi* teaches that its device is designed to be a portable fluoroscopic angiograph without a large power supply unit or cooling system, one skilled in the art would understand that a battery operated power supply would be contained within the main body. Ex. 1004 at 7:23-27; Ex. 1002 at ¶ 86.

As explained above, while *Longobardi* teaches the claimed *battery*, *switch* and *diode*, it does not explicitly disclose the claimed *resistor*. This deficiency, however, is rectified by the teaching of *Devonshire*, which teaches a hand-held illumination device having a dimmer control (i.e., an *electrical resistor*). Ex. 1002 at ¶ 87. As noted above, a person of ordinary skill in the relevant art would have been motivated at the time the invention to combine the teachings of *Longobardi* with the dimmer control disclosed in *Devonshire*, particularly as the resulting device would be able to adjust and control the level (brightness) of light being output from the light-emitting diodes (LEDs). Ex. 1002 at ¶ 88. In addition, since one of the disclosed benefits of *Longobardi's* device is to produce a portable unit having a reduced level of illumination (to thereby eliminate patient discomfort during an examination), the motivated person of ordinary skill in the art would have had a reasonable expectation of success in achieving the claimed device. Ex. 1004 at 8:15-45; Ex. 1002 at ¶ 89. Moreover, in view of *Longobardi's* teaching

that its device is designed to be a **portable** fluoroscopic angiograph without a large power supply unit or cooling system, one skilled in the art would understand that to achieve such a device, it would be necessary to incorporate at least the battery, switch, resistor and diode within its **main housing body 3**. Ex. 1002 at ¶ 90.

Furthermore, as *Longobardi's* LEDs are configured to emit light “at one or the wavelengths usable for the examination of the fundus of the eye . . . by positioning the correct LED in the optical path of the device,” a person of ordinary skill in the art would have necessarily positioned the *diode* in such a manner that it generates blue light energy away from the housing body such as claimed.

Accordingly, the combined teachings of *Longobardi* in view of *Devonshire* therefore meet the first limitation of claim 5 by disclosing a *housing for integrating the battery, switch, resistor and diode into an integral package, the diode being positioned to generate blue light energy away from the package* limitation of claim 5. Ex. 1002 at ¶ 92.

b. a magnifier lens . . .

The second element of claim 5 is *a magnifier lens coupled to the housing for providing a magnified image of the patient's eye to a user of the illuminator*. Ex. 1001 at 4:34-37. As will be explained below, the combined teachings of *Longobardi* in view of *Devonshire* render this claim obvious, and therefore unpatentable. Ex. 1002 at ¶¶ 93-98. While *Longobardi* discloses in certain

embodiments that “[t]he light beam coming off the fundus of the patient's eye is sent through a set of correcting lenses 15 and a focusing optic 17”, it does not explicitly discuss the magnification values such as claimed. Ex. 1004 at 8:46-49. The deficiencies of *Longobardi*, however, are clearly resolved by the teachings of *Devonshire*, which teaches “a plano-convex lens 8 at one end” of its device. Ex. 1005 at 1:82-86. More particularly, *Devonshire* teaches that this lens 8 “forms an image of the fundus of the eye thus illuminated . . .” and that “[t]he lens 8 may be mounted so that lenses of different powers can be fitted. . . Typically, a set of lenses of powers 16D, 20D, 30D and 36D is provided.” *Id.* at 1:89-92, 1:123-128.

As noted in section VI. above, a person of ordinary skill in the relevant art as of October 20, 1998, would have had at least a bachelor of science or engineering degree in electrical engineering, physics, optics, or a related field, and either an advanced degree (such as a masters) in such a subject or an equivalent amount of work experience, *i.e.* 2-3 years, in an area relating to ophthalmic instrument design and/or fabrication or a related technical field.

Taking the above into consideration, a person of ordinary skill in the relevant art would have been motivated at the time the invention, and would have had a reasonable expectation of success, to couple the plano-convex lens 8 of *Devonshire* to the main housing body 3 of *Longobardi* to produce a device having enhanced image magnification capabilities. Ex. 1002 at ¶ 97.

Accordingly, the combined teachings of *Longobardi* in view of *Devonshire* therefore meet the second limitation of claim 5 by disclosing and rendering obvious *a magnifier lens coupled to the housing for providing a magnified image of the patient's eye to a user of the illuminator.* Ex. 1002 at ¶ 98.

Finally, as stated above, there is no evidence in the prosecution history of any secondary considerations that would overcome this very strong evidence that Claim 5 would have been obvious over *Longobardi* in view of *Devonshire.* Ex. 1002 at ¶ 99.

3. Claim 6

Claim 6 depends from claim 5 of the '394 patent (which depends, in turn, from claim 1), and therefore contains all of the limitations of claims 1 and 5 as if recited fully therein. Accordingly, each of these limitations is expressly disclosed by *Longobardi* in view of *Devonshire* for the same reasons as provided with respect to claims 1 and 5 above in sections **VIII.A.1.** and **VIII.A.2.** (which are herein incorporated in their entirety by reference). Ex. 1002 at ¶ 100.

Claim 6 also includes a *wherein* clause, *viz.* that *the magnifier lens has a magnification between 1.5x and 15x.* Ex. 1001 at 4:38-39. *Longobardi* does not expressly disclose this limitation, however, the secondary teaching of *Devonshire* resolves this deficiency. Ex. 1002 at ¶¶ 102-104. More particularly, *Devonshire* exemplifies magnifying lenses having “powers 16D, 20D, 30D and 36D” for use

with the disclosed ophthalmoscope. Ex. 1005 at 1:127-128. It is known by those skilled in the art that a lens having power 16D corresponds to a 5x (5 times) magnification and a lens having power 36D corresponds to a 10x magnification. Ex. 1002 at ¶ 102. (<https://www.dazor.com/choosing-a-lighted-magnifier.html>)

As noted in section VI. above, a person of ordinary skill in the relevant art as of October 20, 1998, would have had at least a bachelor of science or engineering degree in electrical engineering, physics, optics, or a related field, and either an advanced degree (such as a masters) in such a subject or an equivalent amount of work experience, *i.e.* 2-3 years, in an area relating to ophthalmic instrument design and/or fabrication or a related technical field.

Taking the above into consideration, a person of ordinary skill in the relevant art would have been motivated at the time the invention, and would have had a reasonable expectation of success, to combine the teachings of *Longobardi* with the lenses and magnification factors disclosed in *Devonshire* to produce a device having enhanced image magnification capabilities. Ex. 1002 at ¶ 104.

Accordingly, the combined teachings of *Longobardi* in view of *Devonshire* therefore meet the limitation of claim 6 by disclosing the limitation that *the magnifier lens has a magnification between 1.5x and 15x*. Ex. 1002 at ¶ 105.

Finally, there is no evidence in the prosecution history of any secondary considerations that would overcome this very strong evidence that Claim 6 would have been obvious over *Longobardi* in view of *Devonshire*. Ex. 1002 at ¶ 106.

4. Claim 8

Claim 8 depends from claim 1, and therefore contains all of the limitations of claim 1 as if recited fully therein. Accordingly, each of these limitations is expressly disclosed by *Longobardi* in view of *Devonshire* for the same reasons as provided with respect to claim 1 above in section VIII.A.1. (which is herein incorporated in its entirety by reference). Ex. 1002 at ¶ 107.

Claim 8 also includes a *wherein* clause, *viz.* that *the dye comprises Sodium Fluorescein*. Ex. 1001 at 4:47-48. *Longobardi* identically discloses this limitation. Ex. 1002 at ¶ 108-111. More particularly, *Longobardi* expressly discloses “portable fluoroscopic angiographs” having a light-emitting diode (LED) light source, “which emits radiation at a predetermined wavelength, instead of an incoherent light source.” Ex. 1004 at 7:24-33. *Longobardi* further teaches that its device may incorporate a filter support ring fitted with various interference filters, and particularly filters with pass bands centered on the typical absorption and fluorescence wavelengths of the various tracers, including fluorescein. *Id.* at 8:19-28.

Longobardi discloses that fluoroscopic angiography is used to observe the eye. Ex. 1002 at ¶ 110. For this purpose, a small quantity of tracer substance, such as sodium fluorescein is used. *Id.*

Longobardi therefore teaches the limitation that *the dye comprises Sodium Fluorescein* as required by claim 8.

Finally, there is no evidence in the prosecution history of any secondary considerations that would overcome this very strong evidence that Claim 8 would have been obvious over *Longobardi* in view of *Devonshire*. Ex. 1002 at ¶ 112.

5. Claim 9

Claim 9 depends from claim 1, and therefore contains all of the limitations of claim 1 as if recited fully therein. Accordingly, each of these limitations is expressly disclosed by *Longobardi* in view of *Devonshire* for the same reasons as provided with respect to claim 1 above in section **VIII.A.1.** (which is herein incorporated in its entirety by reference). Ex. 1002 at ¶¶ 113.

Claim 9 also includes a *wherein* clause, *viz.* that *the diode comprises Gallium nitride*. Ex. 1001 at 4:49-50. *Longobardi* inherently discloses this limitation. Ex. 1002 at ¶¶ 114-116.

As described above, *Longobardi* discloses the use of LEDs as the light source in an instrument for indirect ophthalmic examination of the eye using fluorescein. Ex. 1002 at ¶ 115. Since it is known by those skilled in the art that

fluorescein dyes fluoresce only when illuminated or irradiated with blue light, one skilled in the art would understand *Longobardi* to be teaching the use of blue light with its disclosed instrument. *Id.* Moreover, because it is known by those skilled in the art that blue LEDs are generally powered by GaN (gallium nitride) and/or SiC (silicon carbide), one skilled in the art would immediately envisage an LED powered by gallium nitride as the light source to be used with *Longobardi's* fluorescein enhanced retinal and choroidal angiographic illumination devices. Ex. 1002 at ¶ 116.

Longobardi therefore inherently discloses that *the diode comprises Gallium nitride* as required by claim 9. Ex. 1002 at ¶ 117.

Finally, there is no evidence in the prosecution history of any secondary considerations that would overcome this very strong evidence that Claim 9 would have been obvious over *Longobardi* in view of *Devonshire*. Ex. 1002 at ¶ 118.

6. Claim 10

Claim 10 depends from claim 1, and therefore contains all of the limitations of claim 1 as if recited fully therein. Accordingly, each of these limitations is expressly disclosed by *Longobardi* in view of *Devonshire* for the same reasons as provided with respect to claim 1 above in section **VIII.A.1.** (which is herein incorporated in its entirety by reference). Ex. 1002 at ¶ 119.

Claim 10 also includes a *wherein* clause, *viz.* that *the diode comprises Silicon Carbide*. Ex. 1001 at 4:51-52. As will be explained below, *Longobardi* inherently discloses this limitation. Ex. 1002 at ¶¶ 120-123.

Longobardi expressly discloses the use of blue LEDs in the various embodiments of its disclosed illumination system. Ex. 1004 at 8:16-30. It is known by those skilled in the art that blue LEDs are generally powered by GaN (gallium nitride) and/or SiC (silicon carbide). Ex. 1002 at ¶ 122. Accordingly, one skilled in the art would immediately envisage an LED powered by silicon carbide upon reading *Longobardi's* disclosure of blue LEDs. *Id.*

Longobardi therefore inherently discloses that *the diode comprises Silicon Carbide* as required by claim 10.

Finally, there is no evidence in the prosecution history of any secondary considerations that would overcome this very strong evidence that Claim 9 would have been obvious over *Longobardi* in view of *Devonshire*. Ex. 1002 at ¶ 124.

7. Claim 14

Claim 14 depends directly from claim 1, and therefore contains all of the limitations of claim 1 as if recited fully therein. Accordingly, each of these limitations is expressly disclosed by *Longobardi* in view of *Devonshire* for the same reasons as provided with respect to claim 1 above in section **VIII.A.1.** (which is herein incorporated in its entirety by reference). Ex. 1002 at ¶ 125.

In addition to the elements recited in claim 1, claim 14 also requires *a focusing lens constructed and arranged with at least one of the diodes to focus the blue light energy onto the patient's eye.* Ex. 1001 at 4:64-67. *Longobardi* teaches that the “light beam coming off the fundus of the patient’s eye is sent through a set of correcting lenses 15 and a **focusing optic** 17 toward an image intensifier.” Ex. 1004 at 8:46-49 (emphasis added). It does not, however, explicitly disclose directing the light beam onto the patient’s eye such as required by claim 14. Ex. 1002 at ¶ 127. The deficiencies of *Longobardi*, however, are resolved by the teachings of *Devonshire*, which disclose an indirect ophthalmoscope that “has a housing 2 which is generally T-shaped and comprises a cylindrical tube 3 mounted across the wider end of a tapered tube 4.” Ex. 1005 at 1:76-79. *Devonshire* further teaches that this instrument also includes “a plano-convex lens 6 to form a parallel beam of light which is projected into the tube 3” and then transmitted to the patient’s eye. *Id.* at 1:79-82; Ex. 1002 at ¶ 128.

Devonshire teaches that this lens 6 is a collimating lens, *i.e.* a lens that narrows a beam of light waves. Ex. 1005 at 2:74; Ex. 1002 at ¶ 129. *Devonshire* further teaches that “[b]y adjustment of the light source towards the lens 6, the narrowest part of the beam can be moved to coincide with the iris [of the eye being examined].” Ex. 1005 at 2:48-50.

As noted in section VI. above, a person of ordinary skill in the relevant art as of October 20, 1998, would have had at least a bachelor of science or engineering degree in electrical engineering, physics, optics, or a related field, and either an advanced degree (such as a masters) in such a subject or an equivalent amount of work experience, *i.e.* 2-3 years, in an area relating to ophthalmic instrument design and/or fabrication or a related technical field.

Because one skilled in the art would understand that using *Devonshire's* collimating lens is beneficial for adjusting and focusing a light beam relative to a patient's eye, one skilled in the art would have been motivated to add such a lens to *Longobardi's* system to improve the examination process. Ex. 1002 at ¶ 131.

Accordingly, the combined teachings of *Longobardi* in view of *Devonshire* therefore meet the limitation of claim 14 by disclosing *a focusing lens constructed and arranged with at least one of the diodes to focus the blue light energy onto the patient's eye.* Ex. 1002 at ¶ 133.

Finally, there is no evidence in the prosecution history of any secondary considerations that would overcome this very strong evidence that Claim 14 would have been obvious over *Longobardi* in view of *Devonshire*. Ex. 1002 at ¶ 134.

8. Claim 19

Claim 19 depends directly from claim 15, and therefore contains all of the limitations of claim 15 as if recited fully therein. Accordingly, each of these

limitations is expressly disclosed by *Longobardi* for the same reasons as will be provided with respect to claim 15 discussed in detail below in section **VIII.B.1.** (which is herein incorporated in its entirety by reference). Ex. 1002 at ¶ 135.

Claim 19 also includes a *wherein* clause, viz. that *the step of viewing comprises viewing through a magnifying lens coupled with a housing that supports the diodes*. Ex. 1001 at 5:8-10. This limitation, *i.e.* the *magnifying lens coupled with a housing that supports the diodes*, is the same as the limitation recited in claim 5. Accordingly, this limitation is expressly disclosed by *Longobardi* in view of *Devonshire* for the same reasons as provided with respect to claim 5 above in section **VIII.A.2.** (which is herein incorporated in its entirety by reference). Ex. 1002 at ¶ 136.

Accordingly, the combined teachings of *Longobardi* in view of *Devonshire* therefore meet the limitations of claim 19 by disclosing and rendering obvious *the step of viewing comprises viewing through a magnifying lens coupled with a housing that supports the diodes*. 1002 at ¶ 137.

Finally, as stated above, there is no evidence in the prosecution history of any secondary considerations that would overcome this very strong evidence that Claim 19 would have been obvious over *Longobardi* in view of *Devonshire*. Ex. 1002 at ¶ 138.

B. Challenge #2: Claims 15 and 16 are anticipated under pre-AIA 35 U.S.C. § 102(b) by *Longobardi*

Longobardi (Ex. 1004) was published on August 11, 1993. Because the earliest effective filing date of the ‘394 Patent in the United States is October 20, 1998, *Longobardi* is prior art to the ‘394 Patent under pre-AIA 35 U.S.C. § 102(b).

Longobardi anticipates each of claims 15, 16 and 19 of the ‘394 Patent. That is, “each and every element” of claims 15, 16 and 19 of the ‘394 Patent is identically disclosed by *Longobardi*, “arranged or combined in the same way as in the claim.” *Ericson Inc. v. Intellectual Ventures LLC*, ___ F.3d ___, ___ (Fed. Cir. 2018) (citing *Blue Calypso*, 815 F.3d at 1341).

1. Claim 15

a. The preamble

The preamble of claim 15 of the ‘394 Patent recites “[a] method for illuminating a patient’s eye for ophthalmic examination.” Ex 1001 at 5:1-2. To the extent that this preamble is deemed a limitation, a point Petitioner expressly does not concede, this limitation is expressly disclosed by *Longobardi*. Ex 1002 at ¶¶ 140-142.

More specifically, *Longobardi* discloses an apparatus and associated methods for “the illumination of the fundus of the eye.” Ex. 1004 at 6:30-35. Among the specific uses exemplified by *Longobardi* for this apparatus is as a

device capable of performing fluoroscopic angiography. Ex. 1002 at ¶ 141. In particular, *Longobardi* teaches that its design is suitable for producing “portable fluoroscopic angiographs.” Ex. 1004 at 7:24-27. In accordance with advantageous embodiments of the claimed invention, the portable device’s “light source may be a light-emitting diode (LED), which emits radiation at a predetermined wavelength, instead of an incoherent light source.” Ex. 1004 at 7:28-33.

Accordingly, to the extent the preamble is limiting, this limitation is identically disclosed by *Longobardi*. Ex. 1002 at ¶ 142.

b. *administering a fluorescein dye to the patient’s eye*

The first step of the method claimed in claim 15 is *administering a fluorescein dye to the patent’s* [sic, *patient’s*] *eye*. Ex. 1001 at 5:2-3. *Longobardi* identically discloses this step. Ex. 1002 at ¶¶ 143-145.

Longobardi expressly discloses “portable fluoroscopic angiographs” having a light-emitting diode (LED) light source, “which emits radiation at a predetermined wavelength, instead of an incoherent light source.” Ex. 1004 at 7:24-33. *Longobardi* further teaches that its device may incorporate a filter support ring fitted with various interference filters, and particularly filters with pass bands centered on the typical absorption and fluorescence wavelengths of the various tracers, including fluorescein. *Id.* at 8:19-28. *Longobardi* therefore

identically discloses the claimed step of *administering a fluorescein dye to the patient's eye* as recited in claim 15. Ex. 1002 at ¶ 145.

c. *illuminating the eye with blue light energy generated by one or more light emitting diodes . . .*

The second step of the claimed method is *illuminating the eye with blue light energy generated by one or more light emitting diodes, the dye being responsive to the blue light energy to fluoresce*. Ex. 1001 at 5:3-6. *Longobardi* identically discloses this step too. Ex. 1002 at ¶¶ 146-151.

FIG. 1A, *Longobardi* teaches that

By using LEDs which emit at predetermined wavelengths, it is thus possible to avoid the use of interference filters, further simplifying the structure of the equipment. This is because each LED emits at one of the wavelengths usable for the examination of the fundus of the eye, and the selection of the correct wavelength of the light source is made simply by positioning the correct LED in the optical path of the device.

Ex. 1004 at 9:47-55.

Longobardi further discloses that in accordance with the embodiment illustrated in FIG. 1, the device comprises

a continuous light source 1 of low power, for example 20 W electric, housed in a main housing body 3. The alignment source transmits a light beam R toward a filter carried by a **filter support ring 7. The said filter support ring may be fitted with various interference filters to be used for various types of observation. In particular, filters with pass bands centered on the typical absorption and fluorescence wavelengths of the various tracers (fluorescein, indocyanine green) used for observation of the various layers of**

the fundus of the eye may be disposed on said ring. One of the filters carried by the ring 7 may be used both for alignment and for observation of the fluorescence phenomenon.

Ex. 1004 at 8:16-30 (emphasis added).

Longobardi further discloses that an “interference filter with a suitably predetermined pass band is interposed between the light source and the fundus of the eye. For retinal fluoroscopic angiography, two filters are normally used: one transmits blue light between 465 and 490 nm, representing the absorption peak of the excitation of fluorescein; the other transmits between 525 and 530 nm, where the emission peak of fluorescein is located.” Ex. 1004 at 4:7-15.

Furthermore, is known by those skilled in the art that fluorescein dyes fluoresce when illuminated or irradiated with blue light. Ex. 1002 at ¶ 150. Accordingly, one skilled in the art would understand *Longobardi*’s teaching to use fluorescein for imaging purposes would necessarily mean that the instrument emits blue light.

Longobardi therefore discloses the step of *illuminating the eye with blue light energy generated by one or more light emitting diodes, the dye being responsive to the blue light energy to fluoresce* as required by claim 15. Ex. 1002 at ¶ 151.

d. *viewing the patient's eye, and viewing the eye while the dye fluoresces*

The third and fourth steps of the claimed method require *viewing the patient's eye* and *viewing the eye while the dye fluoresces*. Ex. 1001 at 5:6-7. The '394 Patent does not, however, specify whether these steps are performed simultaneously or separately. Ex. 1002 at ¶ 152. Nevertheless, irrespective of that ambiguity, *Longobardi* identically discloses both of these steps. Ex. 1002 at ¶¶ 153-154.

Longobardi discloses administering a fluorescein dye to a patient's eye for ophthalmic examination, *i.e.* *Longobardi* teaches that its device may incorporate a filter support ring fitted with various interference filters, and particularly filters with pass bands centered on the typical absorption and fluorescence wavelengths of the various tracers, including fluorescein. *Id.* at 8:19-28. As noted above with respect to step (c), it is known by those skilled in the art that fluorescein dyes fluoresce when irradiated or illuminated with blue light. Ex. 1002 at ¶ 153. Accordingly, one skilled in the art would understand *Longobardi* to disclose examining the patient's eye while the fluorescein dye fluoresces since the LED system includes LEDs that generate blue light. *Id.*

Longobardi therefore discloses the step(s) of *viewing the patient's eye, and viewing the eye while the dye fluoresces* as required by claimed 15.

2. Claim 16

Claim 16 depends directly from claim 15, and therefore contains all of the limitations of claim 15 as if recited fully therein. Accordingly, each of these limitations is expressly disclosed by *Longobardi* for the same reasons as provided with respect to claim 15 above in section **VIII.B.1.** (which is herein incorporated in its entirety by reference). Ex. 1002 at ¶¶ 155.

Claim 16 also includes a *wherein* clause, *viz.* that *the step of administering a fluorescein dye comprises administering Sodium Fluorescein to the eye.* Ex. 1001 at 5:8-10. This limitation, *i.e.* that the *fluorescein dye* is *Sodium Fluorescein* is the same as the limitation recited in claim 8. Accordingly, this limitation is expressly disclosed by *Longobardi* for the same reasons as provided with respect to claim 8 above in section **VIII.A.4.** (which is herein incorporated in its entirety by reference). Ex. 1002 at ¶ 156.

Longobardi therefore identically discloses the limitation recited in claim 16 of the '394 patent.

C. Challenge #3: Claims 1, 5, 6, 8-10, 14-16 and 19 are anticipated under pre-AIA 35 U.S.C. § 102(b) by *Devonshire*

Devonshire (Ex. 1005) was published on December 23, 1981. Because the earliest effective filing date of the '394 Patent in the United States is October 20, 1998, *Devonshire* is prior art to the '394 Patent under pre-AIA 35 U.S.C. § 102(b).

Devonshire anticipates each of claims 1, 5, 6, 8-10, 14-16 and 19 of the ‘394 Patent. That is, “each and every element” of claims 1, 5, 6, 8-10, 14-16 and 19 of the ‘394 Patent is identically disclosed by *Devonshire*, “arranged or combined in the same way as in the claim.” *Ericson Inc. v. Intellectual Ventures LLC*, ___ F.3d ___, ___ (Fed. Cir. 2018) (citing *Blue Calypso*, 815 F.3d at 1341).

1. Claim 1

a. The preamble

The preamble of claim 1 of the ‘394 Patent recites “[a]n ophthalmic illuminator . . .” Ex 1001 at 4:12. To the extent that this preamble is deemed a limitation, a point Petitioner expressly does not concede, this limitation is expressly disclosed by *Devonshire*. Ex 1002 at ¶¶ 159-161.

More specifically, *Devonshire* discloses an indirect ophthalmoscope (an instrument for examining the eye) that includes a light source. Ex. 1005 at 1:3-4.

Devonshire teaches that

the light projection system, and a converging lens used to form an aerial image of the fundus of the eye **illuminated by the projection system**, are combined in a single unit, which can be designed to be hand-held.

Ex. 1005 at 1:47-55 (emphasis added).

Accordingly, to the extent the preamble is limiting, this limitation is identically disclosed by *Devonshire*.

b. *a battery*

The first element of the ophthalmic illuminator of claim 1 is *a battery*. Ex 1001 at col. 4:13. *Devonshire* identically discloses this element. Ex 1002 at ¶¶ 163-164.

Devonshire discloses an indirect ophthalmoscope that includes a light source. Ex. 1005 at 1:3-4. *Devonshire* teaches that

[T]he light projection system, and a converging lens used to form an aerial image of the fundus of the eye illuminated by the projection system, are combined in a single unit, which can be designed to be hand-held.

Ex. 1005 at 1:47-55 (emphasis added). *Devonshire* further teaches that

The instrument has a housing 2 which is generally T-shaped and comprises a cylindrical tube 3 mounted across the wider end of a tapered tube 4. . . . The tube 4 may be attached to or form part of a hand grip which can contain a lamp bulb and **battery**, and optionally, a dimmer control.

Ex. 1005 at 1:76-79, 2:16-18 (emphasis added).

Devonshire therefore identically teaches the *battery* limitation of claim 1.

c. *an electrical resistor in circuit with the battery*

The second element of claim 1 is *an electrical resistor in circuit with the battery*. Ex. 1001 at 4:14. *Devonshire* identically discloses this element, and in the same arrangement as recited in the claim. Ex. 1002 at ¶ 165-167.

As noted above with respect to the *battery* element, *Devonshire* discloses an indirect ophthalmoscope. Ex. 1005 at 1:3-4. *Devonshire* teaches that

the light projection system, and a converging lens used to form an aerial image of the fundus of the eye illuminated by the projection system, are combined in a single unit, which can be designed to be hand-held.

Ex. 1005 at 1:47-55 (emphasis added). *Devonshire* further teaches that

The instrument has a housing 2 which is generally T-shaped and comprises a cylindrical tube 3 mounted across the wider end of a tapered tube 4. . . The tube 4 may be attached to or form part of a hand grip which can contain a lamp bulb and battery, and optionally, **a dimmer control**.

Ex. 1005 at 1:76-79, 2:16-18 (emphasis added). It is known by those skilled in the art that a dimmer control is including and functioning as an *electrical resistor*. Ex. 1002 at ¶ 166. Moreover, although not expressly stated by *Devonshire*, one skilled in the art would understand the battery and dimmer control to be a part of the same electrical circuit. Ex. 1002 at ¶¶ 169.

Devonshire therefore identically teaches the *electrical resistor in circuit with the battery* limitation of claim 1.

d. *an electrical switch in circuit with the resistor*

The third element of claim 1 is *an electrical switch in circuit with the resistor*. Ex. 1001 at 4:15. *Devonshire* inherently discloses this element, and in the same arrangement as recited in the claim. Ex. 1002 at ¶¶ 168-170.

As noted above with respect to the *battery* and *resistor* elements, *Devonshire* discloses an indirect ophthalmoscope. Ex. 1005 at 1:3-4. *Devonshire* teaches that the light projection system, and a converging lens used to form an aerial image of the fundus of the eye illuminated by the projection system, are combined in a single unit, which can be designed to be hand-held.

Ex. 1005 at 1:47-55 (emphasis added). *Devonshire* further teaches that

The instrument has a housing 2 which is generally T-shaped and comprises a cylindrical tube 3 mounted across the wider end of a tapered tube 4. . . . The tube 4 may be attached to or form part of a hand grip which can contain a lamp bulb and battery, and optionally, a dimmer control.

Ex. 1005 at 1:76-79, 2:16-18 (emphasis added). Although not expressly stated by *Devonshire*, one skilled in the art would understand that the device would necessarily require an “on/off” switch in order to prevent the bulb from draining power from battery when not in use. Ex. 1002 at ¶ 169.

Devonshire therefore identically teaches the *electrical switch in circuit with the resistor* limitation of claim 1.

e. at least one light emitting diode . . .

The fourth element of claim 1 is *at least one light emitting diode, in circuit with the switch, for generating blue light energy in response to activation of the switch*. Ex. 1001 at 4:16-18. *Devonshire* identically discloses this element, and in the same arrangement as recited in the claim. Ex. 1002 at ¶¶ 172-177.

- i. *at least one light emitting diode, in circuit with the switch . . .*

The first feature of this element is *at least one light emitting diode, in circuit with the switch*. Ex. 1001 at 4:16. *Devonshire* identically discloses this feature. Ex. 1002 at ¶¶ 172-174.

As noted above, *Devonshire* discloses an indirect ophthalmoscope that includes a light source. Ex. 1005 at 1:3-4. *Devonshire* teaches that

the light projection system, and a converging lens used to form an aerial image of the fundus of the eye illuminated by the projection system, are combined in a single unit, which can be designed to be hand-held.

Ex. 1005 at 1:47-55 (emphasis added). *Devonshire* further teaches that “**[t]he light source is preferably a light-emitting diode** or similar source” Ex. 1005 at 1:70-71 (emphasis added).

- ii. *at least one light emitting diode . . . for generating blue light energy in response to activation of the switch*

The second feature of this limitation is that the *at least one light emitting diode . . . generat[es] blue light energy in response to activation of the switch*. Ex. 1001 at 4:16-18. *Devonshire* inherently discloses this feature. Ex. 1002 at ¶¶ 175-177.

Devonshire teaches that “[t]he instrument can be used, with an appropriate accessory, for fluorescence angiography, with visible radiation (using for example

fluorescein) . . . using suitable filters The fluorescence excitation wavelength is selected by an appropriate filter in the filter wheel 10” Ex. 1005 at 3:65-75.

It is known by those skilled in the art that fluorescein dyes fluoresce when illuminated or irradiated with blue light. Ex. 1002 at ¶ 176. Accordingly, one skilled in the art would understand *Devonshire*’s teaching to use fluorescein for imaging purposes would necessarily mean that the instrument emits blue light.

Devonshire therefore identically discloses the *at least one light emitting diode, in circuit with the switch, for generating blue light energy in response to activation of the switch* limitation of claim 1.

f. *a fluorescein dye administered to a patient’s eye . . .*

The final element of claim 1 of the ‘394 patent is *a fluorescein dye administered to a patient’s eye, the dye being responsive to the energy to fluoresce*. Ex. 1001 at 4:19-20. *Devonshire* identically discloses this limitation. Ex. 1002 at ¶¶ 178-180.

As noted above, *Devonshire* teaches that “[t]he instrument can be used, with an appropriate accessory, for fluorescence angiography, with visible radiation (using for example fluorescein) . . . using suitable filters The fluorescence excitation wavelength is selected by an appropriate filter in the filter wheel 10 Ex. 1005 at 3:65-75. It is known by those skilled in the art that fluorescein dyes fluoresce when illuminated or irradiated with blue light. Ex. 1002 at ¶ 179.

Devonshire therefore identically discloses the *fluorescein dye administered to a patient's eye, the dye being responsive to the energy to fluoresce* limitation of claim 1.

2. Claim 5

Claim 5 depends directly from claim 1, and therefore contains all of the limitations of claim 1 as if recited fully therein. Accordingly, each of these limitations is expressly disclosed by *Devonshire* for the same reasons as provided with respect to claim 1 above in section **VIII.B.1.** (which is herein incorporated in its entirety by reference). Ex. 1002 at ¶ 181.

In addition to the elements recited in claim 1, claim 5 also requires two additional elements, *viz.*, (1) *a housing for integrating the battery, switch, resistor and diode into an integral package, the diode being positioned to generate blue light energy away from the package;* and (2) *a magnifier lens coupled to the housing for providing a magnified image of the patient's eye to a user of the illuminator.* Ex. 1001 at 4:31-37.

a. *a housing . . .*

The first element of claim 5 is *a housing for integrating the battery, switch, resistor and diode* of the claimed device. Ex. 1001 at 4:31-33. *Devonshire* identically discloses this limitation. Ex. 1002 at ¶¶ 183-186.

Devonshire discloses an indirect ophthalmoscope designed as to be hand-held. Ex. 1005 at 1:47-55. *Devonshire* teaches that

The instrument has a housing 2 which is generally T-shaped and comprises a cylindrical tube 3 mounted across the wider end of a tapered tube 4. . . . **The tube 4 may be attached to or form part of a hand grip which can contain a lamp bulb and battery, and optionally, a dimmer control.**

Ex. 1005 at 1:76-79, 2:16-18 (emphasis added).

Although not expressly stated by *Devonshire*, one skilled in the art would understand that the disclosed instrument would necessarily require an “on/off” switch in order to prevent the bulb from draining power from battery when not in use. Ex. 1002 at ¶ 185. And, in view of *Devonshire*’s teaching that all of the elements of the instrument “are combined in a single unit, which can be designed to be hand-held,” one skilled in the art would understand that such an “on/off” switch would be contained within the same housing 2 as the bulb, the battery and the dimmer control (*electrical resistor*). Ex. 1005 at 1:47-55; Ex. 1002 at ¶ 185.

Devonshire therefore identically discloses the *housing for integrating the battery, switch, resistor and diode into an integral package, the diode being positioned to generate blue light energy away from the package* limitation of claim 5.

b. *a magnifier lens . . .*

The second element of claim 5 is *a magnifier lens coupled to the housing for providing a magnified image of the patient’s eye to a user of the illuminator*. Ex. 1001 at 4:34-37. *Devonshire* identically discloses this element as well. Ex. 1002 at ¶¶ 187-190.

As noted above, *Devonshire* discloses an indirect ophthalmoscope that “has a housing 2 which is generally T-shaped and comprises a cylindrical tube 3 mounted across the wider end of a tapered tube 4.” Ex. 1005 at 1:76-79. *Devonshire* further teaches that this instrument also includes “a plano-convex lens 8 at one end of the tube 3.” *Id.* at 1:82-86; Ex. 1002 at ¶ 188.

Devonshire teaches that this lens 8 “forms an image of the fundus of the eye thus illuminated . . .” *Id.* at 1:89-92. *Devonshire* also teaches that “[t]he lens 8 may be mounted so that lenses of different powers can be fitted. . . . Typically, a set of lenses of powers 16D, 20D, 30D and 36D is provided.” *Id.* at 1:123-128; Ex. 1002 at ¶ 189.

Devonsire therefore identically discloses the *magnifier lens* limitation of claim 5.

3. Claim 6

Claim 6 depends from claim 5 of the ‘394 patent (which depends, in turn, from claim 1), and therefore contains all of the limitations of claims 1 and 5 as if

recited fully therein. Accordingly, each of these limitations is expressly disclosed by *Devonshire* for the same reasons as provided with respect to claims 1 and 5 above in sections **VIII.B.1.** and **VIII.B.2.** (which are herein incorporated in their entirety by reference). Ex. 1002 at ¶ 191.

Claim 6 also includes a *wherein* clause, *viz.* that *the magnifier lens has a magnification between 1.5x and 15x.* Ex. 1001 at 4:38-39. *Devonshire* identically discloses this limitation. Ex. 1002 at ¶¶ 192-194.

Devonshire exemplifies magnifying lenses having “powers 16D, 20D, 30D and 36D” for use with the disclosed ophthalmoscope. Ex. 1005 at 1:127-128. It is known by those skilled in the art that a lens having power 16D corresponds to a 5x (5 times) magnification and a lens having power 36D corresponds to a 10x magnification. Ex. 1002 at ¶ 193. (<https://www.dazor.com/choosing-a-lighted-magnifier.html>); 1002 at ¶ 193.

Devonshire therefore discloses *the magnifier lens has a magnification between 1.5x and 15x* of claim 6.

4. Claim 8

Claim 8 depends from claim 1, and therefore contains all of the limitations of claim 1 as if recited fully therein. Accordingly, each of these limitations is expressly disclosed by *Devonshire* for the same reasons as provided with respect to

claim 1 above in section **VIII.B.1.** (which is herein incorporated in its entirety by reference). Ex. 1002 at ¶ 195.

Claim 8 also includes a *wherein* clause, *viz.* that *the dye comprises Sodium Fluorescein.* Ex. 1001 at 4:47-48. *Devonshire* identically discloses this limitation. Ex. 1002 at ¶¶ 196-198.

Devonshire teaches that the disclosed indirect ophthalmoscope “can be used, with an appropriate accessory, for fluorescence angiography, with visible radiation (using for example fluorescein) . . . using suitable filters . . .” Ex. 1005 at 3:65-73. Since it is known by those skilled in the art that sodium fluorescein is the only fluorescein compound that is used for ophthalmic examinations, one skilled in the art would understand *Devonshire*’s disclosure of fluorescein in the context of an indirect ophthalmoscope to necessarily mean sodium fluorescein. Ex. 1002 ¶ 197.

Devonshire therefore teaches that *the dye comprises Sodium Fluorescein* as required by claim 8.

5. Claim 9

Claim 9 depends from claim 1, and therefore contains all of the limitations of claim 1 as if recited fully therein. Accordingly, each of these limitations is expressly disclosed by *Devonshire* for the same reasons as provided with respect to claim 1 above in section **VIII.B.1.** (which is herein incorporated in its entirety by reference). Ex. 1002 at ¶¶ 199.

Claim 9 also includes a *wherein* clause, *viz.* that *the diode comprises Gallium nitride*. Ex. 1001 at 4:49-50. *Devonshire* inherently discloses this limitation. Ex. 1002 at ¶¶ 200-203.

As described above, *Devonshire* discloses the use of LEDs as the light source in an instrument for indirect ophthalmic examination of the eye using fluorescein. Ex. 1002 at ¶ 201. Since it is known by those skilled in the art that fluorescein dyes fluoresce only when illuminated or irradiated with blue light, one skilled in the art would understand *Devonshire* to be teaching the use of blue light with the disclosed instrument. *Id.* Moreover, because it is known by those skilled in the art that blue LEDs are powered by GaN (gallium nitride) and/or SiC (silicon carbide), one skilled in the art would immediately envisage an LED powered by gallium nitride upon reading *Devonshire*'s disclosure of the use of LEDs as the light source in an instrument for indirect ophthalmic examination of the eye using fluorescein. Ex. 1002 at ¶ 202.

Devonshire therefore inherently discloses that *the diode comprises Gallium nitride* as required by claim 9.

6. Claim 10

Claim 10 depends from claim 1, and therefore contains all of the limitations of claim 1 as if recited fully therein. Accordingly, each of these limitations is expressly disclosed by *Devonshire* for the same reasons as provided with respect to

claim 1 above in section **VIII.B.1.** (which is herein incorporated in its entirety by reference). Ex. 1002 at ¶ 204.

Claim 10 also includes a *wherein* clause, *viz.* that *the diode comprises Silicon Carbide*. Ex. 1001 at 4:51-52. *Devonshire* inherently discloses this limitation. Ex. 1002 at ¶¶ 205-208.

As described above, *Devonshire* discloses the use of LEDs as the light source in an instrument for indirect ophthalmic examination of the eye using fluorescein. Ex. 1002 at ¶ 206. Since it is known by those skilled in the art that fluorescein dyes fluoresce only when illuminated or irradiated with blue light, one skilled in the art would understand *Devonshire* to be teaching the use of blue light with the disclosed instrument. *Id.* Moreover, because it is known by those skilled in the art that blue LEDs are powered by gallium nitride and/or silicon carbide, one skilled in the art would immediately envisage an LED powered by silicon carbide upon reading *Devonshire's* disclosure of the use of LEDs as the light source in an instrument for indirect ophthalmic examination of the eye using fluorescein. Ex. 1002 at ¶ 207.

Devonshire therefore inherently discloses that *the diode comprises Silicon Carbide* as required by claim 10.

7. Claim 14

Claim 14 depends directly from claim 1, and therefore contains all of the limitations of claim 1 as if recited fully therein. Accordingly, each of these limitations is expressly disclosed by *Devonshire* for the same reasons as provided with respect to claim 1 above in section **VIII.B.1.** (which is herein incorporated in its entirety by reference). Ex. 1002 at ¶ 209.

In addition to the elements recited in claim 1, claim 14 also requires *a focusing lens constructed and arranged with at least one of the diodes to focus the blue light energy onto the patient's eye.* Ex. 1001 at 4:64-67. *Devonshire* identically discloses this element. Ex. 1002 at ¶¶ 210-213.

Devonshire discloses an indirect ophthalmoscope that “has a housing 2 which is generally T-shaped and comprises a cylindrical tube 3 mounted across the wider end of a tapered tube 4.” Ex. 1005 at 1:76-79. *Devonshire* further teaches that this instrument also includes “a plano-convex lens 6 to form a parallel beam of light which is projected into the tube 3 [and then transmitted to the patient's eye].” *Id.* at 1:79-82; Ex. 1002 at ¶ 211.

Devonshire teaches that this lens 6 is a collimating lens, *i.e.* a lens that narrows a beam of light waves. Ex. 1005 at 2:74; Ex. 1002 at ¶ 212. *Devonshire* further teaches that “[b]y adjustment of the light source towards the lens 6, the

narrowest part of the beam can be moved to coincide with the iris [of the eye being examined].” Ex. 1005 at 2:48-50.

Devonshire therefore discloses the *focusing lens constructed and arranged with at least one of the diodes to focus the blue light energy onto the patient’s eye.*

8. Claim 15

a. The preamble

The preamble of claim 15 of the ‘394 Patent recites “[a] method for illuminating a patient’s eye for ophthalmic examination.” Ex 1001 at 5:1-2. To the extent that this preamble is deemed a limitation, a point Petitioner expressly does not concede, this limitation is expressly disclosed by *Devonshire*. Ex 1002 at ¶¶ 214-216.

More specifically, *Devonshire* discloses an indirect ophthalmoscope that “can be used, with an appropriate accessory, for fluorescence angiography, with visible radiation (using for example fluorescein) . . . using suitable filters . . .” Ex. 1005 at 3:65-73.

Accordingly, to the extent the preamble is limiting, this limitation is identically disclosed by *Devonshire*.

b. *administering a fluorescein dye to the patient's eye*

The first step of the method claimed in claim 15 is *administering a fluorescein dye to the patient's eye*. Ex. 1001 at 5:2-3. *Devonshire* inherently discloses this step. Ex. 1002 at ¶¶ 217-219.

Devonshire discloses an indirect ophthalmoscope that “can be used, with an appropriate accessory, for fluorescence angiography, with visible radiation (using for example fluorescein) . . . using suitable filters . . .” Ex. 1005 at 3:65-73. It is known by those skilled in the art that the use of an indirect ophthalmoscope with fluorescein dye necessarily involves the step of applying that dye to the eye that is to be examined. Ex. 1002 at ¶ 218.

Devonshire therefore teaches the claimed step of *administering a fluorescein dye to the patient's eye* as recited in claim 15.

c. *illuminating the eye with blue light energy generated by one or more light emitting diodes . . .*

The second step of the claimed method is *illuminating the eye with blue light energy generated by one or more light emitting diodes, the dye being responsive to the blue light energy to fluoresce*. Ex. 1001 at 5:3-6. *Devonshire* identically discloses this step too. Ex. 1002 at ¶¶ 220-223.

Devonshire discloses an indirect ophthalmoscope that includes an LED light source. *Id.* at 1:70-71. *Devonshire* teaches that this instrument “can be used, with

an appropriate accessory, for fluorescence angiography, with visible radiation (using for example fluorescein) . . . using suitable filters . . .” Ex. 1005 at 3:65-73.

Since it is known by those skilled in the art that fluorescein dyes fluoresce only when illuminated or irradiated with blue light, one skilled in the art would understand *Devonshire* to be teaching the use of blue light with the disclosed instrument to examine the eye. Ex. 1002 at ¶ 222.

Devonshire therefore discloses the step of *illuminating the eye with blue light energy generated by one or more light emitting diodes, the dye being responsive to the blue light energy to fluoresce* as required by claim 15.

d. *viewing the patient’s eye, and viewing the eye while the dye fluoresces*

The third and fourth steps of the claimed method require *viewing the patient’s eye* and *viewing the eye while the dye fluoresces*. Ex. 1001 at 5:6-7.

Devonshire identically discloses both of these steps. Ex. 1002 at ¶¶ 224-227.

Devonshire discloses an indirect ophthalmoscope, which is an instrument for examining the eye. Ex. 1002 at ¶ 225. *Devonshire* also discloses that this instrument “can be used, with an appropriate accessory, for fluorescence angiography, with visible radiation (using for example fluorescein) . . . using suitable filters . . .” Ex. 1005 at 3:65-73.

Since it is known by those skilled in the art that an indirect ophthalmoscope is used for examining the eye and fluorescein dyes are used as fluorescing agents, *Devonshire's* teaching that the disclosed instrument can be used in conjunction with fluorescein dyes to examine the eye would be understood by those skilled in the art to mean viewing the eye both before and after the dye fluoresces. Ex. 1002 at ¶ 226.

Devonshire therefore discloses the step(s) of *viewing the patient's eye, and viewing the eye while the dye fluoresces* as required by claimed 15.

9. Claim 16

Claim 16 depends directly from claim 15, and therefore contains all of the limitations of claim 15 as if recited fully therein. Accordingly, each of these limitations is expressly disclosed by *Devonshire* for the same reasons as provided with respect to claim 15 above in section **VIII.B.8.** (which is herein incorporated in its entirety by reference). Ex. 1002 at ¶¶ 228.

Claim 16 also includes a *wherein* clause, *viz.* that *the step of administering a fluorescein dye comprises administering Sodium Fluorescein to the eye.* Ex. 1001 at 5:8-10. This limitation, *i.e.* that the *fluorescein dye* is *Sodium Fluorescein* is the same as the limitation recited in claim 8. Accordingly, this limitation is expressly disclosed by *Devonshire* for the same reasons as provided with respect to claim 8

above in section **VIII.B.4.** (which is herein incorporated in its entirety by reference). Ex. 1002 at ¶ 229.

Devonshire therefore identically discloses the limitation recited in claim 16 of the '394 patent. Ex. 1002 at ¶ 230.

10. Claim 19

Claim 19 depends directly from claim 15, and therefore contains all of the limitations of claim 15 as if recited fully therein. Accordingly, each of these limitations is expressly disclosed by *Devonshire* for the same reasons as provided with respect to claim 15 above in section **VIII.B.8.** (which is herein incorporated in its entirety by reference). Ex. 1002 at ¶ 231.

Claim 19 also includes a *wherein* clause, viz. that *the step of viewing comprises viewing through a magnifying lens coupled with a housing that supports the diodes.* Ex. 1001 at 5:8-10. This limitation, *i.e.* a *magnifying lens* is the same as the limitation recited in claim 5. Accordingly, this limitation is expressly disclosed by *Devonshire* for the same reasons as provided with respect to claim 5 above in section **VIII.B.2.** (which is herein incorporated in its entirety by reference). Ex. 1002 at ¶ 232.

Devonshire therefore identically discloses the limitation recited in claim 19 of the '394 patent.

IX. CONCLUSION

For the reasons given above, Petitioner requests that the Board institute an *Inter Partes* Review of claims 1, 5, 6, 8-10, 14-16 and 19 of the '394 Patent on each of the grounds specified in this petition.

Respectfully submitted,

Dated: June 25, 2018

By: /Donald R. McPhail/
Donald R. McPhail (Reg. No. 35,811)

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that the foregoing
Petition for *Inter Partes* Review of U.S. Patent No. 6,547,394 contains 13899
words (as measured by the word-processing software used to prepare this paper).

Respectfully submitted,

Dated: June 25, 2018

By: /Donald R. McPhail/
Donald R. McPhail (Reg. No. 35,811)

CERTIFICATE OF SERVICE

The undersigned hereby certifies that, on June 25, 2018, the undersigned caused a true and correct copy of the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 6,547,394 and supporting exhibits to be served via Express Mail on the Patent Owner at the following correspondence address of record (as listed on PAIR):

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