

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

SPECTRAL INSTRUMENTS IMAGING, LLC,	§	
	§	
<i>Plaintiff,</i>	§	
	§	
vs.	§	Civil Action No. 4:22-cv-00043
	§	
SCINTICA, INC.	§	JURY TRIAL DEMANDED
	§	
<i>Defendant.</i>	§	
	§	

DEFENDANT’S PRELIMINARY INVALIDITY CONTENTIONS OF
PLAINTIFF’S U.S. PATENT NO. 8,901,516

Pursuant to Local Patent Rules 3-3 and 3-4, Defendant Scintica, Inc. (“Scintica”) provides the following preliminary invalidity contentions for U.S. Patent No. 8,901,516 (the “516 patent”), and provides the required documents based on information currently available to Scintica. Scintica does not waive any claim, contention, or argument regarding the factual and/or legal details of the following preliminary invalidity contentions and reserves the right to modify and/or expand the invalidity contentions pending further discovery and claim construction. The following preliminary invalidity contentions should not be construed as Scintica’s construction or interpretation of any asserted claim, claim limitation or claim term.

Scintica reserves the right to modify, amend, supplement, or otherwise alter these contentions based on receipt of further information through discovery, during claim construction, through noninfringement assertions, and/or any additional information provided to Scintica.

The attached claim charts are not intended to be a complete scope of invalidity but are merely provided to illustrate how the prior art renders the claimed subject matter invalid and to

demonstrate how foreign patent offices rejected substantially the same claims based on anticipation and obviousness of the prior art. The identification of claim elements in the attached claim charts is provided for convenience and clarity and is not intended to be a modification of the claim language nor an admission that the claims should be construed by such identification.

Defendant Scintica further reserves the right to file one or more post-grant challenges with the U.S. Patent Office, including, but not limited to one or more *inter partes* review petitions and/or one or more *ex parte* reexamination requests.

PRELIMINARY INVALIDITY CONTENTIONS

I. Disclosure Under Rule 3-3(a)

Scintica alleges that the following references constitute printed prior art that render the Asserted Claims (claims 1-7, 9, 14-18, 20, and 22-25) of the '516 patent invalid as being anticipated and/or obvious:¹

Exhibit	Document and Country	Year of Issue Publication Offer of Sale or Public Use	Claim Chart
A	Certified English Translation of JP 2004 325174 A, "Fluorescence Detection Device", to Olympus Corporation ("Olympus") (Original Japan published application found in Exhibit U)	Nov. 18, 2004	1 - 5
B	U.S. Patent No. 6,894,289 to Nilson et al.	May 17, 2005	1-5 (claim 24)
C	G:Box Brochure, by Syngene, dated June 4, 2009, as archived on Archive.Org on Dec. 29, 2009 at https://web.archive.org/web/20091229080858/http://www.syngene.com:80/2009_GBOX_WEB.pdf ("G:Box")	At least as of Dec. 29, 2009	2

¹ See Plaintiff's Preliminary Infringement Contentions dated July 11, 2022.

D	G:Box Specification, as accessed from Archive.Org as stored on November 19, 2008 at https://web.archive.org/web/20081119154705/http://www.syngene.com/GBOX_SPEC_2008.pdf	At least as of Nov. 19, 2008	2
E	FujiFilm LAS-3000 Imaging System, as archived on Archive.Org on May 8, 2006 and found at https://web.archive.org/web/20060508123945/http://www.immaginiecomputer.it/download/fuji/las3000.pdf	At least as of May 8, 2006	3
F	MF-ChemiBIS by DNr Bio-Imaging Systems, accessed from Archive.Org as stored on April 19, 2009 and found at https://web.archive.org/web/20090419205735/http://www.dnr-is.com:80/src/MF-ChemiBIS.pdf	At least as of April 19, 2009	4
G	U.S. Patent No. 7,381,972 B1, entitled “System and Method for Light Fluorescence Detection,” by Varmette et al.	June 3, 2008	1-5 (claim 2)
H	“Light emitting diode excitation emission matrix fluorescence spectroscopy,” Analyst, 127, pp.1693-1699, Nov. 7, 2002, by Hart et al.	Nov. 7, 2002	1-5 (claim 2)
I	“Fluorescence Imaging of Electrical Activity in Cardiac Cells Using an All-Solid-State System,” by Entcheva et al., IEEE Transactions on Biomedical Engineering, Vol. 51, No. 2, pp.333-341, February 2004	February 2004	1-5 (claim 5)
J	U.S. Patent Application Publication 2009/0201577 A1, “Light Source,” by LaPlante et al.	Aug. 13, 2009	1-5 (claim 2)
K	Delta Optical Filters brochure as archived on August 30, 2006 by Archive.Org at http://webserver.delta.dk/C1256ED600446B80/sysOakFil/Filter%20brochure/%24File/Optical%20filters_brochure.pdf	Aug. 30, 2006	1-5 (claim 5)
L	“Colibri Highlights for Fluorescence Microscopy” published by Carl Zeiss MicroImaging GMBH, as stored by Archive.Org on October 27, 2007, at https://web.archive.org/web/20071027081401/http://www.zeiss.co.jp/C1256D18002CC306/0/5600BBFC0C1153F6C12572DB002FC71A/\$file/46-0124_e.pdf	At least as of Oct. 27, 2007	1 (claim 14)
M	PCT WO 2006/058161 A2, “Reflectometer and Associated Light Source for Use in a Chemical Analyzer”, to Idexx Laboratories, Inc. (“Idexx Labs”)	2006	1
N	“Broad-band multispectral microscope for imaging transmission spectroscopy employing an array of light-emitting diodes,” by Brydegaard et al., American Journal of Physics 77(2) pp. 104-110 (February 2009)	February 2009	1-5 (for claim 24)

O	"In vivo imaging of light-emitting probes," B.W. Rice et al., Journal of Biomedical Optics 6(4) pp. 432-440 (October 2001)	October 2001	2-5
P	Molecular Imager®, VersaDoc™ MP, VersaDoc™ Imaging Systems User's Manual REV. F (Copyright 2006 Bio-Rad Laboratories, Inc.)	2006	5 and 1-5 (claim 5)
Q	U.S. Patent No. 5,951,838, "Method and Apparatus for Correcting Illumination Non-Uniformities", by Heffelfinger et al. ("Heffelfinger") (assigned to Bio-Rad Laboratories)	Sep. 14, 1999	Q
R	Molecular Imager VersaDoc MP Imaging Systems Bulletin 5609 (Copyright 2007 Bio-Rad Laboratories, Inc.)	2007	R
S	FujiFilm LAS-4000 Luminescent Image Analyzer Service Manual Vers. 4.0 (April 2009)	April 2009	3 and 1-5 (claim 2)
T	Specifications for Nichia NSSG100B, as stored by Archive.Org on Jan. 5, 2006 at https://web.archive.org/web/20060105141816/http://www.nichia.com:80/specification/led_smd/NSSG100B.pdf	At least as of Jan. 5, 2006	1-5 (for claim 2)
U	Original JP 2004325174A to Olympus ("Olympus")	Nov. 18, 2004	1-5
V	PCT File Wrapper for Counterpart Foreign Filing of the '516 Patent	Various	N/A

II. Identification of Prior Art that anticipates or renders obvious each asserted claim per Rule 3-3(b)

Defendant Scintica asserts that claims 1-7, 9, 14-18, 20, and 22-23 and 25 of the '516 patent are *anticipated* by Olympus (**Exhibit A**), and that claim 24 is obvious over Olympus in view of Nilson (**Exhibit B**) or Brydegaard (**Exhibit N**). See **Chart 1**.

The European Patent Office examined substantially the same claims as the '516 patent and asserted Olympus to reject the PCT counterpart application. **Exhibit V**, pp. 170-174.²

² The PCT counterpart application was also rejected in view of WO 2006/058161 A2 to Idexx Laboratories, Inc. ("Idexx Labs"). (**Exhibit M**). The Idexx Labs' patent is yet another example of an excitation light source assembly that anticipates or renders obvious all Asserted Claims.

Plaintiff abandoned the PCT application shortly thereafter. *Id.*, at pp.178-180.

Claims 1-7, 9, 14-18, 20, and 22-23 and 25 of the '516 patent are **obvious** over the following combinations:

- the Syngene G:Box (**Exhibit C**) and Olympus (**Exhibit A**) (see **Chart 2**),
- the Fujifilm LAS-3000 or LAS-4000 (**Exhibit E or Exhibit S**) and Olympus (**Exhibit A**) (see **Chart 3**),
- the DNR Bio-Imaging System MF-ChemiBIS (**Exhibit F**) and Olympus (**Exhibit A**) (see **Chart 4**), and
- the Bio-Rad VersaDoc (**Exhibit P**) and Olympus (**Exhibit A**) (see **Chart 5**).

Claim 24 is obvious under the foregoing combinations and further in view of Nilson (**Exhibit B**) or Brydegaard (**Exhibit N**). See **claim 24** analyses in **Charts 2-5**.

Motivations to Combine References

Based on Defendant's present understanding of the claims of the Asserted Patents, each of the prior art references identified in the accompanying claim charts and Exhibit A and charted in the attached Exhibits standing alone also renders the claims obvious in view of the knowledge of a person of ordinary skill in the art as of the time of the alleged invention. It would have been obvious to one of ordinary skill in the art, applying their own knowledge, to modify any of the prior art references to arrive at that which is claimed in the Asserted Patents, including for the reasons described in the charts and in Exhibit A hereto.

The Asserted Claims would also have been rendered obvious based on a combination of two or more of the prior art references identified in the accompanying claim charts and Exhibit A and charted in the attached Exhibits, including for the reasons described in the charts and in Exhibit A hereto. One of ordinary skill in the art at the time of the purported invention would

have been motivated to combine each of the identified references. In general, motivation to combine any of the identified references with others exists within the references themselves, as well as within the knowledge of those of ordinary skill in the art. For example, a person of ordinary skill in the art at the time of the purported invention would have been motivated to modify the prior art or combine prior art references as a result of (i) his or her education and experience, (ii) the state of the prior art as a whole, (iii) the nature of the problem to be solved, (iv) common knowledge in the art, (v) common sense, (vi) design incentives, (vii) market forces, and/or (viii) a desire to tailor a solution using all of the skills, knowledge and creativity at his or her disposal. As further examples, motivations to combine each of the prior art references identified in the accompanying claim charts and Exhibit A include one or more of the following:

1. The references are within the same field, e.g., excitation and imaging of fluorescing samples, are directed at solving similar problems, disclose solutions with similar advantages, and existed in the same time period as each other;
2. The references are in a relatively established art such that combining known prior art elements such as those claimed by the Asserted Patents would yield predictable results;
3. The knowledge or common sense of a person of ordinary skill in the art, who would be involved for example in the use of medical imaging of fluorescing samples;
4. The prior art references themselves, many of which discuss, incorporate by reference, or cite to other prior art references; The cited references explicitly or implicitly reference other prior art references, share common authors or inventors or assignees, were published in the same journals, presented at the same conferences, or were developed in common companies, organizations or industries which would motivate one of skill in the art to combine them;
5. The fact that many of the references include teachings, suggestions, or motivations to modify the disclosed subject matter, making it obvious to lead one skilled in the art to try to modify or combine their teachings, or to choose from the multiple identified, predictable potential solutions to this recognized need and pursue the known potential solutions with reasonable expectation of success; and

6. The fact that references of similar subject matter were cited in the prosecution of the patent application the ultimately issued as the '516 patent.

These and other motivations to combine references would have been within the knowledge generally available to one of ordinary skill in the art and/or located in the references themselves. It would have been obvious to one of ordinary skill in the art to try combining the identified prior art references because there were only a finite number of predictable solutions. Further, known work in one field of endeavor would prompt variations based on predictable design incentives and/or market forces either in the same field or a different one, and the combinations represent the known potential options with a reasonable expectation of success. The combinations and modifications of the prior art that arise from the fact that references are from the same or related fields, and based on ordinary innovation in the field, the ordinary skill in the field, the common sense of those skilled in this art, the express and implicit teachings, suggestions and/or motivations in these references, the common sense to combine elements to arrive at the claimed inventions, and that it would have been obvious to try the various combinations of elements, yielding a particular result, with a reasonable expectation of success and with predictability.

Additionally, to the extent that the Plaintiff alleges that certain elements are missing from any of the charted references, those elements are known in the art or would be inherent in the relevant context. One of skill in the art would have understood that a limited number of different approaches could be taken depending on the design needs and would have combined those approaches to meet the various design needs.

Any reference or combination of references that anticipates or makes obvious an independent claim also makes obvious any claim dependent on that independent claim because every element of each dependent claim was known by a person of ordinary skill at the time of the

alleged invention, and it would have been obvious to combine those known elements with the independent claim at least as a matter of common sense and routine innovation. Accordingly, Defendant contends that each claim would have been obvious not only by the combinations explicitly defined in these contentions, but also by any combination of references that renders obvious that claim.

To the extent Plaintiff contends that any reference contains multiple distinct embodiments, it would be obvious to combine elements of the distinct embodiments. A person would be motivated to make such a combination because the elements are found in the same reference and the reference as a whole is directed to the same topic.

These preliminary invalidity combinations are exemplary and not intended to provide an exhaustive or limited set of invalidity contentions. They are based on printed publications; however, Defendant Scintica reserves the right to submit further invalidity contentions on these and other commercial products and on additional printed publications in the future.

III. Claim charts for prior art elements of each asserted claim per Rule 3-3(c)

See Charts 1-5 in Attachment 1.

IV. Other invalidity grounds per Rule 3-3(d)

Defendant Scintica reserves the right to argue other alternative invalidity grounds, including, but not limited to:

- Each independent claim recites a “control system” element (**Elements 1d, 14g, and 25c**). The ’516 patent fails to describe the recited control system and each independent claim is invalid for lack of written description. 35 U.S.C. § 112, ¶1. The asserted dependent claims are also invalid based on the invalidity of all independent claims.
- The control system element of each independent claim (**Elements 1d, 14g, and 25c**) recites substantially functional language, and may be interpreted as a means-plus-

function element under 35 U.S.C. §112, ¶6 as set forth in *Williamson v. Citrix Online, LLC*, 792 F.3d 1339 (Fed. Cir. 2015). Insofar as the claim element is deemed to be a “means-plus-function” limitation, the ’516 patent fails to state corresponding structure for the recited functional language and the element is therefore indefinite for lack of written description. *Williamson*, 792 F.3d at 1352-52. The asserted dependent claims are also invalid based on the invalidity of the independent claims.

- The control system element of each independent claim (**Elements 1d, 14g, and 25c**) recites apparatus and process limitations. The independent claims are indefinite and invalid because this claim element recites multiple statutory classifications. *IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377 (Fed. Cir. 2005). The asserted dependent claims are also invalid based on the invalidity of the independent claims.
- The claims are indefinite with respect to their references to “light source” or “light sources.” For example, claim 1 recites “a light source” and “at least one of said light sources...,” “said light sources,” and “a narrow-band light source” and “the light source positioned within each of the plurality of lamp receptacles.” Claim 14 recites “at least one narrow-band light source” and “said narrow-band light sources.” Claim 25 recites “a light source,” “said light sources,” “a narrow-band light source.”

V. Invalidity Under 35 U.S.C. § 101 per Rule 3-3(e)

Defendant Scintica reserves the right to argue that the claims recite subject matter that is not patent-eligible, including, but not limited to, that any construction determining that the claims include conventional computing hardware is patent-ineligible as an abstract idea and is not patent-eligible. *Alice Corp. v. CLS Bank International*, 573 U.S. 208 (2014). Defendant Scintica further reserves the right to argue that “the excitation illumination causing fluorescent

materials in the object to fluoresce” is not patent-eligible as fluorescence results from a law of nature. *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980).

VI. The '516 Patent is a Pre-AIA Patent per Rule 3-3(e)

For purposes of these preliminary invalidity contentions, the '516 patent shall be analyzed as a pre-AIA patent based on its August 31, 2011 filing date. All references to §§ 102, 103, and 112 refer to the pre-AIA versions of the U.S. Code, Title 35.

VII. Disclosure Under Rule 3-4

Rule 3-4(a) Documents and information sufficient to show the operation of any aspects or elements of an Accused Instrumentality identified by the patent claimant in its P.R. 3-1(c) chart (*e.g.*, source code, specifications, schematics, flowcharts, artwork, or formulas)

Disclosure: Scintica is producing copies of discoverable non-privileged documents in its possession, custody, or control concurrently herewith as SCINTICA000846-SCINTICA000932.

Rule 3-4(b) A copy of each item of prior art identified under P.R. 3-3(a) that does not appear in the file history of the patent(s) at issue, and to the extent any such item is not in English, an English translation of the portion(s) relied upon.

Disclosure: Scintica is producing copies of discoverable non-privileged documents in its possession, custody, or control concurrently herewith as SCINTICA000001-SCINTICA000836.

Rule 3-4(c) Documents and information, including summaries when reasonably available, sufficient to show the amount sold, revenues, costs, and profits of each Accused Instrumentality identified under P.R. 3-1(b) since the issuance of the patents-in-suit.

Disclosure: Scintica is producing copies of discoverable non-privileged documents in its possession, custody, or control concurrently herewith as SCINTICA000837-SCINTICA000845.

PRELIMINARY INVALIDITY CONTENTIONS

Pursuant to Patent Local Rule 3-3, Scintica, Inc. (“Scintica”) provides the following preliminary invalidity contentions relating to U.S. Patent No. 8,901,516 (the “516 patent”), including the identity of each item of prior art that anticipates or renders obvious each asserted claim. Each prior art patent is identified by its patent number, country of origin, and date of issue. Each prior art publication is identified by its title, data of publication, and author and publisher when feasible. With regards to items offered for sale, or publicly used or known, the following preliminary invalidity contentions provide the date the offer or use took place or the information became known, the identity of the person or entity that made the use or which made or received the offer, or the person or entity which made the information known or to whom it was made known. Prior art under 35 U.S.C. § 102(f) are identified by providing the name of the person(s) from whom and the circumstances under which the invention or any part of it was derived. Prior art under 35 U.S.C. § 102(g) is identified by providing the identities of the person(s) or entities involved in and the circumstances surrounding the making of the invention before the patent applicant(s).

These preliminary invalidity contentions also identify whether each item of prior art anticipates each asserted claim or renders it obvious and, if the latter, the detailed bases for these contentions, and provide charts identifying where specifically in each alleged item of prior art each element of each asserted claim is found, including for each element that is governed by 35 U.S.C. § 112(f), the identity of the structure(s), act(s), or material(s) in each item of prior art that performs the claimed function.

These preliminary invalidity contentions further identify any other invalidity grounds including, but not limited to indefiniteness under 35 U.S.C. § 112(2), or lack of enablement or written description under 35 U.S.C. § 112(1), of any of the asserted claims, including the detailed

basis for these contentions, a statement of any grounds of invalidity based on eligibility under 35 U.S.C. § 101; and Scintica's preliminary contention that it believes pre-AIA law applies based on the filing date of the '516 patent.

Scintica asserts that all the claims of the '516 patent are invalid in view of the references identified herein. The following invalidity claim charts address claims 1-7, 9, 14-18, 20, and 22-25, as asserted by Plaintiff (collectively the "Asserted Claims").

Scintica does not waive any claim, contention, or argument regarding the factual and/or legal details of the following preliminary invalidity contentions and reserves the right to modify and/or expand the invalidity contentions pending further discovery and claim construction. The following preliminary invalidity contentions should not be construed as Scintica's construction or interpretation of any asserted claim, claim limitation or claim term.

Scintica reserves the right to modify, amend, supplement, or otherwise alter these contentions based on receipt of further information through discovery, during claim construction, through noninfringement assertions, and/or any additional information provided to Scintica.

The attached claim charts are not intended to be a complete scope of invalidity but are merely provided to illustrate how the prior art renders the claimed subject matter invalid and to demonstrate how foreign patent offices³ rejected substantially the same claims based on anticipation and obviousness of the prior art. The identification of claim elements in the attached claim charts is provided for convenience and clarity and is not intended to be a modification of the claim language nor an admission that the claims should be construed by such identification.

Defendant Scintica further reserves the right to file one or more post-grant challenges

³ Plaintiff filed a PCT application counterpart to the '516 patent which was examined by the EPO. A file history of that PCT application, including rejection of all claims based on at least Olympus is found in **Exhibit V**.

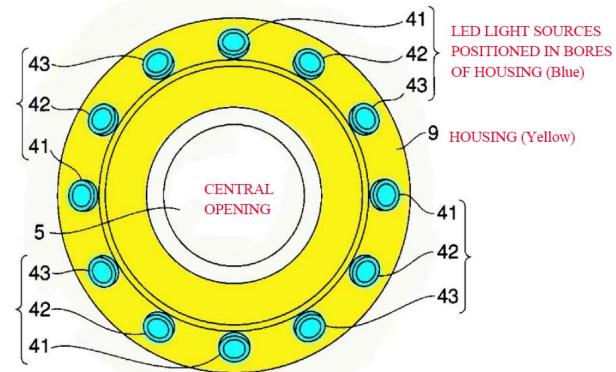
with the U.S. Patent Office, including, but not limited to one or more *inter partes* review petitions and/or one or more *ex parte* reexamination requests.

CHART 1 – '516 Patent Asserted Claims are Anticipated or Rendered Obvious by **Exhibit A**, Japan Patent Application JP 2004 325174 A, "Fluorescence Detection Device," to Olympus Corporation published Nov. 18, 2004, (certified English translation), "Olympus" (except claim 24 which is obvious over Olympus in view of Nilson (**Exhibit B**) or Brydegaard (**Exhibit N**))

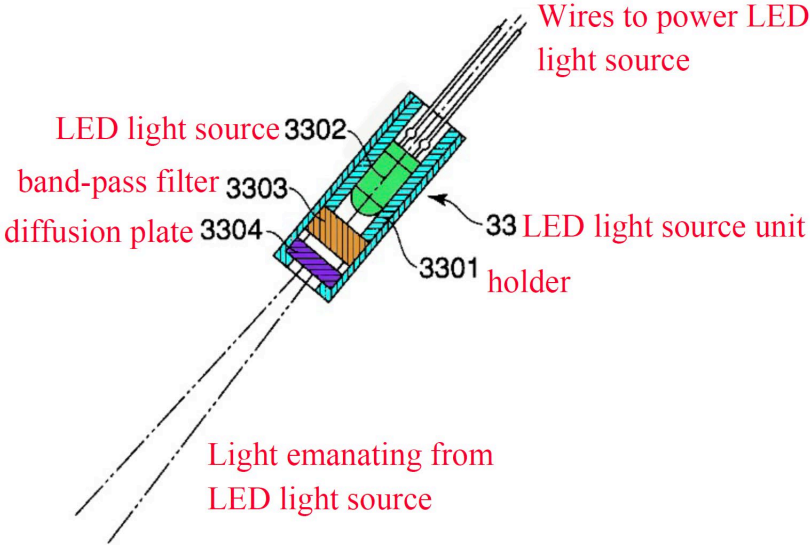
Claim Element	Exhibit A, "Olympus" (certified English translation)
1. [1(Preamble)] An excitation light source assembly, comprising:	Olympus discloses Element 1(Preamble). Olympus describes <i>"an LED light source unit 11 which irradiates the sample 202 with light and excites a fluorescent substance contained in the sample 202."</i> Abstract. [Fig. 1]

	Olympus teaches “<i>it is an object of the present invention to provide a fluorescence detection device capable of efficiently and efficiently irradiating excitation light with high reliability.</i>” ¶10025.
[1a] a housing defining a central opening therein and a plurality of lamp receptacles surrounding the central opening, said housing being mountable to a support structure so that the central opening is aligned with a camera also mounted to the support structure so that a field of view of the camera is unobstructed by said housing;	Olympus discloses the “housing” and “a plurality of lamp receptacles surrounding the central opening ...” recited in Element 1a. Olympus describes a housing defining a central opening (light source holding member 9, highlighted yellow) and a plurality of lamp receptacles surrounding the central opening (storage holes 902, blue, that accommodate LED Light source units). FIGS. 1, 11, and 13 (annotated). Olympus’ FIG. 1 shows a side view of the housing (yellow) and FIG. 13 shows a top view of the housing: [Fig. 1] Labels in the diagram include: 16, 16a, 17, 18, 11, 902, 903, 15, 11, 902, 903, 13, 11, 1103, 202, 201, 1, 2, SAMPLE, TABLE, LIGHT, LED LIGHT SOURCE, 14, 1102, 19a, 21, 903, 19, 20, 8, 8a, 701, 7a, 6, 7, 5a, 5, 22, 23, 24, 25, Computer, PHOTODETECTOR (CCD CAMERA), IMAGE FORMATION LENS, (CENTER AXIS), HOLES IN HOUSING FOR LED LIGHT SOURCES (Blue), SIDE VIEW OF HOUSING (Yellow).

[Fig. 13] TOP VIEW OF HOUSING



The holes in the housing 9 receive LED light sources (shown as 41, 42, and 43 in FIG. 13, blue). As demonstrated by FIG. 11, LED light source 3302 may include LEDs (3302, green), filters (3303, orange), and/or diffusers (3304, purple).

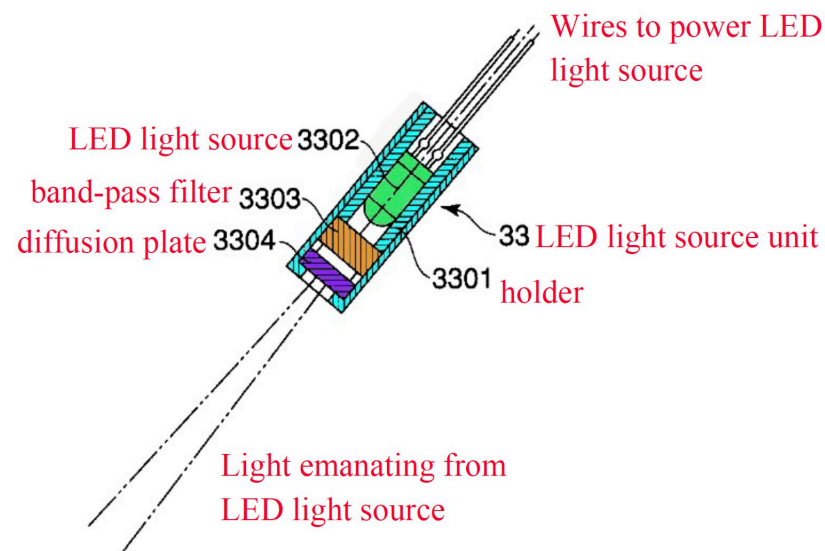
	[Fig. 11]  LED light source 3302 band-pass filter 3303 diffusion plate 3304 33 LED light source unit holder 3301 Wires to power LED light source Light emanating from LED light source Olympus states, “A plurality of (e.g., 5) LED light source unit storage holes 902 are provided in the light source holding member 9 along the circumferential direction.” ¶0055. “The LED light source unit housing hole 902 accommodates the LED light source unit 11.” ¶0056. Therefore, housing 9 has holes 902 that are a “plurality of lamp receptacles surrounding the central opening.” FIG. 1 shows that housing 9 is mounted so that its central opening is aligned with its photodetector 24, imaging means (e.g., a CCD camera or a CMOS sensor) so that its field of view is unobstructed by said housing 9. ¶0126. FIG. 22 is an alternate embodiment where housing 9 is fixed and the platform 201 may be rotated. ¶¶0202-0208.
[1b] a light source positioned within each of the plurality of	Olympus discloses the “light source” as recited in Element 1(b).

lamp receptacles, wherein at least one of said light sources comprises a narrow-band light source; and

Olympus states, “the semiconductor light source means has, *in addition to an LED light source emitting excitation light, a filter, a diffusion plate, a lens, or all thereof, which selectively transmits a wavelength of light from the LED light source arranged on an optical path of light emitted from the LED light source.*” ¶0027.

As demonstrated by FIG. 11, LED light source 3302 may include LEDs (3302, highlighted green), filters (3303, highlighted orange), and diffusers (3304, highlighted purple). ¶¶0115-0116.

[Fig. 11]

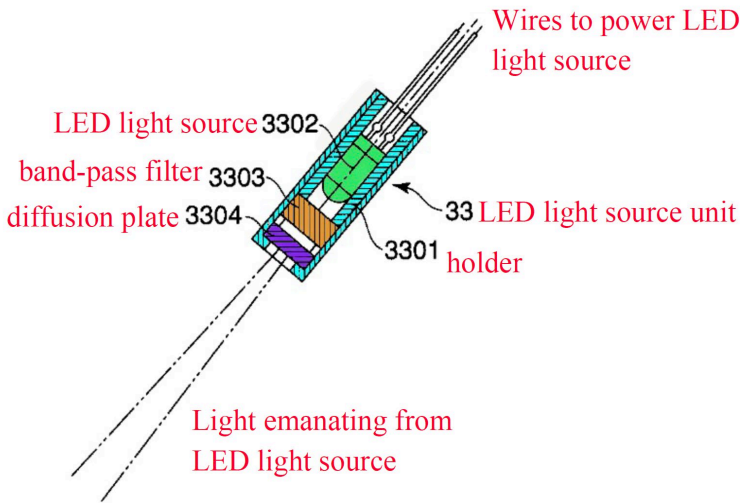


Olympus refers to FIG. 13, stating, “light source holding member 9 is provided with the 1 to 3 LED light source units 41 42 and 43 having 3 kinds of LED light sources having different peak emission wavelengths. Generally, an emission spectrum of an LED light source has a *mountain-shaped structure and has one peak wavelength.*” ¶0131.

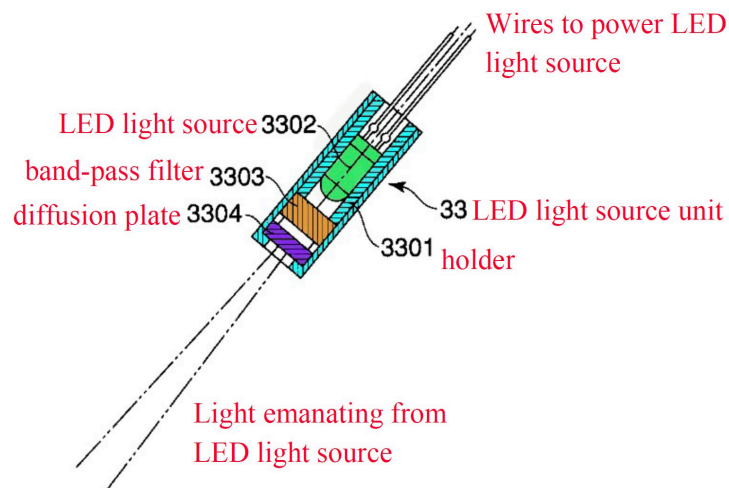
Thus, the LED light source of Olympus is a narrow-band light source and a light source unit

	is positioned in each of the lamp receptacles (holes 902 of housing 9).
[1c] a diffuser positioned within at least some of the plurality of lamp receptacles, each of said diffusers diffusing light produced by each of said light sources; and	Olympus discloses the “diffuser” as recited in Element 1(c). As set forth above, in various embodiments, a LED source unit comprises a diffuser (diffusion plate 3104) positioned within at least some of the plurality of lamp receptacles (holes 901 of housing 9) diffusing light produced by each of said light sources. ¶¶0115-0116.
[1d] a control system operatively connected to each of said light sources said control system operating selected ones of said light sources to provide a desired excitation illumination to an object within the field of view of said camera, the object fluorescing in response to the excitation illumination provided by said light sources.	The interpretation of Element 1(d) is subject to a determination of whether Element 1(d) recites functional limitations and/or is a means-plus-function limitation and what structure, if any, is shown by the ’516 patent that performs the recited function. Insofar as Element 1(d) is construed to be hardware and/or programming that is operable to select light sources, Olympus discloses such a control system of Element 1(d). Olympus discloses a LED light source unit driving circuit 29 connected to a power supply 53 and various circuitry to control output light intensity of the LED light source units 11. It can independently turn on and off the LED light source units 11. Such control can be made manually or electronically on a computer. ¶¶0079-0080, 0087, 0147-0150. When light from the LED light source units is irradiated over the surface of a sample, fluorescence can be received by the camera (photodetector or CCD camera 24). ¶¶0081, 0091, 0092, 0087, 0116, 0151-0155.
2. The excitation light source assembly of claim 1 wherein said narrow-band light source emits light having a bandwidth of about 35 nm.	Olympus teaches the narrow-band light source of claim 2. Olympus discloses LED light source units have different spectral characteristics and that different numbers and light sources with different peak emission wavelengths may be used. ¶¶0132, 0172, 0198, claim 7, 0129, 0131, 0152, 0155. LEDs of different bandwidths, including “about 35 nm”, were readily available and in use in fluorescence imaging prior to the effective filing date of the ’516 patent, for example as demonstrated by: • U.S. Patent No. 7,381,972 B1, entitled “System and Method for Light Fluorescence

	Detection” by Varmette et al. (light produced by LEDs typically had a full width at half max of 25 nanometers,” Exhibit G, 8:58-59); • U.S. Patent Application Publication 2009/0201577 A1, “Light Source,” by LaPlante et al., published Aug. 13, 2009 (referencing light emitting diodes that “can be obtained from a variety of commercial sources,” such as Luminous Devices, having “a full width half maximum (FWHM) of approximately +/- 12 nm,” Exhibit J at ¶0035); • “Light emitting diode excitation emission matrix fluorescence spectroscopy,” Analyst, 127, pp.1693-1699, Nov. 7, 2002 (LED bandwidths have “typical full width half maximums between 10 nm and 50 nm or more,” Exhibit H at p.1694); • the Fujifilm LAS-4000 Service Manual uses a Nichia NSSB100G LED for its green light source (Exhibit S, p. G-17) which has a bandwidth at half power of about 35 nm (Exhibit T, p. 9); and • the ’516 patent <i>admits</i> that “[l]ight emitting diodes having such narrow bandwidths (e.g., about 30-35 nm) along the desired wavelength range (e.g., 430 nm to about 745 nm) <i>are readily commercially available and can be used as narrow-band sources</i> 22.” ’516 patent at 9:2-6. A person of ordinary skill in the art at the time of the alleged invention (“POSA”), upon reading and understanding Olympus, would have been motivated to use narrowband LEDs because peak wavelengths of the 490 nm and 520 nm LED light sources are only about 30 nm separated in wavelength, and accordingly it would be beneficial to use LEDs with no more than about 30-35 nm of bandwidth to better isolate the fluorescence excitation caused by each LED light source.
3. The excitation light source assembly of claim 2 wherein said at least one narrow-band light source comprises a light emitting diode.	Olympus teaches use of light emitting diodes as recited in claim 3 , generally throughout Olympus, and specifically as set forth above. <i>See, inter alia</i> , ¶¶ 0011, 0013, 0014, 0024, 0026-0043, 0168.
4. The excitation light source	Olympus teaches the use of at least one filter positioned at least one diffuser in at least one

assembly of claim 1, further comprising at least one filter positioned adjacent at least one diffuser in at least one of the lamp receptacles defined by said housing.	lamp receptacle defined by said housing of claim 4, as set forth above. [Fig. 11] 
5. The excitation light source assembly of claim 4, wherein said at least one filter comprises a notch filter having a wavelength bandpass range of about 30 nm.	Olympus teaches the notch filter of claim 5. A notch filter with a specified wavelength bandpass is a bandpass filter. Olympus teaches the use of a band-pass filter, such as band-pass filter 3303:

[Fig. 11]

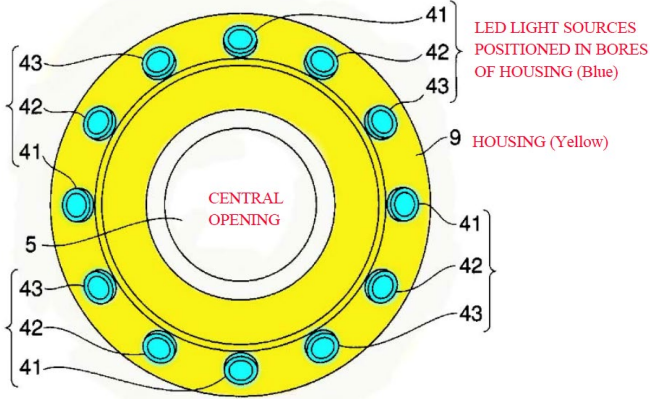


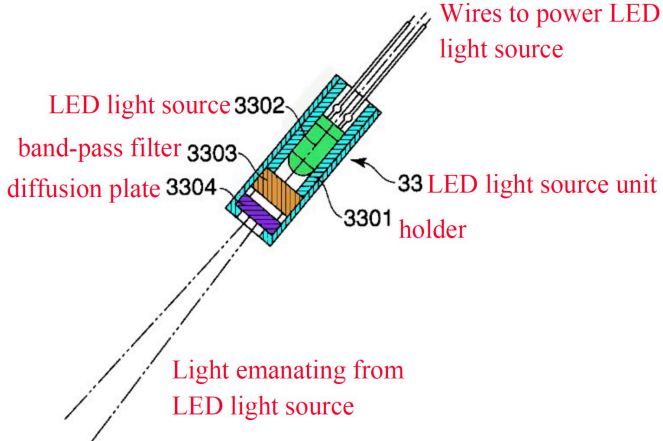
Olympus discloses LED light source units have different spectral characteristics and that different numbers and light sources with different peak emission wavelengths may be used. ¶¶0132, 0172, 0198, claim 7, 0129, 0131, 0152, 0155.

The use of filters having a variety of wavelength bandpass ranges (including 30 nm) was known to those of skill in the art well before any effective filing date of the '516 patent, as demonstrated by "Fluorescence Imaging of Electrical Activity in Cardiac Cells Using an All-Solid-State System," by Entcheva et al., IEEE Transactions on Biomedical Engineering, Vol. 51, No. 2, pp.333-341, February 2004 (illumination modules using LEDs and common interference filters of +/- 35 and +/-15 nm, **Exhibit I** at p.336). Prior to the earliest effective filing date of the '516 patent, bandpass filters of selectable bandpass ranges were also available from suppliers, such as Omega (*see Exhibit P*, p. 6-11) and Delta (*see, Exhibit K*).

A person of ordinary skill in the art at the time of the alleged invention ("POSA"), upon reading and understanding Olympus, would have used bandpass filters of about 30 nm because peak wavelengths of the 490 nm and 520 nm LED light sources are only about 30

	nm separated in wavelength. Accordingly, bandpass filtering of the applied light to about 30 nm of bandwidth would better isolate the fluorescence excitation caused by each LED light source.
6. The excitation light source assembly of claim 1, wherein at least one of the light sources comprises a broad-band light source.	Olympus teaches a broad-band light source as recited in claim 6. Olympus states: “the number of LED light source units is not particularly limited, and a plurality of LED light source units can be individually controlled by a plurality of drive circuits. Further, the output wavelengths of the plurality of LED light source units may be the same or different [].” ¶0155. Broad-band light sources were well known in the art before the effective filing date of the ’516 patent. The ’516 patent admits that “white” LEDs are broad-band light sources and that they are “commercially readily available.” ’516 patent, 10:12-14. Consequently, since different output wavelengths of the LED light source units and white LEDs were commercially readily available, Olympus teaches the broad-band light source of claim 6.
7. The excitation light source assembly of claim 1, wherein at least some of said plurality of lamp receptacles comprise opposed pairs of lamp receptacles on opposite sides of said central opening, each opposed pair of lamp receptacles producing light of the same color.	Olympus teaches opposed pairs of lamp receptacles as recited in claim 7. Olympus states: “the number of LED light source units is not particularly limited, and a plurality of LED light source units can be individually controlled by a plurality of drive circuits.” ¶0155. FIG. 13 shows a plurality of lamp receptacles for a plurality of LED lights sources (41, 42, and 46). It also shows that at least some of the plurality of lamp receptacles comprise opposed pairs of lamp receptacles on opposite sides of said central opening (compare the light sources 41, 42, and 43 in the upper right-hand corner of FIG. 13 with those on the lower left-hand corner, or the light sources 41, 42, and 43 on the upper left-hand corner with their counterpart light sources on the lower right-hand corner.

	[Fig. 13] TOP VIEW OF HOUSING  The diagram shows a top view of a yellow circular housing (9) with a central opening (5). Twelve blue LED light sources (41) are positioned in bores (42) of the housing. The bores are arranged in a ring, and the light sources are positioned within them. The housing is labeled 'HOUSING (Yellow)' and the light sources are labeled 'LED LIGHT SOURCES POSITIONED IN BORES OF HOUSING (Blue)'. The central opening is labeled 'CENTRAL OPENING'.
9. The excitation light source assembly of claim 1, wherein the light source positioned within each of the plurality of lamp receptacles does not extend beyond the lamp receptacle.	Olympus teaches recessed lighting as recited in claim 9. Olympus FIG. 11 shows a light source 3301 positioned within each of the plurality of lamp receptacles does not extend beyond the lamp receptacle:

	[Fig. 11] 
14. [14(Preamble)] An assembly, comprising:	Olympus discloses Element 14(Preamble). See the analysis of Element 1(Preamble) above.
[14a] a support structure;	Olympus discloses Element 14a. Olympus discloses base 6, which acts as a support structure for the housing (light source holding member 9) and camera (photodetector (CCD camera) 24): “[A] base 6 is provided with a cylindrical fixed shaft 7 on the base 6. A flange portion 701 is formed at one end of the fixed shaft 7, and the flange portion 701 is fixed to the base 6 by a screw 7a.” ¶0051. “A light source holding member 9 [housing] is rotatably supported on an outer peripheral surface of the fixed shaft 7 via a bearing 8. In this case, the light source holding member 9 has a hole portion 901 formed along the optical axis 5a, and the peripheral surface of the hole portion 901 is supported on the outer peripheral surface of the fixed shaft 7 via the bearing 8. Further, in the light source holding member 9, the center of rotation coincides with the optical axis 5a of the objective lens 5.” ¶0053.

are ample structures in the prior art for holding lenses, filters, and cameras in alignment for taking optical images. For example, at least as of 2007, structures such as these were used to hold optics, such as lenses, filters, and cameras in position for fluorescent imaging:



Exhibit L, “Colibri Highlights for Fluorescence Microscopy” published by Carl Zeiss MicroImaging GMBH at least as of 2007.

FIG. 1 of Olympus enables a POSA to understand how the base 6 provides support for the light detecting means, including the camera (photodetector (CCD camera) 24) and housing and light sources (light source holding member 9).

[14b] a camera mounted to said support structure;

Olympus discloses **Element 14b**. See analysis of **Element 14a**, above.

[14c] an excitation light source assembly mounted to said support structure, said excitation

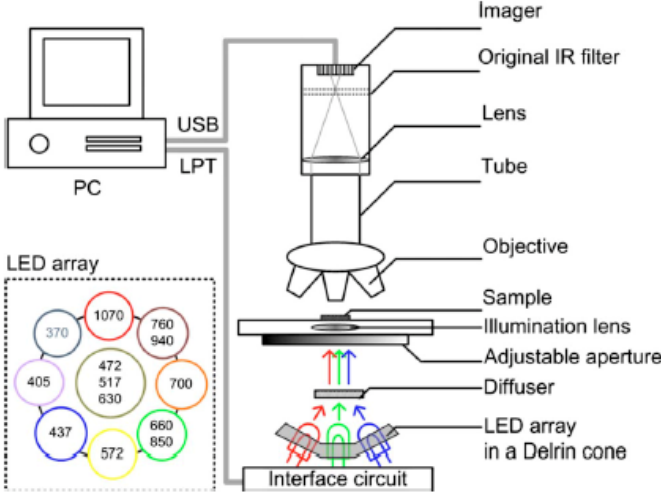
Olympus discloses **Element 14c**. See analysis of **Element 14a**, and the following analysis of **Elements 14d, 14e, and 14f**:

light source assembly comprising:	
[14d] a housing defining a central opening therein and a plurality of lamp receptacles surrounding the central opening, said housing being mounted to said support structure so that the central opening is aligned with said camera and so that a field of view of said camera is substantially unobstructed by said housing;	Olympus discloses Element 14d. Element 14d is substantially identical to Element 1a. See the analysis of Element 1a, above.
[14e] at least one narrow-band light source positioned within at least one of the plurality of lamp receptacles; and	Olympus discloses Element 14e. Element 14e is substantially identical to Element 1b. See the analysis of Element 1b, above.
[14f] a diffuser positioned within at least some of the plurality of lamp receptacles, each of said diffusers diffusing light produced by each of said narrow-band light sources; and	Olympus discloses Element 14f. Element 14f is substantially identical to Element 1c. See the analysis of Element 1c, above.
[14g] a control system operatively connected to each of said narrow-band light sources, said control system operating selected ones of said narrow-band light sources to provide a desired excitation illumination to a fluorescent material within the field of view of said camera, the fluorescent material fluorescing	Element 14g is substantially identical to Element 1d. See the analysis of Element 1d, above.

in response to the excitation illumination.	
15. The assembly of claim 14, further comprising a light filter positioned adjacent each of the diffusers.	The subject matter recited in claim 15 is substantially similar to that recited in claim 4. See the analysis of claim 4, above.
16. The assembly of claim 14, wherein each of the lamp receptacles defined by said housing are angled with respect to a central axis of said housing so that light emitted from each of said narrow-band light sources is directed to a desired area within the field of view of said camera.	Olympus teaches the subject matter of claim 16. The receptacles (holes or bores 902 of housing 9 of Olympus) are angled with respect to the center axis of the assembly, and light emitted from each of the LED light sources 11 is directed to a desired area within the field of view of the camera (see the sample 2 on table 1 fluorescing due to light from LED lights sources 11, below): [Fig. 1]
17. The assembly of claim 14,	Olympus teaches the subject matter of claim 17.

wherein each of said narrow-band light sources is selected to provide desired number of illumination bands over a desired spectral range.	Olympus refers to light at 490 nm, 520 nm, and 630 nm. ¶¶0131-0133. However, Olympus is not limited to these three wavelengths and discloses the use of other excitation and emission wavelengths and different numbers of light sources. Olympus states: “the number of LED light source units is not particularly limited, and a plurality of LED light source units can be individually controlled by a plurality of drive circuits. Further, the output wavelengths of the plurality of LED light source units may be the same or different [].” ¶0155. Olympus also allows for more light sources and the use of different wavelengths: “In addition, in the 3 embodiment described above, 3 types of fluorescent dyes are used, but the present invention is not limited thereto, and 2 types of fluorescent dyes may be used, or 4 or more fluorescent images may be obtained in the same manner.” ¶0154. “Further, it is possible to greatly increase the number of LED light source units 81. By dividing the LED light source units 81 into a plurality of sets and using the LED light sources having different spectral characteristics of the emission wavelength for each set, it is also possible to excite a plurality of types of fluorescent dyes and detect fluorescent signals in the same manner as described in the 3 embodiment.” ¶¶0172, 0198.
18. The assembly of claim 17, wherein the desired spectral range is from about 430 nm to about 745 nm.	Olympus teaches the subject matter of claim 18. As set forth in the analysis of claim 17, Olympus is not limited to these three wavelengths and discloses the use of other excitation and emission wavelengths and different numbers of light sources. The ’516 patent <i>admits</i> that “[l]ight emitting diodes having such narrow bandwidths (e.g., about 30-35 nm) along the desired wavelength range (e.g., 430 nm to about 745 nm) are readily commercially available and can be used as narrow-band sources 22.” ’516 patent at 9:2-6. Accordingly, the ’516 patent admits that commercial industry has produced LEDs in the wavelength range of interest and is thus well known. Olympus discloses use of its assembly for applications in the well known 430 nm to 745 nm wavelength range.
20. The assembly of claim 17, wherein each desired illumination band has a bandwidth ranging from about	Olympus teaches the subject matter of claim 20. The subject matter recited in claim 20 is substantially similar to that recited in claim 2 and claim 5. See the analysis of claim 2 and claim 5, above.

30 nm to about 35 nm.	
22. The assembly of claim 17, wherein the desired spectral range is from about 430 nm to about 800 nm.	Olympus teaches the subject matter of claim 22. The subject matter recited in claim 22 is substantially similar to that recited in claim 18. See the analysis of claim 18, above
23. The assembly of claim 14, wherein each of said narrow-band light sources comprises a light emitting diode.	Olympus teaches the subject matter of claim 23. The subject matter recited in claim 23 is substantially identical to that recited in claim 3. See the analysis of claim 3, above.
24. The assembly of claim 14, wherein said housing comprises a polyoxymethylene thermoplastic material.	Olympus does not list polyoxymethylene (one example of which is Delrin, see the '516 patent at 7:28-29, 12:1-2, and 13:14-15); however, it is well known in the art to use Delrin in the construction of optical systems as set forth in U.S. Patent No. 6,894,289 to Nilson (Exhibit B) at 11:7-11. A POSA would use the black Delrin of Nilson for light assemblies in the system of Olympus as it is “opaque and has absorption properties to reduce reflection.” <i>Id.</i> Brydegaard (Exhibit N) also teaches the use of Delrin in a cone for holding a plurality of LEDs, as shown in Fig. 2 of Brydegaard.

	 Fig. 2. Arrangement for multispectral transmission microscopy employing multiple LED illumination. Different wavelengths are emitted from a computer controlled LED array and the rays are combined by a diffuser. The light interacts with the sample differently for each wavelength, resulting in a unique picture for each wavelength. Brydegaard also teaches the use of a diffuser adjacent the LED light sources for use in illuminating a sample with different wavelengths of light. “The nine LEDs are mounted in a machined compact circular arrangement ... made of Delrin ...”. Brydegaard (Exhibit N) at p.4. The subject matter of claim 24 is obvious over Olympus in view of Nilson or Brydegaard.
25. [25(Preamble)] An excitation light source assembly, comprising:	Olympus discloses the assembly of Element 25(Preamble). Olympus discloses an assembly, such as the assembly shown in FIG. 1.
[25a] a housing defining a central opening therein and a plurality of lamp receptacles therein surrounding the central opening, said housing being	Olympus discloses the housing, plurality of lamp receptacles, and camera of Element 25a. Element 25a is substantially identical to Element 1a. See the analysis of Element 1a, above.

mountable to a support structure so that the central opening is aligned with a camera also mounted to the support structure so that a field of view of the camera is unobstructed by said housing;	
[25b] a light source positioned within each of the plurality of lamp receptacles so that said light sources do not extend beyond the lamp receptacles, wherein at least one of said light sources comprises a narrow-band light source; and	Olympus discloses the light source of Element 25b. Element 25b is substantially the subject matter of Element 1b and dependent claim 9. See the analysis of Element 1b and claim 9, above.
[25c] a control system operatively connected to each of said light sources, said control system operating selected ones of said light sources to provide a desired excitation illumination to an object within the field of view of the camera, th [sic] excitation illumination causing fluorescent materials in the object to fluoresce, the camera capturing an image of the fluorescing material in the object.	Element 25c is substantially similar to Element 1d. See the analysis of Element 1d, above.

CHART 2 – '516 Patent Asserted Claims are Obvious over G:Box (**Exhibit C**)⁴ in view of Olympus (**Exhibit A**) (except claim 24 which is obvious over G:Box and Olympus in view of Nilson (**Exhibit B**) or Brydegaard (**Exhibit N**))

Claim Element	G:Box in view of Olympus
1. [1(Preamble)] An excitation light source assembly, comprising:	G:Box discloses Element 1(Preamble). G:Box teaches an “RGB and UV module” for its G:Box products. G:box “can be used for all fluorescence and chemiluminescence applications.” Pp. 2, 4, 7, 14, 15.⁵

⁴ The G:Box Brochure (**Exhibit C**) was saved on Archive.Org at least as of Dec. 29, 2009; however, the G:Box was publicly available at least as of Nov. 19, 2008, as shown by **Exhibit D**, the G:Box Specification, as stored on November 19, 2008 at https://web.archive.org/web/20081119154705/http://www.syngene.com/GBOX_SPEC_2008.pdf

⁵ Other imaging systems, such as the IVIS™ by Xenogen used LEDs for fluorescence imaging since at least 2001. See, *In-vivo imaging of light emitting probes*,” B.W. Rice et al., Journal of Biomedical Optics 6(4) pp. 432-440 (October 2001) (“Rice,” **Exhibit O**).

With G:BOX flexibility is the key

The simple design of G:BOX allows for a wide range of configurations. Select from our range of cameras, lenses, filters and lighting options.

Hood

A hood is used to enclose the camera and lens on all systems

Filters

A range of filters and holders for a vast array of applications

- Single screw-on filters
- 3 position filter slider
- 7 position motor driven computer controlled filter wheel (9 position filter wheel on XT and XL models)

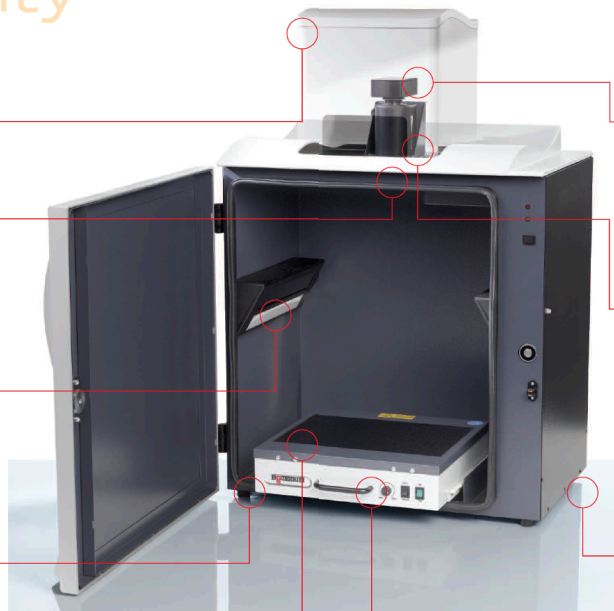
EPI illumination

Available for overhead lighting

- White light as standard
- EPI lighting module for UV and blue light
- RGB (red, green, blue) LED lighting module for advanced fluorescence applications
- IR (infrared) lighting for advanced fluorescence applications including in-vivo

Adjustable stage

A motor driven stage is included with the XT and XL models. This enables samples to move closer to the camera, especially useful when working with smaller sample sizes. The stage is also linked to the computer controlled lens which 'tracks' the sample as it is moved up or down providing auto-focus



Visible light

For applications such as Coomassie gels and plates of various types

- Conversion screen
- Optional visible light table which folds up when not in use

Transilluminator

A 302nm transilluminator

- Choice of filter sizes
- Variable intensity setting
- Safety cut off
- Slides out of darkroom for easy access to surface
- Other wavelengths/multi wavelengths available

The Genius inside the box



Camera

Syngene uses a range of high speed USB cameras which are selected for budget and type of application

- High resolution cameras ranging from 1.2m to 6.3m pixel
- Single or dual stage pettier cooling for chemiluminescence applications - all with regulated temperature
- All cameras with latest USB technology
- All cameras operate in 16 bit mode

Lens

A selection of lenses are available

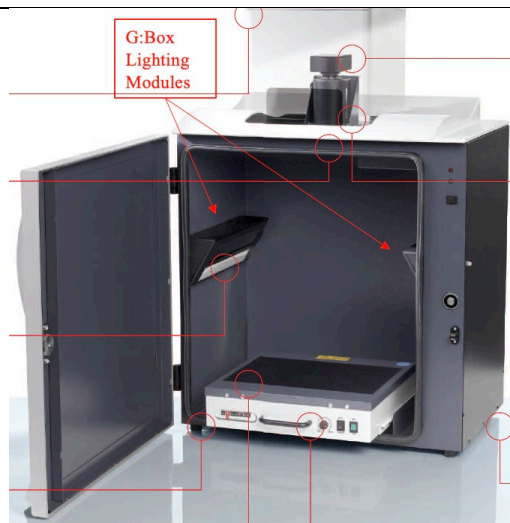
- Motor driven zoom lens with an optional feedback facility
- Manual zoom lens
- A computer controlled motor driven f0.95 lens is supplied with the G:BOX iChem XT and an f0.95 with G:BOX iChem XL systems. These wide aperture lenses are essential for chemiluminescence or low light level fluorescence applications. When used in conjunction with the motor driven stage, the lenses automatically track any upward or downward movement of the stage keeping the sample in auto-focus at all times

Darkroom

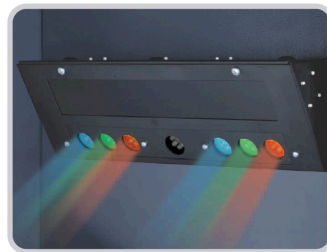
Fully light tight darkroom suitable for advanced chemiluminescence applications

- Robust, very wide opening hinged door for easy access to chamber
- Electronic, auto-door lock with security function to prevent interruption to long exposures
- Easy access service panel to all electronics

G:Box's LED Lighting modules are shown here in the annotated excerpt of the prior diagram:



Details of each module are provided in the brochure.



RGB and UV module

As an ever expanding list of fluorescent labels require an array of EPI and transillumination light sources, Syngene has responded with the perfect solution. In addition to the standard EPI-lighting modules and filter options, the Syngene solution is the RGB and UV lighting module

The RGB/UV module is a unique lighting system. It is built around a bank of 84 LEDs with corresponding emission filters

- 84 high intensity LEDs • Red, blue, green, white
- Excitation filters • 254nm and 365nm UV light sources
- Minimal heating effects - more controllable than conventional halogen/tungsten bulb systems
- Life span in excess of 75,000 hours

[1a] a housing defining a central opening therein and a plurality of lamp receptacles

G:Box does not disclose a housing defining a central opening therein and a plurality of lamp receptacles surrounding the central opening, nor does it have a housing being mountable to a support structure.⁶

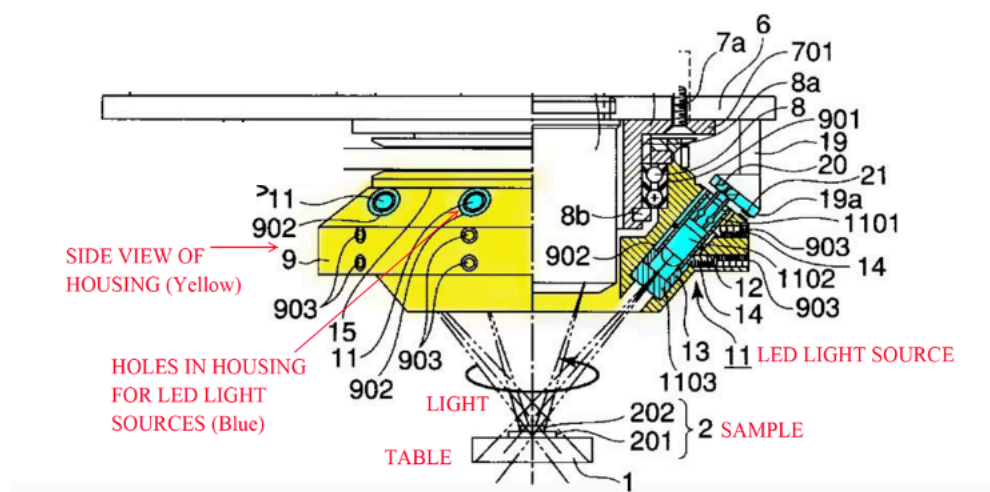
⁶ Plaintiff has asserted that Defendant's Newton product infringes **claim 1**. Applying Plaintiff's analysis from its Preliminary

surrounding the central opening, said housing being mountable to a support structure so that the central opening is aligned with a camera also mounted to the support structure so that a field of view of the camera is unobstructed by said housing;

It would have been obvious for a person of skill in the art at the time of the alleged invention to have used the circular housing and LED light source units of Olympus with the box of the G:Box to more uniformly and evenly excite the sample with Olympus's LED light source units surrounding a central opening.

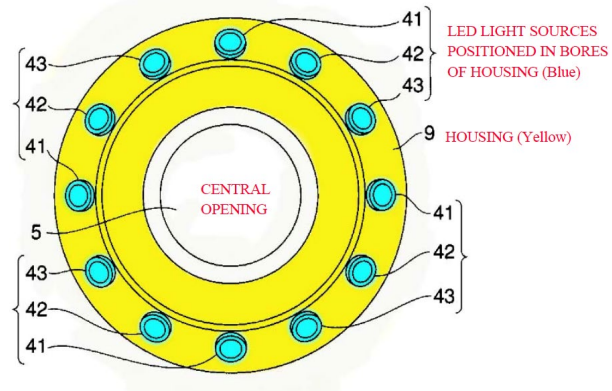
Olympus discloses the housing and plurality of lamp receptacles of **Element 1a**.

Olympus describes a housing defining a central opening (light source holding member 9, highlighted yellow) and a plurality of lamp receptacles surrounding the central opening (storage holes 902, blue, that accommodate LED Light source units). FIGS. 1, 11, and 13 (excerpted and annotated). This excerpted and annotated FIG. 1 of Olympus shows a side view of the housing under base 6 (housing is in yellow) and FIG. 13 shows a top view of the housing:

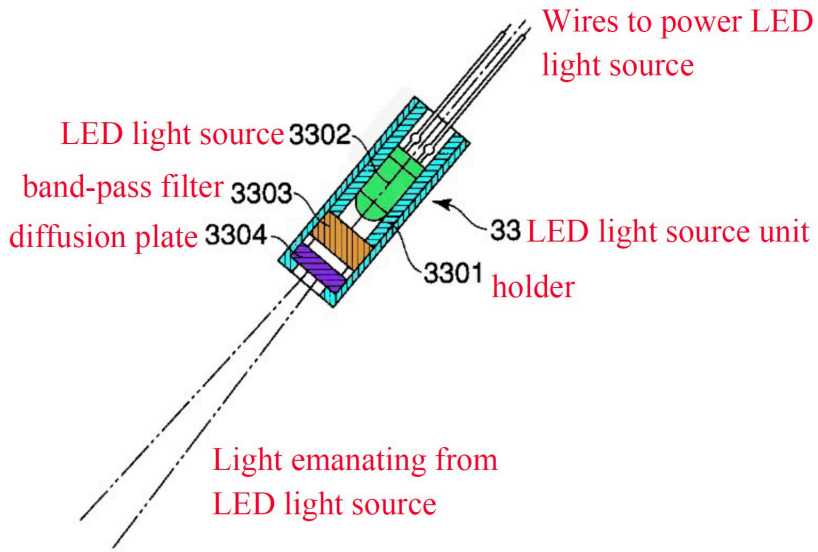


Infringement Contentions (which Scintica denies and submits is incorrect) G:Box would anticipate the asserted claims of the '516 patent.

[Fig. 13] TOP VIEW OF HOUSING



The holes in the housing 9 receive LED light sources (shown as 41, 42, and 43 in FIG. 13, blue). As demonstrated by FIG. 11, LED light source 3302 may include LEDs (3302, green), filters (3303, orange), and/or diffusers (3304, purple).

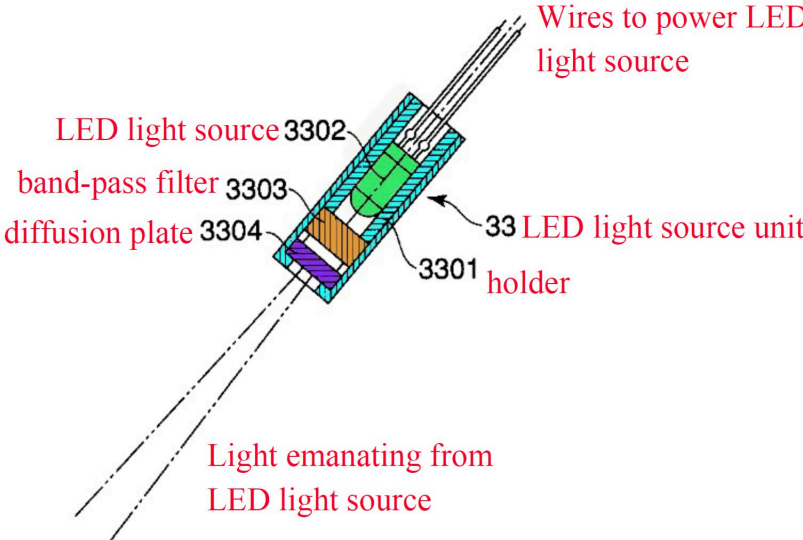
	[Fig. 11]  Olympus states, “A plurality of (e.g., 5) LED light source unit storage holes 902 are provided in the light source holding member 9 along the circumferential direction.” Olympus, ¶0055.⁷ “The LED light source unit housing hole 902 accommodates the LED light source unit 11.” ¶0056. Therefore, housing 9 has holes 902 that are a “plurality of lamp receptacles surrounding the central opening.” FIG. 1 shows that housing 9 is mounted so that its central opening is aligned with its camera so that its field of view is unobstructed by said housing 9. ¶0126. FIG. 22 is an alternate embodiment where housing 9 is fixed and the platform 201 may be rotated. ¶¶0202-0208.
[1b] a light source positioned within each of the plurality of	G:Box does not have a housing and therefore does not have a housing defining ... a plurality of

⁷ All paragraph cites (“¶”) throughout are directed to Olympus, **Exhibit A**, unless otherwise noted.

lamp receptacles, wherein at least one of said light sources comprises a narrow-band light source; and	lamp receptacles surrounding a central opening.⁸ A POSA would have been motivated to combine G:Box with the housing and LED light source units of Olympus as set forth in Element 1a. A POSA would further understand that Olympus’s housing and LED light sources would provide a housing, a plurality of lamp receptacles, and a light source positioned within each of the plurality of lamp receptacles, wherein at least one of the light sources comprises a narrow-band light source, as recited in Element 1(b). Olympus states, “the semiconductor light source means has, <i>in addition to an LED light source emitting excitation light, a filter, a diffusion plate, a lens, or all thereof, which selectively transmits a wavelength of light from the LED light source arranged on an optical path of light emitted from the LED light source.</i>” ¶0027. As demonstrated by FIG. 11, LED light source 3302 may include LEDs (3302, highlighted green), filters (3303, highlighted orange), and diffusers (3304, highlighted purple). ¶¶0115-0116.
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⁸ Again, applying Plaintiff’s analysis (which Scintica denies and submits is incorrect), then G:Box would anticipate **Element 1b** as shown in this blowup of the RGB module, which shows multiple LEDs *within* the RGB module:



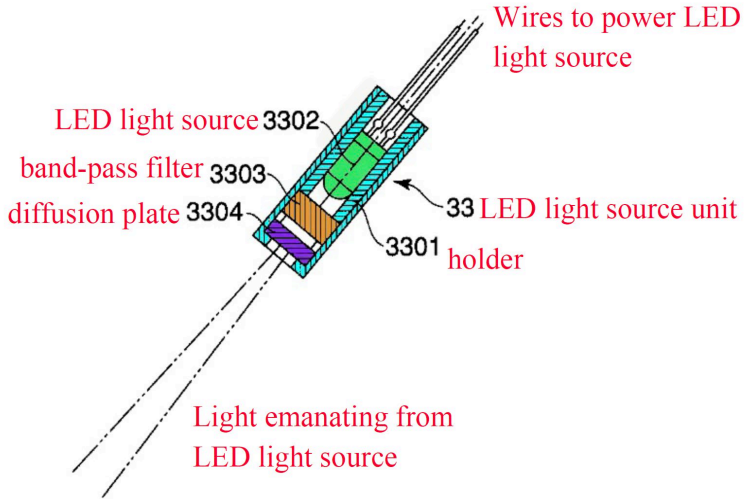
	[Fig. 11]  LED light source 3302 band-pass filter 3303 diffusion plate 3304 33 LED light source unit 3301 holder Wires to power LED light source Light emanating from LED light source Olympus refers to FIG. 13, stating, “light source holding member 9 is provided with the 1 to 3 LED light source units 41 42 and 43 having 3 kinds of LED light sources having different peak emission wavelengths. Generally, an emission spectrum of an LED light source has a <i>mountain-shaped structure and has one peak wavelength.</i>” ¶0131. Thus, the LED light source of Olympus is a narrow-band light source and a light source unit is positioned in each of the lamp receptacles (holes 902 of housing 9).
[1c] a diffuser positioned within at least some of the plurality of lamp receptacles, each of said diffusers diffusing light	G:Box does not explicitly state whether it has a diffuser;⁹ however, the LED light source units of Olympus include a diffuser as recited in Element 1c, as set forth above in the analysis of Element 1a.

⁹ Scintica reserves the right to provide further evidence about the G:Box to supplement its invalidity contentions pending further development of the case, discovery, and claim constructions.

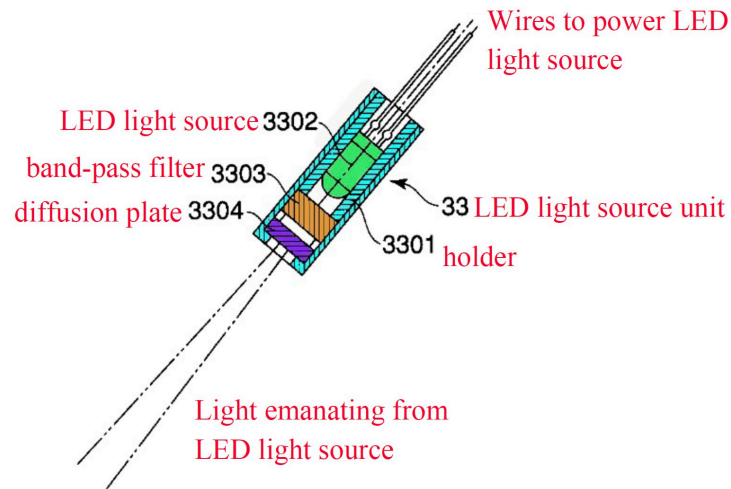
produced by each of said light sources; and	For example, the LED source unit comprises a diffuser (diffusion plate 3104) positioned within at least some of the plurality of lamp receptacles (holes 901 of housing 9) diffusing light produced by each of said light sources. ¶¶0115-0116.
[1d] a control system operatively connected to each of said light sources said control system operating selected ones of said light sources to provide a desired excitation illumination to an object within the field of view of said camera, the object fluorescing in response to the excitation illumination provided by said light sources.	The interpretation of Element 1(d) is subject to a determination of whether Element 1(d) recites functional limitations and/or is a means-plus-function limitation and what structure, if any, is shown by the '516 patent that performs the recited function. Insofar as Element 1(d) is construed to be hardware and/or programming that is operable to select light sources, Olympus discloses such a control system of Element 1(d). G:Box has an RGB LED lighting module “for advanced fluorescence applications.” G:Box has a control system to operate its bank of 84 LEDs with filters in various lighting options: RGB and UV module As an ever expanding list of fluorescent labels require an array of EPI and transillumination light sources, Syngene has responded with the perfect solution. In addition to the standard EPI-lighting modules and filter options, the Syngene solution is the RGB and UV lighting module The RGB/UV module is a unique lighting system. It is built around a bank of 84 LEDs with corresponding emission filters • 84 high intensity LEDs • Red, blue, green, white • Excitation filters • 254nm and 365nm UV light sources • Minimal heating effects - more controllable than conventional halogen/tungsten bulb systems • Life span in excess of 75,000 hours G:Box works with GeneSnap software which is programmed with drop down lists to select lighting options: Lighting and filter selection Select lighting option and application filter from the drop down lists Olympus also discloses a LED light source unit driving circuit 29 connected to a power supply 53 and various circuitry to control output light intensity of the LED light source units 11. It can independently turn on and off the LED light source units 11. Such control can be made manually or electronically on a computer. ¶¶0079-0080, 0087, 0147-0150. When light from the LED light source units is irradiated over the surface of a sample, fluorescence can be received by the G:Box

	camera.
2. The excitation light source assembly of claim 1 wherein said narrow-band light source emits light having a bandwidth of about 35 nm.	Claim 2 is obvious in view of the combination of G:Box and Olympus. The motivation to combine G:Box and Olympus is stated in the analysis of Claim 1, above. Olympus discloses LED light source units have different spectral characteristics and that different numbers and light sources with different peak emission wavelengths may be used. ¶¶0132, 0172, 0198, claim 7, 0129, 0131, 0152, 0155. LEDs of different bandwidths, including “about 35 nm”, were readily available and in use in fluorescence imaging prior to the effective filing date of the ’516 patent, for example as demonstrated by: • U.S. Patent No. 7,381,972 B1, entitled “System and Method for Light Fluorescence Detection” by Varmette et al. (light produced by LEDs typically had a full width at half max of 25 nanometers,” Exhibit G, 8:58-59); • U.S. Patent Application Publication 2009/0201577 A1, “Light Source,” by LaPlante et al., published Aug. 13, 2009 (referencing light emitting diodes that “can be obtained from a variety of commercial sources,” such as Luminous Devices, having “a full width half maximum (FWHM) of approximately +/- 12 nm,” Exhibit J, ¶0035); • “Light emitting diode excitation emission matrix fluorescence spectroscopy,” Analyst, 127, pp.1693-1699, Nov. 7, 2002 (LED bandwidths have “typical full width half maximums between 10 nm and 50 nm or more,” Exhibit H, p.1694); • the Fujifilm LAS-4000 Service Manual uses a Nichia NSSB100G LED for its green light source (Exhibit S, p. G-17) which has a bandwidth at half power of about 35 nm (Exhibit T, p. 9); and • the ’516 patent <i>admits</i> that “[l]ight emitting diodes having such narrow bandwidths (e.g., about 30-35 nm) along the desired wavelength range (e.g., 430 nm to about 745 nm) <i>are readily commercially available and can be used as narrow-band sources</i> 22.” ’516 patent at 9:2-6. A person of ordinary skill in the art at the time of the alleged invention (“POSA”), upon reading

	and understanding Olympus, would have used narrowband LEDs because peak wavelengths of the 490 nm and 520 nm LED light sources are only about 30 nm separated in wavelength, and accordingly it would be beneficial to use LEDs with no more than about 30-35 nm of bandwidth to better isolate the fluorescence excitation caused by each LED light source.
3. The excitation light source assembly of claim 2 wherein said at least one narrow-band light source comprises a light emitting diode.	G:Box and Olympus both teach the use of light emitting diodes as recited in claim 3 . G:Box teaches the use of LEDs in its RGB LED lighting module, as discussed above. LEDs are taught generally throughout Olympus, and specifically as set forth above. <i>See, inter alia</i> , ¶¶ 0011, 0013, 0014, 0024, 0026-0043, 0168.
4. The excitation light source assembly of claim 1, further comprising at least one filter positioned adjacent at least one diffuser in at least one of the lamp receptacles defined by said housing.	G:Box describes the use of LEDs and filters: <u>RGB and UV module</u> As an ever expanding list of fluorescent labels require an array of EPI and transillumination light sources, Syngene has responded with the perfect solution. In addition to the standard EPI-lighting modules and filter options, the Syngene solution is the RGB and UV lighting module The RGB/UV module is a unique lighting system. It is built around a bank of 84 LEDs with corresponding emission filters ● 84 high intensity LEDs ● Red, blue, green, white ● Excitation filters ● 254nm and 365nm UV light sources ● Minimal heating effects - more controllable than conventional halogen/tungsten bulb systems ● Life span in excess of 75,000 hours Olympus teaches the use of at least one filter (e.g., filter 3303) positioned at least one diffuser in at least one lamp receptacle defined by said housing of claim 4, as set forth above.

	[Fig. 11]  LED light source 3302 band-pass filter 3303 diffusion plate 3304 3301 holder Wires to power LED light source Light emanating from LED light source
5. The excitation light source assembly of claim 4, wherein said at least one filter comprises a notch filter having a wavelength bandpass range of about 30 nm.	The combination of G:Box and Olympus teaches the notch filter of claim 5. A notch filter with a specified wavelength bandpass is a bandpass filter. The LED light source unit of Olympus teaches the use of a band-pass filter, such as band-pass filter 3303:

[Fig. 11]



Olympus discloses LED light source units have different spectral characteristics and that different numbers and light sources with different peak emission wavelengths may be used. ¶¶0132, 0172, 0198, claim 7, 0129, 0131, 0152, 0155.

The use of filters having a variety of wavelength bandpass ranges (including 30 nm) was known to those of skill in the art well before any effective filing date of the '516 patent, as demonstrated by "Fluorescence Imaging of Electrical Activity in Cardiac Cells Using an All-Solid-State System," by Entcheva et al., IEEE Transactions on Biomedical Engineering, Vol. 51, No. 2, pp.333-341, February 2004 (illumination modules using LEDs and common interference filters of +/- 35 and +/-15 nm, **Exhibit I** at p.336). Prior to the earliest effective filing date of the '516 patent, bandpass filters of selectable bandpass ranges were also available from suppliers, such as Omega (*see Exhibit P*, p. 6-11) and Delta (*see, Exhibit K*).

A person of ordinary skill in the art at the time of the alleged invention ("POSA"), upon reading and understanding Olympus, would have used bandpass filters of about 30 nm because peak wavelengths of the 490 nm and 520 nm LED light sources are only about 30 nm separated in wavelength. Accordingly, bandpass filtering of the applied light to about 30 nm of bandwidth

	would better isolate the fluorescence excitation caused by each LED light source.
6. The excitation light source assembly of claim 1, wherein at least one of the light sources comprises a broad-band light source.	G:Box teaches white lighting overhead in its EPI lighting and RGB module lighting: ○ <u>RGB and UV module</u> As an ever expanding list of fluorescent labels require an array of EPI and transillumination light sources, Syngene has responded with the perfect solution. In addition to the standard EPI-lighting modules and filter options, the Syngene solution is the RGB and UV lighting module The RGB/UV module is a unique lighting system. It is built around a bank of 84 LEDs with corresponding emission filters ● 84 high intensity LEDs ● Red, blue, green, white ● Excitation filters ● 254nm and 365nm UV light sources ● Minimal heating effects - more controllable than conventional halogen/tungsten bulb systems ● Life span in excess of 75,000 hours Olympus also teaches a broad-band light source as recited in claim 6. Olympus states: “the number of LED light source units is not particularly limited, and a plurality of LED light source units can be individually controlled by a plurality of drive circuits. Further, the output wavelengths of the plurality of LED light source units may be the same or different [].” ¶0155. Broad-band light sources were well known in the art before the effective filing date of the ’516 patent. The ’516 patent admits that “white” LEDs are broad-band light sources and that they are “commercially readily available.” ’516 patent, 10:12-14. Consequently, since different output wavelengths of the LED light source units and white LEDs were commercially readily available, Olympus teaches the broad-band light source of claim 6.
7. The excitation light source	In the proffered combination of G:Box and Olympus, the Olympus housing teaches opposed pairs

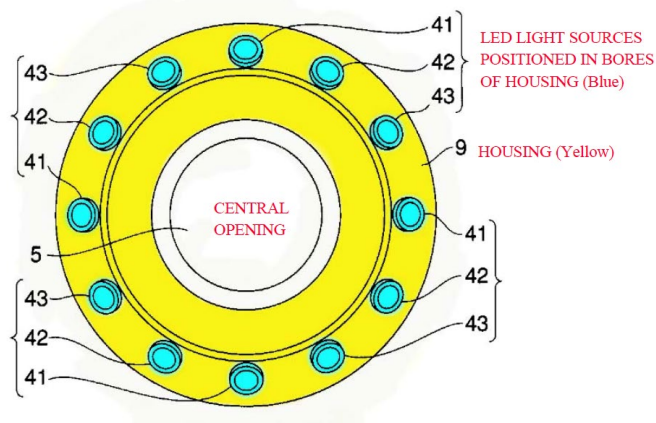
assembly of claim 1, wherein at least some of said plurality of lamp receptacles comprise opposed pairs of lamp receptacles on opposite sides of said central opening, each opposed pair of lamp receptacles producing light of the same color.

of lamp receptacles as recited in **claim 7**.

Olympus states: “the number of LED light source units is not particularly limited, and a plurality of LED light source units can be individually controlled by a plurality of drive circuits.” ¶0155.

FIG. 13 shows a plurality of lamp receptacles for a plurality of LED lights sources (41, 42, and 46). It also shows that at least some of the plurality of lamp receptacles comprise opposed pairs of lamp receptacles on opposite sides of said central opening (compare the light sources 41, 42, and 43 in the upper right-hand corner of FIG. 13 with those on the lower left-hand corner, or the light sources 41, 42, and 43 on the upper left-hand corner with their counterpart light sources on the lower right-hand corner).

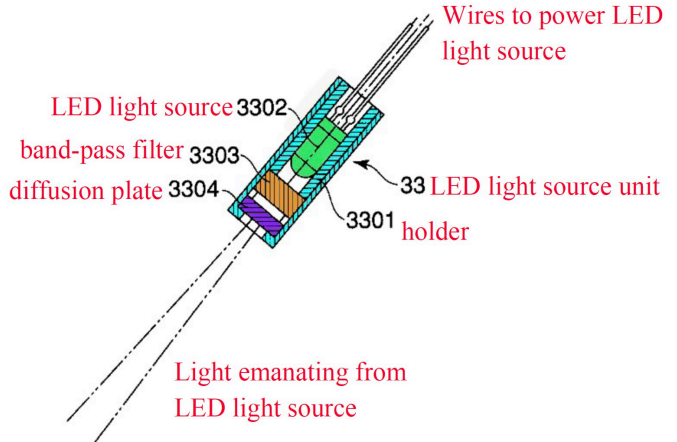
[Fig. 13] TOP VIEW OF HOUSING



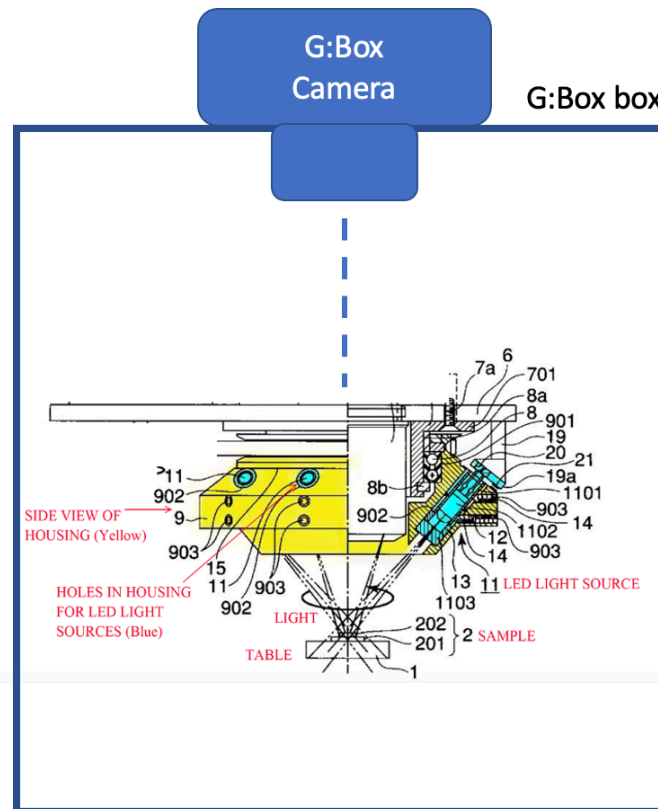
9. The excitation light source assembly of claim 1, wherein the light source positioned within each of the plurality of lamp receptacles does not extend beyond the lamp receptacle.

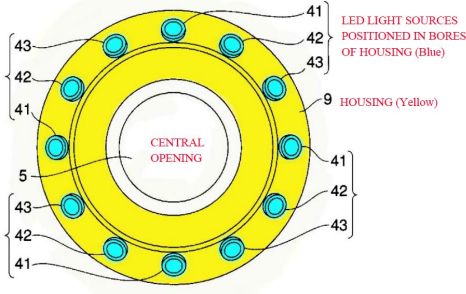
In the proffered combination of G:Box and Olympus, Olympus teaches recessed lighting as recited in **claim 9**.

Olympus FIG. 11 shows a light source 3301 positioned within each of the plurality of lamp receptacles does not extend beyond the lamp receptacle:

	[Fig. 11] 
14. [14(Preamble)] An assembly, comprising:	G:Box in combination with Olympus teaches all of the elements of Claim 14. The motivation to combine is the same as was provided above, for claim 1. G:Box discloses an assembly, as recited in Element 14(Preamble). Olympus also discloses an assembly. See the analysis of Element 1(Preamble) above.
[14a] a support structure;	G:Box uses its box as a support structure for its LED lighting modules and its camera. A POSA would understand that the camera of G:Box could be used with the housing (light source holding member 9 and associated hardware, including the base 6) of Olympus mounted within the G:Box box and over its sample table. The combination of G:Box and Olympus provides the subject matter of Elements 14a, 14b, and 14c. Olympus discloses base 6, which when integrated with the G:Box box, acts as a support structure for the housing (light source holding member 9): “[A] base 6 is provided with a cylindrical fixed shaft 7 on the base 6. A flange portion 701 is

formed at one end of the fixed shaft 7, and the flange portion 701 is fixed to the base 6 by a screw 7a.” ¶0051. “A light source holding member 9 [housing] is rotatably supported on an outer peripheral surface of the fixed shaft 7 via a bearing 8. In this case, the light source holding member 9 has a hole portion 901 formed along the optical axis 5a, and the peripheral surface of the hole portion 901 is supported on the outer peripheral surface of the fixed shaft 7 via the bearing 8. Further, in the light source holding member 9, the center of rotation coincides with the optical axis 5a of the objective lens 5.” ¶0053.



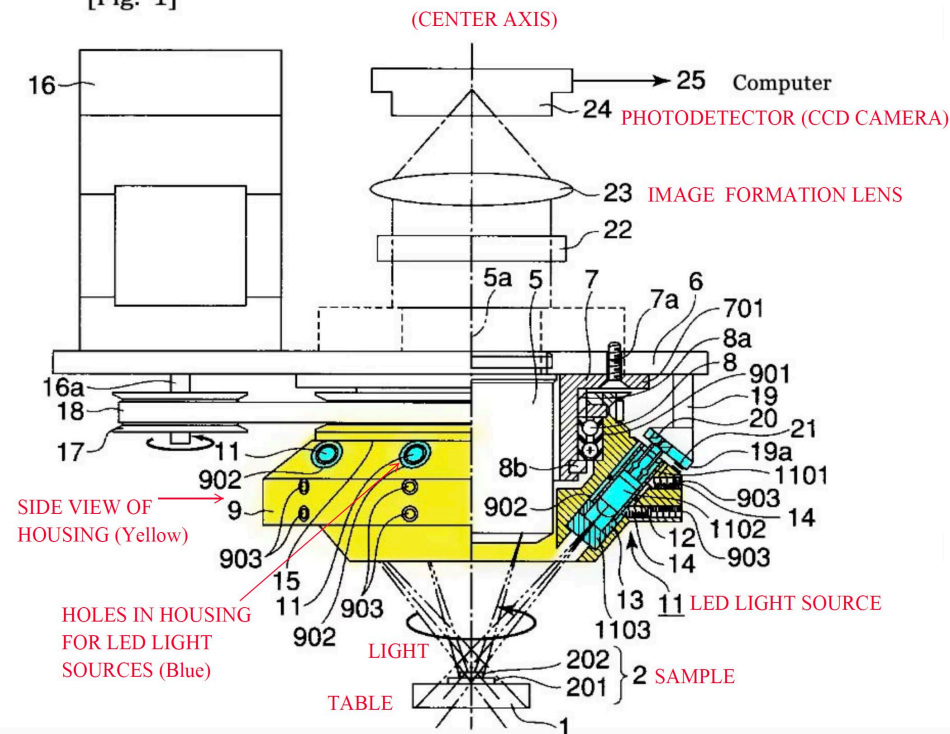
	[Fig. 13] TOP VIEW OF HOUSING  This excerpt of FIG. 1 of Olympus shows the base 6, fixed shaft 7, flange portion 701, screw 7a, and bearing 8, which is the mount upon which the housing (yellow) is connected to the base 6. The G:Box camera can view the sample through the center portion of the housing 9 (see annotated FIG. 13 of Olympus), so that its field of view is substantially unobstructed by the housing 9.
[14b] a camera mounted to said support structure;	G:Box discloses a camera mounted to the darkroom box, and therefore provides Element 14b . See analysis of Element 14a , above.
[14c] an excitation light source assembly mounted to said support structure, said excitation light source assembly comprising:	The combination of G:Box and Olympus disclose Element 14c . See analysis of Element 14a , and the following analysis of Elements 14d, 14e, and 14f :
[14d] a housing defining a central opening therein and a plurality of lamp receptacles surrounding the central opening, said housing being mounted to said support structure so that the central opening is aligned with said camera and so that a field of	The combination of G:Box and Olympus teach Element 14d. Element 14d is substantially identical to Element 1a. See the analysis of Element 1a, above.

view of said camera is substantially unobstructed by said housing;	
[14e] at least one narrow-band light source positioned within at least one of the plurality of lamp receptacles; and	The combination of G:Box and Olympus teach Element 14e. Element 14e is substantially identical to Element 1b. See the analysis of Element 1b, above.
[14f] a diffuser positioned within at least some of the plurality of lamp receptacles, each of said diffusers diffusing light produced by each of said narrow-band light sources; and	The combination of G:Box and Olympus teach Element 14f. Element 14f is substantially identical to Element 1c. See the analysis of Element 1c, above.
[14g] a control system operatively connected to each of said narrow-band light sources, said control system operating selected ones of said narrow-band light sources to provide a desired excitation illumination to a fluorescent material within the field of view of said camera, the fluorescent material fluorescing in response to the excitation illumination.	Element 14g is substantially identical to Element 1d. See the analysis of Element 1d, above.
15. The assembly of claim 14, further comprising a light filter positioned adjacent each of the diffusers.	The subject matter recited in claim 15 is substantially similar to that recited in claim 4. See the analysis of claim 4, above.
16. The assembly of claim 14, wherein each of the lamp receptacles defined by said	The combination of G:Box and Olympus teach the subject matter of claim 16. The receptacles (holes or bores 902 of housing 9 of Olympus) are angled with respect to the

housing are angled with respect to a central axis of said housing so that light emitted from each of said narrow-band light sources is directed to a desired area within the field of view of said camera.

center axis of the assembly, and light emitted from each of the LED light sources 11 is directed to a desired area within the field of view of the camera (see the sample 2 on table 1 fluorescing due to light from LED lights sources 11, below):

[Fig. 1]



17. The assembly of claim 14, wherein each of said narrow-band light sources is selected to provide desired number of illumination bands over a desired spectral range.

The combination of G:Box and Olympus teach the subject matter of **claim 17**.

Olympus refers to light at 490 nm, 520 nm, and 630 nm. ¶¶0131-0133. However, Olympus is not limited to these three wavelengths and discloses the use of other excitation and emission wavelengths and different numbers of light sources.

Olympus states: “the number of LED light source units is not particularly limited, and a plurality of LED light source units can be individually controlled by a plurality of drive circuits. Further, the output wavelengths of the plurality of LED light source units may be the same or different [.]” ¶0155. Olympus also allows for more light sources and the use of different wavelengths: “In

	addition, in the 3 embodiment described above, 3 types of fluorescent dyes are used, but the present invention is not limited thereto, and 2 types of fluorescent dyes may be used, or 4 or more fluorescent images may be obtained in the same manner.” ¶0154. “Further, it is possible to greatly increase the number of LED light source units 81. By dividing the LED light source units 81 into a plurality of sets and using the LED light sources having different spectral characteristics of the emission wavelength for each set, it is also possible to excite a plurality of types of fluorescent dyes and detect fluorescent signals in the same manner as described in the 3 embodiment.” ¶¶0172, 0198.
18. The assembly of claim 17, wherein the desired spectral range is from about 430 nm to about 745 nm.	The combination of G:Box and Olympus teach the subject matter of claim 18. As set forth in the analysis of claim 17, Olympus is not limited to these three wavelengths and discloses the use of other excitation and emission wavelengths and different numbers of light sources. The ’516 patent <i>admits</i> that “[l]ight emitting diodes having such narrow bandwidths (e.g., about 30-35 nm) along the desired wavelength range (e.g., 430 nm to about 745 nm) are readily commercially available and can be used as narrow-band sources 22.” ’516 patent at 9:2-6. Accordingly, the ’516 patent admits that commercial industry has produced LEDs in the wavelength range of interest and is thus well known. Olympus discloses use of its assembly for applications in the well known 430 nm to 745 nm wavelength range.
20. The assembly of claim 17, wherein each desired illumination band has a bandwidth ranging from about 30 nm to about 35 nm.	The combination of G:Box and Olympus teach the subject matter of claim 20. The subject matter recited in claim 20 is substantially similar to that recited in claim 2 and claim 5. See the analysis of claim 2 and claim 5, above.
22. The assembly of claim 17, wherein the desired spectral range is from about 430 nm to about 800 nm.	The combination of G:Box and Olympus teach the subject matter of claim 22. The subject matter recited in claim 22 is substantially similar to that recited in claim 18. See the analysis of claim 18, above
23. The assembly of claim 14, wherein each of said narrow-band light sources comprises a light emitting diode.	The combination of G:Box and Olympus teach the subject matter of claim 23. The subject matter recited in claim 23 is substantially identical to that recited in claim 3. See the analysis of claim 3, above.
24. The assembly of claim 14,	G:Box and Olympus do not list polyoxymethylene (one example of which is Delrin, see the ’516

wherein said housing comprises a polyoxymethylene thermoplastic material.

patent at 7:28-29, 12:1-2, and 13:14-15); however, it is well known in the art to use Delrin in the construction of optical systems as set forth in U.S. Patent No. 6,894,289 to Nilson (**Exhibit B**) at 11:7-11. A POSA would use the black Delrin of Nilson for light assemblies in the system of Olympus as it is “opaque and has absorption properties to reduce reflection.” *Id.*

Brydegaard (**Exhibit N**) also teaches the use of Delrin in a cone for holding a plurality of LEDs, as shown in Fig. 2 of Brydegaard.

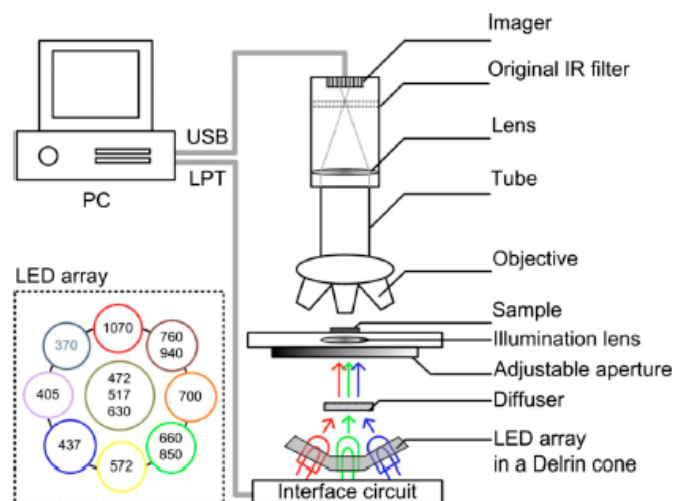


Fig. 2. Arrangement for multispectral transmission microscopy employing multiple LED illumination. Different wavelengths are emitted from a computer controlled LED array and the rays are combined by a diffuser. The light interacts with the sample differently for each wavelength, resulting in a unique picture for each wavelength.

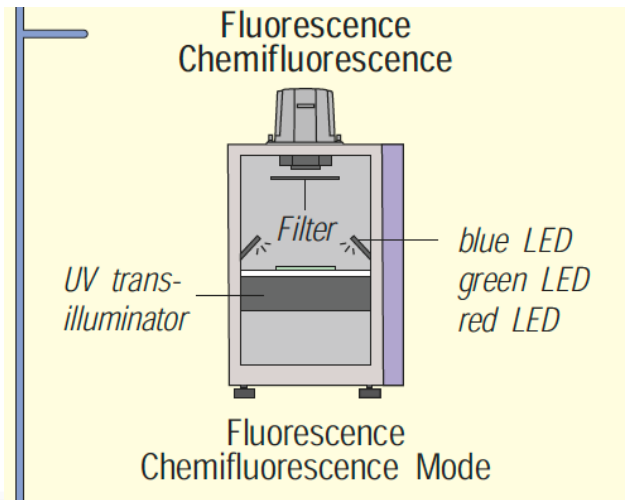
Brydegaard also teaches the use of a diffuser adjacent the LED light sources for use in illuminating a sample with different wavelengths of light. “The nine LEDs are mounted in a machined compact circular arrangement ... made of Delrin ...”. Brydegaard (**Exhibit N**) at p.4.

The subject matter of claim 24 is obvious over G:Box and Olympus in view of Nilson or Brydegaard.

25. [25(Preamble)] An excitation light source assembly, comprising:	The combination of G:Box and Olympus teach an assembly of Element 25(Preamble). See the analyses of Element 1(Preamble) and Element 14(Preamble), above.
[25a] a housing defining a central opening therein and a plurality of lamp receptacles therein surrounding the central opening, said housing being mountable to a support structure so that the central opening is aligned with a camera also mounted to the support structure so that a field of view of the camera is unobstructed by said housing;	The combination of G:Box and Olympus teach the housing, plurality of lamp receptacles, and camera of Element 25a. Element 25a is substantially identical to Element 1a. See the analysis of Element 1a, above.
[25b] a light source positioned within each of the plurality of lamp receptacles so that said light sources do not extend beyond the lamp receptacles, wherein at least one of said light sources comprises a narrow-band light source; and	The combination of G:Box and Olympus teach the light source of Element 25b. Element 25b is substantially the subject matter of Element 1b and dependent claim 9. See the analysis of Element 1b and claim 9, above.
[25c] a control system operatively connected to each of said light sources, said control system operating selected ones of said light sources to provide a desired excitation illumination to an object within the field of view of the camera, th [sic] excitation illumination causing	Element 25c is substantially similar to Element 1d. See the analysis of Element 1d, above.

fluorescent materials in the object to fluoresce, the camera capturing an image of the fluorescing material in the object.	
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CHART 3 – '516 Patent Asserted Claims are Obvious over Fujifilm (**Exhibit E or Exhibit S**) in view of Olympus (**Exhibit A**) (except claim 24 which is obvious in view of Fujifilm and Olympus in view of Nilson (**Exhibit B**) or Brydegaard (**Exhibit N**))

Claim Element	Fujifilm in view of Olympus
1. [1(Preamble)] An excitation light source assembly, comprising:	Fujifilm discloses Element 1(Preamble). Fujifilm¹⁰ discloses an “EPI-illuminator for fluorescence” for its LAS-3000 imaging system. Fujifilm states, “[t]he LAS-3000 imaging system combines Fujifilm’s high-sensitivity Super CCD camera technology with the added versatility of white, blue, green and red EPI illuminators.” Exhibit E, p.2.  

¹⁰ Other imaging systems, such as the IVIS™ by Xenogen used LEDs for fluorescence imaging since at least 2001. See, *In-vivo imaging of light emitting probes*,” B.W. Rice et al., Journal of Biomedical Optics 6(4) pp. 432-440 (October 2001) (“Rice,” **Exhibit O**).



LED units

Intelligent Dark Box IV

EPI-illuminator for fluorescence	blue LED (470nm), green LED (520nm), red LED (630nm)
EPI-illuminator for digitization	White-light source
Transilluminator - for digitization of stained gels and autoradiographic films	White LED
UV transilluminator**	UV-light source (312nm)
Filter turret	Five positions

Id.

Fujifilm later released its LAS-4000 Luminescent Image Analyzer, which included more illumination options:

3.6 Incident-Light Unit

3.6.1 LED Light Source	The incident-light unit is installed symmetrical to IDX to provide illumination diagonally from the top.	
3.6.1.1 Blue light source	The blue light source consists of 96 LEDs (NSSB100B manufactured by Nichia Corporation). The main wave length is 470 nm, and the long wavelength components of the LED light are eliminated by installing a B-390 optical filter on the radiation surface. This makes the main wavelength closer to 460 nm, which improves the S/N ratio on fluorescent sample images.	
3.6.1.2 Green light source	The green light source consists of 96 LEDs (NSSG100B manufactured by Nichia Corporation). The long wavelength components of the LED light are eliminated by installing a short-path filter on the radiation surface.	
3.6.1.3 Red light source	The red light source consists of 180 LEDs (NSSR100B manufactured by Nichia Corporation). The long wavelength components of the LED light are eliminated by installing a short-path filter on the radiation surface.	
3.6.1.4 Near-infrared light source	It consists of 180 LEDs (Alpha One Electronics SMC720). Long wavelength components of the LED light are eliminated by installing a short path filter on the radiation surface.	
3.6.1.5 Ultraviolet light source	It consists of 96 LEDs (Nichia Corporation NSSU100). Visible lights are eliminated by placing an excitation filter U-340.	
3.6.2 External Specifications	Power supply	DC 24V
	Power demand	Approx. 10W
	Main wavelength	Blue:460nm Green:520nm Red:630nm
		Ultraviolet: 365nm Near-infrared: 710nm

Exhibit S, p. G-17

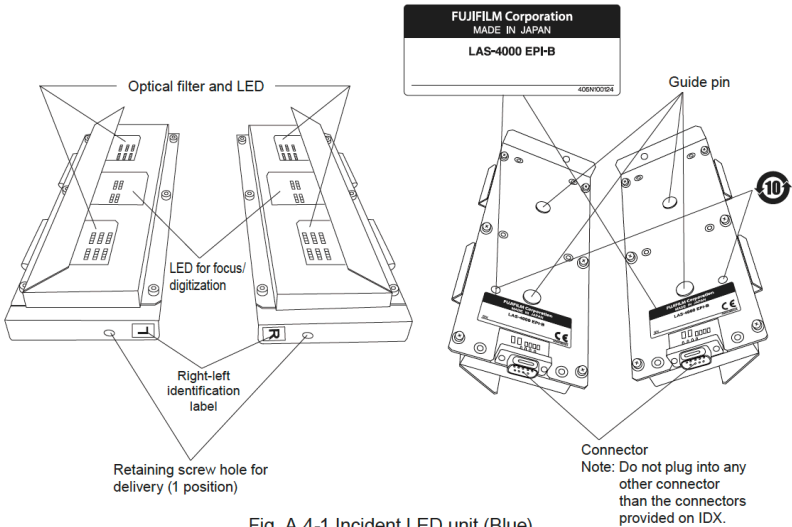


Fig. A.4-1 Incident LED unit (Blue)

Exhibit S, p. A-15.

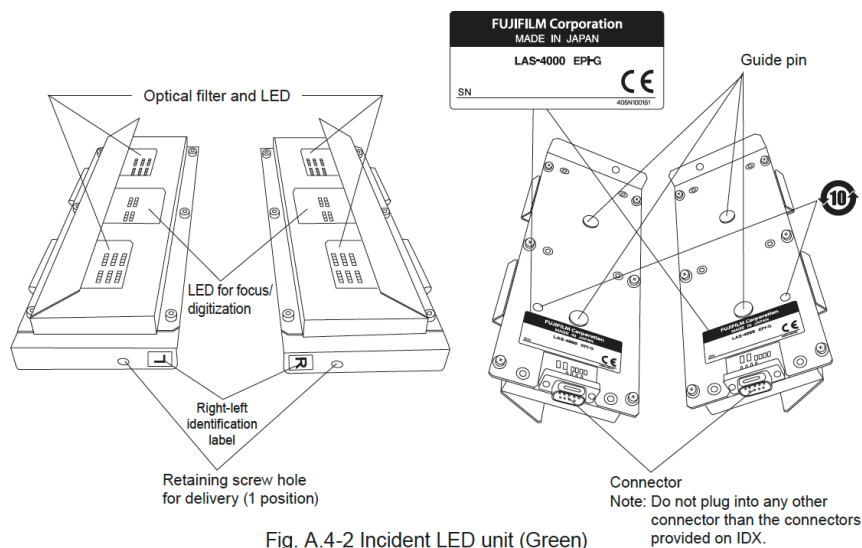


Fig. A.4-2 Incident LED unit (Green)

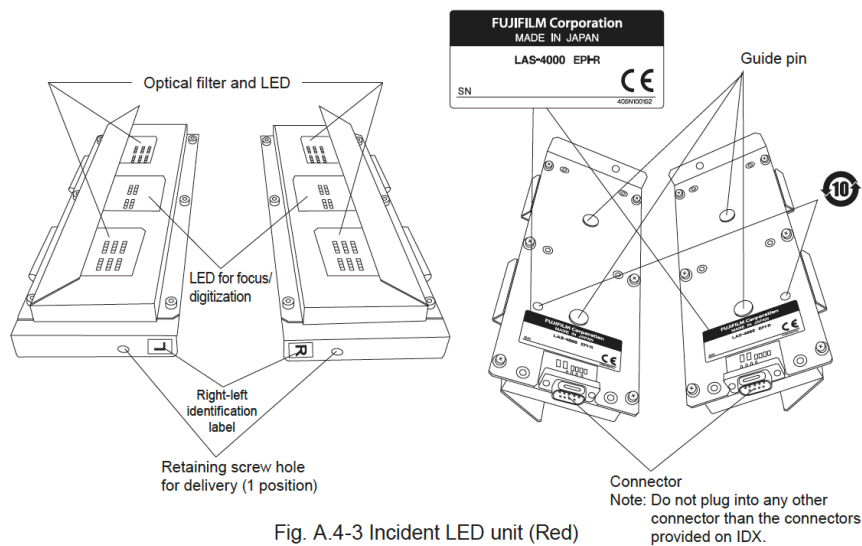
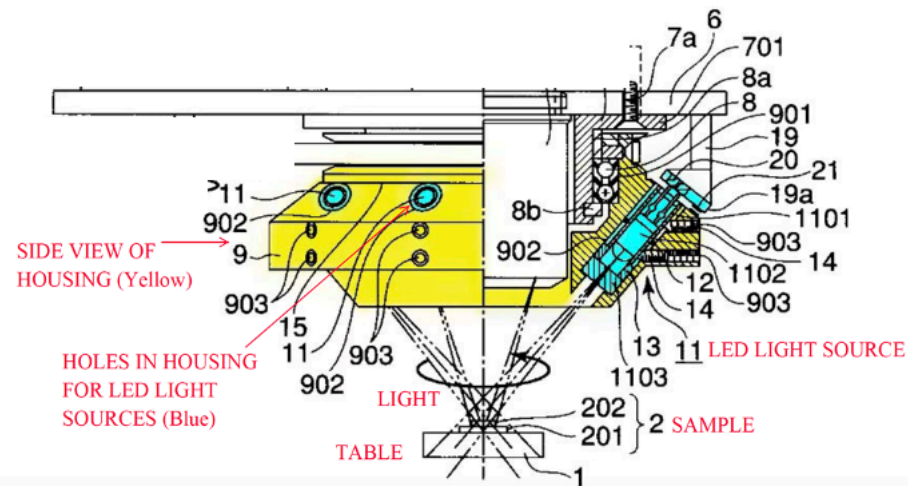


Fig. A.4-3 Incident LED unit (Red)

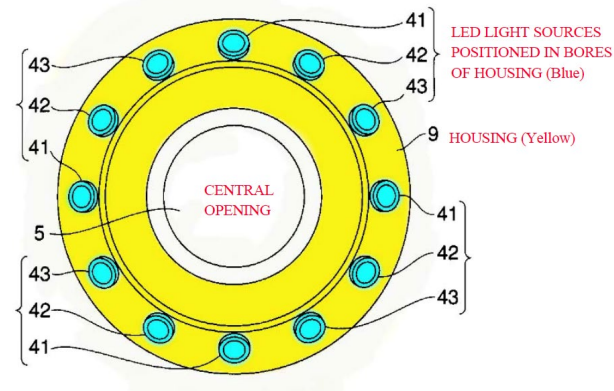
Exhibit S, p. A-16.

[1a] a housing defining a central opening therein and a plurality of lamp receptacles surrounding the central opening, said housing being mountable to a support structure so that the central opening is aligned with a camera also mounted to the support structure so that a field of view of the camera is unobstructed by said housing;	Fujifilm does not disclose a housing defining a central opening therein and a plurality of lamp receptacles surrounding the central opening, nor does it have a housing being mountable to a support structure.¹¹ It would have been obvious for a person of skill in the art at the time of the alleged invention to have used the circular housing and LED light source units of Olympus with the box of Fujifilm to more uniformly and evenly excite the sample with Olympus's LED light source units surrounding a central opening. Olympus discloses the housing and plurality of lamp receptacles of Element 1a. Olympus describes a housing defining a central opening (light source holding member 9, highlighted yellow) and a plurality of lamp receptacles surrounding the central opening (storage holes 902, blue, that accommodate LED Light source units). FIGS. 1, 11, and 13 (excerpted and annotated). This excerpted and annotated FIG. 1 of Olympus shows a side view of the housing under base 6 (housing is in yellow) and FIG. 13 shows a top view of the housing:
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¹¹ Plaintiff has asserted that Defendant's Newton product infringes **claim 1**. Applying Plaintiff's analysis from its Preliminary Infringement Contentions (which Scintica denies and submits is incorrect), the Fujifilm image analyzers (including, but not limited to those in **Exhibit E** or **Exhibit S**) would anticipate the asserted claims of the '516 patent.

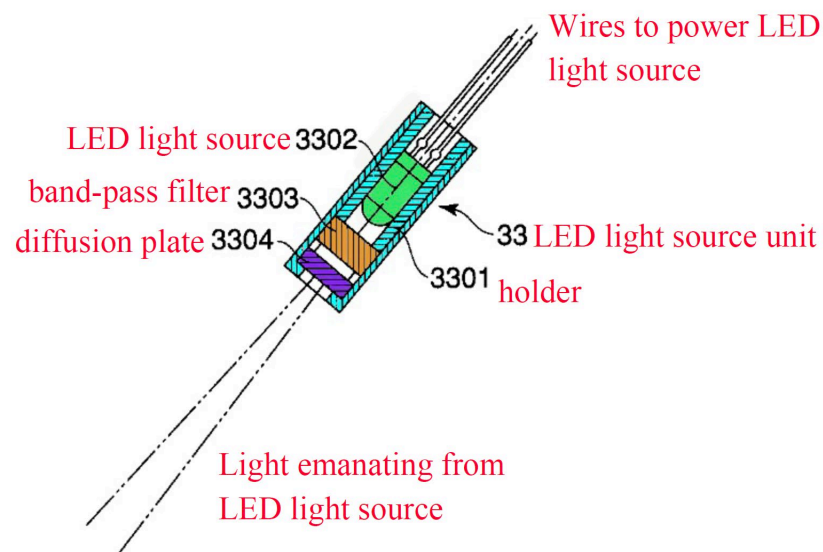


[Fig. 13] TOP VIEW OF HOUSING



The holes in the housing 9 receive LED light sources (shown as 41, 42, and 43 in FIG. 13, blue). As demonstrated by FIG. 11, LED light source 3302 may include LEDs (3302, green), filters (3303, orange), and/or diffusers (3304, purple).

[Fig. 11]



Olympus states, “A plurality of (e.g., 5) LED light source unit storage holes 902 are provided in the light source holding member 9 along the circumferential direction.” ¶0055. “The LED light source unit housing hole 902 accommodates the LED light source unit 11.” ¶0056.

Therefore, housing 9 has holes 902 that are a “plurality of lamp receptacles surrounding the central opening.”

FIG. 1 shows that housing 9 is mounted so that its central opening is aligned with its camera so that its field of view is unobstructed by said housing 9. ¶0126. FIG. 22 is an alternate embodiment where housing 9 is fixed and the platform 201 may be rotated. ¶¶0202-0208.

[1b] a light source positioned within each of the plurality of lamp receptacles, wherein at

Fujifilm does not have a housing and therefore does not have a housing defining ... a plurality of lamp receptacles surrounding a central opening. A POSA would have been motivated to combine Fujifilm with the housing and LED light source units of Olympus as

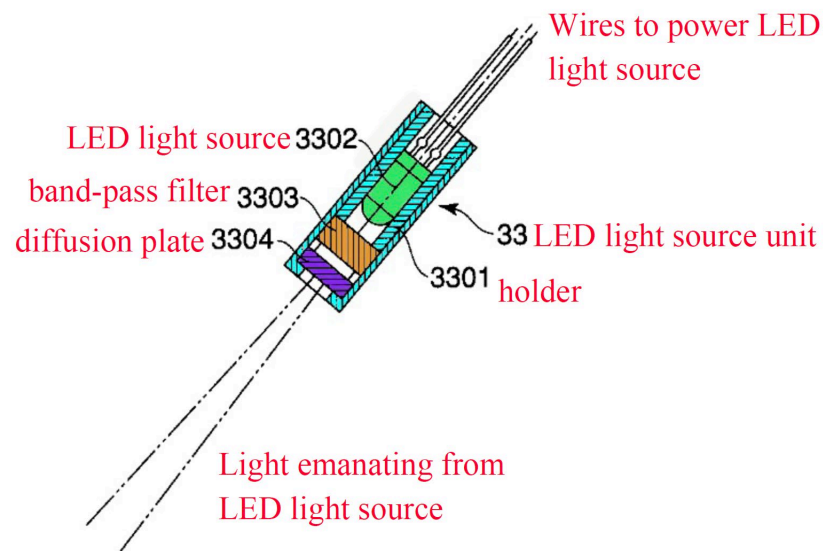
least one of said light sources comprises a narrow-band light source; and

set forth in **Element 1a**. A POSA would further understand that Olympus's housing and LED light sources would provide a housing, a plurality of lamp receptacles, and a light source positioned within each of the plurality of lamp receptacles, wherein at least one of the light sources comprises a narrow-band light source, as recited in **Element 1(b)**.

Olympus states, "the semiconductor light source means has, *in addition to an LED light source emitting excitation light, a filter, a diffusion plate, a lens, or all thereof, which selectively transmits a wavelength of light from the LED light source arranged on an optical path of light emitted from the LED light source.*" ¶0027.

As demonstrated by FIG. 11, LED light source 3302 may include LEDs (3302, highlighted green), filters (3303, highlighted orange), and diffusers (3304, highlighted purple). ¶¶0115-0116.

[Fig. 11]



Olympus refers to FIG. 13, stating, "light source holding member 9 is provided with the 1 to

	3 LED light source units 41 42 and 43 having 3 kinds of LED light sources having different peak emission wavelengths. Generally, an emission spectrum of an LED light source has a <i>mountain-shaped structure and has one peak wavelength.</i>” ¶0131. Thus, the LED light source of Olympus is a narrow-band light source and a light source unit is positioned in each of the lamp receptacles (holes 902 of housing 9).
[1c] a diffuser positioned within at least some of the plurality of lamp receptacles, each of said diffusers diffusing light produced by each of said light sources; and	Fujifilm does not explicitly state whether it has a diffuser;¹² however, the LED light source units of Olympus include a diffuser as recited in Element 1c, as set forth above in the analysis of Element 1a. For example, the LED source unit comprises a diffuser (diffusion plate 3104) positioned within at least some of the plurality of lamp receptacles (holes 901 of housing 9) diffusing light produced by each of said light sources. ¶¶0115-0116.
[1d] a control system operatively connected to each of said light sources said control system operating selected ones of said light sources to provide a desired excitation illumination to an object within the field of view of said camera, the object fluorescing in response to the excitation illumination provided by said light sources.	The interpretation of Element 1(d) is subject to a determination of whether Element 1(d) recites functional limitations and/or is a means-plus-function limitation and what structure, if any, is shown by the ’516 patent that performs the recited function. Insofar as Element 1(d) is construed to be hardware and/or programming that is operable to select light sources, Olympus discloses such a control system of Element 1(d). The Fujifilm LAS-3000 “includes multiple LED options for various fluorescence applications, including blue LED (470nm), green LED (520nm) and red LED (630nm) for epi-illumination . . . “ Fujifilm discusses remote control of “all the functions” using Image Reader software:

¹² Scintica reserves the right to provide further evidence about Fujifilm image analyzers to supplement its invalidity contentions pending further development of the case, discovery, and claim constructions.

	Easy-to-use operation Samples are placed on the appropriate tray and placed in the intelligent dark box. After closing the door, all the functions are controlled remotely from the Image Reader software. The software automatically recognizes the type of illuminator installed or changed during operation. Users are able to control the LAS-3000 with the Image Reader software in either the user-friendly Lite mode or the more advanced Pro mode. The modes are selected with the click of a mouse. Exhibit E, p.2. Olympus also discloses a LED light source unit driving circuit 29 connected to a power supply 53 and various circuitry to control output light intensity of the LED light source units 11. It can independently turn on and off the LED light source units 11. Such control can be made manually or electronically on a computer. ¶¶0079-0080, 0087, 0147-0150. When light from the LED light source units is irradiated over the surface of a sample, fluorescence can be received by the Fujifilm LAS-3000 camera.
2. The excitation light source assembly of claim 1 wherein said narrow-band light source emits light having a bandwidth of about 35 nm.	Claim 2 is obvious in view of the combination of Fujifilm and Olympus. The motivation to combine Fujifilm and Olympus is stated in the analysis of claim 1, above. The Fujifilm LAS-4000 Service Manual identifies certain LEDs it uses in its light modules. For example, it used a Nichia NSSB100G LED for its green light source. Exhibit S, p. G-17. A specification data sheet for the Nichia NSSG100BT shows a bandwidth at half power of about 35 nm.

■ Spectrum

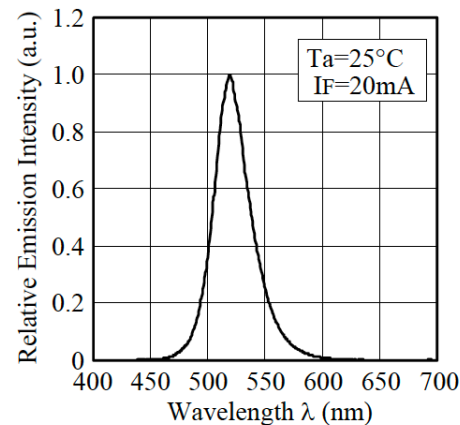


Exhibit T, p. 9.

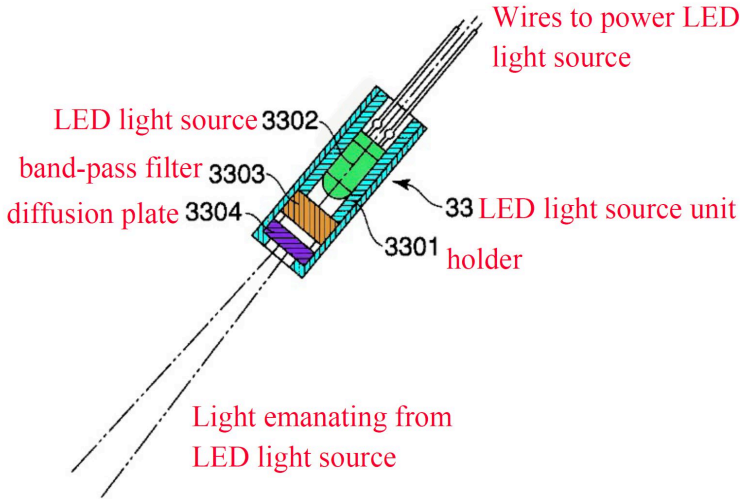
Thus, LEDs of about 35 nm were used in fluorescence imaging systems at least as of 2006.
Id.

Olympus discloses LED light source units have different spectral characteristics and that different numbers and light sources with different peak emission wavelengths may be used. ¶¶0132, 0172, 0198, claim 7, 0129, 0131, 0152, 0155.

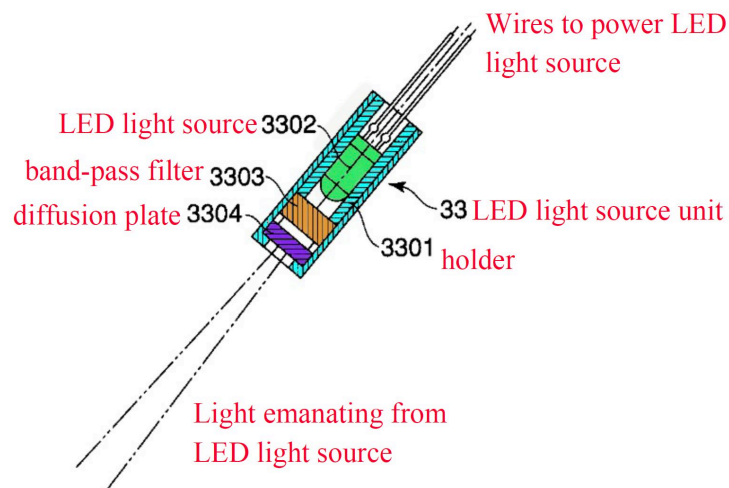
LEDs of different bandwidths, including “about 35 nm”, were readily available and in use in fluorescence imaging prior to the effective filing date of the ’516 patent, for example as demonstrated by **Exhibit T** and:

- U.S. Patent No. 7,381,972 B1, entitled “System and Method for Light Fluorescence Detection” by Varmette et al. (light produced by LEDs typically had a full width at half max of 25 nanometers,” **Exhibit G**, 8:58-59);
- U.S. Patent Application Publication 2009/0201577 A1, “Light Source,” by LaPlante et al., published Aug. 13, 2009 (referencing light emitting diodes that “can be obtained from a

	variety of commercial sources,” such as Luminous Devices, having “a full width half maximum (FWHM) of approximately +/- 12 nm,” Exhibit J at ¶0035); • “Light emitting diode excitation emission matrix fluorescence spectroscopy,” Analyst, 127, pp.1693-1699, Nov. 7, 2002 (LED bandwidths have “typical full width half maximums between 10 nm and 50 nm or more,” Exhibit H at p.1694); • the ’516 patent <i>admits</i> that “[l]ight emitting diodes having such narrow bandwidths (e.g., about 30-35 nm) along the desired wavelength range (e.g., 430 nm to about 745 nm) <i>are readily commercially available and can be used as narrow-band sources</i> 22.” ’516 patent at 9:2-6.
3. The excitation light source assembly of claim 2 wherein said at least one narrow-band light source comprises a light emitting diode.	Fujifilm and Olympus both teach the use of light emitting diodes as recited in claim 3. Fujifilm teaches the use of LEDs in its LED units, as discussed above. LEDs are taught generally throughout Olympus, and specifically as set forth above. <i>See, inter alia</i>, ¶¶ 0011, 0013, 0014, 0024, 0026-0043, 0168.
4. The excitation light source assembly of claim 1, further comprising at least one filter positioned adjacent at least one diffuser in at least one of the lamp receptacles defined by said housing.	The combination of Fujifilm and Olympus teaches the filter adjacent a diffuser of claim 4. Olympus teaches the use of at least one filter (e.g., filter 3303) positioned at least one diffuser in at least one lamp receptacle defined by said housing of claim 4, as set forth above.

	[Fig. 11]  LED light source 3302 band-pass filter 3303 diffusion plate 3304 3301 holder Wires to power LED light source 33 LED light source unit Light emanating from LED light source
5. The excitation light source assembly of claim 4, wherein said at least one filter comprises a notch filter having a wavelength bandpass range of about 30 nm.	The combination of Fujifilm and Olympus teaches the notch filter of claim 5. A notch filter with a specified wavelength bandpass is a bandpass filter. The LED light source unit of Olympus teaches the use of a band-pass filter, such as band-pass filter 3303:

[Fig. 11]



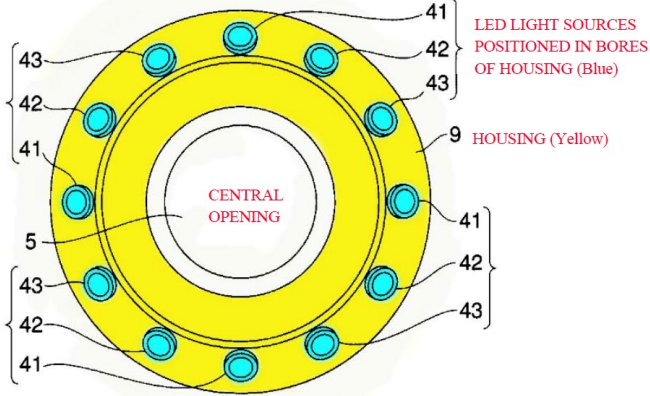
Olympus discloses LED light source units have different spectral characteristics and that different numbers and light sources with different peak emission wavelengths may be used. ¶¶0132, 0172, 0198, claim 7, 0129, 0131, 0152, 0155.

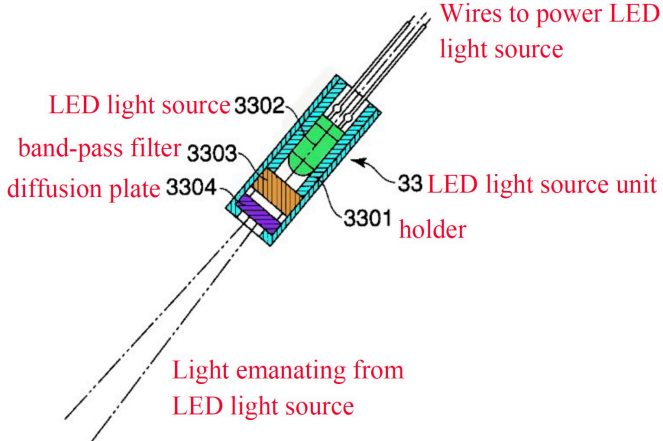
The use of filters having a variety of wavelength bandpass ranges (including 30 nm) was known to those of skill in the art well before any effective filing date of the '516 patent, as demonstrated by "Fluorescence Imaging of Electrical Activity in Cardiac Cells Using an All-Solid-State System," by Entcheva et al., IEEE Transactions on Biomedical Engineering, Vol. 51, No. 2, pp.333-341, February 2004 (illumination modules using LEDs and common interference filters of +/- 35 and +/-15 nm, **Exhibit I** at p.336). Prior to the earliest effective filing date of the '516 patent, bandpass filters of selectable bandpass ranges were also available from suppliers, such as Omega (*see Exhibit P*, p. 6-11) and Delta (*see, Exhibit K*).

A person of ordinary skill in the art at the time of the alleged invention ("POSA"), upon reading and understanding Olympus, would have used bandpass filters of about 30 nm because peak wavelengths of the 490 nm and 520 nm LED light sources are only about 30

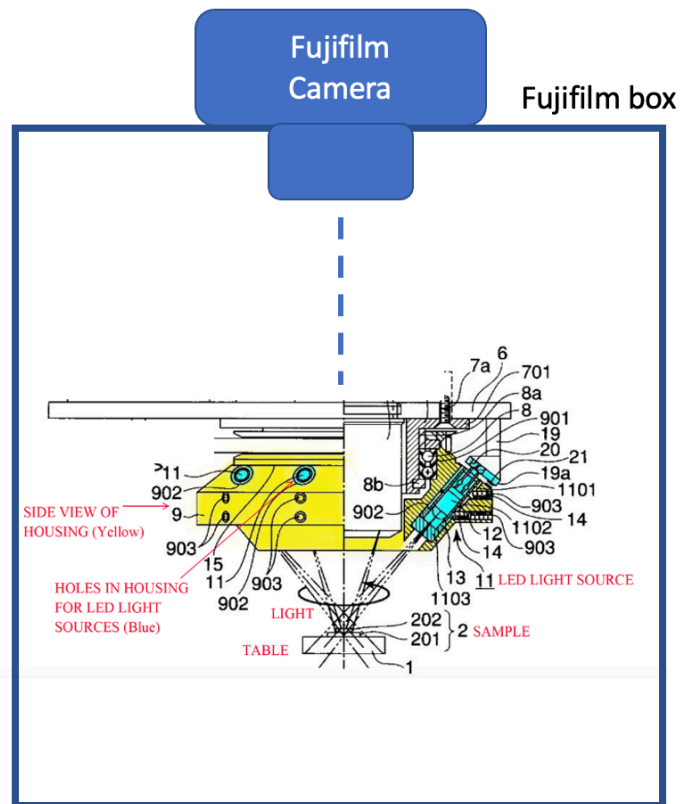
	nm separated in wavelength. Accordingly, bandpass filtering of the applied light to about 30 nm of bandwidth would better isolate the fluorescence excitation caused by each LED light source.																		
6. The excitation light source assembly of claim 1, wherein at least one of the light sources comprises a broad-band light source.	The Fujifilm LAS-3000 teaches a broad band (white light) source: The LAS-3000 imaging system combines Fujifilm's high-sensitivity Super CCD camera technology with the added versatility of white, blue, green and red EPI illuminators. The Super CCD imaging chip, binning mode and specially designed camera lens allow researchers to capture faint-light luminescent images with unprecedented sensitivity and resolution. Multicolor illuminator options enlarge application area in fluorescent imaging. Exhibit E, p.2. The Fujifilm LAS-4000 also teaches the use of a broad-band (white light) source: Scratch II. 3.7 White Transmitted-Light Unit <table><tr><td>3.7.1 LED Light Source</td><td colspan="2">The white transmitted-light unit uses boards provided with 57 white LEDs for transmitted-light illumination. The white LEDs used are NSSW100C, manufactured by Nichia Corporation. The light diffusion plate provided on the radiation surface disperses the light uniformity.</td></tr><tr><td>3.7.2 External Specifications</td><td>Power supply</td><td>DC24V</td></tr><tr><td></td><td>Power demand</td><td>Approx. 5W</td></tr><tr><td></td><td>Dimensions</td><td>322 mm x 313 mm x 87 mm</td></tr><tr><td>3.7.3 Cautions</td><td colspan="2">Do not apply pressure to the emission surface because it is made of glass.</td></tr><tr><td>3.7.4 Maintenance</td><td colspan="2">The cover may be cleaned as a single component by dismantling the unit (see Chapter F Section 6.2 for the procedure) and removing the 4 fixing screws on the side. Thoroughly dry the cover before reinstallation.</td></tr></table> Exhibit S, p.G-17.	3.7.1 LED Light Source	The white transmitted-light unit uses boards provided with 57 white LEDs for transmitted-light illumination. The white LEDs used are NSSW100C, manufactured by Nichia Corporation. The light diffusion plate provided on the radiation surface disperses the light uniformity.		3.7.2 External Specifications	Power supply	DC24V		Power demand	Approx. 5W		Dimensions	322 mm x 313 mm x 87 mm	3.7.3 Cautions	Do not apply pressure to the emission surface because it is made of glass.		3.7.4 Maintenance	The cover may be cleaned as a single component by dismantling the unit (see Chapter F Section 6.2 for the procedure) and removing the 4 fixing screws on the side. Thoroughly dry the cover before reinstallation.	
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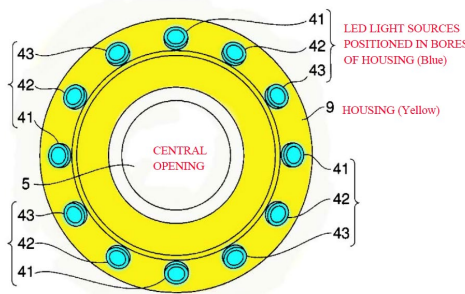
	Olympus also teaches a broad-band light source as recited in claim 6. Olympus states: “the number of LED light source units is not particularly limited, and a plurality of LED light source units can be individually controlled by a plurality of drive circuits. Further, the output wavelengths of the plurality of LED light source units may be the same or different [].” ¶0155. Broad-band light sources were well known in the art before the effective filing date of the ’516 patent. The ’516 patent admits that “white” LEDs are broad-band light sources and that they are “commercially readily available.” ’516 patent, 10:12-14. Consequently, since different output wavelengths of the LED light source units and white LEDs were commercially readily available, Olympus teaches the broad-band light source of claim 6.
7. The excitation light source assembly of claim 1, wherein at least some of said plurality of lamp receptacles comprise opposed pairs of lamp receptacles on opposite sides of said central opening, each opposed pair of lamp receptacles producing light of the same color.	In the proffered combination of Fujifilm and Olympus, the Olympus housing teaches opposed pairs of lamp receptacles as recited in claim 7. Olympus states: “the number of LED light source units is not particularly limited, and a plurality of LED light source units can be individually controlled by a plurality of drive circuits.” ¶0155. FIG. 13 shows a plurality of lamp receptacles for a plurality of LED light sources (41, 42, and 46). It also shows that at least some of the plurality of lamp receptacles comprise opposed pairs of lamp receptacles on opposite sides of said central opening (compare the light sources 41, 42, and 43 in the upper right-hand corner of FIG. 13 with those on the lower left-hand corner, or the light sources 41, 42, and 43 on the upper left-hand corner with their counterpart light sources on the lower right-hand corner.

	[Fig. 13] TOP VIEW OF HOUSING  LED LIGHT SOURCES POSITIONED IN BORES OF HOUSING (Blue) HOUSING (Yellow) CENTRAL OPENING
9. The excitation light source assembly of claim 1, wherein the light source positioned within each of the plurality of lamp receptacles does not extend beyond the lamp receptacle.	In the combination of Fujifilm and Olympus, Olympus teaches recessed lighting as recited in claim 9. Olympus FIG. 11 shows a light source 3301 positioned within each of the plurality of lamp receptacles does not extend beyond the lamp receptacle:

	[Fig. 11] 
14. [14(Preamble)] An assembly, comprising:	Fujifilm in combination with Olympus teaches all the elements of Claim 14. The motivation to combine is the same as provided above in the analysis of claim 1. Fujifilm discloses an assembly, as recited in Element 14(Preamble). Olympus also discloses an assembly. See the analysis of Element 1(Preamble), above.
[14a] a support structure;	Fujifilm uses its box as a support structure for its LED lighting modules and its camera. A POSA would understand that the camera of Fujifilm could be used with the housing (light source holding member 9 and associated hardware, including the base 6) of Olympus mounted within the Fujifilm box and over its sample table. The combination of Fujifilm and Olympus provides the subject matter of Elements 14a, 14b, and 14c. Olympus discloses base 6, which when integrated with the Fujifilm box, acts as a support structure for the housing (light source holding member 9): “[A] base 6 is provided with a cylindrical fixed shaft 7 on the base 6. A flange portion 701 is

formed at one end of the fixed shaft 7, and the flange portion 701 is fixed to the base 6 by a screw 7a.” ¶0051. “A light source holding member 9 [housing] is rotatably supported on an outer peripheral surface of the fixed shaft 7 via a bearing 8. In this case, the light source holding member 9 has a hole portion 901 formed along the optical axis 5a, and the peripheral surface of the hole portion 901 is supported on the outer peripheral surface of the fixed shaft 7 via the bearing 8. Further, in the light source holding member 9, the center of rotation coincides with the optical axis 5a of the objective lens 5.” ¶0053.



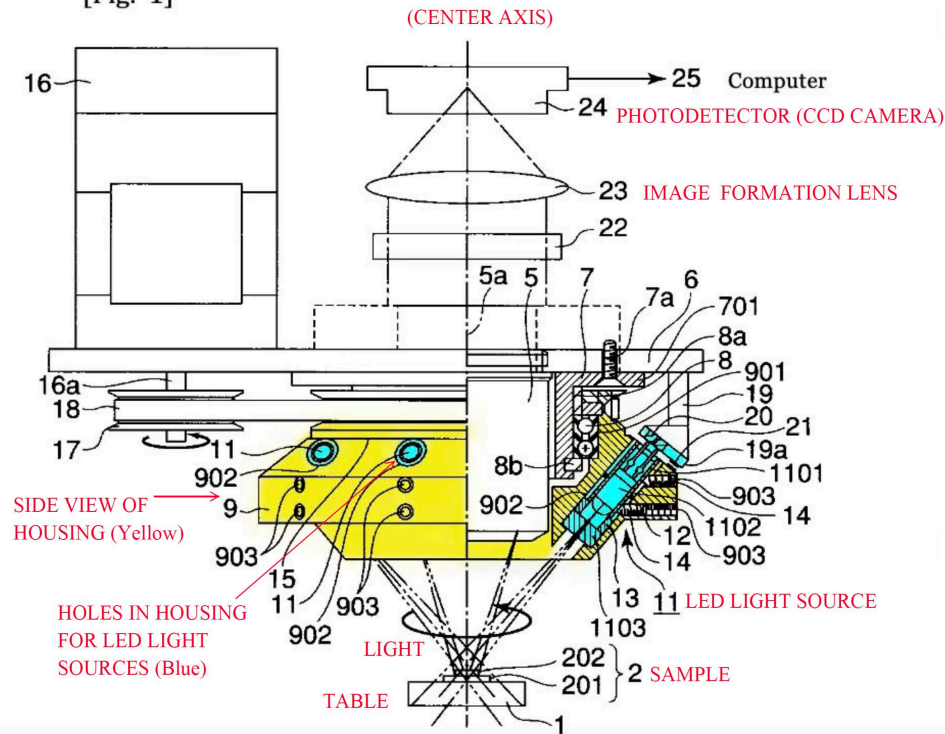
	[Fig. 13] TOP VIEW OF HOUSING  LED LIGHT SOURCES POSITIONED IN BORES OF HOUSING (Blue) HOUSING (Yellow) CENTRAL OPENING This excerpt of FIG. 1 of Olympus shows the base 6, fixed shaft 7, flange portion 701, screw 7a, and bearing 8, which is the mount upon which the housing (yellow) is connected to the base 6. The Fujifilm LAS-3000 and LAS-4000 cameras can view the sample through the center portion of the housing 9 (see annotated FIG. 13 of Olympus), so that its field of view is substantially unobstructed by the housing 9.
[14b] a camera mounted to said support structure;	Fujifilm discloses a camera mounted to the darkroom box, and therefore provides Element 14b . See analysis of Element 14a , above.
[14c] an excitation light source assembly mounted to said support structure, said excitation light source assembly comprising:	The combination of Fujifilm and Olympus disclose Element 14c . See analysis of Element 14a , and the following analysis of Elements 14d, 14e, and 14f :
[14d] a housing defining a central opening therein and a plurality of lamp receptacles surrounding the central opening, said housing being mounted to said support structure so that the central opening is aligned with said camera and so that a field of	The combination of Fujifilm and Olympus teach Element 14d. Element 14d is substantially identical to Element 1a. See the analysis of Element 1a, above.

view of said camera is substantially unobstructed by said housing;	
[14e] at least one narrow-band light source positioned within at least one of the plurality of lamp receptacles; and	The combination of Fujifilm and Olympus teach Element 14e. Element 14e is substantially identical to Element 1b. See the analysis of Element 1b, above.
[14f] a diffuser positioned within at least some of the plurality of lamp receptacles, each of said diffusers diffusing light produced by each of said narrow-band light sources; and	The combination of Fujifilm and Olympus teach Element 14f. Element 14f is substantially identical to Element 1c. See the analysis of Element 1c, above.
[14g] a control system operatively connected to each of said narrow-band light sources, said control system operating selected ones of said narrow-band light sources to provide a desired excitation illumination to a fluorescent material within the field of view of said camera, the fluorescent material fluorescing in response to the excitation illumination.	Element 14g is substantially identical to Element 1d. See the analysis of Element 1d, above.
15. The assembly of claim 14, further comprising a light filter positioned adjacent each of the diffusers.	The subject matter recited in claim 15 is substantially similar to that recited in claim 4. See the analysis of claim 4, above.
16. The assembly of claim 14, wherein each of the lamp receptacles defined by said housing are angled with respect	The combination of Fujifilm and Olympus teach the subject matter of claim 16. The receptacles (holes or bores 902 of housing 9 of Olympus) are angled with respect to the center axis of the assembly, and light emitted from each of the LED light sources 11 is

to a central axis of said housing so that light emitted from each of said narrow-band light sources is directed to a desired area within the field of view of said camera.

directed to a desired area within the field of view of the camera (see the sample 2 on table 1 fluorescing due to light from LED lights sources 11, below):

[Fig. 1]



17. The assembly of claim 14, wherein each of said narrow-band light sources is selected to provide desired number of illumination bands over a desired spectral range.

The combination of Fujifilm and Olympus teach the subject matter of **claim 17**.

Olympus refers to light at 490 nm, 520 nm, and 630 nm. ¶¶0131-0133. However, Olympus is not limited to these three wavelengths and discloses the use of other excitation and emission wavelengths and different numbers of light sources.

Olympus states: “the number of LED light source units is not particularly limited, and a plurality of LED light source units can be individually controlled by a plurality of drive circuits. Further, the output wavelengths of the plurality of LED light source units may be the same or different [].” ¶0155. Olympus also allows for more light sources and the use of different wavelengths: “In addition, in the 3 embodiment described above, 3 types of

	fluorescent dyes are used, but the present invention is not limited thereto, and 2 types of fluorescent dyes may be used, or 4 or more fluorescent images may be obtained in the same manner.” ¶0154. “Further, it is possible to greatly increase the number of LED light source units 81. By dividing the LED light source units 81 into a plurality of sets and using the LED light sources having different spectral characteristics of the emission wavelength for each set, it is also possible to excite a plurality of types of fluorescent dyes and detect fluorescent signals in the same manner as described in the 3 embodiment.” ¶¶0172, 0198.
18. The assembly of claim 17, wherein the desired spectral range is from about 430 nm to about 745 nm.	The combination of Fujifilm and Olympus teach the subject matter of claim 18. As set forth in the analysis of claim 17, Olympus is not limited to these three wavelengths and discloses the use of other excitation and emission wavelengths and different numbers of light sources. The ’516 patent <i>admits</i> that “[l]ight emitting diodes having such narrow bandwidths (e.g., about 30-35 nm) along the desired wavelength range (e.g., 430 nm to about 745 nm) are readily commercially available and can be used as narrow-band sources 22.” ’516 patent at 9:2-6. Accordingly, the ’516 patent admits that commercial industry has produced LEDs in the wavelength range of interest and is thus well known. Olympus discloses use of its assembly for applications in the well known 430 nm to 745 nm wavelength range.
20. The assembly of claim 17, wherein each desired illumination band has a bandwidth ranging from about 30 nm to about 35 nm.	The combination of Fujifilm and Olympus teach the subject matter of claim 20. The subject matter recited in claim 20 is substantially similar to that recited in claim 2 and claim 5. See the analysis of claim 2 and claim 5, above.
22. The assembly of claim 17, wherein the desired spectral range is from about 430 nm to about 800 nm.	The combination of Fujifilm and Olympus teach the subject matter of claim 22. The subject matter recited in claim 22 is substantially similar to that recited in claim 18. See the analysis of claim 18, above
23. The assembly of claim 14, wherein each of said narrow-band light sources comprises a light emitting diode.	The combination of Fujifilm and Olympus teach the subject matter of claim 23. The subject matter recited in claim 23 is substantially identical to that recited in claim 3. See the analysis of claim 3, above.
24. The assembly of claim 14,	Fujifilm and Olympus do not list polyoxymethylene (one example of which is Delrin®, see

wherein said housing comprises a polyoxymethylene thermoplastic material.

the '516 patent at 7:28-29, 12:1-2, and 13:14-15); however, it is well known in the art to use Delrin® in the construction of optical systems as set forth in U.S. Patent No. 6,894,289 to Nilson (**Exhibit B**) at 11:7-11. A POSA would use the black Delrin of Nilson for light assemblies in the system of Olympus as it is “opaque and has absorption properties to reduce reflection.” *Id.*

Brydegaard (**Exhibit N**) also teaches the use of Delrin in a cone for holding a plurality of LEDs, as shown in Fig. 2 of Brydegaard.

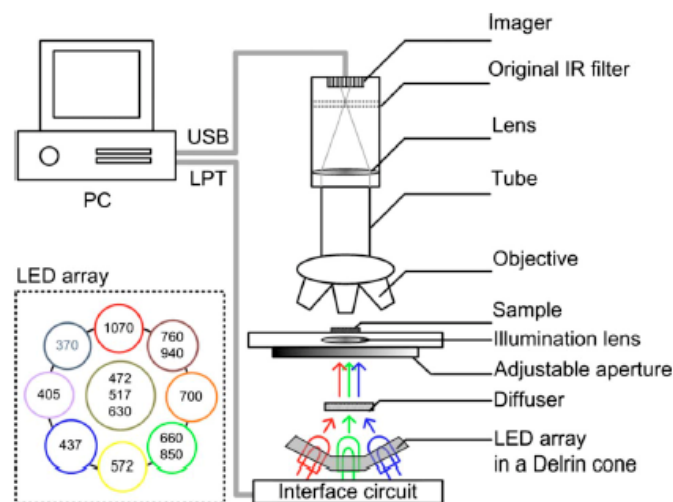


Fig. 2. Arrangement for multispectral transmission microscopy employing multiple LED illumination. Different wavelengths are emitted from a computer controlled LED array and the rays are combined by a diffuser. The light interacts with the sample differently for each wavelength, resulting in a unique picture for each wavelength.

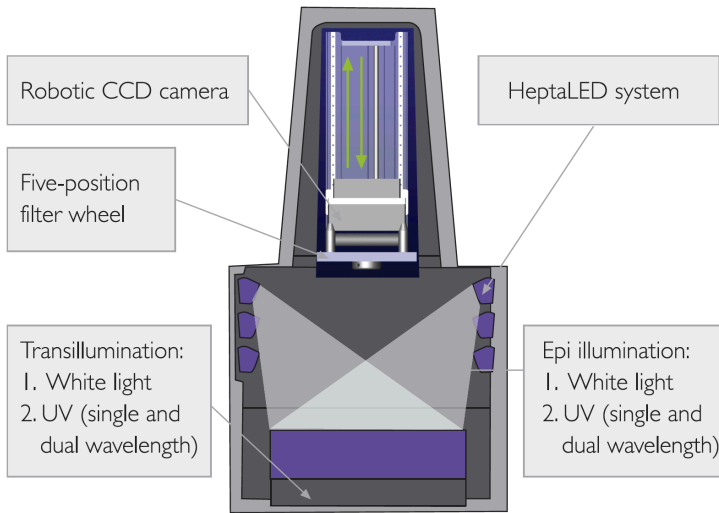
Brydegaard also teaches the use of a diffuser adjacent the LED light sources for use in illuminating a sample with different wavelengths of light. “The nine LEDs are mounted in a machined compact circular arrangement ... made of Delrin ...”. Brydegaard (**Exhibit N**) at p.4.

	The subject matter of claim 24 is obvious over Fujifilm and Olympus in view of Nilson or Brydegaard.
25. [25(Preamble)] An excitation light source assembly, comprising:	The combination of Fujifilm and Olympus teach an assembly of Element 25(Preamble) . See the analyses of Element 1(Preamble) and Element 14(Preamble) , above.
[25a] a housing defining a central opening therein and a plurality of lamp receptacles therein surrounding the central opening, said housing being mountable to a support structure so that the central opening is aligned with a camera also mounted to the support structure so that a field of view of the camera is unobstructed by said housing;	The combination of Fujifilm and Olympus teach the housing, plurality of lamp receptacles, and camera of Element 25a . Element 25a is substantially identical to Element 1a . See the analysis of Element 1a , above.
[25b] a light source positioned within each of the plurality of lamp receptacles so that said light sources do not extend beyond the lamp receptacles, wherein at least one of said light sources comprises a narrow-band light source; and	The combination of Fujifilm and Olympus teach the light source of Element 25b . Element 25b is substantially the subject matter of Element 1b and dependent claim 9 . See the analysis of Element 1b and claim 9 , above.
[25c] a control system operatively connected to each of said light sources, said control system operating selected ones of said light sources to provide a desired excitation illumination to an object within the field of view of the camera, th [sic] excitation	Element 25c is substantially similar to Element 1d . See the analysis of Element 1d , above.

illumination causing fluorescent materials in the object to fluoresce, the camera capturing an image of the fluorescing material in the object.	
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CHART 4 – ’516 Patent Asserted Claims are Obvious over MF-ChemiBIS Bio-Imaging System Brochure (“MF-ChemiBIS”)

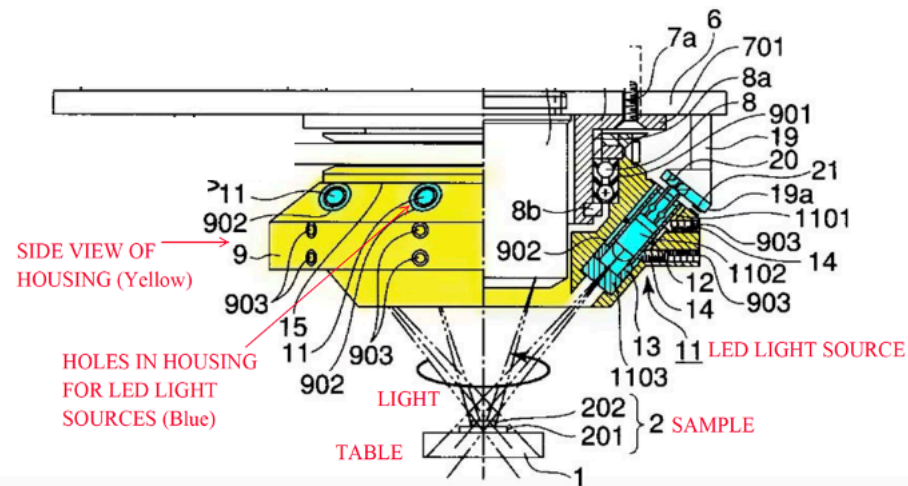
(**Exhibit F**) in view of Olympus (**Exhibit A**) (except claim 24 which is obvious in view of the MF-ChemiBIS and Olympus in view of Nilson (**Exhibit B**) or Brydegaard (**Exhibit N**))

Claim Element	MF-ChemiBIS in view of Olympus
1. [1(Preamble)] An excitation light source assembly, comprising:	MF-ChemiBIS¹³ discloses Element 1(Preamble). MF-ChemiBIS discloses an imaging system with “10 lighting source options.” The options include UV, white light, and a HeptaLED lighting systems, as shown in the graphic below.  MF-ChemiBIS, p.3.
[1a] a housing defining a central	MF-ChemiBIS does not disclose a housing defining a central opening therein and a plurality of

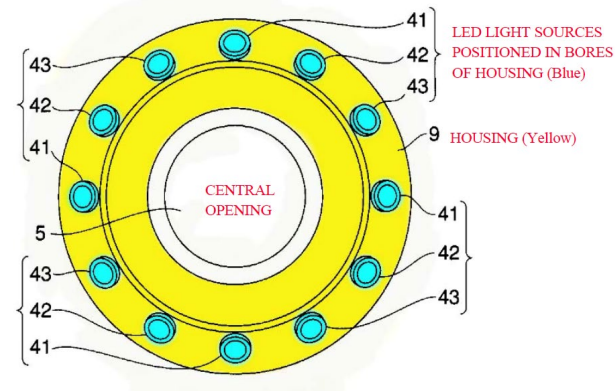
¹³ Other imaging systems, such as the IVIS™ by Xenogen used LEDs for fluorescence imaging since at least 2001. See, *In-vivo imaging of light emitting probes*, B.W. Rice et al., Journal of Biomedical Optics 6(4) pp. 432-440 (October 2001) (“Rice,” **Exhibit O**).

opening therein and a plurality of lamp receptacles surrounding the central opening, said housing being mountable to a support structure so that the central opening is aligned with a camera also mounted to the support structure so that a field of view of the camera is unobstructed by said housing;	lamp receptacles surrounding the central opening, nor does it have a housing being mountable to a support structure.¹⁴ It would have been obvious for a person of skill in the art at the time of the alleged invention to have used the circular housing and LED light source units of Olympus with the box of MF-ChemiBIS to more uniformly and evenly excite the sample with Olympus's LED light source units surrounding a central opening. Olympus discloses the housing and plurality of lamp receptacles of Element 1a. Olympus describes a housing defining a central opening (light source holding member 9, highlighted yellow) and a plurality of lamp receptacles surrounding the central opening (storage holes 902, blue, that accommodate LED Light source units). FIGS. 1, 11, and 13 (excerpted and annotated). This excerpted and annotated FIG. 1 of Olympus shows a side view of the housing under base 6 (housing is in yellow) and FIG. 13 shows a top view of the housing:
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¹⁴ Plaintiff has asserted that Defendant's Newton product infringes **claim 1**. Applying Plaintiff's analysis from its Preliminary Infringement Contentions (which Scintica denies and submits is incorrect) MF-ChemiBIS would anticipate the asserted claims of the '516 patent.

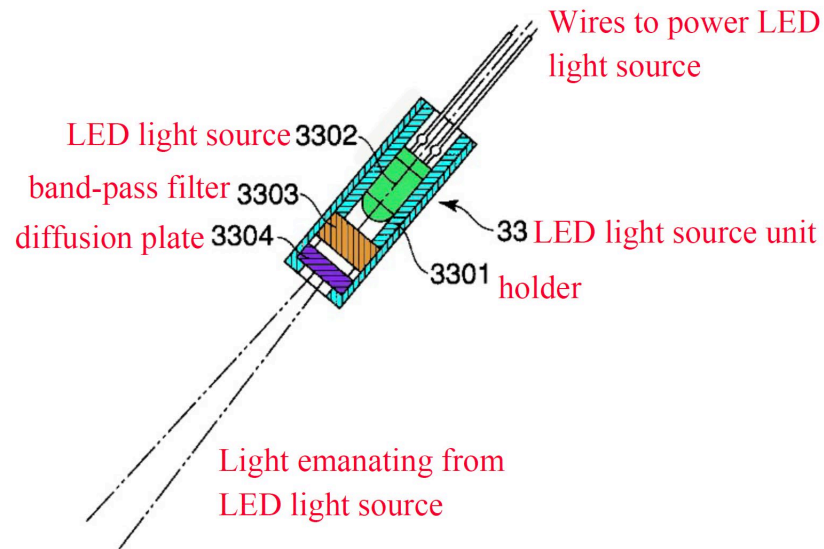


[Fig. 13] TOP VIEW OF HOUSING



The holes in the housing 9 receive LED light sources (shown as 41, 42, and 43 in FIG. 13, blue). As demonstrated by FIG. 11, LED light source 3302 may include LEDs (3302, green), filters (3303, orange), and/or diffusers (3304, purple).

[Fig. 11]



Olympus states, “A plurality of (e.g., 5) LED light source unit storage holes 902 are provided in the light source holding member 9 along the circumferential direction.” ¶0055. “The LED light source unit housing hole 902 accommodates the LED light source unit 11.” ¶0056.

Therefore, housing 9 has holes 902 that are a “plurality of lamp receptacles surrounding the central opening.”

FIG. 1 shows that housing 9 is mounted so that its central opening is aligned with its camera so that its field of view is unobstructed by said housing 9. ¶0126. FIG. 22 is an alternate embodiment where housing 9 is fixed and the platform 201 may be rotated. ¶¶0202-0208.

[1b] a light source positioned within each of the plurality of lamp receptacles, wherein at least one of said light sources

MF-ChemiBIS does not have a housing and therefore does not have a housing defining ... a plurality of lamp receptacles surrounding a central opening. A POSA would have been motivated to combine MF-ChemiBIS with the housing and LED light source units of Olympus as set forth in **Element 1a**. A POSA would further understand that Olympus’s housing and

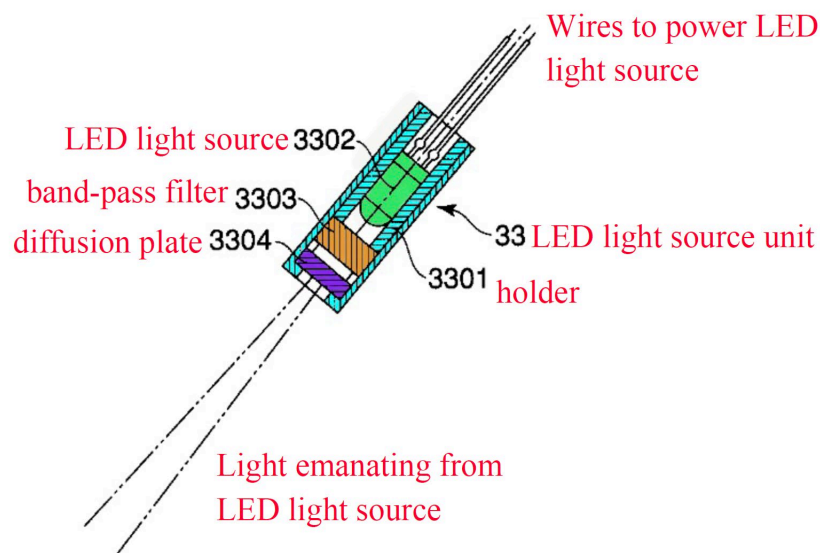
comprises a narrow-band light source; and

LED light sources would provide a housing, a plurality of lamp receptacles, and a light source positioned within each of the plurality of lamp receptacles, wherein at least one of the light sources comprises a narrow-band light source, as recited in **Element 1(b)**.

Olympus states, “the semiconductor light source means has, *in addition to an LED light source emitting excitation light, a filter, a diffusion plate, a lens, or all thereof, which selectively transmits a wavelength of light from the LED light source arranged on an optical path of light emitted from the LED light source.*” ¶0027.

As demonstrated by FIG. 11, LED light source 3302 may include LEDs (3302, highlighted green), filters (3303, highlighted orange), and diffusers (3304, highlighted purple). ¶¶0115-0116.

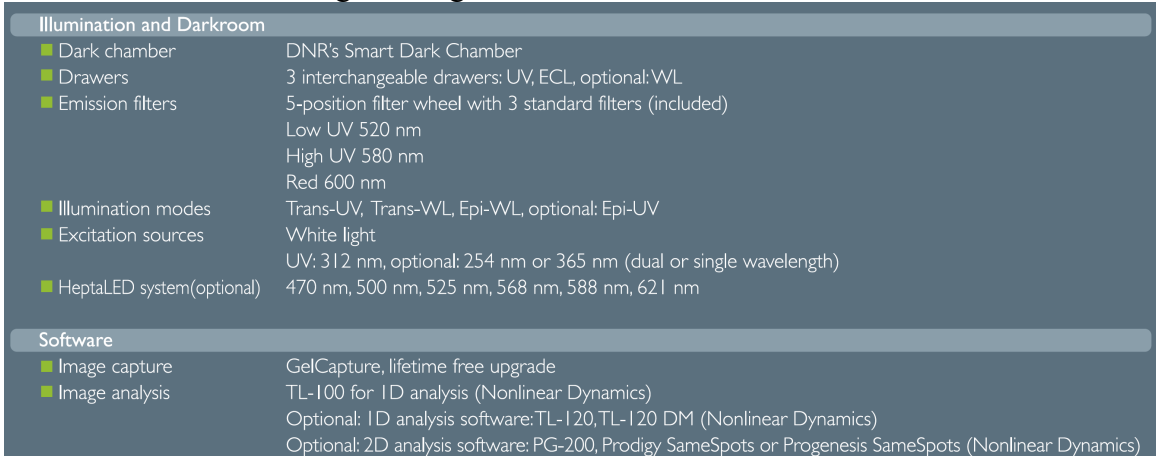
[Fig. 11]



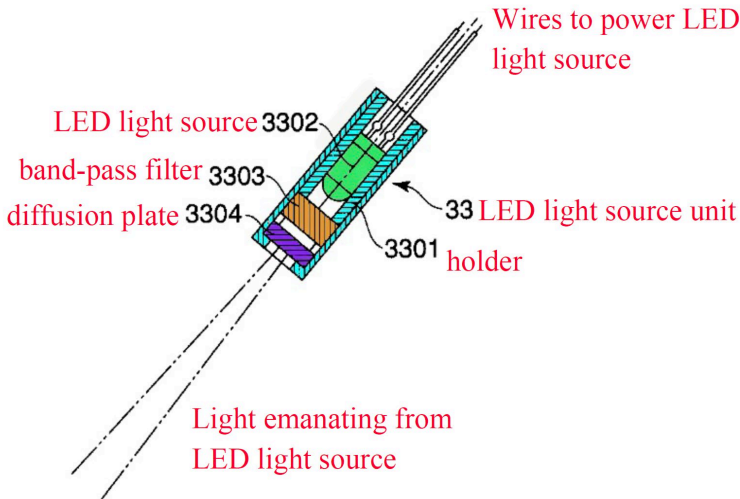
Olympus refers to FIG. 13, stating, “light source holding member 9 is provided with the 1 to 3 LED light source units 41 42 and 43 having 3 kinds of LED light sources having different peak

	emission wavelengths. Generally, an emission spectrum of an LED light source has a <i>mountain-shaped structure and has one peak wavelength.</i>” ¶0131. Thus, the LED light source of Olympus is a narrow-band light source and a light source unit is positioned in each of the lamp receptacles (holes 902 of housing 9).
[1c] a diffuser positioned within at least some of the plurality of lamp receptacles, each of said diffusers diffusing light produced by each of said light sources; and	MF-ChemiBIS does not explicitly state whether it has a diffuser;¹⁵ however, the LED light source units of Olympus include a diffuser as recited in Element 1c, as set forth above in the analysis of Element 1a. For example, the LED source unit comprises a diffuser (diffusion plate 3104) positioned within at least some of the plurality of lamp receptacles (holes 901 of housing 9) diffusing light produced by each of said light sources. ¶¶0115-0116.
[1d] a control system operatively connected to each of said light sources said control system operating selected ones of said light sources to provide a desired excitation illumination to an object within the field of view of said camera, the object fluorescing in response to the excitation illumination provided by said light sources.	The interpretation of Element 1(d) is subject to a determination of whether Element 1(d) recites functional limitations and/or is a means-plus-function limitation and what structure, if any, is shown by the ’516 patent that performs the recited function. Insofar as Element 1(d) is construed to be hardware and/or programming that is operable to select light sources, Olympus discloses such a control system of Element 1(d). The MF-ChemiBIS imaging system provides several lighting options: ■ Illumination The MF-ChemiBIS family has extensive lighting options allowing documentation of a wide range of samples. The 10 lighting source options include UV illumination, white light illumination, and the unique HeptaLED system for any fluorescent application. A motorized 5-position filter wheel allows convenient filter selection and easy exchange in just seconds. The filter wheel is hermetically sealed to prevent contamination from dust, dirt, or moisture. It also features a “Smart Dark Chamber” that “makes the optimal match between the light source and a specified application.” Besides multiple white light sources, the HeptaLED system

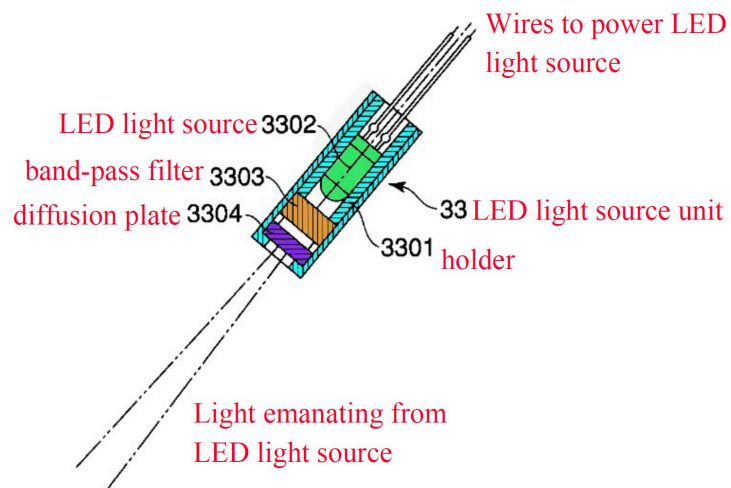
¹⁵ Scintica reserves the right to provide further evidence about the MF-ChemiBIS imaging system to supplement its invalidity contentions pending further development of the case, discovery, and claim constructions.

	offers 6 different wavelengths of light:  Olympus also discloses a LED light source unit driving circuit 29 connected to a power supply 53 and various circuitry to control output light intensity of the LED light source units 11. It can independently turn on and off the LED light source units 11. Such control can be made manually or electronically on a computer. ¶¶0079-0080, 0087, 0147-0150. When light from the LED light source units is irradiated over the surface of a sample, fluorescence can be received by the MF-ChemiBIS camera.
2. The excitation light source assembly of claim 1 wherein said narrow-band light source emits light having a bandwidth of about 35 nm.	Claim 2 is obvious in view of the combination of MF-ChemiBIS and Olympus. The motivation to combine MF-ChemiBIS and Olympus is stated in the analysis of claim 1, above. Olympus discloses LED light source units have different spectral characteristics and that different numbers and light sources with different peak emission wavelengths may be used. ¶¶0132, 0172, 0198, claim 7, 0129, 0131, 0152, 0155. LEDs of different bandwidths, including “about 35 nm”, were readily available and in use in fluorescence imaging prior to the effective filing date of the ’516 patent, for example as demonstrated by: • U.S. Patent No. 7,381,972 B1, entitled “System and Method for Light Fluorescence Detection” by Varmette et al. (light produced by LEDs typically had a full width at half max

	of 25 nanometers,” Exhibit G, 8:58-59); • U.S. Patent Application Publication 2009/0201577 A1, “Light Source,” by LaPlante et al., published Aug. 13, 2009 (referencing light emitting diodes that “can be obtained from a variety of commercial sources,” such as Luminous Devices, having “a full width half maximum (FWHM) of approximately +/- 12 nm,” Exhibit J at ¶0035); • “Light emitting diode excitation emission matrix fluorescence spectroscopy,” Analyst, 127, pp.1693-1699, Nov. 7, 2002 (LED bandwidths have “typical full width half maximums between 10 nm and 50 nm or more,” Exhibit H at p.1694); • the Fujifilm LAS-4000 Service Manual uses a Nichia NSSB100G LED for its green light source (Exhibit S, p. G-17) which has a bandwidth at half power of about 35 nm (Exhibit T, p. 9); and • the ’516 patent <i>admits</i> that “[l]ight emitting diodes having such narrow bandwidths (e.g., about 30-35 nm) along the desired wavelength range (e.g., 430 nm to about 745 nm) <i>are readily commercially available and can be used as narrow-band sources</i> 22.” ’516 patent at 9:2-6. A person of ordinary skill in the art at the time of the alleged invention (“POSA”), upon reading and understanding Olympus, would have used narrowband LEDs because peak wavelengths of the 490 nm and 520 nm LED light sources are only about 30 nm separated in wavelength, and accordingly it would be beneficial to use LEDs with no more than about 30-35 nm of bandwidth to better isolate the fluorescence excitation caused by each LED light source. The MF-ChemiBIS HeptaLED system also has about 30 nm of wavelength separation at wavelengths of 470 nm, 500 nm, 525 nm, 568 nm, 588 nm, and 621 nm, and a POSA would understand that it would also benefit from no more than about 30-35 nm of bandwidth to better isolate the fluorescence excitation caused by each LED light source.
3. The excitation light source assembly of claim 2 wherein said at least one narrow-band light	MF-ChemiBIS and Olympus both teach the use of light emitting diodes as recited in claim 3. MF-ChemiBIS teaches the use of LEDs in its LED units, as discussed above. LEDs are taught generally throughout Olympus, and specifically as set forth above. <i>See, inter alia</i>, ¶¶ 0011,

source comprises a light emitting diode.	0013, 0014, 0024, 0026-0043, 0168.
4. The excitation light source assembly of claim 1, further comprising at least one filter positioned adjacent at least one diffuser in at least one of the lamp receptacles defined by said housing.	The combination of MF-ChemiBIS and Olympus teaches the filter adjacent a diffuser of claim 4. Olympus teaches the use of at least one filter (e.g., filter 3303) positioned at least one diffuser in at least one lamp receptacle defined by said housing of claim 4, as set forth above. [Fig. 11] 
5. The excitation light source assembly of claim 4, wherein said at least one filter comprises a notch filter having a wavelength bandpass range of about 30 nm.	The combination of MF-ChemiBIS and Olympus teaches the notch filter of claim 5. A notch filter with a specified wavelength bandpass is a bandpass filter. The LED light source unit of Olympus teaches the use of a band-pass filter, such as band-pass filter 3303:

[Fig. 11]



Olympus discloses LED light source units have different spectral characteristics and that different numbers and light sources with different peak emission wavelengths may be used. ¶¶0132, 0172, 0198, claim 7, 0129, 0131, 0152, 0155.

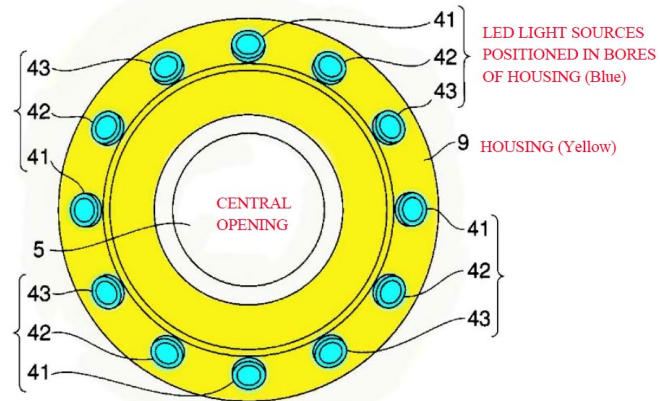
The use of filters having a variety of wavelength bandpass ranges (including 30 nm) was known to those of skill in the art well before any effective filing date of the '516 patent, as demonstrated by "Fluorescence Imaging of Electrical Activity in Cardiac Cells Using an All-Solid-State System," by Entcheva et al., IEEE Transactions on Biomedical Engineering, Vol. 51, No. 2, pp.333-341, February 2004 (illumination modules using LEDs and common interference filters of +/- 35 and +/-15 nm, **Exhibit I** at p.336). Prior to the earliest effective filing date of the '516 patent, bandpass filters of selectable bandpass ranges were also available from suppliers, such as Omega (*see Exhibit P*, p. 6-11) and Delta (*see, Exhibit K*).

A person of ordinary skill in the art at the time of the alleged invention ("POSA"), upon reading and understanding Olympus, would have used bandpass filters of about 30 nm because peak wavelengths of the 490 nm and 520 nm LED light sources are only about 30 nm separated in wavelength. Accordingly, bandpass filtering of the applied light to about 30 nm of bandwidth

	would better isolate the fluorescence excitation caused by each LED light source.
6. The excitation light source assembly of claim 1, wherein at least one of the light sources comprises a broad-band light source.	MF-ChemiBIS teaches white lighting: ■ Excitation sources White light UV: 312 nm, optional: 254 nm or 365 nm (dual or single wavelength) Olympus also teaches a broad-band light source as recited in claim 6. Olympus states: “the number of LED light source units is not particularly limited, and a plurality of LED light source units can be individually controlled by a plurality of drive circuits. Further, the output wavelengths of the plurality of LED light source units may be the same or different [].” ¶0155. Broad-band light sources were well known in the art before the effective filing date of the ’516 patent. The ’516 patent admits that “white” LEDs are broad-band light sources and that they are “commercially readily available.” ’516 patent, 10:12-14. Consequently, since different output wavelengths of the LED light source units and white LEDs were commercially readily available, Olympus teaches the broad-band light source of claim 6.
7. The excitation light source assembly of claim 1, wherein at least some of said plurality of lamp receptacles comprise opposed pairs of lamp receptacles on opposite sides of said central opening, each opposed pair of lamp receptacles producing light of the same color.	In the proffered combination of MF-ChemiBIS and Olympus, the Olympus housing teaches opposed pairs of lamp receptacles as recited in claim 7. Olympus states: “the number of LED light source units is not particularly limited, and a plurality of LED light source units can be individually controlled by a plurality of drive circuits.” ¶0155. FIG. 13 shows a plurality of lamp receptacles for a plurality of LED lights sources (41, 42, and 46). It also shows that at least some of the plurality of lamp receptacles comprise opposed pairs of lamp receptacles on opposite sides of said central opening (compare the light sources 41, 42, and 43 in the upper right-hand corner of FIG. 13 with those on the lower left-hand corner, or the light sources 41, 42, and 43 on the upper left-hand corner with their counterpart light sources on

the lower right-hand corner.

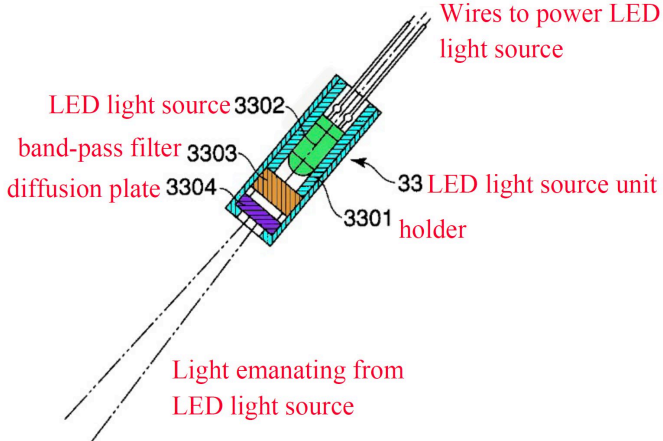
[Fig. 13] TOP VIEW OF HOUSING



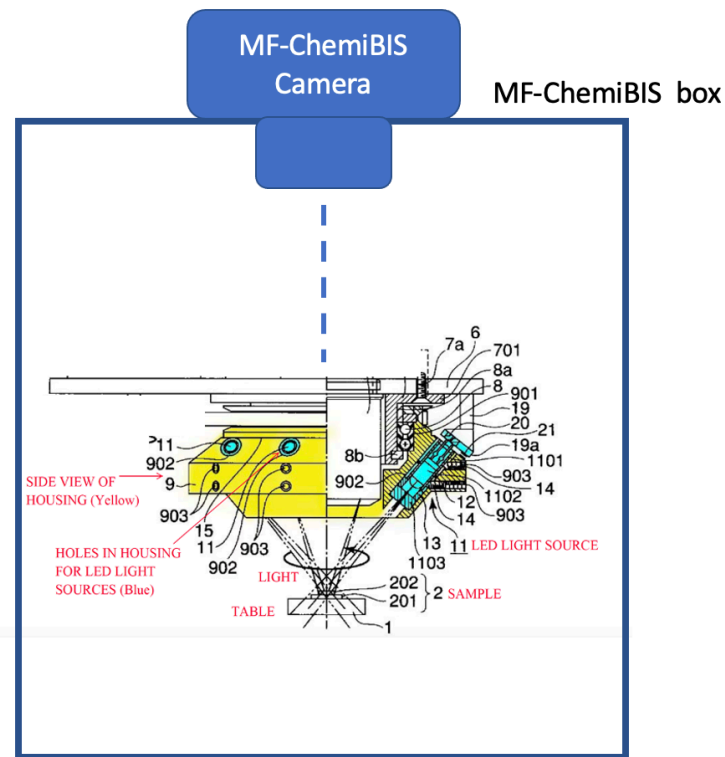
9. The excitation light source assembly of claim 1, wherein the light source positioned within each of the plurality of lamp receptacles does not extend beyond the lamp receptacle.

In the proffered combination of MF-ChemiBIS and Olympus, Olympus teaches recessed lighting as recited in **claim 9**.

Olympus FIG. 11 shows a light source 3301 positioned within each of the plurality of lamp receptacles does not extend beyond the lamp receptacle:

	[Fig. 11]  LED light source 3302 band-pass filter 3303 diffusion plate 3304 33 LED light source unit 3301 holder Wires to power LED light source Light emanating from LED light source
14. [14(Preamble)] An assembly, comprising:	MF-ChemiBIS in combination with Olympus teaches all of the elements of claim 14. The motivation to combine is the same as was provided above, for claim 1. MF-ChemiBIS discloses an assembly, as recited in Element 14(Preamble). Olympus also discloses an assembly. See the analysis of Element 1(Preamble) above.
[14a] a support structure;	MF-ChemiBIS uses its box as a support structure for its LED lighting modules and its camera. A POSA would understand that the camera of MF-ChemiBIS could be used with the housing (light source holding member 9 and associated hardware, including the base 6) of Olympus mounted within the MF-ChemiBIS box and over its sample table. The combination of MF-ChemiBIS and Olympus provides the subject matter of Elements 14a, 14b, and 14c. Olympus discloses base 6, which when integrated with the MF-ChemiBIS box, acts as a support structure for the housing (light source holding member 9): “[A] base 6 is provided with a cylindrical fixed shaft 7 on the base 6. A flange portion 701 is

formed at one end of the fixed shaft 7, and the flange portion 701 is fixed to the base 6 by a screw 7a.” ¶0051. “A light source holding member 9 [housing] is rotatably supported on an outer peripheral surface of the fixed shaft 7 via a bearing 8. In this case, the light source holding member 9 has a hole portion 901 formed along the optical axis 5a, and the peripheral surface of the hole portion 901 is supported on the outer peripheral surface of the fixed shaft 7 via the bearing 8. Further, in the light source holding member 9, the center of rotation coincides with the optical axis 5a of the objective lens 5.” ¶0053.

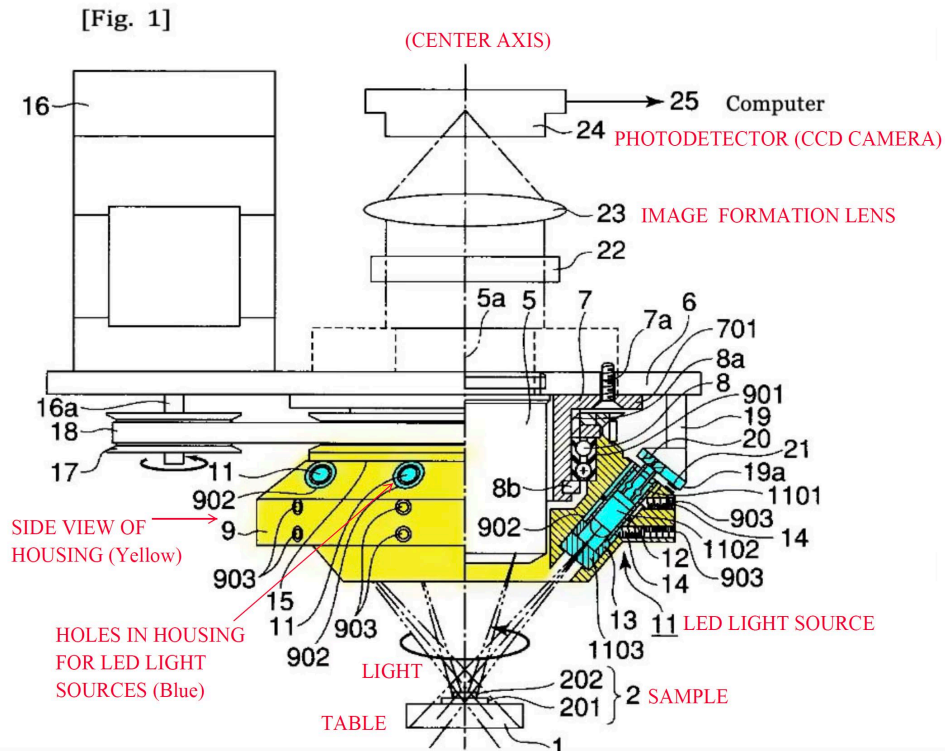


	[Fig. 13] TOP VIEW OF HOUSING LED LIGHT SOURCES POSITIONED IN BORES OF HOUSING (Blue) HOUSING (Yellow) CENTRAL OPENING This excerpt of FIG. 1 of Olympus shows the base 6, fixed shaft 7, flange portion 701, screw 7a, and bearing 8, which is the mount upon which the housing (yellow) is connected to the base 6. The MF-ChemiBIS camera can view the sample through the center portion of the housing 9 (see annotated FIG. 13 of Olympus), so that its field of view is substantially unobstructed by the housing 9.
[14b] a camera mounted to said support structure;	MF-ChemiBIS discloses a camera mounted to the darkroom box, and therefore provides Element 14b . See analysis of Element 14a , above.
[14c] an excitation light source assembly mounted to said support structure, said excitation light source assembly comprising:	The combination of MF-ChemiBIS and Olympus disclose Element 14c . See analysis of Element 14a , and the following analysis of Elements 14d, 14e, and 14f :
[14d] a housing defining a central opening therein and a plurality of lamp receptacles surrounding the central opening, said housing being mounted to said support structure so that the central opening is aligned with said camera and so that a field of view of said camera is	The combination of MF-ChemiBIS and Olympus teach Element 14d. Element 14d is substantially identical to Element 1a. See the analysis of Element 1a, above.

substantially unobstructed by said housing;	
[14e] at least one narrow-band light source positioned within at least one of the plurality of lamp receptacles; and	The combination of MF-ChemiBIS and Olympus teach Element 14e. Element 14e is substantially identical to Element 1b. See the analysis of Element 1b, above.
[14f] a diffuser positioned within at least some of the plurality of lamp receptacles, each of said diffusers diffusing light produced by each of said narrow-band light sources; and	The combination of MF-ChemiBIS and Olympus teach Element 14f. Element 14f is substantially identical to Element 1c. See the analysis of Element 1c, above.
[14g] a control system operatively connected to each of said narrow-band light sources, said control system operating selected ones of said narrow-band light sources to provide a desired excitation illumination to a fluorescent material within the field of view of said camera, the fluorescent material fluorescing in response to the excitation illumination.	Element 14g is substantially identical to Element 1d. See the analysis of Element 1d, above.
15. The assembly of claim 14, further comprising a light filter positioned adjacent each of the diffusers.	The subject matter recited in claim 15 is substantially similar to that recited in claim 4. See the analysis of claim 4, above.
16. The assembly of claim 14, wherein each of the lamp receptacles defined by said housing are angled with respect to a central axis of said housing	The combination of MF-ChemiBIS and Olympus teach the subject matter of claim 16. The receptacles (holes or bores 902 of housing 9 of Olympus) are angled with respect to the center axis of the assembly, and light emitted from each of the LED light sources 11 is directed to a desired area within the field of view of the camera (see the sample 2 on table 1 fluorescing

so that light emitted from each of said narrow-band light sources is directed to a desired area within the field of view of said camera.

due to light from LED lights sources 11, below):



17. The assembly of claim 14, wherein each of said narrow-band light sources is selected to provide desired number of illumination bands over a desired spectral range.

The combination of MF-ChemiBIS and Olympus teach the subject matter of **claim 17**.

Olympus refers to light at 490 nm, 520 nm, and 630 nm. ¶¶0131-0133. However, Olympus is not limited to these three wavelengths and discloses the use of other excitation and emission wavelengths and different numbers of light sources.

Olympus states: “the number of LED light source units is not particularly limited, and a plurality of LED light source units can be individually controlled by a plurality of drive circuits. Further, the output wavelengths of the plurality of LED light source units may be the same or different [].” ¶0155. Olympus also allows for more light sources and the use of different wavelengths: “In addition, in the 3 embodiment described above, 3 types of fluorescent dyes are used, but the present invention is not limited thereto, and 2 types of fluorescent dyes may

	be used, or 4 or more fluorescent images may be obtained in the same manner.” ¶0154. “Further, it is possible to greatly increase the number of LED light source units 81. By dividing the LED light source units 81 into a plurality of sets and using the LED light sources having different spectral characteristics of the emission wavelength for each set, it is also possible to excite a plurality of types of fluorescent dyes and detect fluorescent signals in the same manner as described in the 3 embodiment.” ¶¶0172, 0198.
18. The assembly of claim 17, wherein the desired spectral range is from about 430 nm to about 745 nm.	The combination of MF-ChemiBIS and Olympus teach the subject matter of claim 18. As set forth in the analysis of claim 17, Olympus is not limited to these three wavelengths and discloses the use of other excitation and emission wavelengths and different numbers of light sources. The ’516 patent <i>admits</i> that “[l]ight emitting diodes having such narrow bandwidths (e.g., about 30-35 nm) along the desired wavelength range (e.g., 430 nm to about 745 nm) are readily commercially available and can be used as narrow-band sources 22.” ’516 patent at 9:2-6. Accordingly, the ’516 patent admits that commercial industry has produced LEDs in the wavelength range of interest and is thus well known. Olympus discloses use of its assembly for applications in the well known 430 nm to 745 nm wavelength range.
20. The assembly of claim 17, wherein each desired illumination band has a bandwidth ranging from about 30 nm to about 35 nm.	The combination of MF-ChemiBIS and Olympus teach the subject matter of claim 20. The subject matter recited in claim 20 is substantially similar to that recited in claim 2 and claim 5. See the analysis of claim 2 and claim 5, above.
22. The assembly of claim 17, wherein the desired spectral range is from about 430 nm to about 800 nm.	The combination of MF-ChemiBIS and Olympus teach the subject matter of claim 22. The subject matter recited in claim 22 is substantially similar to that recited in claim 18. See the analysis of claim 18, above
23. The assembly of claim 14, wherein each of said narrow-band light sources comprises a light emitting diode.	The combination of MF-ChemiBIS and Olympus teach the subject matter of claim 23. The subject matter recited in claim 23 is substantially identical to that recited in claim 3. See the analysis of claim 3, above.
24. The assembly of claim 14, wherein said housing comprises a polyoxymethylene	MF-ChemiBIS and Olympus do not list polyoxymethylene (one example of which is Delrin, see the ’516 patent at 7:28-29, 12:1-2, and 13:14-15); however, it is well known in the art to use Delrin in the construction of optical systems as set forth in U.S. Patent No. 6,894,289 to Nilson

thermoplastic material.

(Exhibit B) at 11:7-11. A POSA would use the black Delrin of Nilson for light assemblies in the system of Olympus as it is “opaque and has absorption properties to reduce reflection.” *Id.*

Brydegaard **(Exhibit N)** also teaches the use of Delrin in a cone for holding a plurality of LEDs, as shown in Fig. 2 of Brydegaard.

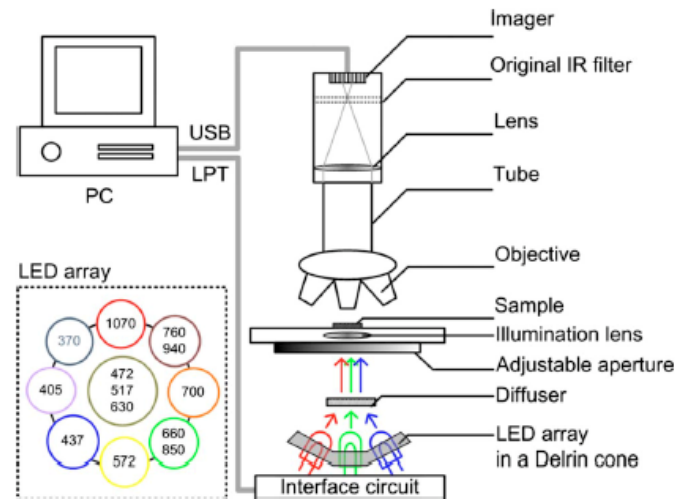


Fig. 2. Arrangement for multispectral transmission microscopy employing multiple LED illumination. Different wavelengths are emitted from a computer controlled LED array and the rays are combined by a diffuser. The light interacts with the sample differently for each wavelength, resulting in a unique picture for each wavelength.

Brydegaard also teaches the use of a diffuser adjacent the LED light sources for use in illuminating a sample with different wavelengths of light. “The nine LEDs are mounted in a machined compact circular arrangement ... made of Delrin ...”. Brydegaard **(Exhibit N)** at p.4.

The subject matter of claim 24 is obvious over MF-ChemiBIS and Olympus in view of Nilson or Brydegaard.

25. [25(Preamble)] An excitation light source assembly,

The combination of MF-ChemiBIS and Olympus teach an assembly of **Element 25(Preamble)**.

comprising:	See the analyses of Element 1(Preamble) and Element 14(Preamble) , above.
[25a] a housing defining a central opening therein and a plurality of lamp receptacles therein surrounding the central opening, said housing being mountable to a support structure so that the central opening is aligned with a camera also mounted to the support structure so that a field of view of the camera is unobstructed by said housing;	The combination of MF-ChemiBIS and Olympus teach the housing, plurality of lamp receptacles, and camera of Element 25a. Element 25a is substantially identical to Element 1a. See the analysis of Element 1a, above.
[25b] a light source positioned within each of the plurality of lamp receptacles so that said light sources do not extend beyond the lamp receptacles, wherein at least one of said light sources comprises a narrow-band light source; and	The combination of MF-ChemiBIS and Olympus teach the light source of Element 25b. Element 25b is substantially the subject matter of Element 1b and dependent claim 9. See the analysis of Element 1b and claim 9, above.
[25c] a control system operatively connected to each of said light sources, said control system operating selected ones of said light sources to provide a desired excitation illumination to an object within the field of view of the camera, th [sic] excitation illumination causing fluorescent materials in the object to fluoresce, the camera capturing an image of the fluorescing	Element 25c is substantially similar to Element 1d . See the analysis of Element 1d , above.

material in the object.	
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CHART 5 – '516 Patent Asserted Claims are Obvious over the Bio-Rad VersaDoc (**Exhibit P**) in view of Olympus (**Exhibit A**) (except claim 24, which is obvious in view of Bio-Rad VersaDoc and Olympus in view of Nilson (**Exhibit B**) or Brydegaard (**Exhibit N**))

Claim Element	Bio-Rad VersaDoc in view of Olympus
1. [1(Preamble)] An excitation light source assembly, comprising:	The Bio-Rad VersaDoc^{16 17} discloses Element 1(Preamble).  Exhibit P, p. 2-4. The VersaDoc MP system provides visible, uv, and white light excitation options:

¹⁶ Some of the features of the VersaDoc were patented by Bio-Rad. See **Exhibit R**, at p.1, which is a sales brochure for the VersaDoc, which identifies U.S. Patent 5,951,838, attached as **Exhibit Q**.

¹⁷ Other imaging systems, such as the IVIS™ by Xenogen used LEDs for fluorescence imaging since at least 2001. See, *In-vivo imaging of light emitting probes*,” B.W. Rice et al., Journal of Biomedical Optics 6(4) pp. 432-440 (October 2001) (“Rice,” **Exhibit O**).

(2) Unique Trans and Epi-illumination Source

The VersaDoc MP system incorporates unique red, green, blue, and white LED epi-illumination and white/uv transillumination, to cover visible, uv, and white light excitation. The variety of excitation sources in the VersaDoc MP allow excitation of samples multiplexed with 3 fluorescent dyes or nanoparticles.

Exhibit P, p. 2-2.

The following options are available for your VersaDoc MP:

Pair of Red LED modules (includes 695BP55 filter)	
Pair of Green LED modules	
White Light Conversion Screen	
640BP35 filter	

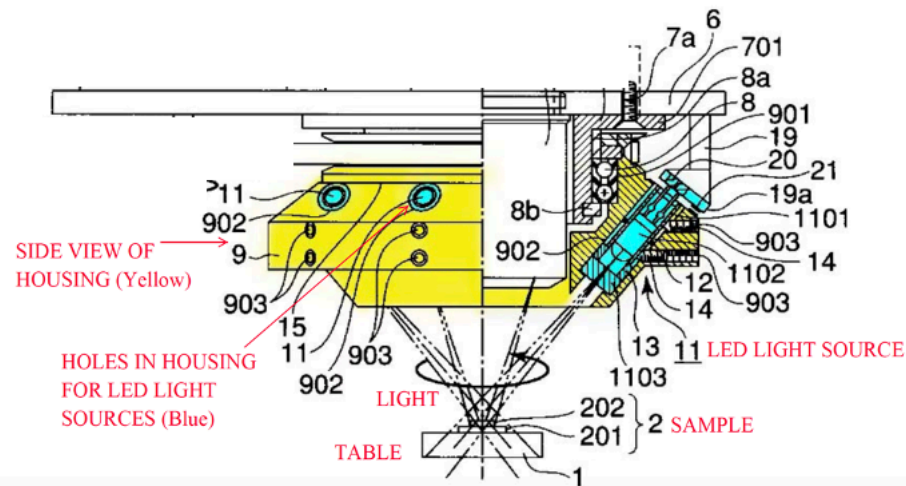
Exhibit P, p. 3-5.

[1a] a housing defining a

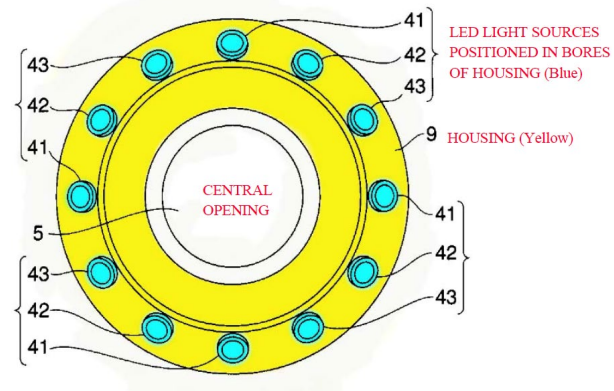
VersaDoc does not disclose a housing defining a central opening therein and a plurality of lamp

central opening therein and a plurality of lamp receptacles surrounding the central opening, said housing being mountable to a support structure so that the central opening is aligned with a camera also mounted to the support structure so that a field of view of the camera is unobstructed by said housing;	receptacles surrounding the central opening, nor does it have a housing being mountable to a support structure.¹⁸ It would have been obvious for a person of skill in the art at the time of the alleged invention to have used the circular housing and LED light source units of Olympus with the box of the VersaDoc to more uniformly and evenly excite the sample with Olympus's LED light source units surrounding a central opening. Olympus discloses the housing and plurality of lamp receptacles of Element 1a. Olympus describes a housing defining a central opening (light source holding member 9, highlighted yellow) and a plurality of lamp receptacles surrounding the central opening (storage holes 902, blue, that accommodate LED Light source units). FIGS. 1, 11, and 13 (excerpted and annotated). This excerpted and annotated FIG. 1 of Olympus shows a side view of the housing under base 6 (housing is in yellow) and FIG. 13 shows a top view of the housing:
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¹⁸ Plaintiff has asserted that Defendant's Newton product infringes **claim 1**. Applying Plaintiff's analysis from its Preliminary Infringement Contentions (which Scintica denies and submits is incorrect) VersaDoc would anticipate the asserted claims of the '516 patent.

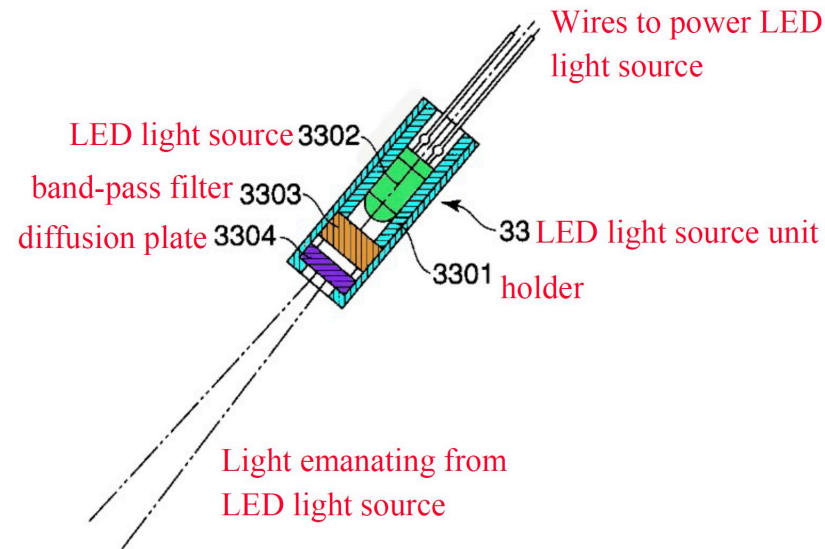


[Fig. 13] TOP VIEW OF HOUSING



The holes in the housing 9 receive LED light sources (shown as 41, 42, and 43 in FIG. 13, blue). As demonstrated by FIG. 11, LED light source 3302 may include LEDs (3302, green), filters (3303, orange), and/or diffusers (3304, purple).

[Fig. 11]



Olympus states, “A plurality of (e.g., 5) LED light source unit storage holes 902 are provided in the light source holding member 9 along the circumferential direction.” Olympus, ¶0055. “The LED light source unit housing hole 902 accommodates the LED light source unit 11.” ¶0056.

Therefore, housing 9 has holes 902 that are a “plurality of lamp receptacles surrounding the central opening.”

FIG. 1 shows that housing 9 is mounted so that its central opening is aligned with its camera so that its field of view is unobstructed by said housing 9. ¶0126. FIG. 22 is an alternate embodiment where housing 9 is fixed and the platform 201 may be rotated. ¶¶0202-0208.

[1b] a light source positioned within each of the plurality of lamp receptacles, wherein at least one of said light sources

VersaDoc does not have a housing and therefore does not have a housing defining ... a plurality of lamp receptacles surrounding a central opening. A POSA would have been motivated to combine VersaDoc with the housing and LED light source units of Olympus as set forth in **Element 1a**. A POSA would further understand that Olympus’s housing and LED light sources

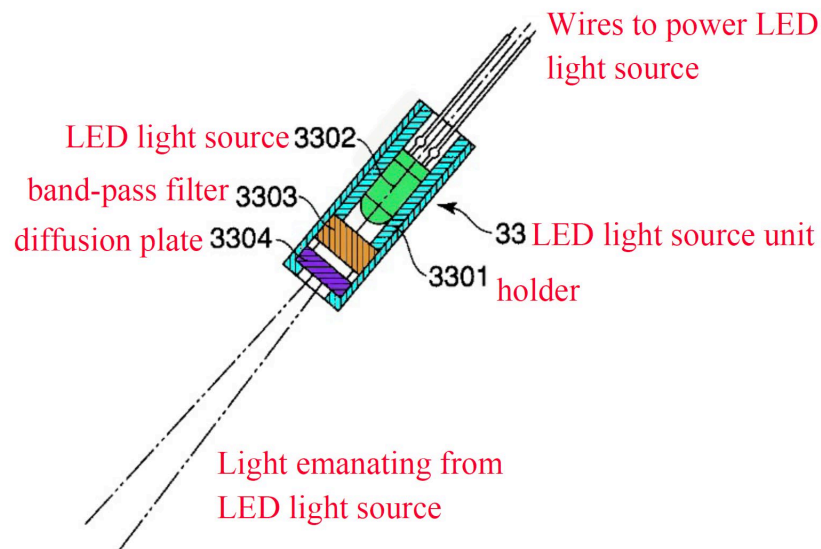
comprises a narrow-band light source; and

would provide a housing, a plurality of lamp receptacles, and a light source positioned within each of the plurality of lamp receptacles, wherein at least one of the light sources comprises a narrow-band light source, as recited in **Element 1(b)**.

Olympus states, “the semiconductor light source means has, *in addition to an LED light source emitting excitation light, a filter, a diffusion plate, a lens, or all thereof, which selectively transmits a wavelength of light from the LED light source arranged on an optical path of light emitted from the LED light source.*” ¶0027.

As demonstrated by FIG. 11, LED light source 3302 may include LEDs (3302, highlighted green), filters (3303, highlighted orange), and diffusers (3304, highlighted purple). ¶¶0115-0116.

[Fig. 11]



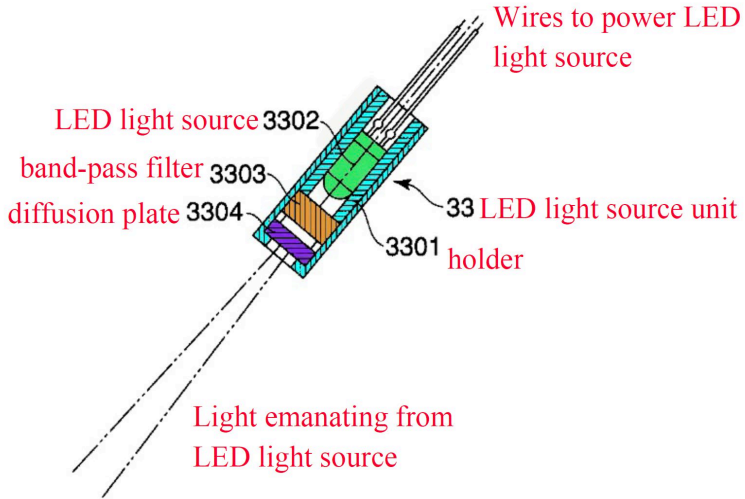
Olympus refers to FIG. 13, stating, “light source holding member 9 is provided with the 1 to 3 LED light source units 41 42 and 43 having 3 kinds of LED light sources having different peak emission wavelengths. Generally, an emission spectrum of an LED light source has a *mountain-*

	<i>shaped structure and has one peak wavelength.” ¶0131.</i> Thus, the LED light source of Olympus is a narrow-band light source and a light source unit is positioned in each of the lamp receptacles (holes 902 of housing 9).
[1c] a diffuser positioned within at least some of the plurality of lamp receptacles, each of said diffusers diffusing light produced by each of said light sources; and	VersaDoc states that its Epi white module has a diffuser, for example, part number 9210491 on page 6-9 of Exhibit P.¹⁹ Regardless, the LED light source units of Olympus include a diffuser as recited in Element 1c, as set forth above in the analysis of Element 1a. For example, the LED source unit comprises a diffuser (diffusion plate 3104) positioned within at least some of the plurality of lamp receptacles (holes 901 of housing 9) diffusing light produced by each of said light sources. ¶¶0115-0116.
[1d] a control system operatively connected to each of said light sources said control system operating selected ones of said light sources to provide a desired excitation illumination to an object within the field of view of said camera, the object fluorescing in response to the excitation illumination provided by said light sources.	The interpretation of Element 1(d) is subject to a determination of whether Element 1(d) recites functional limitations and/or is a means-plus-function limitation and what structure, if any, is shown by the '516 patent that performs the recited function. Insofar as Element 1(d) is construed to be hardware and/or programming that is operable to select light sources, Olympus discloses such a control system of Element 1(d). VersaDoc has red, green, and blue LED lighting: (2) Unique Trans and Epi-illumination Source The VersaDoc MP system incorporates unique red, green, blue, and white LED epi-illumination and white/uv transillumination, to cover visible, uv, and white light excitation. The variety of excitation sources in the VersaDoc MP allow excitation of samples multiplexed with 3 fluorescent dyes or nanoparticles. Exhibit P, p. 2-2. VersaDoc works with Quantity One® 1-D Analysis Software:

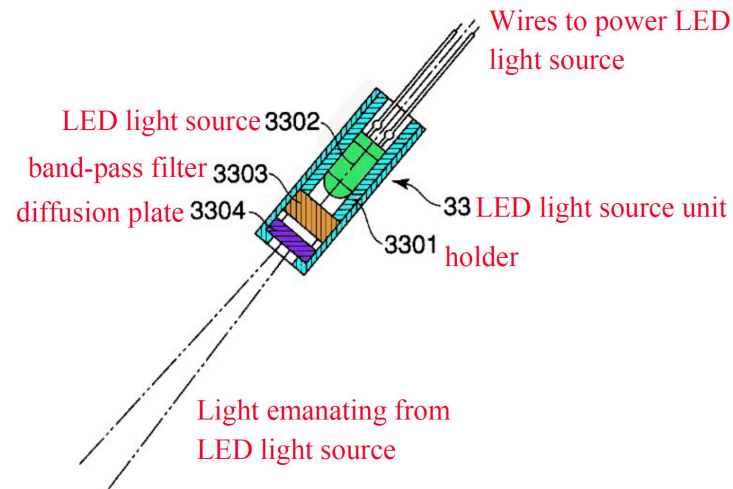
¹⁹ Scintica reserves the right to provide further evidence about the VersaDoc to supplement its invalidity contentions pending further development of the case, discovery, and claim constructions.

	(5) Quantity One[®] 1-D Analysis Software The Quantity One software permits user-friendly control of the VersaDoc MP and VersaDoc Imaging Systems and accurate analysis of the captured image or data. Quantity One is designed for operation in a Windows or Macintosh environment and supports fully automated application-based image acquisition. The Quantity One package allows substantial flexibility in the presentation of captured images and provides many tools for data analysis. These include molecular weight determination, automated lane and band finding, accurate concentration analysis, VNTR and differential display studies and colony counting. Please refer to the Quantity One instruction manual for a full description of this software package. Exhibit P, p. 2-3. Olympus also discloses a LED light source unit driving circuit 29 connected to a power supply 53 and various circuitry to control output light intensity of the LED light source units 11. It can independently turn on and off the LED light source units 11. Such control can be made manually or electronically on a computer. ¶¶0079-0080, 0087, 0147-0150. When light from the LED light source units is irradiated over the surface of a sample, fluorescence can be received by the VersaDoc camera.
2. The excitation light source assembly of claim 1 wherein said narrow-band light source emits light having a bandwidth of about 35 nm.	Claim 2 is obvious in view of the combination of VersaDoc and Olympus. The motivation to combine VersaDoc and Olympus is stated in the analysis of Claim 1, above. Olympus discloses LED light source units have different spectral characteristics and that different numbers and light sources with different peak emission wavelengths may be used. ¶¶0132, 0172, 0198, claim 7, 0129, 0131, 0152, 0155. LEDs of different bandwidths, including “about 35 nm”, were readily available and in use in fluorescence imaging prior to the effective filing date of the ’516 patent, for example as demonstrated by: • U.S. Patent No. 7,381,972 B1, entitled “System and Method for Light Fluorescence Detection” by Varmette et al. (light produced by LEDs typically had a full width at half max of 25 nanometers,” Exhibit G, 8:58-59);

	• U.S. Patent Application Publication 2009/0201577 A1, “Light Source,” by LaPlante et al., published Aug. 13, 2009 (referencing light emitting diodes that “can be obtained from a variety of commercial sources,” such as Luminous Devices, having “a full width half maximum (FWHM) of approximately +/- 12 nm,” Exhibit J at ¶0035); • “Light emitting diode excitation emission matrix fluorescence spectroscopy,” Analyst, 127, pp.1693-1699, Nov. 7, 2002 (LED bandwidths have “typical full width half maximums between 10 nm and 50 nm or more,” Exhibit H at p.1694); • the Fujifilm LAS-4000 Service Manual uses a Nichia NSSB100G LED for its green light source (Exhibit S, p. G-17) which has a bandwidth at half power of about 35 nm (Exhibit T, p. 9); and • the ’516 patent <i>admits</i> that “[l]ight emitting diodes having such narrow bandwidths (e.g., about 30-35 nm) along the desired wavelength range (e.g., 430 nm to about 745 nm) <i>are readily commercially available and can be used as narrow-band sources</i> 22.” ’516 patent at 9:2-6. A person of ordinary skill in the art at the time of the alleged invention (“POSA”), upon reading and understanding Olympus, would have used narrowband LEDs because peak wavelengths of the 490 nm and 520 nm LED light sources are only about 30 nm separated in wavelength, and accordingly it would be beneficial to use LEDs with no more than about 30-35 nm of bandwidth to better isolate the fluorescence excitation caused by each LED light source.
3. The excitation light source assembly of claim 2 wherein said at least one narrow-band light source comprises a light emitting diode.	VersaDoc and Olympus both teach the use of light emitting diodes as recited in claim 3. VersaDoc teaches the use of LEDs in its RGB LED lighting module, as discussed above. LEDs are taught generally throughout Olympus, and specifically as set forth above. <i>See, inter alia</i>, ¶¶ 0011, 0013, 0014, 0024, 0026-0043, 0168.
4. The excitation light source assembly of claim 1, further comprising at least one filter positioned adjacent at least one diffuser in at least one of the lamp receptacles defined by	VersaDoc in combination with Olympus provides the recited use of LEDs and filters. For example, Olympus teaches the use of at least one filter (e.g., filter 3303) positioned at least one diffuser in at least one lamp receptacle defined by said housing of claim 4, as set forth above.

said housing.	[Fig. 11]  LED light source 3302 band-pass filter 3303 diffusion plate 3304 3301 holder Wires to power LED light source Light emanating from LED light source
5. The excitation light source assembly of claim 4, wherein said at least one filter comprises a notch filter having a wavelength bandpass range of about 30 nm.	The combination of VersaDoc and Olympus teaches the notch filter of claim 5. A notch filter with a specified wavelength bandpass is a bandpass filter. The LED light source unit of Olympus teaches the use of a band-pass filter, such as band-pass filter 3303:

[Fig. 11]



Olympus discloses LED light source units have different spectral characteristics and that different numbers and light sources with different peak emission wavelengths may be used. ¶¶0132, 0172, 0198, claim 7, 0129, 0131, 0152, 0155.

The use of filters having a variety of wavelength bandpass ranges (including 30 nm) was known to those of skill in the art well before any effective filing date of the '516 patent, as demonstrated by "Fluorescence Imaging of Electrical Activity in Cardiac Cells Using an All-Solid-State System," by Entcheva et al., IEEE Transactions on Biomedical Engineering, Vol. 51, No. 2, pp.333-341, February 2004 (illumination modules using LEDs and common interference filters of +/- 35 and +/-15 nm, **Exhibit I** at p.336). Prior to the earliest effective filing date of the '516 patent, bandpass filters of selectable bandpass ranges were also available from suppliers, such as Chroma Technology and Omega (*see Exhibit P*, p. 6-11) and Delta (*see, Exhibit K*).

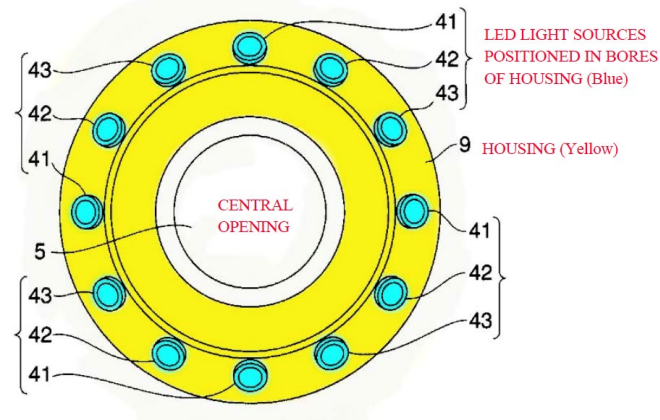
A person of ordinary skill in the art at the time of the alleged invention ("POSA"), upon reading and understanding Olympus, would have used bandpass filters of about 30 nm because peak wavelengths of the 490 nm and 520 nm LED light sources are only about 30 nm separated in wavelength. Accordingly, bandpass filtering of the applied light to about 30 nm of bandwidth

	would better isolate the fluorescence excitation caused by each LED light source.
6. The excitation light source assembly of claim 1, wherein at least one of the light sources comprises a broad-band light source.	VersaDoc teaches white lighting: (2) Unique Trans and Epi-illumination Source The VersaDoc MP system incorporates unique red, green, blue, and white LED epi-illumination and white/uv transillumination, to cover visible, uv, and white light excitation. The variety of excitation sources in the VersaDoc MP allow excitation of samples multiplexed with 3 fluorescent dyes or nanoparticles. Exhibit P, p. 2-2. Olympus also teaches a broad-band light source as recited in claim 6. Olympus states: “the number of LED light source units is not particularly limited, and a plurality of LED light source units can be individually controlled by a plurality of drive circuits. Further, the output wavelengths of the plurality of LED light source units may be the same or different [].” ¶0155. Broad-band light sources were well known in the art before the effective filing date of the ’516 patent. The ’516 patent admits that “white” LEDs are broad-band light sources and that they are “commercially readily available.” ’516 patent, 10:12-14. Consequently, since different output wavelengths of the LED light source units and white LEDs were commercially readily available, Olympus teaches the broad-band light source of claim 6.
7. The excitation light source assembly of claim 1, wherein at least some of said plurality of lamp receptacles comprise opposed pairs of lamp receptacles on opposite sides of said central opening, each opposed pair of lamp	In the proffered combination of VersaDoc and Olympus, the Olympus housing teaches opposed pairs of lamp receptacles as recited in claim 7. Olympus states: “the number of LED light source units is not particularly limited, and a plurality of LED light source units can be individually controlled by a plurality of drive circuits.” ¶0155. FIG. 13 shows a plurality of lamp receptacles for a plurality of LED lights sources (41, 42, and 46). It also shows that at least some of the plurality of lamp receptacles comprise opposed pairs

receptacles producing light of the same color.

of lamp receptacles on opposite sides of said central opening (compare the light sources 41, 42, and 43 in the upper right-hand corner of FIG. 13 with those on the lower left-hand corner, or the light sources 41, 42, and 43 on the upper left-hand corner with their counterpart light sources on the lower right-hand corner).

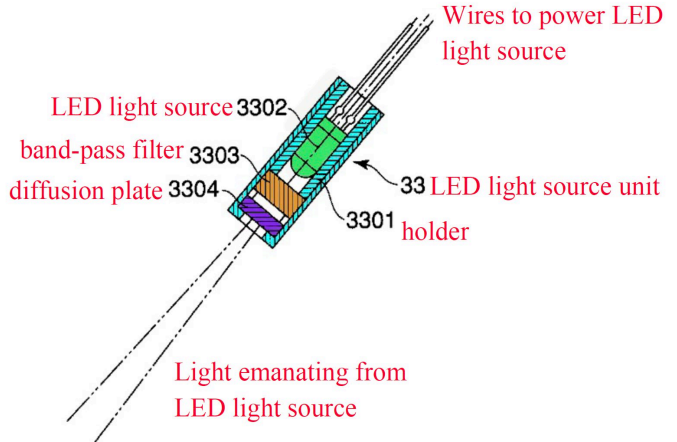
[Fig. 13] TOP VIEW OF HOUSING



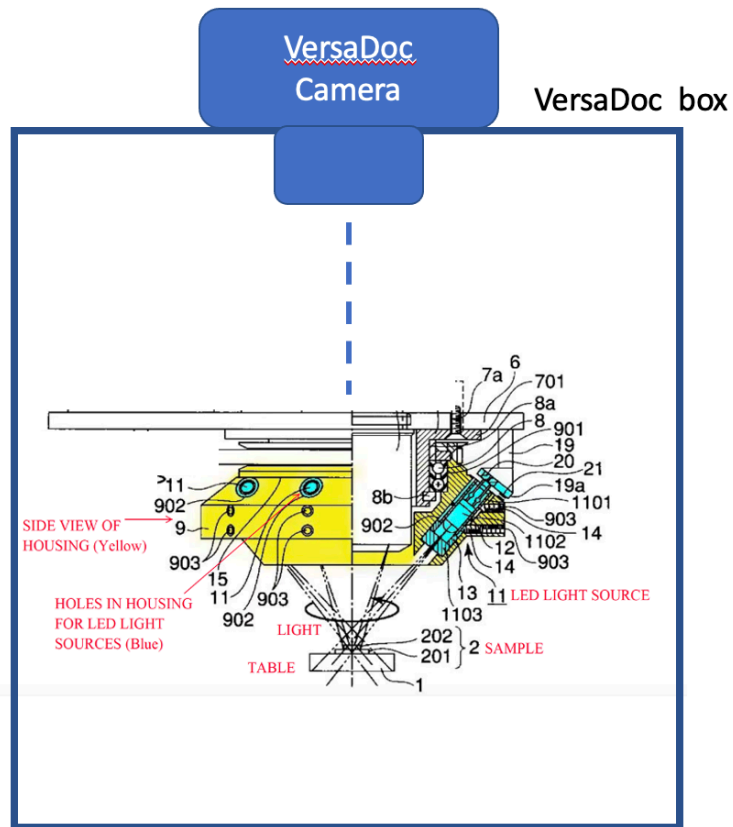
9. The excitation light source assembly of claim 1, wherein the light source positioned within each of the plurality of lamp receptacles does not extend beyond the lamp receptacle.

In the proffered combination of VersaDoc and Olympus, Olympus teaches recessed lighting as recited in **claim 9**.

Olympus FIG. 11 shows a light source 3301 positioned within each of the plurality of lamp receptacles does not extend beyond the lamp receptacle:

	[Fig. 11]  Wires to power LED light source LED light source 3302 band-pass filter 3303 diffusion plate 3304 33 LED light source unit holder 3301 Light emanating from LED light source
14. [14(Preamble)] An assembly, comprising:	VersaDoc in combination with Olympus teaches all of the elements of claim 14. The motivation to combine is the same as was provided above, for claim 1. VersaDoc discloses an assembly, as recited in Element 14(Preamble). Olympus also discloses an assembly. See the analysis of Element 1(Preamble) above.
[14a] a support structure;	VersaDoc uses its box as a support structure for its LED lighting modules and its camera. A POSA would understand that the camera of VersaDoc could be used with the housing (light source holding member 9 and associated hardware, including the base 6) of Olympus mounted within the VersaDoc box and over its sample table. The combination of VersaDoc and Olympus provides the subject matter of Elements 14a, 14b, and 14c. Olympus discloses base 6, which when integrated with the VersaDoc box, acts as a support structure for the housing (light source holding member 9): “[A] base 6 is provided with a cylindrical fixed shaft 7 on the base 6. A flange portion 701 is

formed at one end of the fixed shaft 7, and the flange portion 701 is fixed to the base 6 by a screw 7a.” ¶0051. “A light source holding member 9 [housing] is rotatably supported on an outer peripheral surface of the fixed shaft 7 via a bearing 8. In this case, the light source holding member 9 has a hole portion 901 formed along the optical axis 5a, and the peripheral surface of the hole portion 901 is supported on the outer peripheral surface of the fixed shaft 7 via the bearing 8. Further, in the light source holding member 9, the center of rotation coincides with the optical axis 5a of the objective lens 5.” ¶0053.

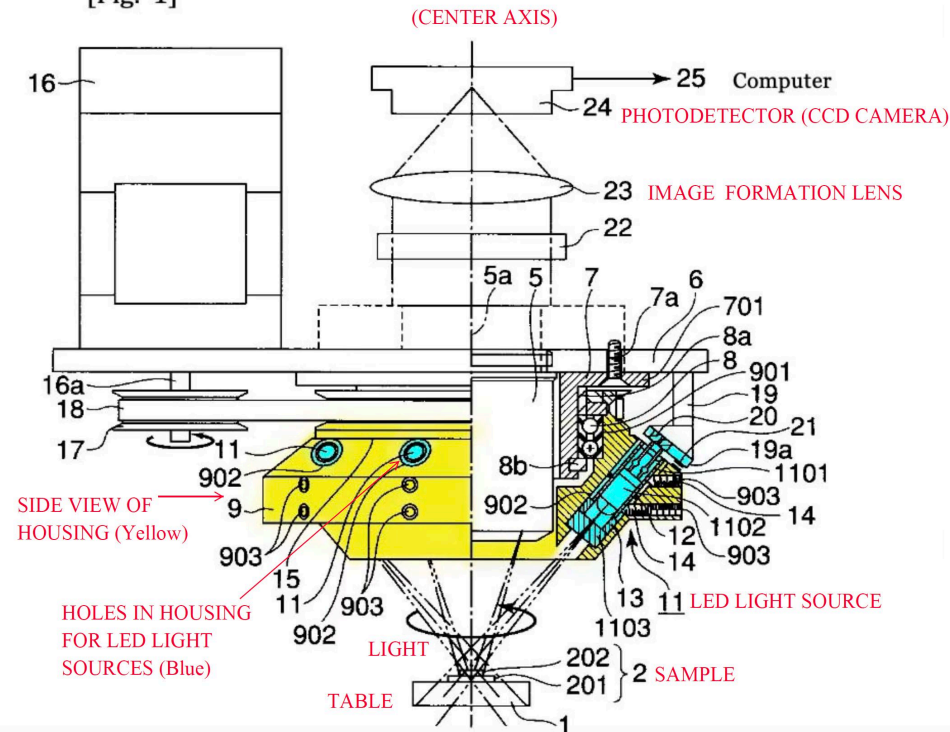


view of said camera is substantially unobstructed by said housing;	
[14e] at least one narrow-band light source positioned within at least one of the plurality of lamp receptacles; and	The combination of VersaDoc and Olympus teach Element 14e. Element 14e is substantially identical to Element 1b. See the analysis of Element 1b, above.
[14f] a diffuser positioned within at least some of the plurality of lamp receptacles, each of said diffusers diffusing light produced by each of said narrow-band light sources; and	The combination of VersaDoc and Olympus teach Element 14f. Element 14f is substantially identical to Element 1c. See the analysis of Element 1c, above.
[14g] a control system operatively connected to each of said narrow-band light sources, said control system operating selected ones of said narrow-band light sources to provide a desired excitation illumination to a fluorescent material within the field of view of said camera, the fluorescent material fluorescing in response to the excitation illumination.	Element 14g is substantially identical to Element 1d. See the analysis of Element 1d, above.
15. The assembly of claim 14, further comprising a light filter positioned adjacent each of the diffusers.	The subject matter recited in claim 15 is substantially similar to that recited in claim 4. See the analysis of claim 4, above.
16. The assembly of claim 14, wherein each of the lamp receptacles defined by said	The combination of VersaDoc and Olympus teach the subject matter of claim 16. The receptacles (holes or bores 902 of housing 9 of Olympus) are angled with respect to the

housing are angled with respect to a central axis of said housing so that light emitted from each of said narrow-band light sources is directed to a desired area within the field of view of said camera.

center axis of the assembly, and light emitted from each of the LED light sources 11 is directed to a desired area within the field of view of the camera (see the sample 2 on table 1 fluorescing due to light from LED lights sources 11, below):

[Fig. 1]



17. The assembly of claim 14, wherein each of said narrow-band light sources is selected to provide desired number of illumination bands over a desired spectral range.

The combination of VersaDoc and Olympus teach the subject matter of **claim 17**.

Olympus refers to light at 490 nm, 520 nm, and 630 nm. ¶¶0131-0133. However, Olympus is not limited to these three wavelengths and discloses the use of other excitation and emission wavelengths and different numbers of light sources.

Olympus states: “the number of LED light source units is not particularly limited, and a plurality of LED light source units can be individually controlled by a plurality of drive circuits. Further, the output wavelengths of the plurality of LED light source units may be the same or different [.]” ¶0155. Olympus also allows for more light sources and the use of different wavelengths: “In

	addition, in the 3 embodiment described above, 3 types of fluorescent dyes are used, but the present invention is not limited thereto, and 2 types of fluorescent dyes may be used, or 4 or more fluorescent images may be obtained in the same manner.” ¶0154. “Further, it is possible to greatly increase the number of LED light source units 81. By dividing the LED light source units 81 into a plurality of sets and using the LED light sources having different spectral characteristics of the emission wavelength for each set, it is also possible to excite a plurality of types of fluorescent dyes and detect fluorescent signals in the same manner as described in the 3 embodiment.” ¶¶0172, 0198.
18. The assembly of claim 17, wherein the desired spectral range is from about 430 nm to about 745 nm.	The combination of VersaDoc and Olympus teach the subject matter of claim 18. As set forth in the analysis of claim 17, Olympus is not limited to these three wavelengths and discloses the use of other excitation and emission wavelengths and different numbers of light sources. The ’516 patent <i>admits</i> that “[l]ight emitting diodes having such narrow bandwidths (e.g., about 30-35 nm) along the desired wavelength range (e.g., 430 nm to about 745 nm) are readily commercially available and can be used as narrow-band sources 22.” ’516 patent at 9:2-6. Accordingly, the ’516 patent admits that commercial industry has produced LEDs in the wavelength range of interest and is thus well known. Olympus discloses use of its assembly for applications in the well known 430 nm to 745 nm wavelength range.
20. The assembly of claim 17, wherein each desired illumination band has a bandwidth ranging from about 30 nm to about 35 nm.	The combination of VersaDoc and Olympus teach the subject matter of claim 20. The subject matter recited in claim 20 is substantially similar to that recited in claim 2 and claim 5. See the analysis of claim 2 and claim 5, above.
22. The assembly of claim 17, wherein the desired spectral range is from about 430 nm to about 800 nm.	The combination of VersaDoc and Olympus teach the subject matter of claim 22. The subject matter recited in claim 22 is substantially similar to that recited in claim 18. See the analysis of claim 18, above
23. The assembly of claim 14, wherein each of said narrow-band light sources comprises a light emitting diode.	The combination of VersaDoc and Olympus teach the subject matter of claim 23. The subject matter recited in claim 23 is substantially identical to that recited in claim 3. See the analysis of claim 3, above.
24. The assembly of claim 14,	VersaDoc and Olympus do not list polyoxymethylene (one example of which is Delrin, see the

wherein said housing comprises a polyoxymethylene thermoplastic material.

'516 patent at 7:28-29, 12:1-2, and 13:14-15); however, it is well known in the art to use Delrin in the construction of optical systems as set forth in U.S. Patent No. 6,894,289 to Nilson (**Exhibit B**) at 11:7-11. A POSA would use the black Delrin of Nilson for light assemblies in the system of Olympus as it is "opaque and has absorption properties to reduce reflection." *Id.*

Brydegaard (**Exhibit N**) also teaches the use of Delrin in a cone for holding a plurality of LEDs, as shown in Fig. 2 of Brydegaard.

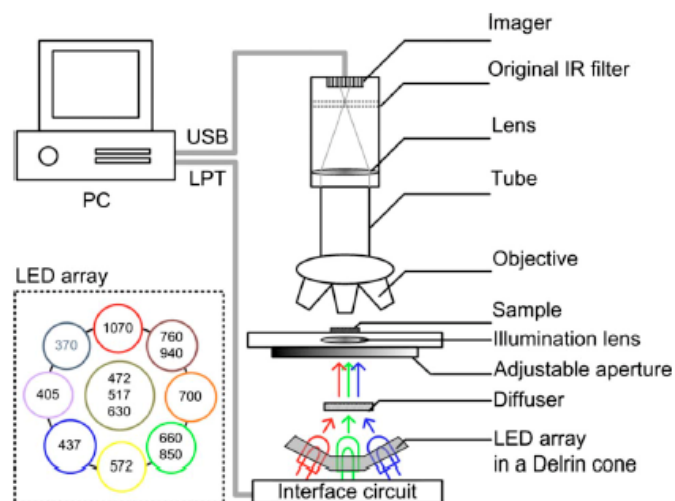


Fig. 2. Arrangement for multispectral transmission microscopy employing multiple LED illumination. Different wavelengths are emitted from a computer controlled LED array and the rays are combined by a diffuser. The light interacts with the sample differently for each wavelength, resulting in a unique picture for each wavelength.

Brydegaard also teaches the use of a diffuser adjacent the LED light sources for use in illuminating a sample with different wavelengths of light. "The nine LEDs are mounted in a machined compact circular arrangement ... made of Delrin ...". Brydegaard (**Exhibit N**) at p.4.

The subject matter of claim 24 is obvious over VersaDoc and Olympus in view of Nilson or Brydegaard.

25. [25(Preamble)] An excitation light source assembly, comprising:	The combination of VersaDoc and Olympus teach an assembly of Element 25(Preamble). See the analyses of Element 1(Preamble) and Element 14(Preamble), above.
[25a] a housing defining a central opening therein and a plurality of lamp receptacles therein surrounding the central opening, said housing being mountable to a support structure so that the central opening is aligned with a camera also mounted to the support structure so that a field of view of the camera is unobstructed by said housing;	The combination of VersaDoc and Olympus teach the housing, plurality of lamp receptacles, and camera of Element 25a. Element 25a is substantially identical to Element 1a. See the analysis of Element 1a, above.
[25b] a light source positioned within each of the plurality of lamp receptacles so that said light sources do not extend beyond the lamp receptacles, wherein at least one of said light sources comprises a narrow-band light source; and	The combination of VersaDoc and Olympus teach the light source of Element 25b. Element 25b is substantially the subject matter of Element 1b and dependent claim 9. See the analysis of Element 1b and claim 9, above.
[25c] a control system operatively connected to each of said light sources, said control system operating selected ones of said light sources to provide a desired excitation illumination to an object within the field of view of the camera, th [sic] excitation illumination causing	Element 25c is substantially similar to Element 1d. See the analysis of Element 1d, above.

fluorescent materials in the object to fluoresce, the camera capturing an image of the fluorescing material in the object.	
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