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4 UNITED STATES DISTRICT COURT
5 NORTHERN DISTRICT OF CALIFORNIA
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7 SEMICAPS PTE LTD,

8 Plaintiff,

9 v.

10 HAMAMATSU CORPORATION, et al.,

11 Defendants.

Case No. [17-cv-03440-DMR](#)

**AMENDED ORDER DENYING
DEFENDANT'S MOTION TO DISMISS**

Re: Dkt. No. 49

12 Plaintiff SEMICAPS Pte Ltd. (“SEMICAPS”) filed this patent case against Defendants
13 Hamamatsu Corporation, Hamamatsu Photonics K.K., and Photonics Management Corp.
14 (collectively, Defendants or “Hamamatsu”), alleging that Hamamatsu infringes the claims of U.S.
15 Patent No. 7,623,982 (the “’982 patent”), which relates to testing of electronic circuits using a
16 laser. Hamamatsu moves to dismiss the complaint, arguing that the asserted claims are invalid
17 because they claim patent-ineligible subject matter. [Docket No. 49.] The court held a hearing on
18 July 11, 2019. For the following reasons, the motion is denied.¹

19 **I. BACKGROUND**

20 **A. The ‘982 Patent**

21 SEMICAPS is the owner by assignment of the ‘982 patent titled, “Method of Testing an
22 Electronic Circuit and Apparatus Thereof.” Compl. ¶ 11, Ex. A (‘982 Patent). The ‘982 patent
23 was issued by the United States Patent and Trademark Office (“USPTO”) on November 24, 2009,
24 and “relates generally to semiconductor processing, and more particularly to a method of testing
25 an electronic circuit, as well as to a respective apparatus,” ‘982 Patent 1:6-8, in order to
26 “determine the location of defects on the semiconductor circuit.” Opp’n 3.

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28 ¹ The court issues this amended order in accordance with its November 5, 2019 order denying Hamamatsu’s motion for leave to file a motion for reconsideration. [Docket No. 75.] The amended portions of the order appear in **bold italic** type.

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SEMICAPS describes the relevant technology as follows: newly-fabricated integrated semiconductor circuits are “typically tested by connecting them to electronic test equipment that applies test signals to each integrated circuit and receives output signals from the circuit as a result.” *Id.* While this method of testing can reveal defects, it does not identify the location of the defect in the integrated circuit. In order to determine the location of the defect, fabricators use “failure analysis systems . . . to perform fault localization testing,” which can be done using lasers in scanning microscopes. *Id.* at 3-4.

The ‘982 patent’s background information describes the problem the patent seeks to solve. It explains that “conventional laser induced techniques generally involve using a scanned laser beam, typically in the infrared frequency range, to stimulate integrated circuit failures which are sensitive to thermal or carrier stimulations.” ‘982 Patent at 1:16-19. These techniques include Optical Beam Induced Resistance Change (“OBIRCH”), Thermal Induced Voltage Alteration (“TIVA”), and Differential Resistance Measurement (“DReM”). *Id.* at 1:22-27. However, advances in integrated circuit technology, including “the use of more metallization layers and new low k inter-layer dielectric materials with lower thermal conductivity,” have reduced the laser coupling efficiency, which in turn reduces the detection sensitivity. *Id.* at 1:28-33. The inventors explain that “conventional approaches” to improve the detection sensitivity of laser induced techniques have not been entirely successful. For example, increasing the power of the laser beam used “in order to compensate for the reduced laser coupling efficiency . . . may not be desirable,” because “there may be potential laser induced damage on the integrated circuit under test when the power of the laser beam used is too high.” *Id.* at 1:38-49. Another approach is to use “a pulsed laser in conjunction with a lock-in amplifier,” which increases detection sensitivity. *Id.* at 1:50-52. However, lock-in amplifiers are “not used in a real-time integrated circuit testing environment” because “accurate calibration and fine control of the lock-in amplifier parameters is typically difficult to achieve in practice.” *Id.* at 1:62-67.

The ‘982 patent attempts to increase detection sensitivity in a laser-based fault detection system without increasing the power of the laser beam or using lock-in amplifiers. ‘982 Patent at 10:19-46. According to the patent, “[t]he method comprises radiating a laser beam onto the

1 electronic circuit, and determining a plurality of samples of a response signal output by the
2 electronic circuit during the period when the laser beam is radiated.” ‘982 Patent, Abstract. A
3 signal processor “process[es] the sample measurements of the response signal of the electronic
4 circuit under test” by “accumulat[ing] the plurality of samples to generate a value, and then
5 generat[ing] a test result based on the value generated.” ‘982 Patent at 3:65-4:2. Based on the
6 generated value, a fault on the electronic circuit may appear as a bright spot, bright line, or bright
7 area at a pixel location corresponding to the location of the fault on the electronic circuit. *Id.* at
8 4:16-24, 4:34-38, 5:12-16.

9 The ‘982 patent includes 25 claims. SEMICAPS alleges that Hamamatsu infringes at least
10 claims 4-7 and 21-25. Compl. ¶ 13. At the hearing SEMICAPS represented that it also asserts
11 claims 8 and 17. See Mot. 12 n.3; Opp’n 1. Claims 4-8 and claim 17 pertain to a method of
12 testing an electronic circuit, while claims 21-25 describe a related apparatus.

13 **1. Claims 4-8 and Claim 17**

14 Claims 4-8 depend from independent Claim 1, which states:

- 15 1. A method of testing an electronic circuit, comprising:
16 radiating a laser beam onto the electronic circuit,
17 determining a plurality of samples of a response signal output
18 by the electronic circuit during the period when the laser beam
is radiated,
19 accumulating the plurality of samples to generate a value, and
20 generating a test result based on the value.

21 ‘982 Patent at 10:59-67.

22 Claims 4-8 and claim 17 add the following limitations to Claim 1:

- 23 4. The method of claim 1, wherein the laser beam is a pulsed laser
beam.
24 5. The method of claim 4, wherein the frequency of sampling of the
25 response signal is higher than the frequency of the pulsed laser beam.
26 6. The method of claim 4, wherein the frequency of the pulsed laser
beam is in the range from about 50 Hz to about 50 kHz.
27 7. The method of claim 4, wherein the frequency of sampling of the
28 response signal is in the range from about 100 kHz to about 80 MHz.

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8. The method of claim 1, wherein accumulating the plurality of samples is performed after a predetermined time delay from the start of the period when the laser beam is radiated.

17. The method of claim 1, wherein another plurality of samples of another response signal output by the electronic circuit during a period when the laser beam is not radiated is determined, the other plurality of samples is accumulated to generate another value and the test result is generated based on the value and the other value.

'982 Patent at 11:8-22, 12:4-9.

2. Claims 21-25

Claim 21 is an independent claim and describes an apparatus:

21. An apparatus, comprising:

a laser beam source, wherein the laser beam source radiates a laser beam onto the electronic circuit,

a control system operable to direct the laser beam source to dwell on a location on the electronic circuit,

a measuring circuit, wherein the measuring circuit determines a plurality of samples of a response signal output by the electronic circuit during the period when the laser beam is radiated, and

a signal processor, wherein the signal processor accumulates the plurality of samples to generate a value, and generates a test result based on the value.

'982 Patent at 12:19-31. Claims 22-25 depend from claim 21. They recite:

22. The apparatus of claim 21, wherein the control system is operable to move the laser beam source according to a pattern over a plurality of locations on the electronic circuit.

23. The apparatus of claim 21, wherein the laser beam is a pulsed laser beam.

24. The apparatus of claim 23, wherein the frequency of sampling is higher than the frequency of the pulsed laser beam.

25. The apparatus of claim 23, wherein the frequency of the pulsed laser beam is in the range from about 50 Hz to about 50 kHz and the frequency of sampling is in the range from about 100 kHz to about 80 MHz.

Id. at 12:32-43.

B. Alleged Infringement

SEMICAPS alleges that Hamamatsu infringes the asserted claims either literally or under the doctrine of equivalents. Compl. ¶ 13. It contends that Hamamatsu infringes the claims “by

1 making, using, selling, offering to sell, and/or importing into the United States Hamamatsu’s
2 M10383 Digital Lock-in Kit (“M10383”) . . . , testing equipment incorporating or retrofitted to
3 include the M10383, and other technology that incorporates the infringing aspects of the M10383 .
4 . . (the ‘Accused Products’).” Id.; Compl. Ex. B. According to SEMICAPS, Hamamatsu’s
5 PHEMOS and iPHEMOS series of emission microscopes use OBIRCH for semiconductor failure
6 analysis and incorporate the M10383, and “compete with SEMICAPS’ Scanning Optical
7 Microscopes.” Id. at ¶¶ 14, 15; Compl. Ex. C. In its complaint, SEMICAPS alleges that the
8 Accused Products infringe claims 4-7 and 21-25 of the ‘982 patent by performing the method
9 specified in the patent and using the apparatus of the asserted claims when conducting OBIRCH
10 analysis. Id. at ¶¶ 20-54.

11 **C. Procedural History**

12 SEMICAPS filed this lawsuit on June 14, 2017. On September 19, 2017, the court granted
13 Hamamatsu’s unopposed motion to stay the case pending inter partes review (“IPR”) proceedings
14 initiated by Hamamatsu challenging the validity of the ‘982 patent. [Docket No. 28.] This case
15 resumed following the issuance of two Final Written Decisions by the Patent Trial and Appeal
16 Board (“PTAB”) in the IPR proceedings. Hamamatsu now moves to dismiss.²

17 **II. LEGAL STANDARDS**

18 A motion to dismiss under Rule 12(b)(6) tests the legal sufficiency of the claims alleged in
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20 ² Hamamatsu asks the court to take judicial notice of the prosecution history of the ‘982 patent.
21 [Docket No. 50 (Chu Decl., May 23, 2019) ¶ 4, Ex. 1 (Prosecution History).] SEMICAPS did not
22 object. The court takes judicial notice of the prosecution history pursuant to Federal Rule of
23 Evidence 201(b)(2), as it is a public record that “consists of the complete record of the
24 proceedings before the PTO and includes the prior art cited during the examination of the patent.”
Phillips v. AWH Corp., 415 F.3d 1303, 1317 (Fed. Cir. 2005). See, e.g., Coinstar, Inc. v.
Coinbank Automated Sys., Inc., 998 F. Supp. 1109, 1114 (N.D. Cal. 1998) (granting request for
judicial notice of patent file histories).

25 SEMICAPS submitted additional material outside the pleadings. [Docket No. 53-1
26 (Marton Decl., June 6, 2019).] These appear to be Hamamatsu’s IPR petitions challenging the
27 validity of the claims, a declaration submitted in support of the petitions by Hamamatsu’s expert,
28 and the PTAB’s final written decisions on the petitions. It appears that SEMICAPS contends that
these materials are part of the prosecution history and are thus subject to judicial notice, although
it does not expressly request that the court take judicial notice of them. As Hamamatsu did not
object to the inclusion of these materials as part of the prosecution history, the court takes judicial
notice of them.

1 the complaint. See *Parks Sch. of Bus., Inc. v. Symington*, 51 F.3d 1480, 1484 (9th Cir. 1995).
2 When reviewing a motion to dismiss for failure to state a claim, the court must “accept as true all
3 of the factual allegations contained in the complaint,” *Erickson v. Pardus*, 551 U.S. 89, 94 (2007)
4 (per curiam) (citation omitted), and may dismiss a claim “only where there is no cognizable legal
5 theory” or there is an absence of “sufficient factual matter to state a facially plausible claim to
6 relief.” *Shroyer v. New Cingular Wireless Servs., Inc.*, 622 F.3d 1035, 1041 (9th Cir. 2010) (citing
7 *Ashcroft v. Iqbal*, 556 U.S. 662, 677-78 (2009); *Navarro v. Block*, 250 F.3d 729, 732 (9th Cir.
8 2001)) (quotation marks omitted). A claim has facial plausibility when a plaintiff “pleads factual
9 content that allows the court to draw the reasonable inference that the defendant is liable for the
10 misconduct alleged.” *Iqbal*, 556 U.S. at 678 (citation omitted). In other words, the facts alleged
11 must demonstrate “more than labels and conclusions, and a formulaic recitation of the elements of
12 a cause of action will not do.” *Bell Atl. Corp. v. Twombly*, 550 U.S. 554, 555 (2007) (citing
13 *Papasan v. Allain*, 478 U.S. 265, 286 (1986)); see *Lee v. City of L.A.*, 250 F.3d 668, 679 (9th Cir.
14 2001), overruled on other grounds by *Galbraith v. Cty. of Santa Clara*, 307 F.3d 1119 (9th Cir.
15 2002).

16 As a general rule, a court may not consider “any material beyond the pleadings” when
17 ruling on a Rule 12(b)(6) motion. *Lee*, 250 F.3d at 688 (citation and quotation marks omitted).
18 However, “a court may take judicial notice of ‘matters of public record,’” *id.* at 689 (citing *Mack*
19 *v. S. Bay Beer Distrib.*, 798 F.2d 1279, 1282 (9th Cir. 1986)), and may also consider “documents
20 whose contents are alleged in a complaint and whose authenticity no party questions, but which
21 are not physically attached to the pleading,” without converting a motion to dismiss under Rule
22 12(b)(6) into a motion for summary judgment. *Branch v. Tunnell*, 14 F.3d 449, 454 (9th Cir.
23 1994), overruled on other grounds by *Galbraith*, 307 F.3d at 1125-26. The court need not accept
24 as true allegations that contradict facts which may be judicially noticed. See *Mullis v. U.S. Bankr.*
25 *Court*, 828 F.2d 1385, 1388 (9th Cir. 1987).

26 **III. DISCUSSION**

27 Hamamatsu argues that the complaint should be dismissed because the asserted claims of
28 the ‘982 patent are invalid under 35 U.S.C. § 101 for failing to claim patent-eligible subject

1 matter. Section 101 patent eligibility is a question of law that may be resolved on a motion to
2 dismiss. *In re Roslin Inst. (Edinburgh)*, 750 F.3d 1333, 1335 (Fed. Cir. 2014); *Genetic Techs. Ltd.*
3 *v. Merial LLC*, 818 F.3d 1369, 1373-74 (Fed. Cir. 2016). SEMICAPS does not object to
4 adjudication of the Section 101 challenge at this early stage of the proceedings, and the parties
5 agree that no disputes of fact exist that would otherwise prevent a ruling.³

6 **A. Subject Matter Eligibility**

7 Section 101 of the Patent Act defines the subject matter that is eligible for patent
8 protection. *Bilski v. Kappos*, 561 U.S. 593, 601 (2010). It provides that “[w]hoever invents or
9 discovers any new and useful process, machine, manufacture, or composition of matter, or any
10 new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
11 requirements of this title.” 35 U.S.C. § 101.⁴ Under well-settled law, “this provision contains an
12 important implicit exception: [L]aws of nature, natural phenomena, and abstract ideas are not
13 patentable.” *Alice Corp. Pty. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014). These categories are
14 not patentable because “they are the basic tools of scientific and technological work.” *Mayo*
15 *Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 71 (2012) (quotation omitted).
16 “[M]onopolization of those tools through the grant of a patent might tend to impede innovation
17 more than it would tend to promote it.” *Id.* However, the Supreme Court has also cautioned that
18 “too broad an interpretation of this exclusionary principle could eviscerate patent law,” *id.*,
19 because “[a]t some level, ‘all inventions . . . embody, use, reflect, rest upon, or apply laws of

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21 ³ Notwithstanding its agreement that Hamamatsu’s Section 101 challenge is ripe for adjudication
22 on the pleadings, SEMICAPS argues that if there is a dispute about the scope of the terms
23 “determining” and “accumulating” as used in claim 1, the court should construe those claims prior
24 to ruling on the motion. See Opp’n 9 n.1. As the court finds that the asserted claims are not
25 directed to a patent-ineligible concept, it need not construe the “determining” and “accumulating”
26 terms at this time. See *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass’n*,
27 776 F.3d 1343, 1349 (Fed. Cir. 2014) (“Although the determination of patent eligibility requires a
28 full understanding of the basic character of the claimed subject matter, claim construction is not an
inviolable prerequisite to a validity determination under § 101.”).

26 ⁴ “The § 101 patent-eligibility inquiry is only a threshold test. Even if an invention qualifies as a
27 process, machine, manufacture, or composition of matter, in order to receive the Patent Act’s
28 protection the claimed invention must also satisfy ‘the conditions and requirements of this title.’
[35 U.S.C.] § 101.” *Bilski*, 561 U.S. at 602. “Those requirements include that the invention be
novel, see [35 U.S.C. §] 102, nonobvious, see [35 U.S.C. §] 103, and fully and particularly
described, see [35 U.S.C. §] 112.” *Id.*

1 nature, natural phenomena, or abstract ideas.” *Alice*, 573 U.S. at 217 (quoting *Mayo*, 566 U.S. at
2 71). “Thus, an invention is not rendered ineligible for patent simply because it involves an
3 abstract concept,” and courts must “tread carefully in construing this exclusionary principle lest it
4 swallow all of patent law.” *Id.*

5 The Supreme Court has articulated a two-part test for determining whether a claim’s
6 subject matter falls outside Section 101. See *Alice*, 573 U.S. at 217; *Mayo*, 566 U.S. 77-78. This
7 “framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract
8 ideas from those that claim patent-eligible applications of those concepts” proceeds in two steps as
9 follows:

10 First, we determine whether the claims at issue are directed to one of
11 those patent-ineligible concepts. If so, we then ask, “[w]hat else is
12 there in the claims before us?” To answer that question, we consider
13 the elements of each claim both individually and “as an ordered
14 combination” to determine whether the additional elements
15 “transform the nature of the claim” into a patent-eligible application.
16 We have described step two of this analysis as a search for an
17 “‘inventive concept’”—i.e., an element or combination of elements
18 that is “sufficient to ensure that the patent in practice amounts to
19 significantly more than a patent upon the [ineligible concept] itself.”

20 *Alice*, 573 U.S. at 217-18 (internal citations omitted, alterations in original).

21 “Although the two steps in the *Alice* framework involve overlapping scrutiny of the
22 content of the claims, the Supreme Court’s formulation makes clear that the first-stage filter is a
23 meaningful one, sometimes ending the § 101 inquiry.” *Visual Memory LLC v. NVIDIA Corp.*, 867
24 F.3d 1253, 1258 (Fed. Cir. 2017) (internal quotation marks and citation omitted). “The ‘directed
25 to’ inquiry, therefore, cannot simply ask whether the claims involve a patent-ineligible concept,
26 because essentially every routinely patent-eligible claim involving physical products and actions
27 involves a law of nature and/or natural phenomenon—after all, they take place in the physical
28 world.” *Id.* (emphasis in original). Instead, courts must consider the claims “in their entirety to
ascertain whether their character as a whole is directed to excluded subject matter.” *FairWarning
IP, LLC v. Iatric Systems, Inc.*, 839 F.3d 1089, 1094 (Fed. Cir. 2016) (quoting *McRO, Inc. v.
Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1312 (Fed. Cir. 2016)).

The Federal Circuit has “described the first-stage inquiry as looking at the focus of the

1 claims, their character as a whole, and the second-stage inquiry (where reached) as looking more
2 precisely at what the claim elements add—specifically, whether, in the Supreme Court’s terms,
3 they identify an ‘inventive concept’ in the application of the ineligible matter to which (by
4 assumption at stage two) the claim is directed.” Elec. Power Grp., LLC v. Alstom S.A., 830 F.3d
5 1350, 1353 (Fed. Cir. 2016) (internal quotation marks and citations omitted).

6 **B. Representative Claims**

7 As noted, SEMICAPS asserts claims 4-8 and claim 17, all of which depend from claim 1.
8 SEMICAPS also asserts claims 21-25. Although neither party identified representative claims in
9 their briefing, the parties agreed at the hearing that claims 1 and 21 are representative for purposes
10 of the Section 101 analysis. Accordingly, the court will treat claims 1 and 21 as representative.
11 See *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass’n*, 776 F.3d 1343,
12 1348 (Fed. Cir. 2014) (affirming district court’s treatment of two claims as representative,
13 “because all the claims are ‘substantially similar and linked to the same abstract idea.’”). Those
14 claims state the following:

15 Claim 1:

16 A method of testing an electronic circuit, comprising:
17 radiating a laser beam onto the electronic circuit,
18 determining a plurality of samples of a response signal output by the
19 electronic circuit during the period when the laser beam is radiated,
20 accumulating the plurality of samples to generate a value, and
21 generating a test result based on the value.

22 Claim 21:

23 An apparatus, comprising:
24 a laser beam source, wherein the laser beam source radiates a laser
25 beam onto the electronic circuit,
26 a control system operable to direct the laser beam source to dwell on
27 a location on the electronic circuit,
28 a measuring circuit, wherein the measuring circuit determines a
plurality of samples of a response signal output by the electronic
circuit during the period when the laser beam is radiated, and

1 a signal processor, wherein the signal processor accumulates the
2 plurality of samples to generate a value, and generates a test result
based on the value.

3 **C. Alice Step One**

4 At the first step, the court must determine whether the claims at issue are “directed to” a
5 “patent-ineligible concept[.]” *Alice*, 573 U.S. at 217. As the Federal Circuit has explained, “the
6 ‘directed to’ inquiry applies a stage-one filter to claims, considered in light of the specification,
7 based on whether ‘their character as a whole is directed to excluded subject matter.’” *Enfish, LLC*
8 *v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016) (citation omitted).

9 Hamamatsu argues that claims 1 and 21 are directed to the abstract idea of “collecting data
10 and processing it to generate a test result.” Mot. 9. SEMICAPS disputes Hamamatsu’s framing,
11 and contends that claims 1 and 21 are directed to a specific technological problem, namely,
12 “improving fault detection sensitivity in laser-based testing of integrated circuits.” SEMICAPS
13 asserts that its patent “describes and claims a specific solution” to that problem. Opp’n 11-12.

14 “The Supreme Court has not established a definitive rule to determine what constitutes an
15 ‘abstract idea’ sufficient to satisfy the first step of the *Mayo/Alice* inquiry.” *Enfish*, 822 F.3d at
16 1334. Courts generally begin by “compar[ing] claims at issue to those claims already found to be
17 directed to an abstract idea in previous cases.” *Id.* (citing *Alice*, 573 U.S. at 221 (“we need not
18 labor to delimit the precise contours of the ‘abstract ideas’ category in this case. It is enough to
19 recognize that there is no meaningful distinction between the concept of risk hedging in *Bilski* and
20 the concept of intermediated settlement at issue here.”)); see also *Amdocs (Israel) Ltd. v. Openet*
21 *Telecom, Inc.*, 841 F.3d 1288, 1294 (Fed. Cir. 2016) (“the decisional mechanism courts now apply
22 is to examine earlier cases in which a similar or parallel descriptive nature can be seen—what
23 prior cases were about, and which way they were decided.”).

24 Neither party cites cases that analyze claims pertaining to a method or apparatus for
25 conducting laser-induced testing of integrated circuits, and indeed, the court could not find any.
26 Instead, Hamamatsu argues that this case is similar to those that found that the claims are abstract
27 where they are directed to some combination of collecting and/or analyzing information and
28 presenting the results of those processes; Hamamatsu relies primarily on *Electric Power Group*.

1 In *Electric Power Group*, the Federal Circuit analyzed a claim for a “method of detecting events
2 on an interconnected electric power grid in real time over a wide area and automatically analyzing
3 the events on the interconnected electric power grid.” 830 F.3d at 1351. The method included the
4 following steps: 1) receiving a plurality of data streams collected in real time at geographically
5 distinct points over the interconnected electric power grid; 2) receiving data from other sources on
6 the electric power grid; 3) receiving data from non-power grid sources; 4) detecting and analyzing
7 events in real time from the disparate sources based on an analysis of the measurements in the
8 data; 5) displaying the results of the analysis and other information from the data; 6) displaying
9 “concurrent visualization of measurements” from the data; 7) accumulating and updating in real
10 time the measurements from the data sources; and 8) combining the data into “a composite
11 indicator of power grid vulnerability.” *Id.* at 1351-52.⁵

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⁵ The representative claim discussed in *Electric Power Group* was as follows:

12. A method of detecting events on an interconnected electric power grid in real time over a wide area and automatically analyzing the events on the interconnected electric power grid, the method comprising:

receiving a plurality of data streams, each of the data streams comprising sub-second, time stamped synchronized phasor measurements wherein the measurements in each stream are collected in real time at geographically distinct points over the wide area of the interconnected electric power grid, the wide area comprising at least two elements from among control areas, transmission companies, utilities, regional reliability coordinators, and reliability jurisdictions;

receiving data from other power system data sources, the other power system data sources comprising at least one of transmission maps, power plant locations, EMS/SCADA systems;

receiving data from a plurality of non-grid data sources;

detecting and analyzing events in real-time from the plurality of data streams from the wide area based on at least one of limits, sensitivities and rates of change for one or more measurements from the data streams and dynamic stability metrics derived from analysis of the measurements from the data streams including at least one of frequency instability, voltages, power flows, phase angles, damping, and oscillation modes, derived from the phasor measurements and the other power system data sources in which the metrics are indicative of events, grid stress, and/or grid instability, over the wide area;

displaying the event analysis results and diagnoses of events and

1 The Federal Circuit found that the patent was not directed to patentable subject matter
2 because the focus of the asserted claims was “on collecting information, analyzing it, and
3 displaying certain results of the collection and analysis.” Id. at 1353. Noting that “[i]nformation
4 as such is an intangible,” the court explained that it has “treated collecting information, including
5 when limited to particular content (which does not change its character as information), as within
6 the realm of abstract ideas.” Id. (citations omitted). The court has also “treated analyzing
7 information by steps people go through in their minds, or by mathematical algorithms, without
8 more, as essentially mental processes within the abstract-idea category.” Id. at 1354 (citations
9 omitted). Finally, it has “recognized that merely presenting the results of abstract processes of
10 collecting and analyzing information, without more (such as identifying a particular tool for
11 presentation), is abstract as an ancillary part of such collection and analysis.” Id. (citations
12 omitted). The Electric Power Group court concluded that the claims were focused on a
13 combination of “abstract-idea processes”: “[t]he advance they purport to make is a process of
14 gathering and analyzing information of a specified content, then displaying the results, and not any
15 particular assertedly inventive technology for performing those functions.” Id. See also
16 FairWarning, 839 F.3d at 1092-94 (holding that invention “relat[ing] to a system and method of
17 detecting fraud and/or misuse in a computer environment based on analyzing data such as in log

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19 associated ones of the metrics from different categories of data and
20 the derived metrics in visuals, tables, charts, or combinations thereof,
21 the data comprising at least one of monitoring data, tracking data,
22 historical data, prediction data, and summary data;
23 displaying concurrent visualization of measurements from the data
24 streams and the dynamic stability metrics directed to the wide area of
25 the interconnected electric power grid;
26 accumulating and updating the measurements from the data streams
27 and the dynamic stability metrics, grid data, and non-grid data in real
28 time as to wide area and local area portions of the interconnected
29 electric power grid; and deriving a composite indicator of reliability
30 that is an indicator of power grid vulnerability and is derived from a
31 combination of one or more real time measurements or computations
32 of measurements from the data streams and the dynamic stability
33 metrics covering the wide area as well as non-power grid data
34 received from the non-grid data source.

830 F.3d at 1351-52.

1 files, or other similar records, including user identifier data,” was directed to combination of
2 abstract ideas, namely, “collecting and analyzing information to detect misuse and notifying a user
3 when misuse is detected.”).

4 Hamamatsu asserts that claims 1 and 21 are directed to collecting data (a plurality of
5 samples) in a specified form, then accumulating the samples to derive a value or metric, and using
6 the value to generate a test result. According to Hamamatsu, as with the claims at issue in *Electric*
7 *Power Group*, the asserted claims of the ‘982 patent are directed to abstract ideas. See *Electric*
8 *Power*, 830 F.3d at 1354.

9 Hamamatsu also argues that the inclusion of hardware and computer components in the
10 asserted claims does not change the abstract focus of the claims, citing *In re TLI Communications*
11 *LLC Patent Litigation*, 823 F.3d 607, 612 (Fed. Cir. 2016). In *TLI*, the Federal Circuit considered
12 whether a patent relating to “an apparatus for recording of a digital image, communicating the
13 digital image from the recording device to a storage device, and to administering the digital image
14 in the storage device” claimed patent-eligible subject matter under section 101. *Id.* at 609.⁶ The
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16 ⁶ The representative claim addressed in *TLI* read:

17 17. A method for recording and administering digital images,
18 comprising the steps of:

19 recording images using a digital pick up unit in a telephone unit,

20 storing the images recorded by the digital pick up unit in a digital form
21 as digital images,

22 transmitting data including at least the digital images and
23 classification information to a server, wherein said classification
24 information is prescribable by a user of the telephone unit for
25 allocation to the digital images,

26 receiving the data by the server,

27 extracting classification information which characterizes the digital
28 images from the received data, and

storing the digital images in the server, said step of storing taking into
consideration the classification information.

823 F.3d at 610.

1 court found “that the patent-in-suit claims no more than the abstract idea of classifying and storing
2 digital images in an organized manner.” Id. While the claims recited the use of a telephone unit
3 and a server, the court explained that “the specification makes clear that the recited physical
4 components merely provide a generic environment in which to carry out the abstract idea of
5 classifying and storing digital images in an organized manner.” Id. at 611. The court rejected the
6 plaintiff’s argument that the claims were “directed to a specific improvement to computer
7 functionality,” concluding that they were instead “directed to the use of conventional or generic
8 technology in a nascent but well-known environment, without any claim that the invention reflects
9 an inventive solution to any problem presented by combining the two.” Id. at 612. The TLI court
10 noted that the specification failed to provide technical details for the physical components, and
11 instead described them “in purely functional terms.” Id. “In other words, the focus of the patentee
12 and of the claims was not on an improved telephone unit or an improved server.” Id. at 613.
13 Accordingly, the court found that the claims were directed to an abstract idea under step one. Id.

14 Hamamatsu notes that claim 21 describes an apparatus that includes four basic
15 components: a laser beam source, control system, measuring circuit, and signal processor. It
16 contends that the ‘982 patent describes how these components are features of conventional laser-
17 induced testing systems and are well known in the prior art, including in U.S. Patent No.
18 6,897,664 (the “‘664 patent”), which was issued in 2005 and is discussed in the ‘982 Patent. See
19 ‘982 Patent at 1:12-15, 1:38-67, 3:36-48 (discussing ‘664 Patent). Hamamatsu argues that the
20 claims at issue are not directed to any improvement in the functioning of the conventional
21 components themselves, such as an improved laser beam source or measuring circuit. Rather,
22 according to Hamamatsu, like the telephone unit and server at issue in TLI, the components in the
23 ‘982 patent are used “merely [as] a conduit for the abstract idea.” As such, Hamamatsu argues
24 that the inclusion of these components does not change the focus or overall character of the
25 claims. Mot. 11 (citing TLI, 823 F.3d at 612 (“the telephone unit itself is merely a conduit for the
26 abstract idea of classifying an image and storing the image based on its classification.”)).

27 SEMICAPS disputes Hamamatsu’s characterization of the asserted claims. It argues that
28 Hamamatsu oversimplifies them by describing them as being directed to accumulating data and

1 analyzing the data to generate a test result. SEMICAPS contends that claims 1 and 21 are directed
2 to a new system for laser-based fault detection in integrated circuits that has increased sensitivity
3 and is therefore an improvement over prior art systems. SEMICAPS distinguishes Electric Power
4 Group and TLI by arguing that the representative claims of the '982 patent are directed to an
5 "inventive technology" for performing certain functions, i.e., a specific machine for testing
6 integrated circuits, and not to the abstract idea of collecting and processing data and generating a
7 result therefrom. See Opp'n 11. SEMICAPS argues that the asserted claims therefore are similar
8 to those found by the Federal Circuit to be directed to patent-eligible subject matter where the
9 focus of the claims was "on the specific asserted improvement" of the relevant technology. See,
10 e.g., *Enfish*, 822 F.3d at 1335-36; *McRO*, 837 F.3d at 1314.⁷

11 For example, in *Enfish*, the court analyzed claims directed to an "innovative logical model
12 for a computer database," namely, a "self-referential" table that functioned differently from
13 conventional database structures. 822 F.3d at 1330, 1337. The court held that the claims were not
14 directed to an abstract idea because they focused "on the specific asserted improvement in
15 computer capabilities (i.e., the self-referential table for a computer database)," instead of "a
16 process that qualifies as an 'abstract idea' for which computers are invoked merely as a tool." *Id.*
17 at 1335-36. In *McRO*, the claims at issue provided a method for automating the lip
18 synchronization and facial expressions of 3-D animated characters. 837 F.3d at 1303-07. The
19 court held that the claims were not abstract because they "focused on a specific asserted
20 improvement in computer animation, i.e., the automatic use of rules of a particular type." *Id.* at
21 1314. Noting that "[a] patent may issue 'for the means or method of producing a certain result, or
22 effect, and not for the result or effect produced,'" the court defined the inquiry as examining
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24 ⁷ SEMICAPS devotes several pages of its brief to the argument that the asserted claims are
25 "novel" and survived IPR proceedings. *Id.* at 1-2, 6-7, 14-15. However, section 101 "is a general
26 statement of the type of subject matter that is eligible for patent protection 'subject to the
27 conditions and requirements of this title.' Specific conditions for patentability follow," including
28 section 102, which "covers in detail the conditions relating to novelty." *Diamond v. Diehr*, 450
U.S. 175, 189 (1981). "The question therefore of whether a particular invention is novel is wholly
apart from whether the invention falls into a category of statutory subject matter." *Id.* (quotation
and citation omitted). Accordingly, SEMICAPS's arguments regarding the novelty of the '982
patent are not relevant to the section 101 analysis.

1 “whether the claims in these patents focus on a specific means or method that improves the
2 relevant technology or are instead directed to a result or effect that itself is the abstract idea and
3 merely invoke generic processes and machinery.” Id.

4 SEMICAPS also cites *Thales Visionix Inc. v. United States*, 850 F.3d 1343 (Fed. Cir.
5 2017) and *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014) to support its
6 argument that the ‘982 patent, which is directed to a specific solution to a technological solution,
7 is “the antithesis of abstract.” See Opp’n 9-11. In *Thales*, the claims disclosed “an inertial
8 tracking system for tracking the motion of an object relative to a moving reference frame” that
9 used mathematical equations to determine the object’s orientation. 850 F.3d at 1344-45. The
10 court held that the use of mathematical equations, which are themselves not patent-eligible subject
11 matter, “d[id] not doom the claims to abstraction” because the claims were “not merely directed to
12 the abstract idea” of using such equations. Id. at 1347-49. “Rather, the claims are directed to
13 systems and methods that use inertial sensors in a non-conventional manner to reduce errors in
14 measuring the relative position and orientation of a moving object on a moving reference frame.”
15 Id. at 1348-49. The court concluded that “the claims seek to protect only the application of
16 physics to the unconventional configuration of sensors as disclosed,” rather than claiming the
17 equations themselves, and were thus not directed to an abstract idea. Id. at 1349.

18 In *DDR Holdings*, the Federal Circuit examined patents that claimed a solution to the
19 problem of third-party merchants luring a host website’s visitor traffic away when visitors clicked
20 on a merchant’s advertisement on the host site. 773 F.3d at 1248. The patents disclosed a system
21 of generating and directing the visitor to “a composite web page that displays product information
22 from the third-party merchant, but retains the host’s website’s ‘look and feel.’” Id. at 1248-49.
23 The court explained that “the claims at issue . . . specify how interactions with the Internet are
24 manipulated to yield a desired result” which “overrides the routine and conventional sequence of
25 events ordinarily triggered by the click of a hyperlink.” Id. at 1259. It held that “the claimed
26 solution amounts to an inventive concept for resolving [a] particular Internet-centric problem,
27 rendering the claims patent-eligible.” Id.

28 Here, SEMICAPS argues that like the claims in *Enfish*, *McRO*, *Thales*, and *DDR*, the ‘982

1 patent is “a new and novel system that operates in a unique way to solve a technical problem” and
2 is thus “exactly the type of invention that is patent eligible.” Opp’n 2, 7. Specifically, it asserts
3 that the ’982 patent “is directed to a technological problem: improving fault detection sensitivity
4 in laser-based testing of integrated circuits,” and that it “describes and claims a specific solution”
5 to that problem. Opp’n 11-12.

6 The court concludes that the asserted claims of the ’982 patent are not directed to an
7 abstract idea. Hamamatsu’s characterization of the ’982 patent as directed to the processes of
8 collecting and analyzing information and presenting the results of those processes is overly
9 reductive. It ignores the technical context of the patent and the claimed improvements over the
10 prior art. The ’982 patent explains how advancements in integrated circuits, including the use of
11 more metallization layers and materials with lower thermal conductivity, have resulted in the need
12 for increased fault detection sensitivity. **It describes the problems inherent with existing**
13 **approaches and sets forth a new system for testing integrated circuits that improves detection**
14 **sensitivity of response signals.** Claim 1 describes the claimed method, which involves radiating a
15 laser beam onto the electronic circuit, determining a plurality of samples of a response signal
16 output during the period the laser is radiated, accumulating the plurality of samples to generate a
17 value, and generating a test result based on the value. Claim 21 sets forth the claimed apparatus,
18 comprised of a laser beam source to radiate a laser beam onto the electronic circuit, a control
19 system to direct the laser beam source to dwell on a certain location on the electronic circuit, a
20 measuring circuit to determine a plurality of samples, and a signal processor to accumulate the
21 plurality of samples to generate a value and a corresponding test result.

22 **These claims describe a method and apparatus that enable the detection of response**
23 **signals due to improved detection sensitivity, and the corresponding analysis of such response**
24 **signals in order to determine the location of a fault on an electronic circuit.** In this way, the
25 asserted claims of the ’982 patent are distinguishable from the claims at issue in Electric Power
26 Group and TLI. Specifically, the asserted claims in Electric Power Group involved “receiving”
27 data from specified sources, using the data to “detect[] and analyz[e] events in real time,”
28 “displaying the event analysis results” from the data, “accumulating and updating the

1 measurements from the data streams,” and “deriving a composite indicator of reliability[.]” 830
2 F.3d at 1351-52. In other words, the claimed “method of detecting events on an interconnected
3 electric power grid” was based upon accumulating existing data from disparate sources, analyzing
4 it, and displaying the results. See *id.* In contrast, the method disclosed in the ‘982 patent is not
5 merely a process of collecting readily observable data in the form of response signals and
6 analyzing it to localize faults on the circuit. **Instead, the asserted claims of the ‘982 patent**
7 **describe a method of achieving improved detection sensitivity of response signals.** They are
8 therefore directed to a “new and useful technique” for performing the specified task of using a
9 laser to perform fault localization testing of an electronic circuit. See *Thales*, 850 F.3d at 1349
10 (holding that “claims directed to a new and useful technique for using sensors to more efficiently
11 track an object on a moving platform” were not directed to an abstract idea).

12 TLI is also inapposite. In *TLI*, the court explained that the patent was not “directed to a
13 specific improvement to computer functionality,” but was instead “directed to the use of
14 conventional or generic technology,” such as a telephone and a server, “in a nascent but well-
15 known environment, without any claim that the invention reflects an inventive solution to any
16 problem presented by combining the two.” 823 F.3d at 612. Here, the claims of the ‘982 patent
17 do not simply use conventional components to implement the abstract ideas of gathering and
18 analyzing existing data. **Rather, they claim a step-by-step method to improve an existing**
19 **technological process by which response signals may be detected and analyzed to pinpoint the**
20 **location of a fault on an electronic circuit.** “[A] new combination of steps in a process may be
21 patentable even though all the constituents of the combination were well known and in common
22 use before the combination was made.” *Diehr*, 450 U.S. at 187-89 (claimed method for curing
23 synthetic rubber that improved upon prior art molding methods by constantly measuring actual
24 temperature inside mold, recalculating ideal cure time, and automatically opening press when ideal
25 cure time had elapsed was patent-eligible process); see also *Thales*, 850 F.3d at 1347-48 (“In
26 terms of the modern day *Alice* test, the *Diehr* claims were directed to an improvement in the
27 rubber curing process, not a mathematical formula.”).

28 In response, Hamamatsu contends that SEMICAPS’s argument relies on features and

1 purported benefits of the ‘982 patent that are not recited in the claims and are therefore irrelevant
2 to the Section 101 analysis. It cites *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1149
3 (Fed. Cir. 2016), and *Versata Development Group, Inc. v. SAP America, Inc.*, 793 F.3d 1306, 1335
4 (Fed. Cir. 2015), for the proposition that the court must “focus on the language of the Asserted
5 Claims themselves” in conducting the Section 101 analysis. SEMICAPS disputes the premise of
6 Hamamatsu’s argument. It argues that at step one of the Alice framework, the court may consider
7 the patent’s specifications along with the language of the claims to determine whether the asserted
8 claims are directed to patent-ineligible subject matter. According to SEMICAPS, the
9 specifications of the ‘982 patent describe the problem with conventional laser-based testing of
10 electronic circuits and explain how the claimed invention seeks to increase detection sensitivity
11 without increasing the power of the laser beam used or using lock-in amplifiers. It further
12 contends that claims 1 and 21 themselves specify the method and means by which the patent
13 accomplishes this goal.

14 At the hearing, Hamamatsu maintained its position that the court must focus on the
15 language of the claims themselves, but conceded that the court may consider the patent’s
16 specifications at step one of the Alice framework.⁸ This is consistent with the Federal Circuit’s
17 guidance in *Enfish*, in which it explained that “the ‘directed to’ inquiry applies a stage-one filter to
18 claims, considered in light of the specification, based on whether ‘their character as a whole is
19 directed to excluded subject matter.’” 822 F.3d at 1335 (emphasis added; citation omitted). See
20 also *Berkheimer v. HP, Inc.*, 881 F.3d 1360, 1367 (Fed. Cir. 2018) (holding that asserted claim for
21 method of archiving an item in a computer processing system was directed to abstract ideas of
22 parsing and comparing data, describing how the “specification explains that the parser ‘determines
23 and extracts components of the standardized document or item representation’ and reassembles the

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26 ⁸ The parties agreed that at step two of the Alice framework, where the court “consider[s] the
27 elements of each claim both individually and ‘as an ordered combination’ to determine whether
28 the additional elements ‘transform the nature of the claim’ into a patent eligible application,”
Berkheimer v. HP Inc., 881 F.3d 1360, 1367 (Fed. Cir. 2018) (quoting *Alice*, 573 U.S. at 217), the
court may look only to the language of the claims themselves.

1 components ‘into composite output files.’”).⁹

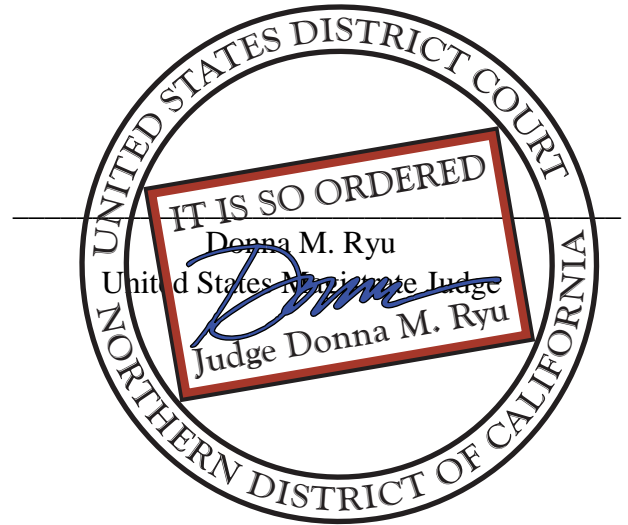
2 In sum, considering the challenged claims in their entirety, the court concludes that claims
3 1 and 21 are not directed to an abstract idea. Rather, the claims “focus on a specific means or
4 method that improves the relevant technology” and are therefore directed to patent-eligible subject
5 matter under Section 101. See *McRO*, 837 F.3d at 1314. Given this finding, the court need not
6 proceed to step two of the Alice analysis. See *Enfish*, 822 F.3d at 1339 (if the court concludes that
7 the asserted claims “are not directed to an abstract idea under step one of the Alice analysis,” it
8 need “not proceed to step two of that analysis.” (citing *Alice*, 573 U.S. at 217)).

9 **IV. CONCLUSION**

10 For the foregoing reasons, the court finds that the asserted claims of the ‘982 patent are
11 directed to patent-eligible subject matter under 35 U.S.C. § 101. Hamamatsu’s motion to dismiss
12 is denied.

13 **IT IS SO ORDERED.**

14 Dated: November 6, 2019



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24 ⁹ As noted, Hamamatsu cited two cases, *Synopsys* and *Versata*, as support for the proposition that
25 a court may not consider a patent’s specification at step one of the Alice inquiry. Neither case
26 stands for that proposition. Instead, *Synopsys* and *Versata* held that patentholders may not recast
27 the focus of an asserted claim in a way that is unsupported by the claim itself, for purposes of
28 determining whether it is directed to patent-ineligible subject matter. In this case, the
specifications of the ‘982 patent describe the existing problem with the use of lasers to test
electronic circuits and the shortcomings of the prior art given technological advancements, and
explain how the claimed method and apparatus seek to solve the problem. Claims 1 and 21 then
specify the method and means by which the patent accomplishes this goal.