IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

IN-DEPTH TEST, LLC,   :
                                       :
                Plaintiff,   :
                                       :
        v.   :   Civil Action No. 14-887-CFC
                                       :
MAXIM INTEGRATED,   :
PRODUCTS, INC.,   :
                                       :
                Defendant. :

IN-DEPTH TEST, LLC,   :
                                       :
                Plaintiff,   :
                                       :
        v.   :   Civil Action No. 14-888-CFC
                                       :
VISHAY   :
INTERTECHNOLOGY INC.   :
and SILICONIX INC.,   :
                                       :
                Defendants. :

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(argued), Corby R. Vowell, FRIEDMAN, SUDER & COOKE, Fort Worth, Texas

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Counsel for Defendants Vishay Intertechnology Inc. and Siliconix Inc.

MEMORANDUM OPINION

December 18, 2018
Wilmington, Delaware

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CONNOLLY, UNITED STATES DISTRICT JUDGE

I have before me two identical motions for judgment on the pleadings filed

pursuant to Federal Rule of Civil Procedure 12(c) in these coordinated patent

infringement actions. 14-cv-887, D.I. 30; 14-cv-888, D.I. 32.[1] Defendant Maxim

Integrated Products, Inc. (in civil action no. 14-cv-887-CFC) and Defendants

Vishay Intertechnology Inc. and Siliconix Inc. (in civil action no. 14-cv-888-CFC)

ask by their motions that I adjudge the sole patent-in-suit, U.S. Patent No.

6,792,373 ("the #373 patent"), invalid under 35 U.S.C. § 101 for failing to claim

patentable subject matter and dismiss Plaintiff In-Depth Test, LLC's complaints

with prejudice. D.I. 31 at 20.[2] I have studied the parties' extensive briefing on the

motions (D.I. 31, D.I. 36, D.I. 37, D.I. 47, D.I. 74, D.I. 75, D.I. 84, D.I. 85) and

heard argument on the motions during a claim construction hearing held on

October 9, 2018. For the reasons that follow, I will grant Defendants' motions.

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[1] Unless otherwise noted, all D.I. numbers in this Memorandum Order are D.I. numbers in Civil Action 14-cv-887-CFC.

[2] Defendants filed counterclaims for a declaratory judgment of invalidity. 14-cv-887, D.I. 7, counterclaim ¶¶ 10–12; 14-cv-888, D.I. 9, counterclaim ¶¶ 14–17. I assume that Defendants also seek by their motions the entry of judgments in their favor on these counterclaims.

I. BACKGROUND

The #373 patent is directed to the testing of semiconductor chips. The following description offered by Plaintiff fairly describes the invention claimed by the #373 patent:

> During the fabrication process for [semiconductor] chips, silicon wafers are processed to create the specific types of integrated circuits for which they are designed. ... Subsequent to processing the wafers, the individual components of the wafers need to be tested to determine if they are functioning normally or if there were manufacturing errors. For years, test machines were used to perform basic testing that measured a variety of parameters to see if the components met certain thresholds or fell within acceptable ranges, called control limits. If not, particular components or groups of components were considered not to meet minimum specifications [and] were identified as failed parts. ...
>
> The inventions of the [#]373 patent enhance the test process by performing additional testing that more accurately determines whether the components being tested are likely to fail or malfunction. The patent specification describes using an additional computer to perform a statistical analysis on the test results generated by conventional test equipment. The analysis performed identifies and then reports components that fell within the control limits but that are statistical "outliers" from other components that also fell within the control limits. The specific identification of outliers in the results of the output report is significant because it provides a more granular level of test results that can be used to classify or grade the performance of the component in the remainder of the manufacturing process or to improve the manufacturing process itself.

* * * *

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[T]he purpose of the enhanced analysis is to determine if any of the components that fell within the control limits have test results that deviate from the other components that were within the control limits.

* * * *

The [#]373 patent describes the use of the statistical analysis to determine whether the test results for a particular component indicate that it is an outlier or not. . . . [T]he term outlier is explicitly defined by the patent specification as a test result whose value strays from a set of test results having statistically similar values, but does not exceed control limits or otherwise fail to be detected. . . . The test results for the outliers are also included in an output report for the overall test results and can be used for further analysis. The additional testing and statistical analysis described in the [#]373 patent provides for the identification of components that are "outliers" and would not be identified in traditional test methodologies even though the components are statistically more likely to fail or malfunction.

D.I. 36 at 3–4, 5, 7 (citations omitted).

Three of the #373 patent's 20 claims are independent: 1, 8, and 15. They read as follows:

1. A test system, comprising:

a tester configured to test a component and generate test data; and

a computer connected to the tester and configured to receive the test data, identify an outlier in the test data, and generate an output report including the identified outlier.

8. A data analysis system for semiconductor test data, comprising a computer system, wherein the computer system is configured to operate:

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a supplementary data analysis element configured to identify outliers in the semiconductor test data; and

an output element configured to generate an output report including the identified outliers.

15. A method for testing semiconductors, comprising:

generating test data for multiple components; and

automatically identifying an outlier in the test data at run time using a computer system.

#373 patent at claims 1, 8, and 15. The written description of the patent defines

"outlier" as a test result that "strays" from a set of test results that did not exceed

the control limits specified for the tested component or otherwise fail and that have

statistically similar values. *See id.* at 6:32–37, 6:44–46.

According to Plaintiff, "[t]he three independent claims . . . each encompass

the[ ] concepts and recite the devices and improvements in the semiconductor

process" claimed by the patent. D.I. 36 at 7–8. In light of this statement by

Plaintiff and the fact that Plaintiff quotes only from claim 1 in its brief filed in

opposition to Defendants' motions, I will treat claim 1 as representative of all

claims.[3]

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[3] Where claims are "substantially similar and linked to the same abstract idea," courts may look to representative claims in a § 101 analysis. *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat'l Ass'n,* 776 F.3d 1343, 1348 (Fed. Cir. 2014). In this case, all of the #373 patent's claims (both independent and dependent) are substantially similar and linked to the same abstract ideas.

II. LEGAL STANDARD

Pursuant to Federal Rule of Civil Procedure 12(c), a party may move for judgment on the pleadings "[a]fter pleadings are closed—but early enough not to delay trial." Regional circuit law governs the Court's review of motions for judgment on the pleadings in patent cases. *Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1293 (Fed. Cir. 2016). Under Third Circuit law, in ruling on a Rule 12(c) motion, the Court must accept as true all well-pleaded allegations in the non-movant's pleadings and draw all reasonable inferences in the non-movant's favor. *See Zimmerman v. Corbett*, 873 F.3d 414, 417–18 (3d Cir. 2017). The Court may grant a Rule 12(c) motion only where "the movant clearly establishes that no material issue of fact remains to be resolved and [the movant] is entitled to judgment as a matter of law." *Rosenau v. Unifund Corp.*, 539 F.3d 218, 221 (3d Cir. 2008). Patent eligibility under § 101 is a question of law suitable for resolution on a motion for judgment on the pleadings. *See, e.g., buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350 (Fed. Cir. 2014) (affirming grant of Rule 12(c) motion for judgment on pleadings for lack of patentable subject matter).

Section 101 of the Patent Act defines patent-eligible subject matter. It provides: "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement

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thereof, may obtain a patent therefor, subject to the conditions and requirements of this title." 35 U.S.C. § 101.

There are three judicially-created limitations on the literal words of § 101. The Supreme Court has long held that laws of nature, natural phenomena, and abstract ideas are not patentable subject matter. *Alice Corp. Pty. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014). These exceptions to patentable subject matter arise from the concern that the monopolization of "these basic tools of scientific and technological work" "might tend to impede innovation more than it would tend to promote it." *Id.* (internal quotation marks and citations omitted).

"[A]n invention is not rendered ineligible for patent [protection] simply because it involves an abstract concept[.]" *Id.* at 217. "[A]pplication[s] of such concepts to a new and useful end . . . remain eligible for patent protection." *Id.* (internal quotation marks and citations omitted). But in order "to transform an unpatentable law of nature [or abstract idea] into a patent-eligible application of such law [or abstract idea], one must do more than simply state the law of nature [or abstract idea] while adding the words 'apply it.'" *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 71 (2012) (emphasis omitted).

In *Alice*, the Supreme Court made clear that the framework laid out in *Mayo* for determining if a patent claims eligible subject matter involves two steps. The court must first determine whether the patent's claims are drawn to a patent-

ineligible concept — i.e., are the claims directed to a law of nature, natural phenomenon, or abstract idea? 573 U.S. at 217. If the answer to this question is no, then the patent is not invalid for teaching ineligible subject matter. If the answer to this question is yes, then the court must proceed to step two, where it considers "the elements of each claim both individually and as an ordered combination" to determine if there is an "inventive concept — i.e., an element or combination of elements that is sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself." *Id.* at 217–18 (alteration in original) (internal quotations and citations omitted).[4]

III. DISCUSSION

Applying the two-step framework outlined in *Alice*, I find that the claims of the #373 patent recite patent-ineligible subject matter and are invalid under § 101.

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[4] The Court in *Alice* literally said that this two-step framework is "for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts." 573 U.S. at 217. But as a matter of logic, I do not see how the first step of the *Alice/Mayo* framework can distinguish (or even help to distinguish) patents in terms of these two categories (i.e., the categories of (1) "patents that claim laws of nature, natural phenomena, and abstract ideas" and (2) patents "that claim patent-eligible applications of [laws of nature, natural phenomena, and abstract ideas]"). *Both* categories *by definition* claim laws of nature, natural phenomena, and abstract ideas; and only one of *Alice*'s steps (i.e., the second, "inventive concept" step) could distinguish the two categories. I therefore understand *Alice*'s two-step framework to be the framework by which courts are to distinguish patents that claim eligible subject matter under § 101 from patents that do not claim eligible subject matter under § 101.

A.   Abstract Idea

I begin by determining whether the claims at issue are directed to a patent-ineligible concept. *Alice*, 573 U.S. at 217. "[C]laims are considered in their entirety [at step one] to ascertain whether their character as a whole is directed to excluded subject matter." *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015). "The Supreme Court has not established a definitive rule to determine what constitutes an 'abstract idea' sufficient to satisfy the first step of the *Mayo/Alice* inquiry." *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1334 (Fed. Cir. 2016) (citation omitted). The Court has recognized, however, that fundamental economic practices, methods of organizing human activity, and mathematical formulae are abstract ideas. *See Bilski v. Kappos*, 561 U.S. 593, 611 (2010) ("fundamental economic practice" of hedging is unpatentable abstract idea); *Alice*, 573 U.S. at 220–21 ("organizing human activity" of intermediated settlement falls "squarely within realm of 'abstract ideas'"); *Gottschalk v. Benson*, 409 U.S. 63, 68, 71–72 (1972) (mathematical algorithm to convert binary-coded decimal numerals into pure binary code is unpatentable abstract idea); *Parker v. Flook*, 437 U.S. 584, 594–95 (1978) (mathematical formula for computing "alarm limits" in a catalytic conversion process is unpatentable abstract idea).

To determine whether claims are directed to an abstract idea courts generally "compare the claims at issue to those claims already found to be directed to an

abstract idea in previous cases." *Enfish*, 822 F.3d at 1334. The Federal Circuit has

also instructed district courts to consider as part of *Alice*'s step one whether the

claims "focus on a specific means or method that improves the relevant technology

or are instead directed to a result or effect that itself is the abstract idea and merely

invoke generic processes and machinery." *McRO, Inc. v. Bandai Namco Games

America Inc.*, 837 F.3d 1299, 1314 (Fed. Cir. 2016) (citing *Enfish*, 822 F.3d at

1336).

Applying these standards, I find that the #373 patent is directed to the

abstract ideas of generating, receiving, analyzing by means of statistics, and

reporting data. Claim 1 of the patent essentially recites: (1) generating or receiving

"test data"; (2) identifying "outliers" in the test data; and (3) generating an output

report that identifies the outliers. These are the same type of functions the Federal

Circuit held to be abstract ideas in *Content Extraction*:

> Applying *Mayo/Alice* step one, we agree with the district
> court that the claims of the asserted patents are drawn to
> the abstract idea of 1) collecting data, 2) recognizing
> certain data within the collected data set, and 3) storing
> that recognized data in memory. The concept of data
> collection, recognition, and storage is undisputedly well-
> known. Indeed, humans, have always performed these
> functions.

776 F.3d at 1347. "Generating" and "receiving" data, as claimed by the #373

patent, is essentially "collecting" data. The #373 patent does not claim any unique

method of generating or receiving data. I also see no material distinction between

the "reporting" of data claimed by the #373 patent and the "storing" of data. The

#373 patent does not claim any unique method of generating reports that identify

or display outliers from a data set. On the contrary, according to the patent's

written description, "[a]ny form, such as graphical, numerical, textual, printed, or

electronic form, may be used to present the output report used for subsequent

analysis." #373 patent at 18:2–4.

Identifying "outliers" in a data set of test results is, similarly, no different

than "recognizing certain data within the collected data set." Indeed, identifying

outliers from among the test results of the semiconductor components that fall

within control limits as taught by the #373 patent is nothing more than employing

statistical analysis to determine if a datum point within a data set varies (or

"strays") sufficiently from the other datum points in the set. As Plaintiff notes in

its opposition brief:

> The [#]373 patent describes the use of the statistical
> analysis to determine whether the test results for a
> particular component indicate that it is an outlier or not.
> ... [T]he term outlier is explicitly defined by the patent
> specification as a test result whose value strays from a set
> of test results having statistically similar values, but does
> not exceed control limits or otherwise fail to be detected.

D.I. 36 at 7. Thus — to use Plaintiff's own words — "the purpose of the enhanced

analysis" claimed by the #373 patent "is to determine if any of the components that

fell within the control limits have test results that deviate from the other

components that were within the control limits." *Id.* at 5.

Making that determination is essentially "doing math." It is akin to

calculating standard deviations, and it is the type of mathematical computation that

the Supreme Court has deemed an abstract idea. *See Flook*, 437 U.S. at 594–95

(mathematical formula for computing "alarm limits" in a catalytic conversion

process was patent-ineligible abstract idea); *Benson*, 409 U.S. at 71–72 (algorithm

for converting binary-coded decimal numerals into pure binary form was patent

ineligible). As the Court noted in *Flook*, "[i]f a claim is directed essentially to a

method of calculating, using a mathematical formula, even if the solution is for a

specific purpose, the claimed method is nonstatutory [subject matter under § 101]."

437 U.S. at 595 (quoting *In re Richman*, 563 F.2d 1026, 1030 (C.C.P.A. 1977));

see also DDR Holdings v. Hotels.com, L.P., 773 F.3d 1245, 1256 (Fed. Cir. 2014)

(noting that mathematical algorithms are abstract ideas); *Digitech Image Techs.,*

LLC v. Electronics for Imaging, Inc., 758 F.3d 1344, 1351 (Fed. Cir. 2014)

("Without additional limitations, a process that employs mathematical algorithms

to manipulate existing information to generate additional information is not patent

eligible.").

The fact that — again, to adopt Plaintiff's words — the purported invention

uses "an additional computer to perform [the] statistical analysis on the test results

generated by conventional test equipment" (D.I. 36 at 4) does not remove the purported invention from the realm of abstract ideas. While a computer indisputably makes it easier to identify outliers, the identification of outliers within a data set has long been performed by humans without the aid of computers. *See CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1372 (Fed. Cir. 2011) (affirming district court's invalidity finding because the claim steps could be "performed in the human mind, or by a human using a pen and paper").

Citing *Enfish*, Plaintiff argues that the #373 patent claims "improvement in the functioning of a computer" and "specific improvements to semiconductor test equipment" and therefore is not directed to an abstract idea. D.I. 36 at 8, 9. Plaintiff is correct that in *Enfish* the Federal Circuit found "no reason to conclude that all claims directed to improvements in computer-related technology . . . are abstract and necessarily analyzed at the second step of *Alice*[.]" 822 F.3d at 1335. But, contrary to Plaintiff's suggestions (D.I. 36 at 9–10), the court did not hold in *Enfish* that the fact that a claim is directed to computer improvements necessarily means that the patent is not directed to an abstract idea.

In any event, the #373 patent is not directed to improvements in computer functionality or semiconductor test equipment. Plaintiff cites, and I see, no language in the claims (or written description) of the #373 patent that describes an improvement to either the tester or computers used to test semiconductors.

Nowhere do the claims require a special-purpose tester or special-purpose computer hardware; nor does the patent anywhere recite specialized software for a computer or tester. On the contrary, the patent simply claims a conventional computer that (1) is connected to a conventional tester and (2) is "configured" to "receive the test data [from the tester], identify an outlier in the test data, and generate an output report including the identified outlier." #373 patent at claim 1 (19:26–29). As Plaintiff states in its opposition brief: "The patent specification describes using an additional computer to perform a statistical analysis on the test results generated by conventional test equipment." D.I. 36 at 4. The patent does not describe a method or apparatus to improve a computer's functionality to perform that statistical analysis.

B.   Inventive Concept

Having found that the claims are directed to an abstract idea, I must next determine whether the claims contain an "'inventive concept' sufficient to 'transform' the claimed abstract idea into a patent-eligible application." *Alice*, 573 U.S. at 221. A claim directed towards an abstract idea must include "'additional features' to ensure 'that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].'" *Id.* (alterations in original) (quoting *Mayo*, 566 U.S. at 77). No such additional features exist here, and I find that, whether considered individually or as an ordered combination, the claim elements of the

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#373 patent do not "transform" the claimed abstract ideas into patent-eligible subject matter.

The claims simply recite generic statistical analysis and generic computer functionality to address the problem of identifying potentially defective semiconductor chips. *See* #373 patent at 3:59–4:4, 12:34–38. "Applying traditional statistical tools to data," however, "cannot possibly provide the inventive step necessary to become patent-eligible." *eResearchTechnology, Inc. v. CRF, Inc.*, 186 F. Supp. 3d 463, 475 (W.D. Pa. 2016) (citation omitted), *aff'd*, 681 F. App'x 964 (Fed. Cir. 2017).

Nor can "the introduction of a computer" provide the required inventive concept when, as here, the process or analysis claimed by the patent "could be 'carried out in existing computers long in use.'" *Alice*, 573 U.S. at 22 (quoting *Benson*, 409 U.S. at 67). Both the tester and computer claimed by the #373 patent perform nothing more than routine functions that conventional testers and conventional computers have long been used to execute. Claim 1, for example, recites the use of a "tester" that is "configured to test a component and generate test data[.]" #373 patent at claim 1 (19:24–25). According to the written description, the tester "may comprise a *conventional* automatic tester, such as a Teradyne tester." *Id.* at 3:36–37 (emphasis added). Claim 1 also recites the use of a "computer connected to the tester and configured to receive the test data[.]" *Id.*

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at claim 1 (19:26–27). According to the patent's written description, this computer

system includes "*any* suitable processor, such as a *conventional* Intel, Motorola, or

Advanced Micro Devices processor, operating in conjunction with *any* suitable

operating system" and a memory "compris[ing] *any* appropriate memory

accessible to the processor . . . for storing data." *Id.* at 3:59–67 (emphasis added).

These functions and features are routine, conventional, and well-known in the

semiconductor industry and do not provide the inventive concept necessary to

transform the generation, receipt, analysis, and reporting of semiconductor test data

into patent-eligible subject matter under *Alice*. *See OIP Techs. Inc. v.

Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015) (holding that the abstract

idea of offer-based price optimization claimed by patent was not transformed into

patent-eligible subject matter where the "claims merely recite 'well-understood,

routine conventional activit[ies],' either by requiring conventional computer

activities or routine data-gathering steps" (quoting *Alice*, 573 U.S. at 225)); *see

also Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 717 (Fed. Cir. 2014)

("[A]dding a computer to otherwise conventional steps does not make an invention

patent-eligible." (citing *Alice*, 573 U.S. at 222)); *Intellectual Ventures I LLC v.

Capital One Bank (USA)*, 792 F.3d 1363, 1367 (Fed. Cir. 2015) (Neither "[a]

simple instruction to apply an abstract idea on a computer" nor "claiming the

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improved speed or efficiency inherent with applying the abstract idea on a computer" satisfies the requirement of an "inventive concept.").

IV.   CONCLUSION

For the reasons set forth above, I will grant Defendants' motions for judgment on the pleadings for lack of patentable subject matter.

The Court will issue an order consistent with this Memorandum Opinion.

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

IN-DEPTH TEST, LLC,
 	
     Plaintiff,
 	
  v.
 	
MAXIM INTEGRATED
PRODUCTS, INC.,
 	
     Defendant.
	Civil Action No. 14-887-CFC

IN-DEPTH TEST, LLC,
 	
     Plaintiff,
 	
  v.
 	
VISHAY INTERTECHNOLOGY
INC. and SILICONIX INC.,
 	
     Defendants.
	Civil Action No. 14-888-CFC

<u>ORDER</u>

At Wilmington this Eighteenth day of December in 2018:

For the reasons set forth in the Memorandum Opinion issued this day, **IT IS**

HEREBY ORDERED that:

1. Defendants' Motion for Judgment on the Pleadings for Lack of

  Patentable Subject Matter (14-cv-887, D.I. 30) is **GRANTED.**

2. Defendants' Motion for Judgment on the Pleadings for Lack of

   Patentable Subject Matter (14-cv-888, D.I. 32) is **GRANTED**.

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CONNOLLY, UNITED STATES DISTRICT JUDGE