IN THE UNITED STATES DISTRICT COURT FOR THE
EASTERN DISTRICT OF VIRGINIA
Alexandria Division

GEOSCOPE TECHNOLOGIES PTE. LTD, Plaintiff, v. APPLE INC., Defendant.	No: 1:22-cv-01373-MSN-JFA

MEMORANDUM OPINION

This matter comes before the Court on the Motion for Judgment on the Pleadings filed by Apple Inc. (Dkt. No. 82). Upon consideration of the Motion, and for the reasons set forth below, the Court will grant the Motion.

I. BACKGROUND

Plaintiff Geoscope Technologies Pte. Ltd. ("Geoscope") is the owner of six patents relating to the geolocation of mobile devices. (Dkt. No. 1) ("Compl." ¶¶ 12–30).[1] Location-based services utilize geographic data to provide information to a user or to perform another function based on the user's location. *Id.* ¶ 36. For mobile devices, location-based services "generally rely on the mobile devices being able to determine their [own] location," also referred to as "geolocation." *Id.* ¶ 39. There are various methods by which a mobile device can geolocate itself, each with its own

[1] The six patents at issue in the Complaint are: U.S. Patent Nos. 7,561,104 ("the '104 Patent"); 8,400,358 ("the '358 Patent"); 8,786,494 ("the '494 Patent"); 8,406,753 ("the '753 Patent); 9,097,784 ("the '784 Patent"); and 8,320,264 ("the '264 Patent"). The '104 Patent, '358 Patent, and '494 Patent share the same specification and are collectively referred to as the '104 Patent Family.

Although the parties' briefing addressed the patent eligibility of the '264 Patent and '784 Patent, the Court, pursuant to a stipulation of partial judgment, subsequently entered judgment of noninfringement of the asserted claims of the '264 Patent and of invalidity of the asserted claim of the '784 Patent (as well as claim 52 if the '358 Patent). (Dkt. No. 107). For that reason, this Opinion only addresses the remaining patents at issue (the '104 Patent Family and the '753 Patent), which are hereinafter referred to as the "Asserted Patents."

drawbacks. *Id.* ¶¶ 39–46. Geoscope alleges that the Asserted Patents "claim novel inventions that address [these] challenges and improve the accuracy, speed, and efficiency of geolocation of mobile devices." *Id.* ¶ 47.

On December 1, 2022, Geoscope filed a Complaint against Defendant Apple Inc. ("Apple") alleging infringement of the Asserted Patents. On July 6, 2023, the Court held a claim construction hearing on ten disputed claim terms (Dkt. No. 88), and entered its order on claim construction on July 19, 2023 (Dkt. No. 92).

On June 27, 2023, Apple filed a Motion for Judgment on the Pleadings (Dkt. No. 82) ("Motion") on grounds that each of the Asserted Patents is directed to patent-ineligible subject matter pursuant to 35 U.S.C. § 101. (Dkt. Nos. 82, 83 ("Def. Mem.")). Geoscope filed an opposition to the Motion (Dkt. No. 90 ("Opp.")), and Apple filed a reply brief (Dkt. No. 93). The Court heard argument on the Motion on August 11, 2023. (Dkt. No. 100).

Following the hearing and based on the Court's construction of the disputed claim terms, the parties filed a stipulation of (1) judgment of noninfringement of the asserted claims of the '264 Patent, and (2) judgment of invalidity of claim 11 of the '784 Patent and claim 52 of the '358 Patent. (Dkt. No. 103). On September 18, 2023 the Court entered partial judgment of noninfringement and invalidity pursuant to the parties' stipulation. (Dkt. No. 107). Accordingly, the Court only addresses the Motion as it relates to the remaining asserted claims in this action: claims 1 and 2 of the '104 Patent; claims 15 and 18 of the '358 Patent; claims 1, 4, 25, 26, and 35 of the '494 Patent; and claims 1 and 32 of the '753 Patent.

II. LEGAL STANDARDS

A. MOTION FOR JUDGMENT ON THE PLEADINGS

Under Federal Rule of Civil Procedure 12(c), a party may move for judgment on the pleadings after the pleadings are closed. Fed. R. Civ. P. 12(c). A Rule 12(c) motion is reviewed

under the same standard as a Rule 12(b)(6) motion. *Drager v. PLIVA USA, Inc.*, 741 F.3d 470, 474 (4th Cir. 2014). "Therefore, a motion for judgment on the pleadings 'should only be granted if, after accepting all well-pleaded allegations in the plaintiff's complaint as true and drawing all reasonable factual inferences from those facts in the plaintiff's favor, it appears certain that the plaintiff cannot prove any set of facts in support of his claim entitling him to relief.'" *Id.* (citing *Edwards v. City of Goldsboro*, 178 F.3d 231, 244 (4th Cir. 1999)).

In the context of patent eligibility under 35 U.S.C. § 101, courts resolve questions of eligibility at the Rule 12 stage when, after drawing all reasonable inferences from the intrinsic record and the Rule 12 record in favor of the non-movant, there is no plausible factual dispute. *Cooperative Ent., Inc. v. Kollective Tech., Inc.*, 50 F.4th 127, 130 (Fed. Cir. 2022); *see also SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1166–67 (Fed. Cir. 2018) (patent eligibility may be resolved on a Rule 12(b)(6) motion "where the undisputed facts, considered under the standards required by that Rule, require a holding of ineligibility under the substantive standards of law"). "[C]onclusory statements regarding eligibility" in a complaint—without supporting factual allegations—need not be accepted and "d[o] not preclude dismissal." *Cisco Sys., Inc. v. Uniloc 2017 LLC*, 813 F. App'x 495, 498–99 (Fed. Cir. 2020). And "a court need not accept as true allegations that contradict matters properly subject to judicial notice or by exhibit, such as the claims and the patent specification." *Secured Mail Sols. LLC v. Universal Wilde, Inc.*, 873 F.3d 905, 912 (Fed. Cir. 2017) (cleaned up).

B. PATENT ELIGIBILITY

Section 101 of the Patent Act defines patent-eligible subject matter: A patent may be obtained for "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof." 35 U.S.C. § 101. The provision, however, "contains an important implicit exception[.] Laws of nature, natural phenomena, and abstract ideas are not

patentable." *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014) (citation omitted). Allowing patent claims for such purported inventions would "impede innovation more than it would promote it." *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 71 (2012). Courts must, however, "tread carefully in construing this exclusionary principle lest it swallow all of patent law." *Alice*, 573 U.S. at 217. Because "all inventions"—at some level—"embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas," "applications of such concepts to a new and useful end . . . remain eligible for patent protection." *Id.* (cleaned up).

To assess whether claims are patent eligible under § 101, courts employ a two-step approach. *See Alice*, 573 U.S. at 218, 221. Under the first step of the inquiry, a court must determine whether a claim is "directed to" a patent-ineligible concept, *i.e.*, a law of nature, natural phenomenon, or abstract idea. At this stage, "[t]he claims are considered in their entirety to ascertain whether their character as a whole is directed to excluded subject matter." *Internet Pats. Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015). The Federal Circuit has approached this inquiry "by asking what the patent asserts to be the focus of the claimed advance over the prior art. In conducting that inquiry, [courts] must focus on the language of the [a]sserted [c]laims themselves, considered in light of the specification." *TecSec, Inc. v. Adobe Inc.*, 978 F.3d 1278, 1292 (Fed. Cir. 2020) (cleaned up). As the Federal Circuit has explained, the Supreme Court "has not established a definitive rule to determine what constitutes an 'abstract idea' sufficient to satisfy the [inquiry's] first step"; it is "sufficient to compare claims at issue to those claims already found to be directed to an abstract idea in previous cases." *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1334 (Fed. Cir. 2016).

If the claims are directed to patent-ineligible subject matter, the inquiry proceeds to the second step. At this step, the court "examine[s] the limitations of the claims to determine whether the claims contain an 'inventive concept' to 'transform' the claimed abstract idea into patent

eligible subject matter." *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014) (quoting *Alice*, 573 U.S. at 221). "The 'inventive concept' may arise in one or more of the individual claim limitations or in the ordered combination of the limitations." *Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1349 (Fed. Cir. 2016). Here, the court must assess whether the limitations "do more than simply recite a 'well-understood, routine, conventional activity.'" *Universal Secure Registry LLC v. Apple Inc.*, 10 F.4th 1342, 1346 (Fed. Cir. 2021) (quoting *Mayo*, 566 U.S. at 72). Claims using "generic functional language" to achieve their purported solutions without reciting "*how* the desired result is achieved" generally cannot survive step two of the inquiry. *Two-Way Medical Ltd. v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329, 1339 (Fed. Circ. 2017) (quoting *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1355 (Fed. Cir. 2016)).

III. ANALYSIS

A. THE '104 PATENT FAMILY

The '104 Patent Family—the '104 Patent, '358 Patent, and '494 Patent—share the same specification. *See generally* Exs. A–C to Compl. (Dkt. Nos. 1-1–1-3). The patents of the '104 Patent Family generally relate to determining the location of a mobile device by comparing previously-gathered calibration data with observed data that has been modified. Compl. ¶¶ 48, 51. Geoscope's alleged advancement involves the modification of the observed data to account for inconsistencies between sets of data caused by environmental or other factors. *Id.* ¶¶ 44–51.

1. Asserted Claims & Representativeness

Geoscope alleges that Apple infringes claims 1 and 2 of the '104 Patent; claims 15 and 18 of the '358 Patent; and claims 1, 4, 25, 26, and 35 of the '494 Patent. These claims are recited or described below.

Claim 1 of the ’104 Patent states:

> 1. A method for determining a location of a mobile station, comprising:
>
> providing a database of previously-gathered calibration data for a predetermined region in a wireless network, wherein said network includes a first transmitter and a second transmitter;
>
> collecting observed network measurement data including a first signal characteristic from said first transmitter and a second signal characteristic from said second transmitter;
>
> determining which of said first and second signal characteristics has a greater magnitude;
>
> modifying said observed network measurement data using the greater magnitude signal characteristic; and
>
> comparing said modified network measurement data with said database of calibration data to thereby determine the location of the mobile station.

Ex. A to Compl. (Dkt. No. 1-1) (’104 Patent) at 11:65–12:15. Claim 2 of the ’104 Patent recites the method in claim 1 “wherein said database comprises previously-gathered calibration data for one or more non-uniform grid points within said region.” *Id.* at 12:16–18.

Claim 15 of the ’358 Patent recites:

> 15. A system for determining a location of a mobile station, comprising:
>
> a database of previously-gathered calibration data for a predetermined region in a wireless network;
>
> circuitry for collecting observed network measurement data;
>
> circuitry for modifying said observed network measurement data; and
>
> circuitry for comparing said modified network measurement data with said database of calibration data to thereby determine the location of the mobile station.

Ex. B to Compl. (Dkt. No. 1-2) (’358 Patent) at 13:7–17. Claim 18 of the ’358 Patent recites the method of claim 15 “wherein said database comprises previously-gathered calibration data for one or more non-uniform grid points within said region.” *Id.* at 13:27–29.

Claim 1 of the ’494 Patent—which Apple argues is representative of the asserted claims of the ’104 Patent Family—states:

> 1. A method for determining a location of a mobile station, comprising:
>
> providing a database of previously-gathered calibration data for a predetermined region in a wireless network;
>
> collecting observed network measurement data, the observed network measurement data collected by the mobile station and transmitted to the network or collected by the network;
>
> modifying said observed network measurement data; and
>
> comparing said modified network measurement data with said database of calibration data to thereby determine the location of the mobile station.

Ex. C to Compl. (Dkt. No. 1-3) (’494 Patent) at 12:10–22. Claim 4 of the ’494 Patent recites the method of claim 1 “wherein said database comprises previously-gathered calibration data for one or more non-uniform grid points within said region.” *Id.* at 12:31–33.

The final independent asserted claim of the ’104 Patent Family, claim 25 of the ’494 Patent, states:

> 25. A method for determining a location of a mobile station, comprising:
>
> providing a database of previously-gathered calibration data for a predetermined region in a wireless network;
>
> collecting observed network measurement data from each of a plurality of transmitters including a signal characteristic from each one of said plural transmitters, the observed network measurement data collected by the mobile station and transmitted to the network or collected by the network;
>
> determining an average value for select ones of said signal characteristics;
>
> modifying said observed network measurement data using said average value; and
>
> comparing said modified network measurement data with said database of calibration data to thereby determine the location of the mobile station.

’494 Patent at 14:7–23. Claim 26 of the ’494 Patent recites the method of claim 25 “wherein said database comprises previously-gathered calibration data for one or more non-uniform grid points within said region.” *Id.* at 14:24–26. Finally, claim 35 of the ’494 Patent recites the method of claim 25 “wherein at least one of said plurality of transmitters is not a member of said wireless network.” *Id.* at 15:4–6.

For the purposes of patent eligibility, a court may “treat a claim as representative . . . if the patentee does not present any meaningful argument for the distinctive significance of any claim limitations not found in the representative claim.” *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1365 (Fed. Cir. 2018). Apple contends that claim 1 of the ’494 Patent is representative of the asserted claims of the ’104 Patent Family. As set forth above, claim 1 of the ’494 Patent recites a method of “providing” a database of data, “collecting” different data, “modifying” that collected data, and “comparing” data to determine a location. Apple argues that the remaining independent claims are “materially the same” to this claim and, at most, “add abstract ideas or well-known and conventional components operating as intended to perform the same method of location determination.” Def. Mem. at 6. Apple further argues that the dependent claims only add minor limitations related to the data collection or the analysis performed.

Geoscope contests Apple’s assertion that claim 1 of the ’494 Patent is representative, identifying three categories of claims that are distinct from claim 1 of the ’494 Patent. *First*, Geoscope argues that certain other asserted claims describe how data is modified by referencing an “average value” (specifically, claims 25, 26, and 35 of the ’494 Patent) and the “magnitude” of “signal characteristics,” including the greater of two signal characteristics (specifically, claims 1 and 2 of the ’104 Patent). Opp. at 23 & n.4. Geoscope argues that because the other asserted claims of the ’104 Patent Family include these additional limitations that refute Apple’s arguments about why the ’104 Patent Family claims are patent ineligible, claim 1 of the ’494 Patent cannot be

representative of all asserted claims of the ’104 Patent Family. *Second*, Geoscope identifies claims that recite “non-uniform grid points” as distinct from claim 1 of the ’494 Patent, which does not reference grid points. Opp. at 23. Geoscope does not specifically state in its Opposition which particular claims make such references, but those appear to be claim 2 of the ’104 Patent, claim 18 of the ’358 Patent, and claims 4 and 26 of the ’494 Patent. *Third*, Geoscope argues that dependent claims reciting that one of the data transmitters be outside the network relates to a particular configuration not referenced in claim 1 of the ’494 Patent, and that a new configuration of conventional hardware can be patent eligible. Opp. at 23–24. Again, Geoscope does not identify the particular claims that fall under this third category, but it appears that claim 35 of the ’494 Patent is the only remaining asserted claim that refers to such outside-the-network transmitters.

Although many of the asserted claims of the ’104 Patent Family are “substantially similar” and are all linked to the “same abstract idea” of data collection, modification, and analysis, *see Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass’n*, 776 F.3d 1343, 1348 (Fed. Cir. 2014), the Court finds that claim 1 of the ’494 Patent is not representative of *all* of the asserted claims of the ’104 Patent Family. In particular, the references to mathematical components (claims 25, 26, and 35 of the ’494 Patent and claims 1 and 2 of the ’104 Patent); circuitry (claims 15 and 18 of the ’358 Patent); and grid points (claim 2 of the ’104 Patent, claim 18 of the ’358 Patent, and claims 4 and 26 of the ’494 Patent) distinguish these claims from claim 1 of the ’494 Patent. In the *Alice* analysis below, the Court will therefore address the distinguishing characteristics of these claims and why—notwithstanding these distinctions—the asserted claims are still not patent eligible.

2. *Alice* Analysis

a. Step One

The first step of the *Alice* test entails determining whether the claims at issue are directed to an abstract idea. At this step, the Court considers "what the patent asserts to be the focus of the claimed advance over the prior art." *Yu v. Apple, Inc.*, 1 F.4th 1040, 1043 (Fed. Cir. 2021). The Court finds that the asserted claims of the '104 Patent Family are directed to the abstract idea of determining location based on data. Specifically, the claims are directed to providing a database, collecting data, modifying the collected data, and comparing the modified data against the database to determine a location of a mobile device.

Looking first at claim 1 of the '494 Patent, which Apple contends is representative of the asserted claims of the '104 Patent Family, the principal steps of that claim are both broad and generic. The claim recites a method for "determining a location of a mobile station" by (1) "providing a database" of previously-collected data; (2) "collecting" observed network measurement data, (3) "modifying" that data; and (4) "comparing" the modified data with the database. But the basic function of determining location based on the collection and analysis of data has been performed by humans throughout history. This function is fundamentally a "method of organizing human activity," which courts have characterized as abstract. *See Alice*, 573 U.S. at 220; *BSG Tech LLC v. BuySeasons, Inc.*, 899 F.3d 1281, 1285 (Fed. Cir. 2018) ("fundamental, long-prevalent practice[s]" and "well-established method[s] of organizing activity" qualify as abstract ideas). And the specification recognizes that doing so in the context of mobile devices is *not* novel. *See* (Dkt. No. 1-3) ('494 Patent) at 1:28–31.

Indeed, the Federal Circuit has consistently concluded that claims requiring the mere collection, analysis, and outputting of data are directed to patent-ineligible subject matter. *E.g.*, *Int'l Bus. Machines Corp. v. Zillow Grp., Inc.*, 50 F.4th 1371, 1378 (Fed. Cir. 2022) (claims

abstract where computer employed in normal manner to "collect[] information" and to "comprehend[] the meaning of that collected information[] and indication of the results"); *Elec. Power Grp.*, 830 F.3d at 1353–54 (claims focused on "collecting information, analyzing it, and displaying certain results of the collection and analysis" considered abstract); *Content Extraction*, 776 F.3d at 1347 (abstract concepts of "data collection, recognition, and storage" were functions that had always been performed by humans); *Interval Licensing LLC v. AOL, Inc.*, 896 F.3d 1335, 1345 (Fed. Cir. 2018) (displaying data considered abstract); *Automated Tracking Sols., LLC v. Coca-Cola Co.*, 723 F. App'x 989, 991 (Fed. Cir. 2018) (claims concerning "collecting data from sensors, analyzing that data, and determining results based on the analysis of data" directed to an abstract idea); *cf. GeoComply Solutions Inc. v. Xpoint Services LLC*, No. 22-cv-1273, 2023 WL 1927393, at *6 (D. Del. Feb. 10, 2023) (Bryson, J.) (claims directed to abstract idea of "determining the location of a device based on geolocation information and programs present on the device" held patent ineligible). So too here. As evidenced by claim 1 of the '494 Patent, the asserted claims of the '104 Patent Family focus on the abstract concept of data collection and modification for the purpose of geolocation of mobile devices.

Geoscope relies in large part on *Thales Visionix Inc. v. United States*, 850 F.3d 1343 (Fed. Cir. 2017), to argue that the asserted claims of the '104 Patent Family are not directed to an abstract idea. Opp. at 14–15. In *Thales*, the Federal Circuit held that claims related to a "system for tracking the motion of an object relative to a moving reference frame" were patent eligible because they were not merely directed to the abstract idea of "using mathematical equations for determining the relative position of a moving object to a moving reference frame," but rather "to systems and methods that use inertial sensors in a non-conventional manner to reduce errors in measuring the relative position and orientation of a moving object on a moving reference frame." *Id.* at 1344, 1348–49 (cleaned up). In doing so, the Federal Circuit also observed that "[t]he claims specify a

particular configuration of inertial sensors and a particular method of using the raw data from the sensors in order to more accurately calculate the position and orientation of an object on a moving platform." *Id.* at 1349. Geoscope argues that "[l]ike the new use of 'raw data from the sensors' in *Thales*, the 'modifying' in the '104 Patent Family constituted a new use of data that directly addressed a technological problem in conventional geolocation systems." Opp. at 13. Although the Federal Circuit indeed observed that the claims in *Thales* specified a particular method of "using raw data," the patent eligibility of the claimed invention in *Thales* turned not on the mere *use* of raw data in a new setting but also on the unconventional *arrangement* of sensors—a "new and useful technique" for using sensors that more efficiently tracked an object on a moving platform. 850 F.3d at 1348–49. The asserted claims here do not require the use of technology in an unconventional manner. Nor do they require an unconventional configuration of components. At bottom, unlike in *Thales*, Geoscope's purported technological improvement is simply the modification of data, which is itself an abstract idea that is not patent eligible.

That is not to say that patents involving the geolocation of mobile devices are categorically patent ineligible; rather, such patents must recite a specific solution to make the alleged improvement sufficiently concrete in order to confer eligibility under § 101. *See Hawk Tech. Sys., LLC v. Castle Retail, LLC*, 60 F.4th 1349, 1358 (Fed. Cir. 2023); *Realtime Data LLC v. Array Networks Inc.*, Nos. 2021-2251, 2021-2291, 2023 WL 4924814, at *8 (Fed. Cir. Aug. 2, 2023) (finding claims related to compression of data abstract where "none of the claims at issue specifies any particular technique to carry out the compression of data" and merely "call[] for unparticularized analysis of data and achievement of general goals"). Geoscope argues that the asserted claims of the '104 Patent Family are directed to "specific technological improvements to geolocation systems that change how geolocation is performed," Opp. at 12–13, but the asserted claims proffer no such concrete improvement. The core of the purported advancement to

"geolocation systems" is the modification of data—under Geoscope's theory, the asserted claims improve on conventional geolocation methods by "modifying the observed data to account for" disparities between calibration data (typically collected outdoors) with data collected indoors, as well other disparities caused by various environmental factors. *See id.* at 3–4, 11 (citing Compl., '104 Patent).

Geoscope's argument, however, is undermined by the fact that the language of the asserted claims themselves are not so limited. Although Geoscope identifies some language in the specification and the Complaint about the elimination of disparities in collecting and comparing indoor and outdoor data, *see* Opp. at 11, its arguments are "not tethered to the *asserted claims*" themselves. *See Trinity InfoMedia, LLC v. Covalent, Inc.*, 72 F.4th 1355, 1364 (Fed. Cir. 2023). The Court's analysis must focus on the asserted claims, considering their character "as a whole" and "in light of the specification." *Chamberlain Group, Inc. v. Techtronic Indus. Co.*, 935 F.3d 1341, 1346 (Fed. Cir. 2019). While the specification "may help illuminate the true focus of a claim, when analyzing patent eligibility, reliance on the specification must always yield to the claim language in identifying that focus.'" *Id.* (citing *ChargePoint, Inc. v. SemaConnect, Inc.*, 920 F.3d 759, 766 (Fed. Cir. 2019)). Here, the language of the claims themselves do not recite any specific improvement. Rather, as discussed above, the language of the "modifying" step of claim 1 of the '494 Patent is written in extremely broad terms: it simply recites a method whereby one must "modify[] said observed network measurement data," without any specificity as to *how* to carry out the "modifying" function. Geoscope cannot use the specification to "import details from the specification if those details are not claimed." *ChargePoint*, 920 F.3d at 769 ("Even a specification full of technical details about a physical invention may nonetheless conclude with claims that claim nothing more than the broad law or abstract idea underlying the claims, thus preempting all use of that law or idea.").

Moreover, and notwithstanding that Geoscope's alleged improvements do not appear in the language of the asserted claims themselves, neither the specification nor the language of the claims require a specific technological improvement to geolocation systems that would push the claims into the realm of the non-abstract. To be patent eligible, improvements to a technological process must be directed to "non-abstract improvements to the functionality of" the existing technological process. *See Uniloc USA, Inc. v. LG Elecs. USA, Inc.*, 957 F.3d 1303, 1309 (Fed. Cir. 2020). But here, Geoscope's claimed advance—modifying data—is itself an abstract concept. *See Univ. of Fla. Res. Found., Inc. v. Gen. Elec. Co.*, 916 F.3d 1363, 1368 (Fed. Cir. 2019); *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1340 (Fed. Cir. 2017) (holding ineligible claims directed to the "abstract idea of collecting, displaying, and manipulating data"); *Elec. Power Grp.*, 830 F.3d at 1355 ("Merely requiring the selection and manipulation of information . . . by itself does not transform the otherwise-abstract processes of information collection and analysis"). Claims that add the abstract concept of modifying or manipulating data do not involve an improvement to the functionality of a technological process. *See Simio, LLC v. FlexSim Software Prods., Inc.*, 983 F.3d 1353, 1361 (Fed. Cir. 2020).

Geoscope argues that claims merely *involving* data manipulation and transmission but that are not *directed to* these concepts may nonetheless be patent eligible, citing *Uniloc v. LG*, 957 F.3d 1303. Opp. at 17–18. In *Uniloc*, the specification explained that with conventional communication systems, a "primary station alternates between polling and sending inquiry messages." 957 F.3d at 1308. Unlike the asserted claims here, the claims at issue in *Uniloc* "recite[d] a specific improvement in the functionality of the communication system itself." *Id.* at 1309. Specifically, those claims required "adding to each inquiry message prior to transmission an additional data field for polling at least one secondary station"—something the Federal Circuit described as a fundamental "change [to] the normal operation" of the communication system itself because that

the primary stations could simultaneously send inquiry and polling transmissions. *Id.* at 1307–08. Therefore, the claimed invention in *Uniloc*, although involving the addition of a data field, offered a precise and concrete technological solution to an existing technology in that it "enable[d] the communication system to accommodate additional devices, such as battery-operated secondary stations, without compromising performance." *Id.* at 1308. Here, the asserted claims do not recite any such specific or concrete improvement to the method of geolocation. They merely require one to "modify[ ] observed network measurement data," '494 Patent at 12:19, without a fundamental "change" to the "normal operation" of any existing technology.

Claim 1 of the '494 Patent therefore fails to recite *how* the invention purportedly improves geolocation systems beyond merely modifying or manipulating data. Where a claim fails to "recite a specific solution to make the alleged improvement . . . concrete and at most recite[s] abstract data manipulation," the claim is directed to an abstract idea. *See Hawk*, 60 F.4th at 1358 (cleaned up). Here, the claims are written with a "result-oriented generality" that amount to a "mere implementation of an abstract idea." *See id.* (cleaned up); *see also GeoComply*, 2023 WL 1927393, at *5 ("in determining whether a method claim is directed to an abstract idea, the Federal Circuit has focused on whether the claim is purely functional in nature or is sufficiently concrete or specific to be directed to a patent-eligible process rather than a patent-eligible result"). The preemptive scope of claim 1 of the '494 Patent is apparent; by its plain language, the claim would accord patent protection to any method of collecting, modifying, and comparing data in order to determine the location of a mobile device. *See GeoComply*, 2023 WL 1927393, at *9 (asserted claims that are "sweeping" with a "broad preemptive scope" "lend[] further support to the proposition that the asserted claims are directed to an abstract idea").

Beyond claim 1 of the '494 Patent, none of the other asserted claims of the '104 Patent Family save Geoscope from this conclusion. The three remaining independent asserted claims add

abstract ideas or well-known or conventional components used in a normal manner. In addition to requiring the collection, modification, and comparison of data, claim 1 of the '104 Patent requires determining the greater of two signal characteristics and then using—without specifying *how* that data is used—the larger one in the modifying data step. Claim 25 of the '494 patent recites a method for analyzing the data to compute the average of different signal characteristics and using—again, in no specified way—that average in the modifying step. These mathematical concepts do not change the focus of the claims, as they are themselves abstract and patent ineligible. *See In re Bd. of Trustees of Leland Stanford Junior Univ.*, 991 F.3d 1245, 1250 (Fed. Cir. 2021) ("Courts have long held that mathematical algorithms for performing calculations, without more, are patent ineligible under § 101."). The third of the remaining independent asserted claims, claim 15 of the '358 Patent, recites a system that "collect[s]," "modif[ies]," and "compar[es]" data but requires the use of generic "circuitry."[2] Circuitry, however, is conventional computer technology. The claims do not recite a method to use circuitry in an unconventional manner. Claim 15 therefore relies "on a process that qualifies as an 'abstract idea' for which computers are invoked merely as a tool." *Customedia Techs., LLC v. Dish Network Corp.*, 951 F.3d 1359, 1365 (Fed. Cir. 2020).

Finally, the dependent claims (claim 2 of the '104 Patent, claim 18 of the '358 Patent, claim 4 of the '494 Patent, and claim 26 of the '494 Patent) involve gathering calibration data for non-uniform grid points. Geoscope argues (here and with respect to the '753 Patent addressed below) that the "grid point" component is "something new that must be determined from the analysis of calibration data." Opp. at 26 (discussing grid points in the context of the '753 Patent). But these

[2] Nor does claim 35 of the '494 Patent, which recites the method of claim 25 "wherein at least one of said plurality of transmitters is not a member of said wireless network," alter the analysis. Geoscope has not pointed to any plausible allegation or fact in the intrinsic record that merely placing the transmitters outside the network is an unconventional configuration. *See* Opp. at 23–24.

dependent claims invoking grid points merely involve collecting a certain kind of data without requiring a new or improved manner of collecting, using, or creating that data. And, the dependent claims involving grid points do not articulate with specificity *how* the grid points are determined or analyzed. The Court therefore finds the asserted claims of the '104 Patent Family to be directed to the abstract idea of determining location based on data.

b. Step Two

Because the asserted claims of the '104 Patent Family are directed to patent-ineligible subject matter, the Court now proceeds to step two of the *Alice* test. At this step, the Court "examine[s] the limitations of the claims to determine whether [they] contain an inventive concept to transform the claimed abstract idea into patent eligible subject matter." *Ultramercial*, 772 F.3d at 715 (cleaned up). The Court may find the "inventive concept" in one or more of the individual claim limitations or in the ordered combination of the limitations. *Bascom*, 827 F.3d at 1349. The "inventive concept" can also be found in "the non-conventional and non-generic arrangement of known, conventional pieces." *Id.* at 1350.

Here, none of the asserted claims of the '104 Patent Family advance an inventive concept amounting to "significantly more" than the abstract idea. *See ChargePoint*, 920 F.3d at 773. As explained in the step one analysis, each of the independent claims involve some limitation related to the collection, modification, or comparison of data—each of which are abstract ideas in themselves that cannot supply the inventive concept. Geoscope primarily argues that the modification of the data supplies the inventive concept, arguing that "modifying observed network measurement data was not well-understood, routine, or conventional, and constitutes an inventive concept." *See* Opp. at 20. But Geoscope fails to identify facts showing that the step of "modifying" data as recited in the claims requires any specific technological improvement. Nor does the combination of these steps supply the inventive concept. Here, the steps as set forth in the asserted

claims add nothing that is not already present when considered separately. "Adding one abstract idea . . . to another abstract idea . . . does not render [a] claim non-abstract." *ChargePoint*, 920 F.3d at 771.

And, as also discussed above, that some of the asserted claims include references to (1) simple mathematical concepts, (2) grid points, (3) "circuitry," or (4) requiring transmitters to be outside the network is insufficient to confer the inventive concept necessary for patent eligibility. Regarding the claims that require the determination of the greater of two signal characteristics or the average of different signal characteristics, those claims vaguely reference the mathematical concepts but fail to recite *how* those concepts are employed. And, using simple mathematical concepts, such as those invoked in these claims, is itself an abstract idea insufficient to confer an inventive concept. *See Stanford*, 991 F.3d at 1251. With respect to grid points, the Court has already explained that the language of the claims invoking grid points does not specify how grid points are generated or analyzed. Nor do the claims recite using the data in a novel or improved manner. Regarding claims reciting "circuitry," these claims simply employ well-known and conventional data or components in a conventional manner. Finally, that claim 35 of the '494 Patent requires a data transmitter to be outside the network is insufficient to confer the inventive concept. These transmitters are generic, conventional tools employed in a conventional manner and without any specific technological improvement.

The asserted claims therefore do no more than combine known techniques that yield only expected results. Geoscope identifies no claim elements that amount to "significantly more" than the abstract idea of determining location based on data. Accordingly, the Court finds that there is no inventive concept sufficient to confer patent eligibility at step two of the *Alice* test, and the asserted claims of the '104 Patent Family are patent ineligible under § 101.

B. ’753 PATENT

1. Asserted Claims

The ’753 Patent involves purported improvements to methods of geolocation using “grid points” based on calibration data. Compl. ¶ 58. The claimed invention uses calibration data to generate and use grid points, including “non-uniform grid points” (“NUGs”), that can be selected from and used to determine the location of a mobile device. *Id.* ¶ 60; ’753 Patent at 9:34–48. Geoscope asserts that this process led to a “more robust and denser ‘map’ of known locations” that could be used to locate a mobile device. Compl. ¶ 60. Geoscope alleges Apple has infringed claims 1 and 32 of the ’753 Patent, which are independent claims.

Claim 1 of the ’753 Patent is a method claim reciting:

> 1. A method of determining the location of a mobile device in a geographic region comprising the steps of:
>
> (a) providing calibration data for each of one or more calibration points in a geographic region, said calibration data having one or more characterizing parameters;
>
> (b) generating one or more sets of grid points for said calibration data;
>
> (c) receiving at least one network measurement report from a mobile device at an unknown location in said geographic region;
>
> (d) evaluating said at least one network measurement report with each of said sets of grid points as a function of select ones of said characterizing parameters;
>
> (e) selecting a set of grid points as a function of predetermined criteria; and
>
> (f) determining the location of a mobile device in said geographic region as a function of said selected set of grid points

Ex. D to Compl. (Dkt. No. 1-4) (’753 Patent) at 59:13–31.

Claim 32 is a system claim that states:

> 32. A system for determining the location of a mobile device in a geographic region comprising:
>
> (a) a database; and

(b) a processor for receiving calibration data for each of one or more calibration points in a geographic region and receiving at least one network measurement report from a mobile device at an unknown location in said geographic region, said calibration data and network measurement report having at least one characterizing parameter and said processor is programmed to:

(i) generate one or more sets of grid points for said calibration data,

(ii) evaluate said at least one network measurement report with each of said sets of grid points as a function of select ones of said characterizing parameters,

(iii) select a set of grid points as a function of a predetermined criteria, and

(iv) determine the location of a mobile device in said geographic region as a function of said selected set.

Id. at 63:49–67.

2. *Alice* Analysis

a. Step One

The asserted claims of the ’753 Patent are directed to the abstract idea of determining an unknown location by comparing information about known locations organized in a database against measurements from a mobile device. In essence, the asserted claims of the ’753 Patent merely purport to collect and organize data in a reference database and to compare data received from an unknown location to data in the selected database of known locations. The discussion of patent eligibility as to the asserted claims of the ’753 Patent overlap considerably with the ’104 Patent Family analysis. As discussed with respect to the data collection claims of the ’104 Patent Family, such claims are directed to abstract ideas that are patent ineligible under § 101. *See supra* Section III.A.2.a; *see also Content Extraction*, 776 F.3d at 1347 (claims directed to “1) collecting data, 2) recognizing certain data within the collected data set, and 3) storing that recognized data in a memory” held abstract); *Sanderling Mgmt. Ltd. v. Snap Inc.*, 65 F.4th 698, 701–03 (Fed. Cir. 2023) (claims requiring “matching a GPS location indication with a geographic location” directed

to abstract idea); *CalAmp Wireless Networks Corp. v. ORBCOMM, Inc.*, 233 F. Supp. 3d 509, 512–13 (E.D. Va. 2017) (claim involving "assessing the current location of [an] object" is "an abstract idea"). The claims at issue in *Sanderling* are similar to those at issue with the '753 Patent: the claims in *Sanderling* required "access[ing] a database storing" various functions associated with "a geographic location," "receiving . . . a Global Positioning System (GPS) location indication from each of a plurality of mobile devices," "matching . . . each said GPS location indication with said geographic location" in the database, and then selecting a "digital image processing function" for use based on the geographic location. 65 F.4th at 701–02. The Federal Circuit held these claims to be directed to the abstract idea "'of providing information—in this case, a processing function—based on meeting a condition,' *e.g.*, matching a GPS location indication with a geographic location." 65 F.4th at 703. Relying primarily on the Federal Circuit decisions in *Enfish*, 822 F.3d 1327, and *SRI Int'l, Inc. v. Cisco Sys., Inc.*, 930 F.3d 1295, 1303–04 (Fed. Cir. 2019), Geoscope argues that a patent is not ineligible under § 101 just because a claimed invention involves the analysis or organization of data, so long it is directed to improving a technological process or system. *See* Opp. 26–28. Geoscope is not wrong: That a claimed invention operates by analyzing or organizing data does not immediately doom it to patent ineligibility under § 101. Rather, the element of data analysis or organization must be directed to a *specific* solution to make an alleged improvement concrete and that would "transform [the] claim from one claiming only a result to one claiming a way of achieving it." *See SAP*, 898 F.3d at 1167; *see also Hawk*, 60 F.4th at 1358.

Here, Geoscope focuses primarily on the generation of grid points as supplying a specific technological improvement. Opp. at 26–29. But the language of the asserted claims does not support Geoscope's position, as the claims recite no specific solution to make the alleged improvement concrete. That is, the claims do not focus on a specific means or method that would improve the relevant technology. Rather, the limitations of the asserted claims are drafted at a high

level of generality that they are themselves directed at abstract concepts. And each of Geoscope's assertions regarding the novelty of grid points or the execution of the asserted claims advanced by Geoscope are not supported by the claims; indeed, nothing in the claims requires the grid points to be (1) arranged in a "denser 'map' of known locations," Opp. at 25; (2) "determined from the analysis of calibration data," *id.* at 26–27; or (3) organized in any specific format, *id.* at 28.

This is where the claims of the inventions in *Enfish* and *SRI* diverge from those at issue here. Whereas the asserted claims of the '753 Patent simply recite "generating one or more grid points," the claims in *Enfish* and *SRI* described in detail "a specific improvement."[3] *See Enfish*, 822 F.3d at 1336. In *Enfish*, the claims were "specifically directed to a *self-referential* table for a computer database," an improvement that the Federal Circuit emphasized was "reflected in [the] claim language." *Id.* at 1337. The claims laid out a "four-step algorithm" for creating and organizing such a table. *Id.* And in *SRI*, the claims were directed to an improvement in computer technology because the claims "recite[d] using network monitors to detect suspicious network activity based on analysis of network traffic data, generating reports of that suspicious activity, and integrating those reports using hierarchical monitors." 930 F.3d at 1303. As described above, the asserted claims of the '753 Patent recite no such comparable specific improvement. Accordingly, the Court finds that the asserted claims of the '753 Patent are directed to an abstract idea.

b. Step Two

Finding the asserted claims of the '753 Patent to be directed to an abstract idea, the Court must assess whether there exists an "inventive concept" sufficient to confer patent eligibility. The Court finds that the claims are deficient in this regard too. The claims here do not require "a new

[3] For the same reasons, *Adasa Inc. v. Avery Dennison Corp.*, 55 F.4th 900, 908 (Fed. Cir. 2022) and *Trustees of Columbia University in City of N.Y. v. Symantec Corp.*, 425 F. Supp. 3d 601, 616 (E.D. Va. 2019), on which Geoscope also rely, are distinguishable.

source or type of information, or new techniques for analyzing it." *Elec. Power Grp.*, 830 F.3d at 1355. Here, the limitations of the asserted claims fail to address with any specificity *how* the purported functions are performed such that the Court would consider it to constitute an "inventive concept." For instance, claim 1 recites a method that includes "generating one or more sets of grid points" without providing any limitation on *how* the grid points are generated. It also recites a method that includes "evaluating said at least one network measurement report with each of said sets of grid points." But this limitation merely requires performing the basic function of comparing data. Each of the limitations of the asserted claims is broadly written, providing no boundaries or guidance on what that function is or how it is to be performed. And claim 32 applies the method of claim 1 to a "system" and adds to the claim two components—a "database" and a "processor." But a database adds nothing to the inventiveness of the claimed invention. And a processor that receives data and is "programmed" to generate and evaluate data is well-known, conventional, and generic technology that does not transform the claims into an inventive concept. *See Elec. Power*, 830 F.3d at 1356. Accordingly, there being no inventive concept, the Court finds that the asserted claims of the '753 Patent are patent ineligible under § 101.

IV. CONCLUSION

For the reasons set forth above, the Court will grant Defendant Apple's Motion for Judgment on the Pleadings (Dkt. No. 82) in an order to be issued with this Memorandum Opinion.

/s/
Hon. Michael S. Nachmanoff
United States District Judge

Alexandria, Virginia
September 18, 2023