

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

REDWOOD TECHNOLOGIES, LLC,

Plaintiff,

v.

NETGEAR, INC.,

Defendant.

C.A. No. 22-1271-GBW

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MEMORANDUM OPINION

June 27, 2024
Wilmington, Delaware

GREGORY B. WILLIAMS
U.S. DISTRICT JUDGE

Pending before the Court is Defendant Netgear, Inc.'s ("Netgear") Partial Motion to Dismiss Plaintiff Redwood Technologies, LLC's ("Redwood") First Amended Complaint (the "Complaint"). D.I. 17. For the reasons set forth below, the Court grants-in-part and denies-in-part Netgear's motion.

I. BACKGROUND

Redwood filed this action against Netgear, and alleges that Netgear infringes the Asserted Patents.¹ DI 14. In response, Netgear filed a partial motion to dismiss, and argues that four of the five Asserted Patents (namely, the '457, '140, '671, and '536 patents (collectively, the "Challenged Patents")) are patent-ineligible pursuant to 35 U.S.C. § 101. D.I. 17.

Netgear argues that the Challenged Patents are directed to the abstract idea of "manipulating and transmitting data signals." D.I. 18 at 1. Redwood disagrees, and argues that the Challenged Patents are directed to specific technological improvements in wireless communication systems. D.I. 21 at 1. The Challenged Patents generally relate to: transmission apparatuses suited for certain reception environments ('457 patent), a structured data format that avoids interference ('140 patent), wireless communication systems that send and receive timing information to effectively use bandwidth ('671 patent), and wireless communication systems that use timing information to evade mutual interference among communication stations within a mesh network ('536 patent).

¹ U.S. Patent Nos. 7,359,457 (the "'457 patent"), 7,917,102 (the "'102 patent"), 7,983,140 (the "'140 patent"), 8,111,671 (the "'671 patent"), and 9,462,536 (the "'536 patent").

II. LEGAL STANDARDS

A. Motion to Dismiss

To state a claim on which relief can be granted, a complaint must contain “a short and plain statement of the claim showing that the pleader is entitled to relief” Fed. R. Civ. P. 8(a)(2). Such a claim must plausibly suggest “facts sufficient to ‘draw the reasonable inference that the defendant is liable for the misconduct alleged.’” *Doe v. Princeton Univ.*, 30 F.4th 335, 342 (3d Cir. 2022) (quoting *Ashcroft v. Iqbal*, 556 U.S. 662, 678 (2009)) (citing *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 557 (2007)). “A claim is facially plausible ‘when the plaintiff pleads factual content that allows the court to draw the reasonable inference that the defendant is liable for the misconduct alleged.’” *Klotz v. Celentano Stadtmauer & Walentowicz LLP*, 991 F.3d 458, 462 (3d Cir. 2021) (quoting *Iqbal*, 556 U.S. at 678). But the Court will “disregard legal conclusions and recitals of the elements of a cause of action supported by mere conclusory statements.” *Princeton Univ.*, 30 F.4th at 342 (quoting *Davis v. Wells Fargo*, 824 F.3d 333, 341 (3d Cir. 2016)). Under Rule 12(b)(6), the Court must accept as true all factual allegations in the Complaint and view those facts in the light most favorable to the plaintiff. *See Fed. Trade Comm’n v. AbbVie Inc.*, 976 F.3d 327, 351 (3d Cir. 2020).

B. Patent Eligible Subject Matter

Patentability under 35 U.S.C. § 101 is a threshold legal issue. *Bilski v. Kappos*, 561 U.S. 593, 602 (2010). A Section 101 inquiry is properly raised at the pleading stage if it is apparent from the face of the patent that the asserted claims are not directed to eligible subject matter. *Cleveland Clinic Found. v. True Health Diagnostics LLC*, 859 F.3d 1352, 1360 (Fed. Cir. 2017), *cert. denied*, 138 S. Ct. 2621 (2018); *see also, e.g., SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1166 (Fed. Cir. 2018) (stating that patent eligibility “may be, and frequently has been, resolved on a Rule 12(b)(6) or (c) motion”). This is, however, appropriate “only when there are

no factual allegations that, taken as true, prevent resolving the eligibility question as a matter of law.” *Aatrix Software, Inc. v. Green Shades Software, Inc.*, 882 F.3d 1121, 1128 (Fed. Cir. 2018).

Section 101 of the Patent Act defines patent-eligible subject matter. It states, “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.” 35 U.S.C. § 101. The Supreme Court has held that there are exceptions to § 101. “Laws of nature, natural phenomena, and abstract ideas are not patentable.” *Alice Corp. Pty. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014). “[I]n applying the § 101 exception, we must distinguish between patents that claim the ‘building blocks’ of human ingenuity and those that integrate the building blocks into something more[] thereby ‘transforming’ them into a patent-eligible invention. The former ‘would risk disproportionately tying up the use of the underlying’ ideas, and are therefore ineligible for patent protection. The latter pose no comparable risk of pre-emption, and therefore remain eligible for the monopoly granted under our patent laws.” *Id.* at 217 (cleaned up).

The Supreme Court’s *Alice* decision established a two-step framework for determining patent-eligibility under § 101. In the first step, the court must determine whether the claims at issue are directed to a patent ineligible concept. *Alice*, 573 U.S. at 217. In other words, are the claims directed to a law of nature, natural phenomenon, or abstract idea? *Id.* If the answer to the question is “no,” then the patent is not invalid for teaching ineligible subject matter under § 101. If the answer to the question is “yes,” then the court proceeds 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). “A claim that recites 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.* at 221. Further, “the prohibition against patenting abstract ideas cannot be circumvented by attempting to limit the use of [the idea] to a particular technological environment.” *Id.* at 222 (quoting *Bilski*, 561 U.S. at 610-11). Thus, “the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention.” *Id.*

III. DISCUSSION

A. The Court Finds That Netgear’s Proposed Representative Claims Are Representative.

Netgear argues that the claims asserted in Redwood’s Complaint (i.e. claims 1 of the ’457, ’140, and ’536 patents and claim 4 of the ’671 patent) are representative. Redwood disagrees, and argues that Netgear has not met its burden to demonstrate representativeness. D.I. 22 at 2. Specifically, Redwood argues that the Challenged Patents contain additional claims with different limitations, and that Redwood did not limit its infringement allegations to the claims currently alleged in its Complaint. *Id.*

The Court finds that the asserted claims are representative. Redwood’s vague criticisms of Netgear’s proposed representative claims do not establish that the non-asserted claims of the Challenged Patents are distinctively significant from the asserted claims. *See International Business Machines Corporation v. Zynga Inc.*, C.A. No. 22-cv-00590-GBW, D.I. 74 at 20; *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1365 (Fed. Cir. 2018) (“Courts may treat a claim as representative in certain situations, such as if the patentee does not present any meaningful argument for the distinctive significance of any claim limitations not found in the representative

claim or if the parties agree to treat a claim as representative.”). Accordingly, the Court finds that claims 1 of the ’457, ’140, and ’536 patents are representative of those patents, and claim 4 of the ’671 patent is representative of that patent (the “Representative Claims”).

B. Whether The Representative Claims Are Patent-Eligible.

For the reasons stated below, the Court finds that the representative claims of the ’457, ’536, and ’671 patents are directed to an abstract idea at *Alice* step 1, and do not recite an inventive concept that transforms the claimed abstract idea into a patent-eligible application at *Alice* step 2. However, the Court finds that there is a genuine dispute of material fact regarding whether the representative claim of the ’140 patent is directed to a non-abstract specific improvement in computer technology at *Alice* step one. Accordingly, the Court grants-in-part and denies-in-part Netgear’s partial motion to dismiss Redwood’s Complaint. Netgear’s Partial Motion to Dismiss Counts I, IV, and V of the First Amended Complaint is GRANTED. Netgear’s Partial Motion to Dismiss Count III of the First Amended Complaint is DENIED.

i. The ’457 Patent

Claim 1 recites:

A transmission apparatus comprising:

a frame configuration determiner that determines a modulation system from among a plurality of modulation systems based on a communication situation;

a first symbol generator that modulates a digital transmission signal according to the modulation system determined by the frame configuration determiner and that generates a first symbol, the first symbol comprising a first quadrature baseband signal; and

a second symbol generator that modulates the digital transmission signal according to a predetermined modulation system and that generates a second symbol, the second symbol comprising a second quadrature baseband signal.

Claim 1 of the '457 patent recites two symbol generators that modulate a digital transmission signal to generate a quadrature baseband symbol. *Id.* The symbol modulators differ in that the first symbol generator modulates its signal according to the modulation system determined by the frame configuration determiner, while the second symbol generator modulates its signal according to a predetermined modulation system. *Id.* In other words, the second symbol generator always generates a symbol with a specific quadrature modulation, while the first symbol generator is variable, and generates symbols with different quadrature modulations based on the instructions it receives from the frame configuration determiner. *Id.*

Redwood argues that claim 1 of the '457 patent is a non-abstract specific technical solution that “flexibly improves the data transmission efficiency and the quality of data” by using a variable information symbol modulation system—as opposed to prior-art technologies that used fixed modulation systems and did not adapt transmissions based on the reception environment. D.I. 21 at 2. According to Redwood, claim 1 of the '457 patent solves a specific data transmission problem because the frame configuration determiner determines what modulation system is best suited for transmission of a signal to a specific reception environment, and the first “variable” symbol generator modulates that signal accordingly. *Id.* For example, the specification explains that “when the level of a reception signal on the receiving side is small,” the modulation system should be “highly resistant to error.” '457 patent, 1:38-40. Conversely, “when the level of a reception signal on the receiving side is large,” the modulation system should have “high transmission efficiency.” *Id.*, 1:41-44; *see also id.*, 13:35-46 at Fig. 21-22 (explaining that 16 Quadrature Amplitude Modulation (16QAM) is preferable when the reception signal is large, and that 8 Phase Shift Keying (8PSK) is preferable when the reception signal is small).

1. The Court Finds That Claim 1 Of The '457 Patent Is Directed To An Abstract Idea.

The Court finds that claim 1 of the '457 patent fails under *Alice* step one, because it is directed to the abstract idea of “determining and using a modulation method to generate data.” At *Alice* step one, the Court focuses on the claimed advance over the prior art. Modulating a signal with a predetermined modulation system to generate a symbol was known in the prior art. *E.g.* '457 patent, 1:17-26. Thus, the claimed advance over the prior art is the '457 patent's use of a symbol generator that generates a symbol by modulating a signal with a modulation system that was determined by a frame configuration determiner based on a “communication situation.” *Id.*, claim 1.

However, “determining and using a modulation method to generate data” is abstract. *See Adaptive Streaming Inc. v. Netflix, Inc.*, 836 Fed. Appx. 900, 903 (Fed. Cir. 2020) (explaining that the “fundamental communication practice of format conversion, i.e. the process of taking an incoming signal and converting it to format suited to a different destination device, is an abstract idea). The Court is not convinced by Redwood's argument that claim 1 of the '457 patent is directed to the improvement of a computer device's functionality, D.I. 21 at 6, because the claim is drafted with result-based functional language. The claim does not describe (a) what factors the frame configuration determiner considers to determine what modulation system is appropriate for the communication situation, (b) how the frame configuration determiner instructs the first symbol generator to apply that modulation system, or (c) how the first symbol generator modulates the signal to generate a symbol. '457 patent, claim 1; *Two-Way Media Ltd. v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329, 1337 (Fed. Cir. 2017) (“Claim 1 recites a method for routing information using result-based functional language ... but does not sufficiently describe how to achieve these results in a non-abstract way.”).

Redwood argues that claim 1 of the '457 patent is like the claims that the Federal Circuit found patent-eligible in *Uniloc USA, Inc. v. LG Elecs. USA, Inc.*, 957 F.3d 1303, 1307-1308 (Fed. Cir. 2020). D.I. 21 at 5. The Court, however, is not convinced that the claim at-issue in this action is like the claims the Federal Circuit considered in *Uniloc*. In that case, the claims at-issue recited a primary station for use in a communication system “wherein means are provided for ... adding to each inquiry message prior to transmission an additional data field for polling at least one secondary station.” *Id.* The Federal Circuit explained that the *additional data field* enabled the primary station to simultaneously poll, and send inquiry messages to, secondary stations. *Id.* Stated another way, those claims were non-abstract (and thus patent-eligible) because the additional data field was a specific improvement that overcame a problem specifically arising in the realm of computer networks. The claim at-issue in this action, however, does not recite a specific improvement to a frame configuration determiner or a symbol modulator—such as a new way of (a) determining the appropriate modulation system for a given communication system, (b) modulating a signal according to a specific modulation system, or (c) a means for improving those processes. Accordingly, the Court finds that claim 1 of the '457 patent is directed to an abstract idea and fails at *Alice* step one.

The Court notes that the specification provides examples of how the frame configuration determiner judges the communication system to determine the appropriate modulation system. For example, the specification describes that the “optimal frame configuration” is “based on the transmission path information and the request data transmission speed information” and that the interval of inserting known pilot symbols (which is determined by what modulation system is applied) can be varied based on whether high-speed or low-speed fading is present. *E.g.* '457 patent, 7:1-12 (explaining, *inter alia*, that narrower intervals of inserting known pilot symbols

“prevent[s] deterioration of the data demodulation error rate and maintain[s] the quality of data”); *id.*, 6:64-67 (“Frame configuration determination [] selects one of [the frame configurations depicted in FIG. 2] as the optimal frame configuration based on the transmission path information and the request data transmission speed information.”). The specification also explains how “the situation of fluctuations in the transmission path due to fading can be estimated from a transition in the result of measuring the reception level of the modulated signal transmitted from the other end of communication on the receiving side...of the communication apparatus.” *Id.*, 3:52-58. Thus, the specification explains, at least in part, how the frame configuration determiner functions and what factors it considers when judging what modulation system is appropriate for a specific communication environment.

However, the specification’s technical description of the invention does not render claim 1 of the ’457 patent non-abstract. The claim language does not require the details set forth in the specification. *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1322 (Fed. Cir. 2016) (holding that a district court “erred in relying on technological details set forth in the patent’s specification and not set forth in the claims to find an inventive concept”); *ChargePoint, Inc. v. SemaConnect, Inc.*, 920 F.3d 759, 769-770 (Fed. Cir. 2019) (“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.”). The broad language of claim 1 of the ’457 patent preempts all uses of a system that modulates a digital transmission signal based on a communication system, which “confirms that claim 1 is indeed ‘directed to’ [an] abstract idea.” *Id.* at 769.

2. The Court Finds That Claim 1 Of The '457 Patent Is Not Patent-Eligible At Alice Step 2.

At *Alice* step two, the Court determines whether the elements of the claim, either individually or as an ordered combination, recite an inventive concept. To save a patent at step two, an inventive concept must be evident in the claims. *RecogniCorp, LLC v. Nintendo Co.*, 855 F.3d 1322, 1327 (Fed. Cir. 2017).

The Court finds no saving inventive concept in claim 1 of the '457 patent, either individually or as an ordered combination. Redwood contends that the claim is patent-eligible at *Alice* step 2 because it recites the inventive concepts of (1) changing the modulation system of information symbols according to the communication situation, and (2) applying a fixed modulation system to a portion of a transmitted signal and a variable modulation system to the other portion of that signal. D.I. 21 at 10-12. Redwood also argues that there is a factual dispute concerning whether the frame configuration determiner and symbol generators describe routine and conventional operations. *Id.*

The Court is not convinced by Redwood's argument that the claims recite an inventive concept or that there is a genuine dispute of material fact regarding whether the claims are "well-known, routine, and conventional." Applying a variable modulation system to a signal based on a communication situation is the abstract idea itself, and "a claimed invention's use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention 'significantly more' than that ineligible concept." *BSG Tech LLC v. Buyseasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018). Accordingly, claim 1 of the '457 patent fails to recite an inventive concept, because it "amounts to no more than performing the abstract idea ... with conventional computer components." *Id.* at 1291 (citing *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1370 (Fed. Cir. 2018)); *see* '457 patent, 1:19-27 (transmission apparatuses, frame configurations,

and modulation systems were known in the art). Recitation of generic computer components is insufficient to add an inventive concept to an otherwise abstract idea. *Two-Way Media*, 874 F.3d at 1339.² The Court is also not convinced that there is anything inventive in the ordered combination of the claim, because the “recited physical components behave exactly as expected according to their ordinary use”—the frame modulation determiner determines the appropriate modulation system, and the symbol generator modulates a signal accordingly. *Two-Way Media*, 874 F.3d at 1339 (finding no inventive concept of the ordered combination of claim limitations because “[t]he claim uses a conventional ordering of steps—first processing the data, then routing it, controlling it, and monitoring its reception—with conventional technology to achieve its desired result”).

ii. The '140 Patent

Claim 1 recites:

A transmitting apparatus, in an orthogonal frequency division multiplexing wireless communication system, comprising:

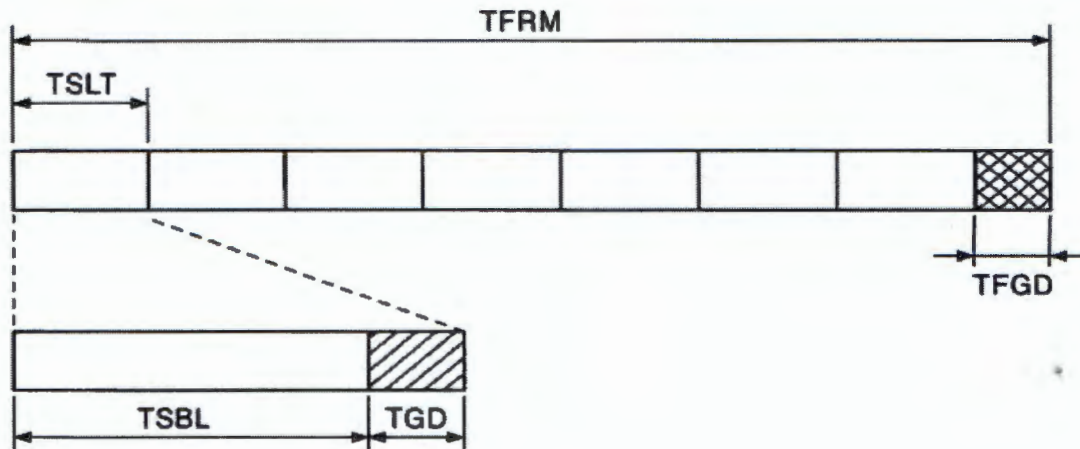
a front-end transmission processing unit for converting a transmission signal into a transmission time slot;

² Netgear argues that the recited “frame configuration determiner” is a generic computer component. D.I. 18 at 5. It is not clear to the Court, however, that a frame configuration determiner is merely a generic computer component. The frame configuration determiner is the device that tells the first symbol generator what modulation system to use, and the specification suggests that part of the novel aspect of the invention is its capability to assess the communication situation and determine what modulation system is appropriate for that specific communication situation. *See, e.g.*, '457 patent, 6:64-67. Thus, while “fixed” digital modulation systems were in the prior art, *id.*, 1:17-26, along with at least some means of determining whether a specific modulation system was effective in a specific communication system, *e.g., id.*, 1:45-55, it is not clear that the frame configuration determiner described in the specification of the '457 patent is a generic, well-known component. However, any allegedly inventive features of the claimed frame configuration determiner does not render claim 1 of the '457 patent non-abstract because—as a result of that claim’s broad functional description of the frame configuration determiner—those alleged inventive features are “not captured in the claims.” *Weisner v. Google LLC*, 51 F.4th 1073, 1083 (Fed. Cir. 2022).

a frame generator for generating a frame that includes a series of n (greater than 1) time slots and a frame guard period added to the series of n time slots, each time slot including an effective symbol period and guard period added to the effective symbol period, where the length of the series of n time slots is less than the length of the frame; and

a back-end transmission processing unit for transmitting the generated frame as a radio signal.

Claim 1 of the '140 patent describes a "transmitting apparatus" that contains a "frame generator" and two "transmission processing unit[s]." First, the front-end transmission processing unit converts a transmission signal into a transmission time slot. *Id.* Each time slot contains an "effective symbol period" and a "guard period." *Id.* Next, the frame generator takes multiple time slots and generates a single frame. *Id.* Each frame includes "greater than one time slots" and a "frame guard period." *Id.* Then, the back-end transmission processing unit transmits the generated frame as a radio signal. *Id.* Figure 5 of the '140 patent illustrates an example of claim 1 of the '140 patent:



*Id.*³

³ TFRM, TSLT, and TFGD denote a frame period, a time slot period, and a frame guard period, respectively. TSBL and TGD denote an effective symbol period and a guard period, respectively.

As an initial matter, the parties dispute whether a “frame guard period” is different than a “guard period.” Netgear argues that a frame guard period is just a guard period that is added to the frame, instead of individual time slots. D.I. 22 at 6. Redwood disagrees, and argues that the frame guard period is separate and distinct from the guard period. “The inclusion of a frame guard period,” Redwood argues, “acts to stagger the timing of transmitted signals sharing the same channel, and thus mitigates the risk that the signals interfere with each other.” D.I. 21 at 13 (citing ’140 patent at 13:32-36).

“If there are claim construction disputes at the Rule 12(b)(6) stage, [the Federal Circuit] ha[s] held that either the [trial] court must proceed by adopting the non-moving party’s constructions . . . or the [trial] court must resolve the disputes to whatever extent is needed to conduct the § 101 analysis, which may well be less than a full, formal claim construction.” *Aatrix Software*, 882 at 1125. Accordingly, for the purposes of this motion, the Court adopts Redwood’s proposed construction of “frame guard period.”

1. The Court Finds That There Is A Genuine Dispute Of Material Fact Regarding Whether Claim 1 Of The ’140 Patent Is Directed To An Improved Data Format.

The Court is not convinced, at this time, that claim 1 of the ’140 patent is directed to an abstract idea.

Netgear argues that, even under Redwood’s construction of “frame guard period,” the distinction between a “frame guard period” and a “guard period” is meaningless. D.I. 22 at 6-7. The Court disagrees. *Uniloc* is illustrative. In that case, the Federal Circuit found that the additional data field recited by the claim at-issue in that case enabled a primary station to do something it could not do before—namely, send inquiry messages and poll parked secondary stations at the same time. *Uniloc*, 957 F.3d at 1307. Claim 1 of the ’140 patent is similar to the

claim at-issue in *Uniloc*, because the frame guard period creates a new type of frame by appending an “additional form of data” (the frame guard period) to a conventional frame. The specification explains that a frame guard period included in an OFDM signal prevents an interfering wave from interfering with a second frame and that conventional techniques could not prevent interfering waves from interfering with the second frame.⁴ ’140 patent at 18:63-19:2. Accepting that fact as true, the novel frame described by claim 1 of the ’140 patent can do something that conventional frames could not. Accordingly, the Court denies Netgear’s motion to dismiss Count III of Redwood’s Complaint because there is a genuine dispute of material fact regarding whether claim 1 of the ’140 patent is directed to a specific improvement of a data format.

iii. The ’671 Patent

Claim 4 recites:

A wireless communication station comprising:

a transmitter configured to transmit a beacon with information associated with a network being described therein to another communication station to construct a network, the beacon also including timing information indicating which time periods during which the communication station cannot receive a transmission; and

a receiver configured to receive timing information from said another communication station, the timing information indicating which time periods during which the another communication station cannot receive a transmission.

Claim 4 of the ’671 patent describes a “wireless communication station” that includes a “transmitter” and a “receiver.” *Id.* The transmitter is configured to transmit a beacon that

⁴ Netgear argues that Redwood’s citation to the specification “attempts to import details from the specification into the claim.” D.I. 22 at 6. However, “the specification [is] useful in understanding the problem facing the inventor as well as what the patent describes as the invention.” *ChargePoint*, 920 F.3d 759 at 767 (internal citations omitted); *see also USA, Inc. v. LG Elecs. USA, Inc.*, 957 F.3d 1303, 1307 (Fed. Cir. 2020) (“Claims need not articulate the advantages of the claimed combinations to be eligible.”).

indicates to other communication stations when the transmitting station is not able to receive a transmission. *Id.* The receiver does the opposite—it is configured to receive a beacon from a transmitting station that indicates to the receiving station when the transmitting station is not able to receive a transmission. *Id.* Thus, the claim describes a wireless communication station that can communicate with other communication stations to (a) tell those stations the time periods during which it cannot receive a transmission, and (b) hear from those stations the time periods during which those stations are not capable of receiving a transmission.

1. The Court Finds That Claim 4 Of The '671 Patent Is Directed To An Abstract Idea.

Redwood argues that the '671 patent solves the problem of signal interference by “setting beacon transmission timing so as not to collide with the arrangement of already existing beacons.” D.I. 21 at 17. Redwood further argues that claim 4 of the '671 patent implements that solution with the claimed transmitter (which transmits timing information) and receiver (which receives timing information). *Id.*

However, Redwood fails to explain how the claimed transmitter and receiver advance over the prior art or function as a specific improvement to computer functionality. The specification of the '671 patent describes that contemporary communication stations could receive transmissions from other communication stations that indicated the time period during which those transmission stations could not receive a transmission. Specifically, the specification states that, under the “Access Control Procedure in IEEE 802.11,” *id.*, 4:45, a transmission source communication station, at the time of data transmission, stores “application information” in the header of a frame. *Id.*, 5:8-13. That application information includes “a time until the end of the transaction of the data communication.” *Id.* The communication station that

is the target destination of that data frame then performs a “reception operation” limited to the time period designated in the header. *Id.*, 5:15-20. The specification also explains that neighboring stations (i.e. those stations that are not the target station of the transmitting source communication station) stop their data transmission operations while the transmitting station is performing its transmission. *Id.*, 5:20-26. Accordingly, the specification describes prior art communication stations that were capable of transmitting and receiving data that identified when those stations could send and receive transmissions.

As a result, the Court is not convinced by Redwood’s argument that the claimed advance over the prior art is the “communicati[on] [of] windows of transmission opportunities among [] communication stations.” D.I. 21 at 17. The Court is also not convinced that the claim is directed to a “specific improvement to computer functionality,” because claim 4 of the ’671 patent fails to identify a specific improvement to the communication of windows of transmission opportunities among communication stations—such as a new way of communicating those transmission opportunities or a means of improving the already-known methods of doing so. The specification explains that “the present invention relates to a wireless communication system, a wireless communication apparatus, a wireless communication method and a computer program, all enabling each communication station to evade mutual interference while performing communication securing a band by providing a prioritized utilization region.” ’671 patent, 1:38-34. However, even if that concept is inventive, it is “not captured in the claims.” *Weisner*, 51 F.4th at 1083. Accordingly, the Court finds that the claim is patent-ineligible at *Alice* step one, because it is directed to the abstract idea of “transmitting and receiving timing information.”

2. The Court Finds That Claim 4 Of The '671 Patent Is Not Patent-Eligible At Alice Step 2.

At *Alice* step two, the Court finds no saving inventive concept in claim 4 of the '671 patent, either individually or as an ordered combination. As discussed above, “transmitter[s]” and “receiver[s]” that are capable of transmitting and receiving timing information were generic, well-known components in the prior art. *E.g.* 5:8-26. Prior art communication stations that incorporated both a transmitter and a receiver were also well-known. *Id.* Accordingly, the claims recite generic components that “behave exactly as expected according to their ordinary use.” *In re TLI Commc'ns LLC Patent Litig.*, 823 F.3d 607, 615 (Fed. Cir. 2016). Thus, the Court finds no inventive concept that transforms the claim into a patent-eligible application of the abstract idea of “transmitting and receiving timing information,” either individually or as an ordered limitation.

iv. The '536 Patent

Claim 1 recites:

A communication circuit used in a mesh station using a signal described in IEEE 802.11, comprising:

a modulator circuit configured to output a modulated signal based on information specifying a duration of transmission opportunities and information specifying a periodicity of the transmission opportunities,

wherein the mesh station sets an offset of the transmission opportunity indicating a beginning of the transmission opportunity with respect to a beginning of a transmission interval.

Claim 1 of the '536 patent describes a “communication circuit” for use in a “mesh station.” *Id.* The communication circuit contains a “modulator circuit” that is configured to output a signal based on information that specifies a duration and periodicity of transmission opportunities, and a “mesh station” that offsets the transmission opportunity based on the beginning of a transmission interval. *Id.* In other words, the modulator circuit is configured to

send a signal of a particular length and duration in response to information that tells the modulator circuit what the length and duration of that signal should be, and the mesh station offsets when that signal is sent.

1. The Court Finds That Claim 1 Of The '536 Patent Is Directed To An Abstract Idea.

Redwood argues that claim 1 of the '536 patent advances over the prior art by setting the durations and periodicities of transmission opportunities (including an offset) to solve the problem of mutual interference among communication stations. D.I. 21 at 19-20. According to Redwood, the claimed modulator circuit and mesh station operate in conjunction to “effectively shift beacon transmission times away from each other to evade overlapping transmissions.” *Id.* The specification further explains that offsetting beacon transmission times away from each other reduces interference between communication stations by preventing those stations from sending overlapping transmissions:

By providing the TBTT offset, actual beacon transmission times can be shifted from each other even in a case where two communication stations arrange their beacon transmission timing in the same slot on a super frame. Even if beacons collide with each other in a certain super frame period, each communication station can listen to mutual beacons (or neighboring communication stations can listen to the beacons of both of them) in another super frame period.

'536 patent, 22:13-20.

The Court finds that claim 1 of the '536 patent is directed towards an abstract idea at *Alice* step one. Modulating a signal based on information that specifies the duration and periodicity of transmission opportunities was well-known in the art:

In the IEEE 802.11, as a basic medium access procedure, the [Carrier Sense Multiple Access with Collision Avoidance] is adopted (as described above). Before a transmitter transmits something, the transmitter operates a timer of the backoff for a random time while monitoring a medium state, and the transmission

right is not given to the transmitter until the state of the nonexistence of transmission signals during that period is confirmed.

'536 patent, 8:1-7. Similarly, methods of offsetting transmission opportunities were also well-known in the art. *Id.*, 7:63-67 (explaining that four kinds of packet intervals are defined in the IEEE 802.11 standard, and that that the “priority setting of the transmission right competition of packets is performed according to ... the length of the packet interval”). Thus, the claim fails to recite an improvement in computer-related technology—such as a better way to modulate a signal, or an improved method of offsetting a transmission opportunity.

Also, claim 1 of the '536 patent is drafted in result-focused functional language. Specifically, the claim does not explain how the modulator circuit outputs the modulated signal or how the mesh station sets an offset. *Two-Way Media*, 874 F.3d at 1337. And, while the specification provides a technical explanation of how to shift beacon transmission times to avoid interference using, *inter alia*, the IEEE 802.11 standard, *e.g.*, '536 patent, 22:13-20, the claim language does not require those details. *Id.*, claim 1. Instead, the broad claim language preempts systems that transmit data in response to timing information with an interval between transmission opportunities. *Id.*; *ChargePoint*, 920 F.3d at 769. Accordingly, the Court finds that the claim is directed to the abstract idea of “setting durations and periodicities for data transmissions, and setting intervals between data transmissions.” That idea is abstract, because claims directed to the transmission and manipulation of data are abstract. *Two-Way Media*, 874 F.3d at 1337 (claims using result-based functional language focused on sending and monitoring information are directed to an abstract idea).

2. The Court Finds That Claim 1 Of The '536 Patent Is Not Patent-Eligible At Alice Step 2.

At *Alice* step two, the Court finds no saving inventive concept in claim 1 of the '536 patent, either individually or as an ordered combination. Merely reciting an abstract idea performed on generic computer components, as claim 1 of the '536 patent does, fails to set forth an inventive concept. *BSG Tech*, 899 F.3d at 1290. The claim fails to recite any improvement to the functioning of the claimed “communication circuit,” “mesh station,” or “modulator circuit,” and merely describes modulating and transmitting data using those generic, well-known components as a tool. '536 patent, claim 1. Also, the “recited physical components behave exactly as expected according to their ordinary use.” *Id.*; *In re TLI*, 823 F.3d at 615. Thus, the Court finds no inventive concept that transforms the claims into a patent-eligible application of the abstract idea of “setting durations and periodicities for data transmissions, and setting intervals between data transmissions.”

C. The Court Finds That The Patent-Eligibility Of The Representative Claims Can Be Resolved At This Time.

As discussed above, it is apparent from the face of the Challenged Patents that the Representative Claims of the '457, '671, and '536 patents are not directed to patent-eligible subject matter, because those claims are (1) directed to an abstract idea and (2) do not recite an inventive concept, either individually or as an ordered combination. Accordingly, the Court finds that it can determine the patent eligibility of those claims at the motion to dismiss stage. *See FairWarning*, 839 F.3d at 1097; *SAP Am.*, 898 F.3d at 1166 (patent eligibility “may be, and frequently has been, resolved on a Rule 12(b)(6) or (c) motion”). Redwood has not (1) raised any genuine dispute of material fact that, taken as true, prevents the Court from resolving the patent-eligibility question as a matter of law, or (2) proffered any constructions of these

Representative Claims that could render the claims non-abstract. *See id.*; *Aatrix*, 882 F.3d at 1128.

Finding that the Representative Claims of the '457, '671, and '536 patents are not directed to patent-eligible subject matter, the Court grants-in-part Netgear's Partial Motion to Dismiss Redwood's First Amended Complaint, and dismisses without prejudice Counts I, IV, and V of the First Amended Complaint. The Court denies-in-part Netgear's motion with respect to Count III, because there is a genuine dispute of material fact regarding whether claim 1 of the '140 patent is directed to a specific, non-abstract improvement in technology.

The Third Circuit has adopted a liberal approach to the amendment of pleadings to ensure that "a particular claim will be decided on the merits rather than on technicalities." *Dole v. Arco Chem. Co.*, 921 F.2d 484, 486-87 (3d Cir.1990) (citations omitted). Given that Redwood may be able to fix the deficiencies identified by the Court, the Court dismisses Redwood's Complaint without prejudice to Redwood's ability to move for leave to amend its Complaint at an appropriate time and in a timely manner in the future. *See Aatrix*, 882 F.3d at 1126-1128.

IV. CONCLUSION

For the foregoing reasons, this 27th day of June, 2024, **IT IS HEREBY ORDERED** as follows:

1. Netgear's Partial Motion to Dismiss Plaintiff's First Amended Complaint is **GRANTED-IN-PART** and **DENIED-IN-PART**. *See* D.I. 17. Counts I, IV, and V of Redwood's First Amended Complaint are **DISMISSED WITHOUT PREJUDICE**. *See* D.I. 14. The Motion is otherwise denied.