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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SHINE MICRO INC., MARK JOHNSON, and
SOFTWARE RADIO TECHNOLOGY PLC,
Appellants

Appeal 2020-000390
Reexamination Control 90/013,498
Patent 7,512,095 B2
Technology Center 3900

Before JOHN A. JEFFERY, MARC S. HOFF, and DENISE M. POTHIER,
Administrative Patent Judges.

POTHIER, *Administrative Patent Judge.*

DECISION ON APPEAL
STATEMENT OF THE CASE

This proceeding returns to us from a previous decision, dated August 24, 2017 (“Dec.”), where we affirmed the existing rejections of claims 1–15 and 24–26. Dec. 2, 33. Subsequent to the decision, certain claims have been amended, canceled, and added. *See* Appeal Br. i–iii (Claims App.).¹

¹ Throughout this opinion, we refer to the Final Action (Final Act.) mailed January 17, 2019, the Advisory Action (Advisory Act.) mailed April 3, 2019, the Appeal Brief (Appeal Br.) filed June 17, 2019, the Examiner’s Answer (Ans.) mailed July 31, 2019, and the Reply Brief (Reply Br.) filed September 30, 2019.

Pursuant to 35 U.S.C. § 134(b) and 306, Appellant² appeals from the final rejection of claims 1, 15, and 24–32. *Id.* at 3. Claims 2–14 and 16–23 have been canceled. *Id.* at i–ii (Claims App.). We have jurisdiction under 35 U.S.C. § 6(b). We heard the appeal on January 13, 2020.

We affirm.

CLAIMED SUBJECT MATTER

United States Patent Number 7,512,095 B2 (“the ’095 patent”) is entitled “Multiple Access Communications System for Moveable Objects.” The ’095 patent, code (54). The ’095 patent relates to transmitting “geographical position data of one or more moving or stationary objects, to one or more other moving or stationary objects on the same communication frequency without interfering with any other users[.]” *Id.* at 1:7–11. Examples of moving or stationary objects include boats or ships (e.g., 20–25). *Id.* at 1:61–63, 2:48-54, Fig. 1. “The present invention is a non-complex data communication system that listens on a given RF [(radio frequency)] frequency and transmits [its] own position data only when there are no other user transmissions.” *Id.* at 1:22–25.

Amended independent claim 1 is reproduced below:

A radio communication system comprised of[:]
two groups of mobile radios,
wherein the first group of mobile radios utilizes a time
division multiple access (TDMA) protocol in which a radio
channel is divided into predetermined time slots, and the second
group of mobile radios is not utilizing the TDMA protocol,

² Appellant identifies the real parties in interest as Shine Micro Inc., Mark Johnson, and Software Radio Technology PLC. Appeal Br. 1. We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42(a)

wherein the mobile radios of the second group each comprise:
a transmitter;
a receiver; and
a transmission detector having an input connected to a first output of the receiver and an output being connected with a first input of the transmitter;
wherein the transmission detector[:]
is capable of detecting the predetermined time slots utilized by the first group of radios and
is capable of scanning throughout a predetermined portion of a time slot for the appearance of transmissions initiated by other radios and when a transmission is detected, the transmitter does not transmit its navigational data and when a transmission is not detected, the transmitter transmits navigational data.

Appeal Br. i (Claims App.) (bracketed language and underlining omitted) (reformatted for clarity).

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Fulthorp	US 5,737,330	Apr. 7, 1998
ITU (International Telecommunications Union) Radiocommunication Assembly, <i>Recommendation ITU-R M. 1371-1 - Technical Characteristics for a Universal Shipborne Automatic Identification System Using Time Division Multiple Access in the VHF Maritime Mobile Band 1-98 (1998-2001)</i> (“ITU-RM 1371-1”)		

REJECTIONS

Claims 1, 15, and 24-32 are rejected under 35 U.S.C. § 305 as enlarging the scope of the claims of the patent being reexamined. Final Act. 5-7.

Claims 1, 15, and 24–29 are rejected under 35 U.S.C. § 102(b)³ as being anticipated by Fulthorp. *Id.* at 10–21.

Claims 30–32 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Fulthorp and ITU-RM 1371-1. *Id.* at 22–30.⁴

OPINION

I. PROCEDURAL MATTERS

A. *Request for Remand*

Appellant submits amendments to the claims (Reply Br., Apps. A–B) and requests that we remand this proceeding to the Examiner for further consideration “to the extent the Board continues to conclude the appealed claims to be unpatentable.” Reply Br. 9 (citing 37 C.F.R. § 41.50(a)(1)). Appellant asserts that the Examiner suggested amendments to the claims to overcome the 35 U.S.C. § 305 rejection, which would render the rejection moot and would place the claims in condition for allowance. *Id.* at 9–10.

Our regulations related to remands state that we “*may* . . . remand an application to the examiner.” 37 C.F.R. § 41.50(a)(1) (emphasis added). The regulations also state “the Board *may* relinquish jurisdiction to the examiner” if “the Board determines that the file is not complete or is not in compliance with the requirements of this subpart” 37 C.F.R. § 41.35(e)

³ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. §§ 102 and 103. Because the ’095 patent has an effective filing date before the effective date of the applicable AIA amendments, we refer to the pre-AIA versions of 35 U.S.C. §§ 102 and 103.

⁴ The rejections based on 35 U.S.C. § 112 (Final Act. 7–10) have been withdrawn. *See* Advisory Act. 3–4.

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(emphasis added). Additionally, the Manual of Patent Examining Procedure (MPEP) § 1211.02 states “[t]here is no obligation resting on the Board to consider new or amended claims submitted while it has jurisdiction of the appeal.” MPEP § 1211.02 (9th Rev. 08.2017 Jan. 2018) (citing *In re Sweet*, 136 F.2d 722 (CCPA 1943)).

We decline to exercise our discretion to remand this proceeding in this instance. The Examiner disputes how certain phrases in the claim should be construed but offers no precise claim language to overcome all the present rejections. *See* Ans. 22–23 (discussing *Fulthorp* and stating “the claims must be amended accordingly”), 27 (same), *cited in* Reply Br. 9–10. We further do not find the file in this proceeding is incomplete or is not in compliance with the requirements as set forth in 37 C.F.R. § 41.35(e), such that a remand in this instance is warranted.

B. Finality

Appellant further contests the finality of the Office Action mailed January 17, 2019. Reply Br. 10.

Appellant’s contentions related to finality are not within the jurisdiction of the Board. *See* MPEP §§ 1002 and 1201; *see also In re Hengehold*, 440 F.2d 1395, 1403 (CCPA 1971) (stating that there are many kinds of decisions made by examiners, “which have not been and are not now appealable to the board or to this court when they are not directly connected with the merits of issues involving rejections of claims, but traditionally have been settled by petition to the Commissioner.”) Instead, these arguments relate to a petitionable matter. *See* MPEP §§ 706.07(c) (addressing premature final rejections, indicating this question may not be

advanced as a ground on appeal, and stating the question is reviewable by petition under 37 C.F.R. § 1.181⁵) and 1002.02(c)(3)(a) (indicating petitions related to the “prematureness” of a final rejection are decided by Technology Center Directors). We therefore will not address this argument on appeal.

II. ENLARGING THE CLAIMS’ SCOPE – 35 U.S.C. § 305

The Examiner found that the amendments to independent claims 1, 15, and 26 are broader in scope than original claims 1–14 for several reasons. Final Act. 5–6; see Ans. 4–20.

A. “[T]ransmission [D]etector”

The Examiner contends that the amended phrase “transmission detector . . . is capable of detecting the predetermined time slots utilized by the first group of radios” in claim 1 (Appeal Br. i (Claims App.)) broadens its scope from the previously recited “means for detecting transmission periods by a transmission detector” (“the previously recited ‘means’”) in claim 1 (the ’095 patent 4:64–65). Final Act. 5–6. The Examiner determines that claim 1 no longer recites the previously recited “means” (*id.* at 5–6) and thus no longer limits the claims to the “specific structure” that includes “hardware (e.g., circuitry) or a specially-programmed algorithm that detects a time or interval when transmission occur” in the ’095 patent as determined in our previous decision. *Id.* at 5–6 (quoting Dec. 8).

⁵ Appellant contested the finality in a submission entitled “Amendment and Response to Final Office Action” (“Amendment and Response”) submitted March 18, 2019. See Amendment and Response, 5–7.

Appellant responds, contending the currently recited “transmission detector” is narrower in scope than the previous recited “means” in two aspects. Appeal Br. 16–19. First, Appellant argues that the recited “transmission detector” is limited to hardware (e.g., circuitry) as opposed to the previously recited “means,” which included both hardware and specifically-programmed algorithms that detects a time or interval when transmissions occur. *Id.* at 16–17; Reply Br. 5–7. In the Reply Brief, Appellant supports this position by citing to *Personalized Media Communications. v. ITC*, 161 F.3d 696, 704–05 (Fed. Cir. 1998), which, according to Appellant, construed “the term ‘detector,’ although broad,” to be “structural” and “not a generic structural term such as ‘means[.]’” Reply Br. 6. Second, Appellant asserts the “transmission detector” is limited to more specific functions, including “capable of detecting the predetermined time slots utilized by the first group of radios” (Appeal Br. i (Claims App.)) as opposed to the previously recited “detecting transmission periods” (the ’095 patent 4:64). Appeal Br. 16–19. Appellant also states amending claim 1 from the transmission detector “scanning, within a predictable window of time, for the appearance of transmissions” (the ’095 patent 5:1–2) to a transmission detector “capable of scanning throughout a pre-determined portion of a time slot for the appearance of transmissions” (Appeal Br. i (Claims App.)) narrows claim 1’s scope. Appeal Br. 16, 19.

We agree with the Examiner that claim 1’s scope has broadened with regard to the recited “transmission detector” for the following reasons.

“No proposed amended or new claim enlarging the scope of a claim of the patent will be permitted in a reexamination proceeding under this chapter.” 35 U.S.C. § 305. The Federal Circuit has stated in this regard:

We have strictly interpreted § 305 to prohibit any broadening amendments. The reexamined claim cannot be broader in any respect, even if it is narrowed in other respects. *Predicate Logic, Inc. v. Distributive Software, Inc.*, 544 F.3d 1298, 1303 (Fed. Cir. 2008). Therefore, while reexamination can make certain changes in the patent, such changes are strictly circumscribed by the original patent’s disclosure and claim scope.

As a result, a reexamined patent claim cannot contain within its scope any product or process which would not have infringed the original claims. *Id.* Put another way, . . . reexamination does not provide larger claim scope to a patentee than the patentee had under the original patent claims.

Senju Pharm. Co., Ltd. v. Apotex, Inc., 746 F.3d 1344, 1352–53 (Fed. Cir. 2014).

Both Appellant and the Examiner agree that the new “transmission detector” recitation in claim 1 no longer invokes 35 U.S.C. § 112, sixth paragraph. Final Act. 5–6 (stating “claims 1, 15, and 26 no longer requires ‘means for detecting transmission periods . . .’” and “no longer includes . . . ‘hardware (e.g., circuitry) or a specially-programmed algorithm that detects a time or interval when transmissions occur’”); Appeal Br. 17 (stating the recitation “transmission detector” is “structure [that] is now limited to hardware, i.e., a transmission detector, rather than the broader coverage of both hardware and an algorithm . . .”). However, the Examiner and Appellant disagree on whether this newly recited “transmission detector” is broader or narrower in scope than the previously recited “means” in claim 1.

In our earlier decision, we construed the previously recited “means” in light of the Specification “to include structure, material, or acts and its equivalents, including hardware, circuitry, or an algorithm, that detect a time or interval when traffic is transmitting. This includes detecting energy (e.g., signal strength) of transmitted traffic for a time or interval. *See* the ’095 patent 1:44–45.” Dec. 14. As such, the broadest reasonable construction of the previously recited “means” in claim 1 is the structure, material or acts described in the Specification as performing the entire claimed function (i.e., detecting transmissions periods) and equivalents to the disclosed structure, material or acts. *See In re Donaldson*, 16 F.3d 1189, 1193 (Fed. Cir. 1994).

On the other hand, the Federal Circuit has construed the term “detector” in at least one instance as

not a generic structural term such as “means,” “element,” or “device” . . . Instead, . . . “detector” had a well-known meaning to those of skill in the electrical arts connotative of structure, including a rectifier or demodulator. . . . Even though the term “detector” does not specifically evoke a particular structure, it does convey to one knowledgeable in the art a variety of structures known as “detectors.” We therefore conclude that the term “detector” is a sufficiently definite structural term to preclude the application of § 112, ¶ 6.

Personalized Media Commc’ns, 161 F.3d at 704–05, *cited in* Reply Br. 6.

Based on the above understanding, the newly recited “transmission detector . . . capable of detecting the predetermined time slots utilized by the first group of radios” may include a variety of structures (e.g., circuitry), which are not those described in the ’095 patent’s Specification or an equivalent to the previously recited “means” in claim 1. From this

perspective, we agree with the Examiner that the newly recited “detector” appears to broaden claim 1.

However, the problem here is that the Specification provides little details as to what structures (e.g., circuitry and its equivalents) perform the function of “detecting transmission periods” in the previously recited means,⁶ such that we can distinguish meaningfully between the previously recited “means” and a “transmission detector” that possesses the functionally defined limitation of being “capable of detecting the predetermined time slots utilized by the first group of radios” as claim 1 now recites. For example, “transmission detector 28” is shown as a box. The ’095 patent 3:17–18, Fig. 3. No further details regarding the detector are provided in the Specification. *See id.*; *see also* Ans. 11 (stating the ’095 patent does not address “any specific structure that performs the function[s] of detecting transmission periods.”). Additionally, although contending the “‘transmission detector’ is limited . . . to a specific type of hardware” (Appeal Br. 17; *see id.* at 17–19), Appellant provides no examples from the Specification (or otherwise) of what type of hardware would be encompassed by the new “transmission detector” recitation. *See* Appeal Br. 17–19; *see* Oral Hearing Transcript mailed Jan. 24, 2020 (“Tr.”) 8–13 (discussing what the structure of a transmission detector is).

The ’095 patent further discusses “energy in the detection period” is recognized (the ’095 patent 1:44–45, *cited in* Dec. 14), “each of the devices

⁶ Whether the previously recited “means” in claim 1 presented issues related to lack of written description under 35 U.S.C. § 112, first paragraph was not before us.

. . . 10 include a unit for detecting free transmissions time within which a transmitter can be activated” (the ’095 patent 2:63–65), and “[t]he system will listen within a detection period of silence” (*id.* at 3:29–30). But, once again, these passages provide little details as to the structure that performs the previously recited “means” or that possesses the functionally defined limitation of “detecting the predetermined time slots utilized by the first group of radios” as claim 1 presently recites.

Thus, consistent with the Specification, whether or not some programming (e.g., an algorithm) is required to detect the recited “predetermined time slots utilized by the first group of radios” as newly recited is not immediately apparent. *See generally* the ’095 patent. Given the lack of structural details in the Specification and the black box “transmission detector” in Figure 3, we are left to question whether the new “transmission detector” recitation (i.e., “capable of detecting the predetermined time slots utilized by the first group of radios”) should be construed as a means-plus-function limitation. Appellant apparently appreciates our dilemma, offering an alternative construction that the term “detector” in claim 1 “is non-structural” and “would also invoke §112(f).” Reply Br. 6. If construed in this fashion, Appellant argues the recited “transmission detector” “points to the same corresponding structure in the specification as the ‘means for detecting transmission periods,’ rendering the ‘means for’ language redundant, such that deleting the ‘means for’ language does not broaden the scope. Rather, the scope remains the same” *Id.* We agree that the structure, material, or acts to perform the function of “detecting the predetermined time slots utilized by the first group of radios”

(or its equivalents) as claim 1 presently recites (Appeal Br. i (Claims App.)) would most likely be the same as the structure, material, or acts to perform the function of “detecting transmission periods” as claim 1 previously recited (the ’095 patent 4:64).

In any event, Appellant further contends the newly recited limitation of the “transmission detector . . . is capable of scanning *throughout* a predetermined portion of a time slot for the appearance of transmissions” in claim 1 (Appeal Br. i (Claims App.) (emphasis added)) is narrower than the previously recited “transmission detector . . . scanning, *within* a predictable window of time, for the appearance of transmissions” (the ’095 patent 5:1–2 (emphasis added)). Appeal Br. 18–19. Appellant asserts, in particular, that the recited phrase “a predetermined portion of a time slot” (Appeal Br. i (Claims App.)) is narrower than the previously recited “a predictable window of time” (the ’095 patent 5:1–2). Appeal Br. 18–19. We disagree.

The Specification provides no examples of “a predictable window of time,” but rather just discusses listening for “a predefined time period.” The ’095 patent, 1:25–26. Moreover, the newly recited claim limitation recites “a predetermined portion of *a* time slot” (Appeal Br. i (Claims App.) (emphasis added)), which does not have antecedent basis back to the divided, “predetermined time slots” (*id.*). We thus disagree that the recited “a predetermined portion of a time slot” as newly recited is limited to time slots within a TDMA protocol as argued (*see id.* at 18–19), such that the scope of claim 1 is narrower than the previously recited “predictable window of time” (the ’095 patent 5:1–2). Rather, the record does not demonstrate adequately whether or not “a predetermined portion of a time slot” as now

recited in claim 1 is narrower in scope than the generally recited “predictable window of time” as previously claimed.

Also, as emphasized above, claim 1 now recites scanning *throughout* a predetermined portion of a time slot as opposed the previous recitation of scanning *within* a predictable window of time. We previously construed the recitation “within a predictable window of time” to mean scanning “during a predictable window (e.g., before the end of the window) but . . . *not requir[ing] scanning for the entire* ‘predictable window of time.’” Dec. 16 (emphasis added); *see id.* at 21–22. Appellant has not disputed this understanding of the term “within.” On the other hand, “throughout” means “all the way from one end to the other of” or “during the whole course or period of.”⁷ Based on the above constructions and depending on the length of the recited “predetermined portion of a time slot,” scanning *during* a predictable window of time (e.g., before the end of the window) can be viewed as narrow in scope than scanning *throughout* a predetermined portion of a time slot. *See* Ans. 8–9 (addressing the “scanning” limitation and stating the new recitation is viewed as broader in scope than what claim 1 previously recited).

For the above reasons, the recited “transmission detector . . . capable of scanning throughout a predetermined portion of a time slot for the appearance of transmissions” in claim 1 broadens aspects of claim 1 (Appeal Br. i (Claims App.)), over the previously recited “transmission detector . . .

⁷ *Throughout*, Merriam-Webster.com, available at <https://www.merriam-webster.com/dictionary/throughout> (defs. 1 and 2) (last visited Jan. 15, 2020).

scanning, within a predictable window of time, for the appearance of transmissions . . .” (the ’095 patent 5:1–2). Similar limitations are found in independent claims 15 and 26 (Appeal Br. i–ii (Claims App.)) and thus these amended claim limitations broaden aspects of claims 15 and 26.

B. “[M]obile [R]adios”

The Examiner also contends the amended language “two groups of mobile radios” (Appeal Br. ii (Claims App.)) broadens the scope of independent claims 1, 15, and 26 over the previously recited “several moving participants . . . that are each equipped with a communication device” (the ’095 patent 4:57–59). Final Act. 6; Ans. 14–19. The Examiner contends the “‘mobile radios’” “are not necessarily ‘moving participants’, as these ‘mobile radios’ may be either movable or stationary.” Final Act. 6. The Examiner indicates “the ‘communication device’ is seen to be equivalent to the now claimed ‘mobile radios[.]’” Ans. 14; *see id.* at 15–16, 18–19 (citing the ’095 patent 1:7–16, 59–63).

Appellant counters the previously recited “‘participants’ is a very broad term that can include any component that participates in the communication system, including, among others, radios.” Appeal Br. 20. Appellant argues the only participants in the Specification capable of transmitting and receiving communication is a radio and thus “mobile radios” narrows the participants to two groups of radios. *Id.* at 20 (citing the ’095 patent 2:48–50). Appellant also argues the presently recited “two groups” is narrower than the previously recited “several participants.” *Id.* at 20–21. Appellant further asserts the previously recited “moving” is broader in scope than or has the same scope as the presently recited “mobile.” *Id.* at

21–22 (citing *Mobile*, Oxford English Dictionary, <https://en.oxforddictionaries.com/definition/mobile>⁸ and *Gemstar-TV Guide Int'l, Inc. v. ITC*, 383 F.3d 1352, 1368⁹ (Fed. Cir. 2004) (quoting Webster’s Third New International Dictionary 1480 (1993))).

We agree with Appellant that *Gemstar-TV* found “[t]he ordinary meaning of ‘moving’ is: ‘that is marked by or capable of movement: that is not fixed or stationary.’” *Gemstar-TV*, 383 F.3d at 1368. As such, “moving participants” in claim 1 may be construed to include those participants capable of movement, and thus have a similar scope to the term “mobile.” However, claim 1 was amended not just to replace “moving participants” with “mobile radios.” Instead, claim 1 was amended, replacing the phrase “several moving participants . . . that are each equipped with a communication device . . . having a transmitter . . . and receiver” (the ’095 patent 4:57–61) with “two groups of mobile radios . . . , wherein the mobile radios of the second group each comprise: a transmitter[and] a receiver . . .” (Appeal Br. i (Claims App.)). For the reasons below, we agree that the newly recited claim enlarges the scope of the previously recited limitation.

The Specification describes and maps “a group of several moving participants” or “a group of moveable participants” to elements 20–25. The ’095 patent 2:48–50, 2:66–67, Figs. 1–2. The disclosure of the ’095 patent also discusses moving participants as “moveable object” and states the objects include boats, ships, sailboat masts, or crab pot buoys. *Id.* at 1:61–

⁸ Appellant states Oxford English Dictionary defines “mobile” as “able to move or be moved freely or easily.” *Id.* at 21.

⁹ Appellant mistakenly cites to page 1621. *Id.* at 22.

63, 2:52–54. As such, consistent with the '095 patent's Specification, the previously recited “moving participants” include boats, ships, masts, and buoys.

Additionally, the Specification states “[e]ach one of the moving participants shown in FIG. 1 could include a communication device 10 shown in FIG. 3.” *Id.* at 2:51–52, Fig. 3; *see id.* at 1:61–63, 2:48–54. The Specification describes communication device 10 is “about the size of a handheld flashlight” and performs a radio's functions. *Id.* at 1:59–61, 3:9–18, Figs. 1–3. Based on the foregoing and consistent with the '095 patent, the previously recited “communication device” for each of the “several moving participants” (*id.* at 4:57–59) includes a communication device that performs the radio functions separate from the boat or ship and intended to be mounted on a moveable object (e.g., a boat).

Turning the presently recited “mobile radios,” we initially note that neither the phrase “mobile radios” nor “mobile radio” appear in the Specification. *See generally id.* On the other hand, one technical reference defines “mobile radio” as “[r]adio communication in which the transmitter is installed in a vessel, vehicle, or airplane and can be operated while in motion.” *Mobile Radio*, MCGRAW-HILL DICTIONARY OF COMPUTING & COMMUNICATIONS 240 (2003). Consistent with this definition, a “mobile radio” in claim 1 is a radio that communicates using a transmitter and is installed in a vessel, vehicle, or airplane. In the '095 patent's Specification, communication device 10 is consistent with the above definition of a “mobile radio,” because communication device 10 (1) contains an RF

transmitter 1, (2) performs a radio's functions, and (3) is installed in a vessel (e.g., a ship or boat). The '095 patent 1:59–63, 2:51–54, 3:9–18, Fig. 3.

Furthermore, based on the above understanding, the newly recited “mobile radios” (Appeal Br. i (Claims App.)) encompass communication devices, like communication device 10 described in the Specification, whereas the previously recited “moving participants[,] . . . each equipped with a communication device[,]” encompassed *both* vessels *and* communication devices (the '095 patent 4:57–59). That is, the presently recited “mobile radios” now omits the previously recited “moving participants,” which includes ships, boats, and other objects, and only encompasses the previously recited “communication device.” *Compare* Appeal Br. i (Claims App.), *with* the '095 patent 4:57–59. The Examiner also emphasizes this difference. *See* Ans. 13 (noting “there is no current requirement that there are several moving participants . . . [,] each equipped mobile radios for exchanging the information.”), 15 (stating “the scope of amended claims 1, as well as claims 15 and 26, now does not require **several moving participants** that are each equipped with the second group of mobile radios.”). In this respect, amended claim 1 has enlarged the scope of original claim 1 of the '095 patent.

Accordingly, we determine the recited “two groups of mobile radios” in claim 1, as well as commensurate limitations (Appeal Br. i–ii (Claims App.)) in independent claims 15 and 26, broaden aspects of the claims over the previously recited “several moving participants . . . that are each equipped with a communication device” in original claim 1 (the '095 patent 4:57–59).

C. “[C]haracterized by a method, for detecting free transmission periods . . . which control the transmissions of the transmitter”

Lastly, the Examiner finds that amended claims 1, 15, and 26 “now do not recite the functionality of the ‘receiver’, whereby original patented claim 1 recited a ‘receiver characterized by a method for detecting free transmission periods which control the transmissions of the transmitter’.” Ans. 13 (underlining omitted). Appellant responds, arguing “[t]he claim element ‘characterized by a method, for detecting free transmission periods (8) which control the transmissions of the transmitter,’ describes **the communication system**, not the receiver.” Reply Br. 8 (citing the ’095 patent 3:27–31). We agree with Appellant.

Prior to the amendment, claim 1 recited

[a] communication system comprising[:]
several moving participants (20, 21, 22, 23, 24, 25) that are each equipped with a communication device (10) for exchanging information having a transmitter, transmissions from said transmitter, and receiver (1, 2)[,]
characterized by a method, for detecting free transmission periods (8) which control the transmissions of the transmitter (1)[.]

The ’095 patent 4:57–63 (indentations and bracketing added for clarity). As shown above and when considering the claim as a whole, the phrase “characterized by a method, for detecting free transmission periods (8) which control the transmissions of the transmitter (1)” modified the “communication system,” not the “receiver” as the Examiner found.

Thus, contrary the Examiner’s findings and conclusions, omitting the previously recited phrase “characterized by a method, for detecting free

transmission periods . . . which control the transmissions of the transmitter” from claim 1 does not omit a recited receiver functionality.

In summary, we determine amended independent claims 1, 15, and 26 enlarge the scope of original claim 1 in the ’095 patent, and thus, claims 1, 15, and 24–32 were properly rejected under 35 U.S.C. § 305. For the foregoing reasons, Appellant has not persuaded us of error in the rejection of independent claim 1 and claims 15 and 24–32, which are not argued separately.

III. ANTICIPATION REJECTION

Claims 1, 15, and 24–29 are rejected under 35 U.S.C. § 102(b) as being anticipated by Fulthorp. Final Act. 10–21. Of interest, the Examiner maps the recited “first group of mobile radios utilizes a time division multiple access (TDMA) protocol in which a radio channel is divided into predetermined time slots” in claim 1 to base stations 2 in Fulthorp. Final Act. 10–11 (citing Fulthorp 4:41–42, 8:56–9:4, 14:48–56, Figs. 1–4). The Examiner maps the recited “second group of mobile radios [which] is not utilizing the TDMA protocol” in claim 1 to remote units 6 in Fulthorp. *Id.* at 11.

A. Claims 1, 15, 26, 27, and 29

Appellant presents numerous arguments related to independent claims 1, 15, and 26. Appeal Br. 23–30. Among them, Appellant asserts base stations 2 in Fulthorp, mapped by the Examiner to the “first group of mobile radios,” cannot be a group of “mobile radios” as claim 1 recites. *Id.* at 23–25. Specifically, Appellant contends base stations 2 in Fulthorp are “fixed

location, ground based RF modems,” which are distinguishable from “mobile” remote units 6 in Fulthorp that “are mobile RF modems . . . installed in mobile vehicles, ships and aircraft . . .” (*id.* at 24 (citing Fulthorp 5:57–60, 19:53 and quoting 5:52–65 (bolding omitted))). For the following reasons, we agree that base stations 2 in Fulthorp are not “mobile radios” as claims 1, 15, and 26 recite.

A claim is given its broadest reasonable construction “in light of the specification as it would be interpreted by one of ordinary skill in the art” during examination. *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004) (citation omitted).

Initially, we disagree with the Examiner that the entire phrase,

A radio communication system comprised of two groups of mobile radios, wherein the first group of mobile radios utilizes a time division multiple access (TDMA) protocol in which a radio channel is divided into predetermined time slots, and the second group of mobile radios is not utilizing the TDMA protocol, wherein the mobile radios of the second group each comprise . . .

(Appeal Br. i (Claims App.)) is part of claim 1’s preamble and recites “the purpose or intended use of the mobile radios.” Ans. 23; Advisory Act. 18. Instead, like Appellant (Appeal Br. 27; Reply Br. 11), we find the phrase “comprised of” in the above quoted portion of claim 1 to be a transitional phrase (Appeal Br. 27), such that claim 1’s preamble is the recited “radio communication system” and the remainder of the claim is part of claim 1’s body. Thus, as claimed, claim 1’s system comprises two groups of mobile radios, each mobile radio in the second group further comprising a

transmitter, a receiver, and a transmission detector as recited. *Id.* at i (Claims App.).

Additionally, we construe the disputed “mobile radio” in claim 1 in light of the ’095 patent’s Specification and the ordinary artisan’s understanding. Notably, the phrase “mobile radios” or “mobile radio” does not appear in the Specification. *See generally* the ’905 patent. On the other hand and as previously noted, one technical reference defines “mobile radio” as “[r]adio communication in which the transmitter is installed in a vessel, vehicle, or airplane and can be operated while in motion.” *Mobile Radio*, MCGRAW-HILL DICTIONARY OF COMPUTING & COMMUNICATIONS 240 (2003). Consistent with this definition, a “mobile radio” in claim 1 is radio that communicates using a transmitter and is installed in a vessel, vehicle, or airplane. In the ’095 patent’s Specification, communication device 10 is a “mobile radio” because it (1) contains transmitter 1, receiver 2, and transmission detector 28, (2) performs a radio’s functions, and (3) is installed in a vessel or vehicle, or airplane (e.g., a ship or boat). The ’095 patent 1:59–63, 2:51–54, 3:9–18, Fig. 3.

Various references also distinguish a “mobile station” from a “base station.” For example, one source defines a “mobile station” similar to MCGRAW-HILL DICTIONARY OF COMPUTING & COMMUNICATIONS as “a radio station designed for installation in a vehicle and normally operated when in motion” (*Mobile Station*, THE AUTHORITATIVE DICTIONARY OF IEEE STANDARD TERMS 699 (7th ed. 2000)) and a “base station (mobile communication)” as “[a] land station in the land-mobile service carrying a radio communication service with mobile and fixed radio stations” (*Base*

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Station, THE AUTHORITATIVE DICTIONARY OF IEEE STANDARD TERMS 88 (7th ed. 2000). MCGRAW-HILL DICTIONARY OF COMPUTING & COMMUNICATIONS also defines a “base station” as “[a] land station, in the land mobile service, carrying on a service with land mobile stations” or “[a] station in a land mobile systems which remains in a fixed location and communicates with the mobile stations.” *Base Station*, MCGRAW-HILL DICTIONARY OF COMPUTING & COMMUNICATIONS 28 (2003) (defs. 1 and 2). Thus, as understood by an ordinary skilled artisan, a “base station” is land station that ordinarily is in a fixed location and communicates with mobile and fixed radio stations, and a “mobile radio” is a radio having a transmitter for communication, designed for installation in a vehicle or vessel, and normally operated in motion.

This interpretation is also consistent with the '095 patent's disclosure. For example, the Specification describes communication device 10 as having an RF radio transmitter 1, an RF radio receiver 2, and other circuitry. The '095 patent, 3:9–24, Fig. 3. The Specification also states the “receiver, transmitter, and associated circuitry is mounted in a completely waterproof housing about the size of a handheld flashlight” and “mounted on a moveable or stationery object, such as a sailboat mast or crab pot buoy.” *Id.* at 1:59–63. Thus, the recited “mobile radios” are consistent with communication device 10 in the Specification as previously explained.

Given the above understanding, we agree that Fulthorp's base station 2 are not “mobile radios” as argued. Appeal Br. 23–25. In particular, Fulthorp's component 2 is described as: (1) a base station (Fulthorp 5:54) as opposed to a mobile station, and (2) typically at a fixed location (*see id.* at

5:54–55, 19:38). For example, Fulthorp describes installing base stations 2 on mountain tops. *Id.* at 19:52–54. On the other hand, Fulthorp further describes remote units 6—not base stations 2—as being designed for installation in a vehicle and being mobile. *Id.* at 5:56–59, 5:63–65, Fig. 2. Additionally, Fulthorp states that a single base station services remote units 6 with each cell C1–C7 (*id.* at 5:25–28, Fig. 1) and that remote units 6 can switch communication to a new base station under certain conditions (*id.* at 7:1–9), suggesting that the base stations are fixed and typically not operated while in motion. Thus, although base station 2 has a transmitter for radio communications (*id.* at 2:30–34, 6:23–28), we agree with Appellant that Fulthorp’s base stations 2 in Fulthorp are not “mobile radios” in light of the Specification as the phrase would be interpreted by an ordinary skilled artisan, because they (1) are not radios or stations designed for installation in a vehicle, and (2) do not normally operate in motion.

The Examiner nevertheless finds base stations 2 are reasonably interpreted as “mobile radios,” because these stations communicate with remote units and other base stations using “mobile radio frequency (RF) communications.” Ans. 21 (quoting Fulthorp 1:31–33 and citing Fulthorp 6:21–40). As noted above, we agree that base stations 2 have a transmitter to communicate using radio frequencies, which can be considered mobile RF *communications*. Even so, the evidence of record fails to establish base stations 2 in Fulthorp are designed for installation in a vehicle and normally operate in motion as we interpreted the term “mobile radio.”

The Examiner further indicates Fulthorp states “[b]ase stations 2 are *typically* fixed-location, ground based RF modems” (Fulthorp 5:54–55

(emphasis added)). Ans. 21. Fulthorp thus suggests some base stations may not be RF modems that are at fixed locations or are ground-based. *See* Fulthorp 5:54–55. Even so, the evidence in this record does not sufficiently demonstrate Fulthorp’s base stations normally operate in motion or are designed for installation in a vehicle or vessel. *See* Appeal Br. 24 (arguing base stations 2 are not mobile). Moreover, the possible connection between base stations 2 and computer system 8 (e.g., a dedicated line, a microwave link, or satellite link) in Fulthorp’s Figure 2 (*see* Fulthorp 5:37–40) do not demonstrate base stations 2 (1) “would be ‘able to move’” as the Examiner contends (Ans. 21), (2) normally operate in motion, or (3) are designed for installation in a vehicle or vessel.

The Examiner, however, finds claim 1 and the recited “mobile radios” “do[] not expressly require that any radios are actually ‘moving’.” Ans. 21. We agree, but nevertheless determined previously the recitation “mobile radios” requires the capability to operate in motion, unlike Fulthorp’s base stations.

Additionally, the Examiner notes the ’095 patent describes “mobile radios” as either moveable or stationary, and that certain circuitry is mounted on a moveable or stationary object. Ans. 21–22 (citing the ’095 patent 1:7–16, 1:59–63). We acknowledge that the ’095 patent describes “one or more moving or stationary objects” (the ’095 patent, 1:8–9), but we disagree that these “objects” are describing a mobile radio based on our discussed interpretation. Instead, as previously discussed, the ’095 patent describes “moveable objects” as being synonymous with “moving participants” 20–25. *See id.* at 2:48–52, Figs. 1–2. That is, the Specification

describes “moving participants” 20–25 as “moveable objects” that “could represent boats or ships.” *Id.* at 2:51–54. Granted, the Specification describes communication device 10 may be mounted on a stationary object and thus can be stationary itself (*id.* at 1:59–63), but this still does not show Fulthorp’s base station 2 is a radio that is designed for installation in a vehicle or vessel, consistent with a “mobile radio” as the term is understood by an ordinary skilled artisan as previously discussed.

Because the argument concerning Fulthorp’s base stations is dispositive, we need not reach Appellant’s remaining arguments related to the prior art rejection.

For the foregoing reasons, Appellant has persuaded us of error in the rejection of (1) independent claim 1, (2) independent claims 15 and 26, which recite commensurate limitations, and (3) dependent claims 27 and 29 for similar reasons.

Claims 24, 25, and 28

Appellant separately argues dependent claims 24, 25, and 28. Appeal Br. 30–31. Each of these claims ultimately depends from claim 1. *Id.* at ii (Claims App.). For the reasons similar to those discussed related to claim 1, we will not sustain the anticipation rejection of claims 24, 25, and 28.

IV. OBVIOUSNESS REJECTION

Claims 30–32 ultimately depend from claim 1 (*id.* at ii–iii (Claims App.)) and are rejected under 35 U.S.C. § 103(a) as being unpatentable over Fulthorp and ITU-RM 1371-1. Final Act. 22–30. The rejection does not

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rely on ITU-R 1371-1 to teach or cure the features missing from Fulthorp previously discussed. *See id.*

Accordingly, for the reasons similar to those discussed related to claim 1, we will not sustain the rejection of claims 30–32.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 15, 24–32	305	Improper Broadening, Reexam	1, 15, 24–32	
1, 15, 24–29	102	Fulthorp		1, 15, 24–29
30–32	103	Fulthorp, ITU-RM 1371-1		30–32
Overall Outcome			1, 15, 24–32	

REQUESTS FOR EXTENSIONS OF TIME

Requests for extensions of time in this ex parte reexamination proceeding are governed by 37 C.F.R. § 1.550(c). *See* 37 C.F.R. § 41.50(f).

AFFIRMED

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