

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

TC TECHNOLOGY LLC,

Plaintiff,

v.

SPRINT CORPORATION and SPRINT
SPECTRUM, L.P.,

Defendants.

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Civil Action No. 16-153-WCB

MEMORANDUM OPINION AND ORDER

Before the Court are letters submitted by the parties, plaintiff TC Technology LLC (“TC Tech”) and defendants Sprint Corporation and Sprint Spectrum, L.P. (collectively, “Sprint”). Dkt. Nos. 477, 484, 488. The letters are directed to the question whether TC Tech should be permitted to present a doctrine of equivalents theory with respect to the term “central location,” which appears in both of the asserted claims of the patent in suit, TC Tech’s U.S. Patent No. 5,815,488 (“the ’488 patent”).

BACKGROUND

1. The parties’ disputes about the proper construction of the term “central location” and about TC Tech’s doctrine of equivalents theories have surfaced at several points during the pretrial proceedings in this case. Judge Andrews initially addressed the term “central location” in his opinion on summary judgment, Dkt. No. 354, at 9. At the time, he concluded that the meaning of the term was not a claim construction issue; he observed that the parties did not disagree about the meaning of the term, but simply disagreed about whether certain parts of Sprint’s LTE network constitute a “central location.” In light of the parties’ positions, he explained that the question

whether an individual base station sector in Sprint’s LTE network can be considered a “central location” is a disputed question of fact. *Id.*

2. During the briefing on Sprint’s motion for summary judgment, the parties disputed whether TC Tech would be permitted to raise a doctrine of equivalents theory with respect to the limitation of the two asserted claims requiring that “the subsets of baseband frequencies allocated to each remote location be[] mutually exclusive.” See Dkt. No. 354, at 10–11. TC Tech supported its equivalents argument with testimony from its expert, Regis J. Bates Jr. In his summary judgment order, Judge Andrews granted Sprint’s motion to exclude Mr. Bates’s testimony on the doctrine of equivalents with respect to that limitation, finding that Mr. Bates’s discussion of that issue in his expert report was “conclusory” and did not support submission of a doctrine of equivalents theory to the jury as to that limitation. *Id.* at 11.

In Judge Andrews’ subsequent opinion in response to Sprint’s *Daubert* motion to exclude Mr. Bates’s testimony, Judge Andrews barred Mr. Bates from testifying regarding the doctrine of equivalents with regard to each of the elements of the two asserted claims. *See* Dkt. No. 393, at 18–20. Judge Andrews ruled that Mr. Bates’s doctrine of equivalents opinions as to each of the claimed limitations to which his expert reports were directed were “wholly conclusory” and that his doctrine of equivalents opinions were inadmissible. *Id.* at 20.

3. In April 2019, TC Tech served a supplemental expert report from Mr. Bates, in which he proposed a theory of equivalence based on Judge Andrews’ construction of the claim phrase “having the same carrier frequency for each remote location” in Judge Andrews’ summary judgment order. Dkt. No. 373, *see* Dkt. No. 398-1, at 2, 66. At a pretrial conference on April 26, 2019, Sprint objected to the service of Mr. Bates’s new expert report, but Judge Andrews permitted the report to be served, noting that “when you change the claim construction, all other things being

equal, you have to give people an opportunity to supplement.” Dkt. No. 463, at 68. Sprint filed expert reports in response, Dkt. No. 398-1, at 2; TC Tech filed a further supplemental expert report in reply, *id.* at 83; and Sprint filed another expert report in sur-reply, Dkt. No. 399.

Sprint then moved to strike the portions of Mr. Bates’s supplemental expert reports that were directed to the doctrine of equivalents for the “same carrier frequency” limitation. Dkt. No. 396. After briefing, letters, and oral argument on that motion, *see* Dkt. Nos. 397, 405, 409, 426, 428, 432, Judge Andrews entered an order on October 18, 2019, regarding the doctrine of equivalents theory set forth in Mr. Bates’s supplemental reports. Dkt. No. 437, at 2–3. Noting that Mr. Bates’s supplemental reports addressed “only the new construction of the ‘same carrier frequency’ limitation,” Judge Andrews ruled that neither of the court’s two earlier orders prevented Mr. Bates from advancing “a different doctrine of equivalents theory that considers only the new construction of the ‘same carrier frequency’ limitation.” *Id.* at 3. For that reason, Judge Andrews denied Sprint’s motion to strike Mr. Bates’s supplemental opinions on the doctrine of equivalents limited to the “same carrier frequency” limitation.

4. Prior to trial, a disagreement arose between the parties as to the meaning of the term “central location.” The disagreement, as characterized by Judge Andrews, “boils down to whether the term allows for more than one ‘central location.’” Dkt. No. 452, at 5. TC Tech argued that the term “central location” should be construed to mean “the equipment (hardware and software) at a single location needed to receive communications from a plurality of remote locations.” Sprint argued that the term should be construed to mean “a physical site containing the equipment used to communicate with each and every remote location in communication with that site. The ‘central location’ includes all of the equipment at the physical site, not just one or more subsets of the equipment, components, and processes located at the site. In a cellular network, the ‘central

location' is a cellular base station.” *Id.* at 4. On November 14, 2019, Judge Andrews entered an order construing the term “central location” to mean “the equipment at a physical location that performs the claimed functions of the ‘central location.’” *Id.* at 5.

Subsequently, on November 20, 2019, TC Tech requested leave to submit a further supplemental report from Mr. Bates “confirming that his prior opinions have not changed in view of the Court’s recent construction of ‘central location.’” Dkt. No. 460. In the attached report, Mr. Bates stated that it continued to be his opinion that under Judge Andrews’ construction, “Sprint infringes both claims of the ’488 patent literally and under the doctrine of equivalents.” Dkt. No. 460-1, at 1.

In the second paragraph of that report, Mr. Bates stated (quoting his prior expert reports) that he continued to be of the opinion “that a single Sprint base station or eNodeB (along with antennas, remote radio heads, modems and schedulers), constitutes ‘9 central locations, each receiving data from 9 separate groups of remote locations. Each of those central locations maintains a separate set of orthogonal baseband frequencies and allocates on a mutually exclusive basis a subset of orthogonal baseband frequencies for each remote in its group of remotes from its set of orthogonal baseband frequencies.’” Dkt. No. 460-1, at 1. In the third paragraph of his report, Mr. Bates stated that “it remains my opinion, as I previously explained, that even if a single eNodeB ‘constitutes 1 instead of 9 separate central locations, an eNodeB is equivalent to 9 central locations with 9 separate sets of remote locations each assigned to 1 of 9 cells which receives, demodulates and transforms the incoming signals 9 times following the required steps of the claimed method.’” *Id.*

Sprint objected to what it characterized as TC Tech’s “new DOE [doctrine of equivalents] theory directed to the ‘central location’ claim limitation” even though, according to Sprint, TC

Tech had “never disclosed any theory of equivalence for ‘central location.’” Dkt. No. 462, at 1. Sprint noted that TC Tech’s doctrine of equivalents theories had previously been expressly limited to the “same carrier frequency” limitation. *Id.*, citing Dkt. Nos. 354, at 10-11; 393, at 18-20; and 437, at 3. Because, in Sprint’s view, Judge Andrews’ construction of “central location” did not depart from TC Tech’s prior interpretation of that term “to such a degree that it would open the door to an entirely new DOE theory,” Sprint argued that “TC Tech should not be allowed to use the Court’s recent claim construction as a pretext to inject a new and expansive DOE theory less than two weeks before trial.” Dkt. No. 462, at 1–2. Sprint also argued that Mr. Bates’s report in support of TC Tech’s new doctrine of equivalents theory was “inadmissibly conclusory.” *Id.* at 2.

At the pretrial teleconference held on November 21, 2019, Judge Andrews struck Mr. Bates’s one-page supplemental report and ruled that TC Tech would not be permitted to serve it. Judge Andrews explained that the theory put forth by Mr. Bates in the third paragraph of that report was “a completely conclusory assertion of DOE” and “doesn’t raise a DOE issue.” Dkt. No. 464, at 7–8.

5. That, however, was not the end of the matter. Following the November 21 teleconference, the parties submitted their joint proposed jury instructions. Sprint’s proposed jury instruction on the doctrine of equivalents proposed to limit TC Tech’s doctrine of equivalents theory to the limitation providing “said carrier signal having the same carrier frequency for each remote location.” Dkt. No. 472-1, at 36. TC Tech’s proposed jury instruction on the doctrine of equivalents requested that the court submit a doctrine of equivalents theory to the jury for both the “said carrier having the same carrier frequency for each remote location” limitation and for what TC Tech referred to as the “central location” limitation. *Id.* at 33.

In a footnote to the parties' competing proposed doctrine of equivalents instructions, TC Tech and Sprint presented their conflicting views as to whether a doctrine of equivalents theory should be presented to the jury with regard to the "central location" limitation. TC Tech argued that Mr. Bates's April 25, 2019, and June 21, 2019, supplemental expert reports had included arguments that Sprint's LTE Network infringed the claims of the '488 patent both literally and under the doctrine of equivalents, and in particular that those reports had set forth his opinions regarding the doctrine of equivalents as applied to both the "same carrier frequency" and the "central location" limitations. Dkt. No. 472-1, at 33–35 n.13.

Sprint responded that Judge Andrews had resolved the issue of the doctrine of equivalents with respect to the "central location" limitation by ruling in the November 21, 2019, teleconference that TC Tech would not be permitted to raise a doctrine of equivalents theory as to that limitation. *Id.* at 35–36 n.13. As for TC Tech's argument that Mr. Bates had presented an opinion that the "central location" limitation was satisfied under the doctrine of equivalents, Sprint argued that Mr. Bates's opinions of April 25, 2019, and June 21, 2019, were directed to the "said carrier signal having the same carrier frequency for each remote location" limitation, and not the "central location" limitation. *Id.*

In a letter to Judge Andrews dated December 2, 2019, Sprint argued that TC Tech had used the proposed jury instructions to advance a new theory of infringement, i.e., that Sprint had infringed the "central location" limitation under the doctrine of equivalents. Dkt. No. 477. Sprint argued that Mr. Bates had never provided a proper doctrine of equivalents opinion for the "central location" limitation, and that for that reason the court should reject TC Tech's effort to expand its infringement theory. *Id.* According to Sprint, TC Tech was attempting to introduce the same doctrine of equivalents theory that Judge Andrews had rejected in the November 21, 2019,

teleconference, but that it was seeking to do so “through a back door,” by claiming that its doctrine of equivalents analysis for the “same carrier frequency” limitation included a doctrine of equivalents analysis for the “central location” limitation. *Id.* at 2. That argument was unpersuasive, Sprint contended, because TC Tech had “never presented a generalized DOE analysis for ‘central location,’ either in the context of the ‘same carrier frequency’ claim limitation or anywhere else.” *Id.*

In its letter response, TC Tech argued that Judge Andrews had already ruled that Mr. Bates would be permitted to advance the doctrine of equivalents opinions that he had disclosed in his supplemental reports from April and June 2019. Dkt. No. 484. According to TC Tech, those opinions incorporated the theory that the term “central location” was subject to the doctrine of equivalents. Dkt. No. 484, at 2–5. As for Judge Andrews’ November 21 ruling striking Mr. Bates’s November 19, 2019, supplemental report, TC Tech characterized that ruling as limited to disallowing the November 19 report on the ground that it was conclusory; according to TC Tech, that ruling “had absolutely nothing to do with the April and June 2019 reports, which *were* complete stand-alone opinions which the Court already *did allow* TC Tech to serve.” *Id.* at 3 (emphases in original).

Sprint replied that Judge Andrews’ ruling allowing TC Tech to offer a doctrine of equivalents theory at trial was limited to the “same carrier frequency” limitation. Dkt. No. 488. With regard to the “central location” limitation, according to Sprint, Judge Andrews specifically ruled that Mr. Bates’s only report dealing with that limitation was the one-page report that Judge Andrews struck during the November 21, 2019, teleconference. *Id.* at 2–4.

DISCUSSION

The first question presented by the parties' most recent set of letters is whether Mr. Bates's supplemental expert reports of April and June 2019 set forth a doctrine of equivalents theory with respect to both the "same carrier frequency" limitation and the "central location" limitation, or only with respect to the "same carrier frequency" limitation. A second, related question is whether Judge Andrews' ruling on the "central location" limitation in the November 21 teleconference rejected TC Tech's doctrine of equivalents theory as to the "central location" limitation or merely struck Mr. Bates's one-page November 19 supplemental report, leaving the door open to TC Tech to pursue its doctrine of equivalents theory as to the "central location" limitation as well as the "same carrier frequency" limitation. Assuming that I conclude TC Tech has not timely raised a separate doctrine of equivalents claim as to the term "central location," a third question is what should be the scope of the doctrine of equivalents theory as to the "same carrier frequency" limitation.

1. The first question is easily answered. In his April and June 2019 supplemental expert reports, Mr. Bates addressed the doctrine of equivalents only with regard to the "having the same carrier frequency for each remote location" limitation. He did not raise a separate doctrine of equivalents claim with regard to the term "central location." However, Judge Andrews construed the "having the same carrier frequency for each remote location" limitation to mean "the same carrier frequency is used by each and every 'remote location' that transmits data to the 'central location.'" Dkt. No. 354, at 13. He subsequently construed the term "central location" to mean "the equipment at a physical location that performs the claimed functions of the 'central location.'" Dkt. No. 452, at 5; Dkt. No. 453, at 1. The term "central location" is also found in the full text of the "same carrier frequency" limitation, which reads as follows: "at each remote location, utilizing

a modulator to modulate said block of time domain data onto a carrier signal for transmission to said central location, said carrier signal having the same carrier frequency for each remote location.” ’488 patent, col. 10, ll. 63–67; *id.* at col. 12, ll. 1–5. Therefore, while Mr. Bates’s April and June 2019 reports did not directly raise a doctrine of equivalents theory as to the term “central location,” that term was implicated by Mr. Bates’s doctrine of equivalents theory as to the “same carrier frequency” limitation, because it was part of the limitation and Judge Andrews’s construction of that limitation.

2. The answer to the second question is also straightforward. Judge Andrews’s ruling in the November 21, 2019, teleconference striking Mr. Bates’s November 19, 2019, one-page supplemental expert report asserting a doctrine of equivalents theory as to the term “central location” had the effect of denying TC Tech’s request to present a separate doctrine of equivalents theory at trial regarding “central location.” The consequence of Judge Andrews’s November 21, 2019, ruling is that, with respect to the doctrine of equivalents, the parties were left in the same position they were in prior to the filing of the November 19 supplemental expert report: Mr. Bates’s April and June 2019 supplemental expert reports had preserved TC Tech’s right to advance a doctrine of equivalents theory, but only on the “same carrier frequency” limitation.

3. The answer to the third question is more involved. The doctrine of equivalents theory that Mr. Bates advanced in his April and June supplemental reports regarding the “same carrier frequency” limitation was that even if all the remote locations in a sector were considered to be transmitting to the same “central location,” Sprint’s LTE base stations would still infringe under the doctrine of equivalents. Dkt. No. 398-1, at 27, 79. He explained his theory of equivalence as follows (*id.* at 79):

In Sprint’s LTE network, within a single sector, remote units are divided into three groups, each transmitting on a separate carrier. Even if the receiving equipment for

all three carriers within a single sector was considered to be single [sic] central location, that is insubstantially different from transmitting to three separate central locations because all of the hardware, software, and associated computer resources needed to perform the claimed steps is separate for each of the three carriers within a single remote.

With respect to the “function, way, result” doctrine of equivalents analysis, Mr. Bates added the following (*id.* at 79–80):

Furthermore, three pluralities of remote locations transmitting to a central location (where all the devices within any given plurality have the same carrier frequency and were allocated on a mutually exclusive basis a subset of orthogonal baseband frequencies from a set of orthogonal baseband frequencies set aside for that plurality) would have the same function as a single plurality of remote locations transmitting to a central location (combining orthogonal baseband frequencies that were allocated to a plurality of remote locations on a mutually exclusive basis from a set of orthogonal baseband frequencies set aside for that plurality). Furthermore, it would be accomplished in the same way (modulating those allocated orthogonal baseband frequencies onto a single carrier for each given plurality of remote locations) and would produce substantially the same result (enabling multiple remote locations to share a transmission channel to a central location in a way such that channel impairments are alleviated).

Mr. Bates then added (*id.* at 80), “For the same reason, the fact that Sprint uses different carriers across three sectors also does not negate infringement because each group of remotes within any of the nine cells (defined by having a unique sector / carrier combination) transmits to a separate central location.”

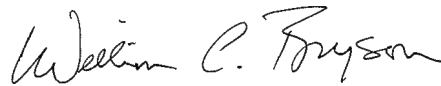
As noted, Judge Andrews’ October 18, 2019, order (Dkt. No. 437) denied Sprint’s motion to strike Mr. Bates’s supplemental opinions on the doctrine of equivalents with respect to the “same carrier frequency” limitation. The effect of that order was to recognize that the doctrine of equivalents theory as to the “same carrier frequency” limitation had been timely presented and thus TC Tech would be permitted to advance that theory at trial. Judge Andrews’ ruling on that issue was not affected by his later ruling during the November 21, 2019, pretrial teleconference striking Mr. Bates’s November 20, 2019, supplemental report. The effect of Judge Andrews’

November 21, 2019, ruling was that TC Tech would not be permitted to advance a separate doctrine of equivalents theory as to the term “central location.”

Accordingly, I will not allow TC Tech to present a separate doctrine of equivalents theory as to the “central location” term at trial. However, TC Tech will be permitted to present the doctrine of equivalents theory that Mr. Bates set forth in his April and June 2019 supplemental reports as to the “same carrier frequency” limitation. To be sure, the difference between the two theories may be subtle, since Mr. Bates’s doctrine of equivalents theory as to the “same carrier frequency” limitation incorporates the idea that three pluralities of remote locations, each transmitting on a separate carrier, would infringe under the doctrine of equivalents even if the receiving equipment for all three carriers within a single sector was considered to be a single central location. Nonetheless, at this point the issue is whether TC Tech presented that theory on a timely basis, and Judge Andrews held that it did. I adhere to that ruling. Of course, whether that doctrine of equivalents theory survives a motion for judgment as a matter of law is another question that will have to await developments at the trial.

IT IS SO ORDERED.

SIGNED this 22d day of January 2020.



WILLIAM C. BRYSON
UNITED STATES CIRCUIT JUDGE