

**United States Court of Appeals  
for the Federal Circuit**

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**TRAXCELL TECHNOLOGIES, LLC,**  
*Plaintiff-Appellant*

v.

**SPRINT COMMUNICATIONS COMPANY LP,  
SPRINT SPECTRUM, LP, SPRINT SOLUTIONS,  
INC., VERIZON WIRELESS PERSONAL  
COMMUNICATIONS, LP,**  
*Defendants-Appellees*

**TELENAV, INC., T-MOBILE USA, INC.,**  
*Defendants*

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2020-1852, 2020-1854

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Appeals from the United States District Court for the  
Eastern District of Texas in No. 2:17-cv-00718-RWS-RSP,  
Judge Robert Schroeder, III.

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Decided: October 12, 2021

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WILLIAM PETERSON RAMEY, III, Ramey & Schwaller,  
LLP, Houston, TX, argued for plaintiff-appellant. Also rep-  
resented by JOHN PIERRE LAHAD, Susman Godfrey LLP,  
Houston, TX.

BRIAN DAVID SCHMALZBACH, McGuireWoods LLP,

Richmond, VA, argued for defendants-appellees Sprint Communications Company LP, Sprint Spectrum, LP, Sprint Solutions, Inc. Also represented by DAVID EVAN FINKELSON; TYLER VANHOUTAN, Houston, TX.

JOSHUA C. KRUMHOLZ, Holland & Knight, LLP, Boston, MA, argued for defendant-appellee Verizon Wireless Personal Communications, LP. Also represented by JACOB KEVIN BARON; KEVIN PAUL ANDERSON, Duane Morris LLP, Washington, DC.

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Before PROST, O'MALLEY, and STOLL, *Circuit Judges*.

PROST, *Circuit Judge*.

Traxcell<sup>1</sup> sued Sprint<sup>2</sup> and Verizon<sup>3</sup> for infringement of four patents related to self-optimizing wireless networks and to navigation technology. After claim construction and discovery, the district court granted summary judgment for Sprint and Verizon. Traxcell appeals. For the reasons below, we agree with the district court's claim construction. We also agree that under that construction, Traxcell failed to show a genuine issue of material fact as to infringement and that several of Traxcell's claims are indefinite. We therefore affirm.

## BACKGROUND

### I

This case involves four patents in the same family: U.S. Patent Nos. 8,977,284 (“the ’284 patent”), 9,510,320 (“the ’320 patent”), 9,642,024 (“the ’024 patent”), and 9,549,388

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<sup>1</sup> Traxcell Technologies, LLC.

<sup>2</sup> Sprint Communications Company LP; Sprint Spectrum, LP; and Sprint Solutions, Inc.

<sup>3</sup> Verizon Wireless Personal Communications, LP.

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(“the ’388 patent”). All share a specification and a 2001 priority date.

A

The claims of three of the patents—the ’284, ’320, and ’024 patents—are related to self-optimizing network (“SON”) technology for making “corrective actions” to improve communications between a wireless device (for instance, a phone) and a network. The parties call these the “SON patents.” Claim 1 of the ’024 patent is representative (relevant limitations emphasized):

1. A system including:

one or more radio-frequency transceivers and an associated one or more antennas to which the radio-frequency transceiver is coupled, wherein the one or more radio-frequency transceivers configured for radio-frequency communication with at least one mobile wireless communications device; and

*a computer* coupled to the one or more radio-frequency transceivers programmed to locate the one or more mobile wireless communications devices and generate an indication of a *location* of the one or more mobile wireless communications devices, wherein the computer further receives and stores performance data of connections between the one or more mobile wireless communications devices and the radio-frequency transceiver along with the indication of *location*, wherein the computer references the performance data to expected performance data, wherein the *computer* determines at least one suggested corrective action in conformity with differences between the performance data and expected performance data in conjunction with the indication of *location*, wherein the *computer* further receives an error code from the radio-

frequency transceiver, determines whether the error code indicates a performance issue with respect to the connection between the one or more mobile wireless communications devices and the radio-frequency transceiver, and wherein the *computer* determines the at least one suggested corrective action in response to the error code.

Claim 1 of the '284 patent is similar but also includes a means-plus-function limitation that was disputed in this case (further emphasized):

1. A wireless network comprising:
  - a) at least two wireless devices, each said wireless device communicating via radio frequency signals;
  - b) *a first computer* programmed to perform the steps of:
    - 1) locating at least one said wireless device on said wireless network and referencing performance of said at least one wireless device with wireless network known parameters,
    - 2) routinely storing performance data and a corresponding *location* for said at least one wireless device in a memory;
  - c) a radio tower adapted to receive radio frequency signals from, and transmit radio frequency signals to said at least one wireless device; wherein said *first computer* further includes *means for receiving said performance data and suggest corrective actions obtained from a list of possible causes for said radio tower based upon the performance data and the corresponding location associated with said at least one wireless device;*

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d) wherein said radio tower generates an error code based upon operation of said at least one wireless device; and

e) wherein said *first computer* is further programmed to,

1) receive said error code from said radio tower, and,

2) selectively suggest a corrective action of said radio frequency signals of said radio tower in order to restrict processing of radio frequency signals from at least one of said at least two wireless devices based upon said error code, and, whereby said *first computer* suggests said corrective action in order to improve communication with at least one said wireless device.

## B

Unlike the SON patents, the claims of the '388 patent are directed to network-based navigation—namely, having the network, rather than a wireless device itself, determine the device's location. The parties call the '388 patent the "navigation patent." Claim 1 is representative:

1. A wireless communications system including:

a first radio-frequency transceiver within a wireless mobile communications device and an associated first antenna to which the first radio-frequency transceiver is coupled, wherein the first radio-frequency transceiver is configured for radio-frequency communication with a wireless communications network;

a first processor within the wireless mobile communications device coupled to the at least one first radio-frequency transceiver programmed to receive a location of the wireless mobile communications

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