United States Court of Appeals for the Federal Circuit

INVT SPE LLC,
Appellant

v.

INTERNATIONAL TRADE COMMISSION,
Appellee

HTC AMERICA, INC., HTC CORPORATION,
Intervenors

2020-1903

Appeal from the United States International Trade Commission in Investigation No. 337-TA-1138.

Decided: August 31, 2022

JEFFREY A. LAMKEN, MoloLamken LLP, Washington, DC, argued for appellant. Also represented by LUCAS M. WALKER; SARA MARGOLIS, New York, NY; JOHN K. HARTING, BRENDA L. JOLY, CYRUS ALCORN MORTON, CHRISTOPHER SEIDL, Robins Kaplan LLP, Minneapolis, MN.

RICHARD P. HADORN, Office of the General Counsel, United States International Trade Commission, Washington, DC, argued for appellee. Also represented by DOMINIC

L. BIANCHI, WAYNE W. HERRINGTON.

CHARLES M. MCMAHON, McDermott, Will & Emery LLP, Chicago, IL, argued for all intervenors. Also represented by MARTIN BADER, STEPHEN S. KORNICZKY, ERICKA SCHULZ, Sheppard, Mullin, Richter & Hampton LLP, San Diego, CA; EDWARD V. ANDERSON, Palo Alto, CA.

Before NEWMAN, TARANTO, and CHEN, *Circuit Judges*.

Chen, *Circuit Judge*.

BACKGROUND

Complainant INVT SPE LLC (INVT) appeals from a determination by the International Trade Commission (Commission or ITC) in Investigation No. 337-TA-1138, *Certain LTE- and 3G-Compliant Cellular Communications Devices*, that respondents Apple Inc., HTC Corporation, HTC America, Inc., ZTE Corporation, and ZTE (USA) Inc. did not violate 19 U.S.C. § 1337 (section 337) by the importation and sale of personal electronic devices, such as smartphones, smart watches, and tablets. INVT's complaint alleged that these devices infringed five INVT patents, only two of which are at issue in this appeal—U.S. Patent Nos. 6,760,590 ('590 patent) and 7,848,439 ('439 patent). In a final initial determination (FID), the administrative law judge (ALJ) determined that the accused devices did not infringe claims 3 and 4 of the '590 patent and claims 1 and 2 of the '439 patent. *In the Matter of Certain LTE- and 3G-Compliant Cellular Communications Devices, Initial Determination on Violation of Section 337*, No. 337-TA-1138, 2020 WL 1504741, at *2 (Feb. 18, 2020) (*FID*). The ALJ also determined that INVT had failed to meet the technical prong of the domestic industry requirement as to those claims. *Id.* INVT petitioned the Commission for review of those findings, J.A. 1787–1815, 1831–56, which the Commission decided not to review, *In the Matter*

of Certain LTE- and 3G-Compliant Cellular Communications Devices, Notice of a Commission Determination to Review in Part a Final Initial Determination Finding No Violation of Section 337 and, on Review, to Affirm the Final Initial Determination's Findings of No Violation; Termination of the Investigation, No. 337-TA-1138, 2020 WL 4582313, at *2 (June 1, 2020) (*Commission Decision*). The Commission affirmed the ultimate finding of no violation of section 337. *See id.* at *3. INVT appeals from this final determination. All five respondents intervened, but Apple, Inc., ZTE (USA) Inc., and ZTE Corporation have since withdrawn as parties, leaving HTC Corporation and HTC America as intervenors. *See* ECF Nos. 67, 93 (orders granting motions to withdraw).

We affirm the Commission's determination that there was no section 337 violation with respect to the '439 patent because INVT failed to show infringement and the existence of domestic industry. We agree with INVT's argument on appeal that the asserted '439 claims are drawn to "capability." However, we disagree with INVT on infringement. For infringement purposes, a computer-implemented claim drawn to a functional capability requires some showing that the accused computer-implemented device is programmed or otherwise configured, without modification, to perform the claimed function when in operation. We affirm the noninfringement finding in this case because INVT failed to introduce any evidence to establish that the accused devices, when put into operation, will ever perform the particular functions recited in the asserted claims.

We find the Commission's determination with respect to the '590 patent moot based on the patent's expiration, and thus vacate and remand as to that patent.

A. '590 Patent

Before this decision issued, the '590 patent expired on March 5, 2022. *See* Letter from the Office of the General Counsel Attorney for ITC, ECF No. 78; Appellant's Suppl.

Br. 1, ECF No. 84. For the reasons discussed, *infra*, the appeal as it relates to the '590 patent is moot. We vacate the Commission's decision as to that patent and remand with instructions to dismiss as moot the relevant portion of the complaint.

B. '439 Patent

The '439 patent relates to wireless communication systems, specifically an improvement to adaptive modulation and coding (AMC), which is a technique used to transmit signals in an orthogonal frequency division multiplexing (OFDM) system. '439 patent col. 1 ll. 7–14.

In an OFDM system, the frequency bandwidth is divided into subcarriers. A subcarrier is a narrow subdivision of a communication system's available frequency spectrum (bandwidth). *Id.* col. 1 ll. 25–26. Groups of subcarriers in neighboring positions within the frequency domain are referred to as subbands. *Id.* col. 2 ll. 18–22. AMC involves adjusting parameters, such as a modulation scheme or a coding rate, in response to changing conditions that impact the channel quality. *Id.* col. 1 ll. 34–52, 65–67. The prior art included AMC based on subcarrier and subbands divisions of the communication system bandwidth. *See id.* col. 1 l. 53 – col. 2 l. 49.

The '439 patent is directed to AMC based on subband *groups*. *See id.* col. 5 l. 9 – col. 6 l. 44, col. 7 l. 32 – col. 10 l. 26. This means that that the modulation scheme and coding rate are determined per subband group as the minimum unit of adaptivity, rather than per subcarriers or subbands. *Id.* col. 7 l. 32 – col. 12 l. 24; *see id.* col. 2 ll. 4–8; *id.* col. 2 ll. 12–25, col. 7 l. 65 – col. 8 l. 2, col. 8 ll. 41–48, col. 10 ll. 21–26. Subband groups are made up of multiple subbands, although not necessarily subbands in neighboring positions. *See id.* col. 7 ll. 43–46; col. 10 l. 26 – col. 11 l. 3. A subband group might consist of a plurality of neighboring subbands, *id.* col. 10 ll. 33–49, Fig. 8, or a plurality of subbands at predetermined intervals, *id.* col. 10 ll. 50–

61, Fig. 9, or even all of the subbands as a single subband group, *id.* col. 10 l. 62 – col. 11 l. 3, Fig. 10.

Claim 1 of the '439 patent recites:

> 1. A communication apparatus comprising:
>
> **[a]** a channel estimating section that carries out a channel estimation per subband;
>
> **[b]** a parameter deciding section that decides modulation parameters and coding parameters per subband group comprised of a plurality of the subbands, based on a result of the channel estimation per subband;
>
> **[c]** a parameter information transmission section that transmits, to a communicating party, parameter information indicating the modulation parameters and the coding parameters decided at the parameter deciding section;
>
> **[d]** a receiving section that receives a signal containing data modulated and encoded on a per subband group basis at the communicating party using the modulation parameters and the coding parameters of the parameter information transmitted at the parameter information transmission section;
>
> **[e]** a data obtaining section that demodulates and decodes the received signal received at the receiving section on a per subband group basis using the modulation parameters and the coding parameters decided at the parameter deciding section, and obtains the data contained in the received signal; and
>
> **[f]** a pattern storage section that stores in advance patterns for selecting subbands constituting the subband groups wherein the parameter deciding section decides the modulation parameters and the coding parameters per subband group comprised of the subbands selected based on the patterns stored

in the pattern storage section.

(bold bracketed letters added).

A "communication apparatus," as recited in claim 1, can be a user device, and a "communicating party" can be a base station. *See id.* col. 2 ll. 54–60 (describing a base station as the transmission side and a mobile terminal as the receiving side). The '439 patent describes a user device (receiving side) determining the adaptive parameters and sending the parameters to the base station (transmission side); the base station encoding data using those parameters and sending the encoded data back to the user device (receiving side); and the user device (receiving side) decoding the data using those parameters. *See id.* col. 9 l. 13 – col. 12 l. 24.

C. LTE Standard

The accused devices are communication devices, including smartphones, tablets, smart watches, and computers, that use the 3G and LTE[1] standards. *FID*, at *2, *9. INVT's infringement theory for the '439 patent is based in part on alleging that the asserted claims of the '439 patent are standard essential, i.e., subject matter essential to practicing the LTE standard. *Id.* at *58.

In the LTE standard, the smallest portion of the communications spectrum is referred to as a subcarrier, like in the '439 patent. However, a group of subcarriers (subbands, in the '439 patent) is referred to as a "resource block." *See* Appellant's Br. 35; Intervenors' Br. 12. A group of resource blocks (subband groups, in the '439 patent) is referred to as "LTE subbands." *See* Appellant's Br. 35; Intervenors' Br. 12.

At a high level, under the LTE standard, the user

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[1] LTE is an acronym for "Long-Term Evolution." *FID*, at *22 n.14.

device chooses one of 16 possible combination of modulation and coding parameters, per LTE subband, to send to the base station. *See FID*, at *67. The base station, in turn, selects a combination of modulation and coding parameters, but from a much greater number of possible combinations. *See id.* at *60–61 (noting almost 3,000 possible values for calculating the coding parameters). As discussed later, there is no evidence in the record that at least one modulation and coding parameter combination that the base station can select matches a combination that the user device can select. *See infra* Part II.C.1 & C.2. After selecting its parameters, the base station modulates and encodes the data using those selected parameters and then sends the modulated and encoded data and its selected parameters to the user device. *FID*, at *59–61. The user device demodulates and decodes the data using the parameters selected by the base station. *Id.*

The user device and the base station send and receive parameter information using values referred to as CQI, DCI, and TBS. *See id.* at *67–68 (citing J.A. 10865–66; JA 11858; J.A. 13169–70; J.A. 1175); Appellant's Br. 36–37; Intervenors' Br. 60. The initial selection of parameters by the user device is transmitted to the base station as a CQI[2] index. The CQI index corresponds to one of the 16 possible combination of modulation and coding parameters. These 16 possible combinations are the only combinations the user device can choose. *FID*, at *60. When the base station returns parameters to the user device, it does so in a DCI[3]

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[2] CQI is an acronym for "channel quality indicator." *FID*, at *58 n.56. The respondents' expert explained that the CQI report to the base station indicates the "maximum rate at which the base station can send real data to the UE [user equipment]." *Id.* at *59.

[3] DCI is an acronym for a "downlink control indicator." *FID*, at *67.

message. *Id.* at *67; *see* Intervenor's Br. 60; Appellant's Br. 37 (citing J.A. 10867). The DCI message includes an assignment of resource blocks, which tells the user device which portions of the bandwidth to use to receive data from the base station. *FID*, at *67. The DCI message also includes an MCS[4] index—one MCS value for the entire resource block assignment. *Id.* at *59, *68. There are 32 possible values for the MCS index, each one associated with a modulation scheme (Q_m)[5] and a TBS[6] index. *Id.* at *59. The TBS index corresponds to a TBS table, which includes almost 3,000 entries. *Id.* at *60–61.[7] Based on the resource block assignment and the TBS value, the user device calculates the coding parameter. *Id.* at *60. The FID depicts and discusses in detail the LTE standard's CQI, MCS, and TBS tables. *See id.* at *59–61.

In summary, based on the DCI message, MCS index, TBS index, and the resource block assignment, the user device receives information about the modulation and coding

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[4] MCS is an acronym for "modulation and coding scheme." *FID*, at *59 n.57, *68.

[5] European Telecommunications Standards Institute (ETSI), ETSI TS 136 211 V8.4.0 (2008–11)—LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation (3GPP TS 36.211 version 8.4.0 Release 8) 8 (2008), https://www.etsi.org/deliver/etsi_ts/136200_136299/136211/08.04.00_60/ts_136211v080400p.pdf ("Q_m Modulation order: 2 for QPSK, 4 for 16QAM and 6 for 64QAM transmissions").

[6] TBS is an acronym for "transport block size." *FID*, at *59 n.58.

[7] "[T]he reason for so many entries is 'to give the base station a great deal of flexibility in terms of the downlink assignment, including the assignment of the code rate to be used for all the resources blocks.'" *FID*, at *60 (quoting J.A. 11882:15–20).

parameters that were selected by the base station to modulate and encode the data that the user device receives from the base station. *Id.* at *68. The user device demodulates and decodes the received data using the modulation and coding parameters selected by the base station. *Id.* Regardless of the number of LTE subbands included in the resource block assignment, one set of modulation and coding parameters is used to modulate and encode and demodulate and decode the data. *Id.* (citing J.A. 10871–74; J.A. 11861, 11864–65, 11867). As will be discussed, the evidence does not show that the user device ever receives data modulated and encoded with the same parameters initially selected by the user device. *See infra* Part II.C.1 & C.2.

D. ALJ's Final Initial Determination (FID)

Relevant to the disposition of this appeal, the ALJ's FID found that the accused products did not infringe the asserted claims of the '439 patent. *FID*, at *58–71. INVT asserted two infringement theories: (1) the '439 claims are essential to the practice of the LTE standard, *see id.* at *58–63, and (2) the accused products practice the asserted claims, *see id.* at *63–71. The ALJ found that independent claim 1 of the '439 patent is not essential to the LTE standard. *Id.* at *63. Therefore, INVT could not show infringement by relying on the fact that the accused products were LTE-compliant. *Id.* In addition, the ALJ found that INVT had failed to prove infringement under a normal infringement analysis, which analyzes the accused products in view of the asserted claims. *Id.* at *63, *71.

In the proceeding below, the dispute over whether the asserted '439 claims are essential to practicing the LTE standard was limited to limitations [d] and [e]. *See* J.A. 1713–14 ("Respondents do not dispute the essentiality or infringement of elements 1(a), 1(b), 1(c), 1(f), and 1(g). Tr. (Acampora) 1907:21–1908:10 ('Q. Right. You limited your opinions to 1.d and 1.e in Claim 1, right? A. As far as my opinions on noninfringement [and essentiality] are

concerned, that's correct.')." (emphasis omitted)); *FID*, at *58–63 (analyzing whether limitations [d] and [e] are essential to the LTE standard).

Prior to the evidentiary hearing, the ALJ addressed limitation [e], which recites a communication apparatus's "data obtaining section that demodulates and decodes the received signal . . . using the . . . parameters decided at the parameter deciding section" of the communication apparatus. J.A. 252–54 (Order No. 52). Although the ALJ declined to provide an explicit construction, the ALJ explained that the claim limitation could be met even when the parameters used to demodulate and decode are decided by the communicating party (i.e., a base station), so long as the communicating party chooses "those *very parameters*" decided by the communication apparatus (i.e., a user device) for communication between the two entities. J.A. 254 (emphasis added). The ALJ reasoned that the plain language dictated the result, noting that "claim 1 does not require the [user device's] 'parameter deciding section' to serve as the final or ultimate decision maker with respect to exchanges that occur in the communication system . . . As INVT asserted, 'Claim 1 is silent on the operation of the communicating party.'" J.A. 254 n.3.

With this interpretation, the ALJ held that INVT failed to show claim 1 was essential to the LTE standard. *FID*, at *58–63. Specifically, the ALJ found that INVT "failed to present evidence that the modulation and coding parameters corresponding to the CQI index the [user device] initially reports to the base station are the 'very parameters' that the base station ultimately determines are appropriate" to meet limitations [d] and [e]. *Id.* at *58 (internal footnote omitted). Under the LTE standard, the CQI transmitted from an LTE user device includes only 16 possible modulation and coding parameter combinations, whereas there is a "much larger" number of possible modulation and coding parameter combinations from which the LTE base station can select and send to the user device as part of the

DCI message. *Id.* at *60–61. The ALJ found that "even if the base station happens to consider the CQI reported by the [user device], it does not appear to be likely, must [sic] less required, for the base station to choose the 'very parameters' initially decided by the [user device]." *Id.* at *61.

The ALJ also rejected INVT's argument that, despite the significant mismatch between the possible parameters the user device is able to select and the base station is able to select, the claim was standard essential because an LTE-compliant user device has the *capability* to receive data modulated and encoded using the parameters decided by the user device and to demodulate and decode that data. *Id.* at *61. The ALJ stated that "patent essentiality cannot, as a matter of law, be established merely by showing that the asserted standard is capable of meeting the claim, as mere capability of a claimed feature is *ipso facto* not tantamount to the requirement that the claimed feature must be mandatory." *Id.* at *61. "Patent essentiality," the ALJ explained, requires the standard to "necessarily" meet the elements of the claim. *Id.* The ALJ also found that the language of claim 1 was not drawn to capability, as further support for the conclusion that "mere capability in this instance does not equate to infringement." *Id.* at *61–62. The ALJ found claim 1 was not drawn to capability based on the fact that its language ("using," "decided") did not follow the "for performing"-type language ("for preventing," "for obtaining") of the claims in our *Finjan* decision. *Id.* (citing *Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1204–05 (Fed. Cir. 2010)).

Because INVT could not rely on the accused products' compliance with the LTE standard to establish infringement, the ALJ stated that INVT was required to show that actual operation of the accused products meets every limitation of the asserted claims. *Id.* at *63. Under this analysis, the respondents' arguments were focused on limitations [d] and [e] not being met by the accused products. *Id.* at *67; *id.* at *71–72 (noting parties' agreement

and respondents' lack of argument for limitations [a] through [c]); *see also id.* at *73–74 (noting INVT's lack of evidence and argument separate from the standard-essential ones for limitation [f]). The ALJ agreed with respondents that the accused products did not meet limitations [d] or [e] because they did not receive data modulated and encoded "on a per subband group basis" nor demodulate and decode data "on a per subband group basis." *Id.* at *67–69. Specifically, the per-subband-group limitation was not met because a single MCS (indicating a single modulation and coding scheme) was used and sent to the user device for an entire resource block assignment (spanning one or multiple LTE subbands, i.e., subband groups). *Id.* at *67–69. The ALJ also found that limitation [e] was not met based on INVT's failure to show that the information in the DCI received and used by the user device from the base station is informed by the CQI that the user device previously transmitted to the base station. *Id.* at *69–70. The evidentiary failure was because of a failure to analyze source code governing the operation of the base station (as opposed to the source code of the user device). *Id.* at *70.

Relying on a similar analysis, the ALJ found that INVT failed to meet the technical prong of the domestic industry requirement. First, even if the representative product, a Samsung Galaxy S9, complies with the LTE standard, claim 1 is not standard essential. *Id.* at *73. Second, INVT failed to show that the S9's actual operation meets the "on a per subband group basis" requirement of limitations [d] and [e]. *Id.* at *74.

INVT appeals. We have jurisdiction under 28 U.S.C. § 1295(a)(6).

DISCUSSION

I

The '590 patent expired on March 5, 2022. The ITC has a limited statutory mandate and can only grant prospective

relief. *Tessera, Inc. v. Int'l Trade Comm'n*, 646 F.3d 1357, 1371 (Fed. Cir. 2011); *Tex. Instruments, Inc. v. Int'l Trade Comm'n*, 851 F.2d 342, 344 (Fed. Cir. 1988) (citing 19 U.S.C. § 1337(d)–(f)). "The ITC can issue only an exclusion order barring *future* importation or a cease and desist order barring *future* conduct. If the violation of section 337 involves patent infringement, neither of the above remedies is applicable once the patent expires." *Tex. Instruments*, 851 F.2d at 344. The expiration of the '590 patent, therefore, has rendered this appeal moot with respect to that patent. *See id.*

INVT argues that its appeal regarding the '590 patent is not moot even after the patent's expiration because of pending district-court litigation that was stayed in favor of the ITC investigation. Appellant's Suppl. Br. 4–5, ECF No. 84. However, we have previously held that because ITC decisions on patent infringement or invalidity do not have preclusive effect on district court litigation, a decision by this court does not have enough "collateral consequences" to avert mootness, even though a pending district court case involves the same issues. *Hyosung TNS v. Int'l Trade Comm'n*, 926 F.3d 1353, 1358–59 (Fed. Cir. 2019) (citing *Bio-Technology General Corp. v. Genentech, Inc.*, 80 F.3d 1553, 1563–64 (Fed. Cir. 1996); then citing *Tex. Instruments Inc. v. Cypress Semiconductor Corp.*, 90 F.3d 1558, 1568–69 (Fed. Cir. 1996); and then citing *Tandon Corp. v. U.S. Int'l Trade Comm'n*, 831 F.2d 1017, 1019 (Fed. Cir. 1987)).

INVT relies on *Microsoft* and *Powertech*. Appellant's Suppl. Br. 5, ECF No. 84 (quoting *Microsoft Corp. v. Int'l Trade Comm'n*, No. 2012-1445, 2014 WL 10209132 (Fed. Cir. Jan 3, 2014) (per curiam); and then citing *Powertech Tech. Inc. v. Tessera, Inc.*, 660 F.3d 1301 (Fed. Cir. 2011)). Neither helps INVT avoid mootness. *Microsoft* is a non-precedential opinion, where the patent expired after the court's decision on the merits, and no party raised the issue of the patent's imminent expiration or mootness until after

the petition for rehearing en banc was denied and two days before the mandate was set to issue. 2014 WL 10209132, at *2; *see Hyosung*, 926 F.3d at 1359 n.3; *Microsoft Corp.*, No. 2012-1445, ECF. No. 104. *Powertech* did not involve mootness. It addressed the fact that a Federal Circuit decision on an appeal from the ITC can have precedential effect on district courts as to certain other issues but also reaffirmed that ITC determinations of patent infringement and validity do not have preclusive effect on district courts, even when affirmed by the Federal Circuit. 660 F.3d at 1307–08 (explaining that district courts were bound by the legal precedent set forth in the prior decision *Tessera*, that a licensed sale does not become unauthorized and infringing merely because the licensee falls behind on royalty payments). Here, like in *Hyosung*, we see no "potential for collateral consequences resulting from the possible stare decisis effect of our decision, if precedential" that prevents the appeal from becoming moot. 926 F.3d at 1359.

Because the '590 patent portion of this appeal is mooted due to the intervening happenstance of the patent's expiration, we vacate the ITC's decision as to that patent and remand with instructions to dismiss as moot the relevant portion of the complaint. *See Tessera*, 646 F.3d at 1371; *U.S. Bancorp Mortg. Co. v. Bonner Mall P'ship*, 513 U.S. 18, 25 & n.3 (1994); *United States v. Munsingwear, Inc.*, 340 U.S. 36, 39–40 (1950); *see also* Oral Arg. 48:48–49:18.

II

On appeal, INVT argues that the ALJ erred in finding that the accused products do not infringe claim 1 of the '439 patent based on a combination of misinterpreting the claim, to require performance by (not merely capability of) an accused product, and misapplying law on standard essential patents. Appellant's Br. 59–67. INVT also challenges the ALJ's "actual operation" noninfringement findings, specifically that the "per subband group basis"

requirement of limitations [d] and [e] and the "pattern storage section" of limitation [f] are not met by the accused products. Appellant's Br. 67–72.

INVT's arguments do not prevail. We agree with INVT that the asserted '439 claims are drawn to "capability," and not to actual operation as the ALJ found. However, INVT has failed to show that the accused LTE-compliant devices have the capability required by the claims. Therefore, whether under a theory of the claims being standard essential or the claims being met by the accused devices, INVT has not proven infringement.

A

According to INVT, claim 1 of the '439 patent requires only that the accused LTE-compliant devices are capable of receiving, from a base station, data modulated and encoded with the same parameters decided by the user device, and capable of demodulating and decoding that data using those parameters. *See* Appellant's Br. 62–65.

Our cases have held that sometimes a device only needs to be "capable of operating" according to a claimed limitation, for a finding of infringement. *See Finjan*, 626 F.3d at 1204. Other times, a device does not infringe unless it actually operates as claimed. *See ParkerVision, Inc. v. Qualcomm Inc.*, 903 F.3d 1354, 1361 (Fed. Cir. 2018) (discussing *Ball Aerosol & Specialty Container, Inc. v. Ltd. Brands, Inc.*, 555 F.3d 984 (Fed. Cir. 2009)). Whether infringement requires actual performance of the recited functions by the accused device depends on the claim language. *See Finjan*, 626 F.3d 1204 (citing *Fantasy Sports Props. v. Sportsline.com, Inc.*, 287 F.3d 1108, 1118 (Fed. Cir. 2002)); *see also ParkerVision, Inc.*, 903 F.3d at 1361 (articulating a distinction between configuration-type and capability-type claims).

Possibly the most straightforward example of this is the common distinction between method claims and

apparatus claims. *See, e.g.*, *Finjan*, 626 F.3d at 1203–05. In *Finjan*, this court held that Finjan's "non-method claims describe capabilities without requiring that any software components be 'active' or 'enabled.'" *Id.* at 1204–05. The court, therefore, upheld a finding of infringement for products in which the accused proactive-scanning software module was locked when sold by the defendants. *Id.* at 1205; *see also id.* at 1203–04 (distinguishing *Southwest Software, Inc. v. Harlequin Inc.*, 226 F.3d 1280, 1291 (Fed. Cir. 2000), in which the accused software product required a manual step to activate the patented feature, but the claim at issue was a method claim). In contrast, *Finjan*'s method claims were not infringed by the accused products because those claims required actual performance of each claimed step; there was no evidence that proactive scanning was performed in the United States. *Id.* at 1206 ("To infringe a method claim, a person must have practiced all steps of the claimed method." (quoting *Lucent Techs. V. Gateway, Inc.*, 580 F.3d 1301, 1317 (Fed. Cir. 2009))). *Cf. ParkerVision, Inc.*, 903 F.3d at 1363 (similarly differentiating apparatus claims and method claims in the patent invalidity context).

However, differences exist between apparatus claims as well, depending on the claim language. We have construed some apparatus claims to require an infringing device to actually perform and operate according to the functional terms recited in the claim. The intervenors cite two such cases, *Cross Medical* and *Ball Aerosol*. *See* Intervenors' Br. 64, 67–68. We have construed other apparatus claims to require only capability, such as in *Finjan* and *Silicon Graphics*.

Ball Aerosol and *Cross Medical* both involve mechanical apparatus claims. According to these two cases, intervenors argue, the '439 claims should be construed to require actual operation of the functions recited in limitations [d] and [e] in order for there to be infringement. Intervenors' Br. 64–69. In *Cross Medical*, we rejected the

argument that the limitation "anchor seat means which has a lower bone interface operatively joined to said bone segment" could be met merely by an interface that was capable of contacting bone. *Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d 1293, 1305–06 (Fed. Cir. 2005). Instead, the claim language "operatively joined" required that the interface and the bone segment be connected and in contact such that the device effectively performed posterior stabilization. *Id.* at 1306. Direct infringement did not occur until the device was connected to the bone, which a surgeon performed, not the allegedly infringing device maker. *Id.* at 1310–14.

In *Ball Aerosol*, the apparatus claim recited a specific physical relationship between elements of a candle holder, in which protrusions in the bottom of a candle holder are resting upon the cover of the candle tin, the cover having been removed from the rest of the tin. *Ball Aerosol*, 555 F.3d at 994–95. The claim recited not only a particular physical relation between two components of the device, but included a limitation resembling a particular use of those components. *Id.* at 987–88 ("the cover, when removed, being placed upon the surface with the holder being set upon the cover for the cover to support the holder above the surface"). We ultimately construed the *Ball Aerosol* claim to be a configuration-type claim, which required showing that the candle holder was actually placed on its cover. *Id.* at 995 (finding no infringement although the accused Travel Candle had a removable cover that the candle holder was capable of being placed on, because there was no evidence that the Travel Candle was in fact ever placed in such a configuration). The candle holder makers and sellers did not infringe the claim because no infringement occurred until the candle holder was positioned on top of the cover.

In both of those cases, actual operation of arranging elements in a particular way was required because of the claim language. Neither case involved claim language

resembling the language in INVT's claims. Intervenors emphasize that the *Cross Medical* claims included the present-tense verb "has," similar to the present-tense verbs "demodulates" and "decodes" in the '439 claims. But this court's construction in *Cross Medical* was based on "operatively joined," not "has." Intervenors do not provide any analysis of *Ball Aerosol*. While the *Ball Aerosol* claim is atypical for its recitation, within a mechanical device claim, of how a component is to be used or operated—somewhat akin to computer device claims, which commonly include functional language—it ultimately has little relevance for construing INVT's claims.

Because of the nature of the technology, computer and software claims typically use functional language to define the invention. Functional language is used to define and delimit otherwise generic or interchangeable general purpose computer hardware, which can be programmed to perform an unlimited array of functions. In other words, the recited operative steps a computer- or software-based device undertakes is what defines what a computer-implemented invention is. We have frequently construed such functional language as not requiring actual performance of those operative steps for infringement purposes. Moreover, we have not required claims to adhere to a specific grammatical form to find that the claim is drawn to capability, contrary to the Commission's and the intervenors' contentions.

In *Finjan*, accused products sold with locked software modules still infringed the device claims because the claims described capabilities and did not require software components be active or enabled. *Finjan*, 626 F.3d at 1204–05. The claims used "for performing"-type claim language—"a logical engine *for preventing* execution," "a communications engine *for obtaining* a Downloadable," and "a linking engine . . . *for forming* a sandbox package." *Id.* at 1205. Based on the language, we held that the system claims recite "software components with specific purposes."

Id. Because defendants admitted that program code for the relevant function (proactive scanning) was literally present on all accused devices, the claim was infringed "in the same way that an automobile engine for propulsion exists in a car even when the car is turned off." *Id.* at 1205. The presence of that programming in the accused products was all that was necessary for establishing infringement.

But "for performing"-type language like in *Finjan* is not the only way for a computer-implemented claim to be directed to capability, as intervenors contend. *See, e.g.*, Intervenors' Br. 66–68. In *Silicon Graphics*, the computer apparatus claim recited "a rasterization circuit coupled to the processor *that rasterizes* the primitive according to a rasterization process which operates on a floating point format." *Silicon Graphics, Inc. v. ATI Techs., Inc.*, 607 F.3d 784, 788 (Fed. Cir. 2010) (emphasis added and omitted). The accused product was a graphics processor that could not perform rasterization unless combined with an operating system. *Id.* at 794. We held that infringement did not turn on whether the accused product was actually performing the rasterization but, simply, whether it included a rasterization circuit for doing so. *Id.* at 795. We held that the apparatus claim directed to a computer, claimed in functional terms, is nonetheless infringed so long as the product is "designed 'in such a way as to enable a user of that [product] to utilize the function . . . without having to modify [the product]"—i.e., capable of the functions. *Id.* (original alterations) (quoting *Fantasy Sports*, 287 F.3d at 1118). We noted that "[w]here, as here, a product includes the structural means for performing a claimed function, it can still infringe 'separate and apart' from the operating system that is needed to use the product." *Id.* Both appellee and intervenors ignore the fact that *Silicon Graphics* treats "that rasterizes" as capability-type language. *See* Appellee's Br. 53 (noting other parts of the claim which use "for performing"-type language); Intervenors' Br. 67–68 (same, conflating the rasterization circuit and the processor, to

which the rasterization circuit is coupled).

The FID relied primarily on *Finjan* and the absence of "for performing"-type claim language, providing little else for why the '439 claims require actual operation. The intervenors argue that simple-present-tense words are enough to require actual operation, *see* Intervenors' Br. 65, 67, but *Silicon Graphics* shows that is not true.[8] In fact, based on just claim language, we see very little significance in the difference between a limitation that might recite "a data obtaining section *for demodulating and decoding*" (*Finjan*-style) and one that recites "a data obtaining section *that demodulates and decodes*" (the actual '439 claim language), for determining on which side of the capability/actual-operation line the claims fall.[9]

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[8] *See also, e.g.*, *MasterMine Software, Inc. v. Microsoft Corp.*, 874 F.3d 1307, 1315–16 (Fed. Cir. 2017) ("Though claim 8 includes active verbs—presents, receives, and generates—these verbs represent permissible functional language used to describe capabilities of the 'reporting module.'"); *UltimatePointer, L.L.C. v. Nintendo Co.*, 816 F.3d 816, 826–27 (Fed. Cir. 2016) (holding that "an image sensor, said image sensor generating data" reflected the capability of the claimed device).

[9] The other cases cited by the intervenors are not relevant or distinguishable. *Acco Brands* involved induced infringement, where a showing of underlying direct infringement was required based on an end user's actual use of an infringing mode versus a noninfringing mode. Evidence of the infringing capability of the device was therefore insufficient. *ACCO Brands, Inc. v. ABA Locks Mfrs. Co.*, 501 F.3d 1307, 1313–14 (Fed. Cir. 2007). In *Telemac Cellular*, this court held that a patentee could not rely on an alleged capability of the accused device to perform a claimed function where the device needed to be *modified* to infringe. *Telemac Cellular Corp. v. Topp Telecom,*

Like with the claims in *Finjan* and *Silicon Graphics*, we find that the asserted '439 claims are directed to capability—as in a device that includes "software components with specific purposes," programmed to have the ability to perform the operative steps: namely, a "receiving section" that can receive a signal containing data modulated and encoded using the parameters decided at user device, and a "data obtaining section" that can demodulate and decode the signal using the parameters decided at the user device. *Finjan*, 626 F.3d at 1204–05. In other words, the claims recite a device with the capability of performing the recited functions when in operation without any modification or further programming.

B

While we agree with INVT that its claims are "capability" claims, that does not mean we agree with its conception of what necessarily are the capabilities of an infringing device. We thus find it necessary to further construe the asserted '439 patent claims to clarify that determining a user

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Inc., 247 F.3d 1316, 1330 (Fed. Cir. 2001). Similarly, in *High Tech Medical Instrumentation*, the court held that infringement could not be based on an unintended alteration of the device. *High Tech Med. Instrumentation, Inc. v. New Image Indus., Inc.*, 49 F.3d 1551, 1555 (Fed. Cir. 1995). In *ViaTech*, a nonprecedential opinion, the claims required a dynamic license database and it was undisputed that the accused product lacked a database. The fact that the product had the ability to eventually create or generate a database (with the installation of Windows on the device) could not support a finding of infringement. *ViaTech Techs. Inc. v. Microsoft Corp.*, 733 F. App'x 542, 551–52 (Fed. Cir. 2018). These cases do not inform whether the '439 claims are correctly construed to be directly infringed by the sale of a device that has the pre-existing capability, without modification, to perform the claimed functions.

device's capability involves analyzing a base station's operation. INVT argues that the Commission erred by considering the operation of base stations in determining whether the asserted '439 claims were infringed. *See* Appellant's Br. 61 ("[T]he asserted claims are directed to devices, not base station . . . . Whether a *base station* is required to take certain actions is irrelevant to whether the *accused user devices* meet the claim limitations."). The intervenors argue, on the other hand, that whether the accused products are capable of meeting the claim limitations depends on how the base stations operate. *See* Intervenors' Br. 71 ("[W]hether Respondents' product do (or even can) demodulate/decode data using the parameter combinations from the CQI table depends on whether *base stations themselves even can* modulate/encode data using those combinations."). We agree with the intervenors that, although the asserted '439 claims do not include the base station itself, the base station's operation is a part of the infringement analysis.

To determine whether an accused device is a device with the "capability" of performing the recited functions, it must be able to perform those functions when it is activated and put into operation. *See infra* Section C. Here, that means that the accused device receives and then decodes and demodulates a data signal with a particular claimed protocol—using the same parameters it had previously chosen. In this case, the user device's capability is dependent on the base station's capability.

The base station is part of "the environment" in which the user device must function. *Advanced Software Design Corp. v. Fiserv, Inc.*, 641 F.3d 1374 (Fed. Cir. 2011). The claims have specific requirements for the data signal that the user device's receiving section and data obtaining section handle and process when the device is activated and put into operation. That received data signal must be modulated and encoded with specific parameters—and not by the claimed user device but by a separate base station. *See*

'439 patent, claim 1, limitation [d] ("a signal containing data modulated and encoded on a per subband group basis at the [base station] using the modulation parameters and the coding parameters of the parameter information transmitted at the parameter information transmission section"). To understand whether a user device can ever receive a data signal with the particularized characteristics set forth in the claim, it is necessary to know whether the base station (i.e., the communicating party) is capable of transmitting that particular type of data signal to the user device. Therefore, although the recited base station is not "a limitation on the claimed invention itself," *Nazomi Commcn's, Inc. v. Nokia Corp.*, 739 F.3d 1339, 1345 (Fed. Cir. 2014), in the sense that an infringer would not need to, for instance, use, make, or sell the base station, the base station's operation affects whether the claims are met, *see, e.g.*, *Advanced Software Design*, 641 F.3d at 1373–74.

In *Advanced Software*, the claimed invention was for validating a check, to prevent check fraud, and involved either decrypting or encrypting information on the check. The preamble of the claim set out that the check included "selection information [that] is encrypted" to generate a control code and a "control code [which] is printed on the [check]." We held that these steps in the preamble "define[d] the financial instrument that the claimed system validates" as opposed to setting forth steps that would have to be performed by the accused infringer. *Advanced Software*, 641 F.3d at 1373–74 & 1374 n.1. Nevertheless, the accused infringer would infringe "only by validating checks that [had] been encrypted and printed in accordance with steps described in the preamble." *Id.* at 1374.

Like in *Advanced Software*, the claimed device of the '439 patent operates in an environment that involves actions of another device (the communicating party, i.e., the base station). The claimed device's capability of performing the recited functions depends on being supplied a certain modulated and encoded signal, which, in turn,

requires the supplier (the communicating party) to actually supply that signal. Because the communicating party (base station) generates the necessary environment, its operations must be known to determine whether the accused device infringes, i.e., is capable of performing the claimed functions.

C

We find, on this record, that INVT has not shown infringement, even though the claims are drawn to capability.

"[W]here claim language recites 'capability, as opposed to actual operation,' an apparatus that is 'reasonably capable' of performing the claimed functions 'without significant alterations' can infringe those claims." *ParkerVision, Inc.*, 903 F.3d at 1362. In contexts involving software functionality, we have never suggested that reasonable capability can be established without any evidence or undisputed knowledge of an instance that the accused product performs the claimed function when placed in operation. For example, in *Ericsson*, a capability claim limitation was met because of a finding of the accused device's capability to perform the function "some of the time" based on "proof that it was in fact so used by some device users." *Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1216 (Fed. Cir. 2014). Similar support underlies infringement in *Versata*, *Finjan*, *ParkerVision*, and *Fantasy Sports Properties*, as additional examples. *See Versata Software, Inc. v. SAP Am., Inc.*, 717 F.3d 1255, 1263 (Fed. Cir. 2013) (noting that customers did and were expected to perform the functionality); *Finjan*, 626 F.3d at 1203 ("Defendants argue that *infringement occurred* only when customers purchased keys and unlocked proactive scanning modules . . . ." (emphasis added)); *ParkerVision*, 903 F.3d at 1360 (noting, in the invalidity context that "it is *undisputed* that [the reference] Nozawa's device *necessarily will produce* a periodic signal that contains integer multiples of the fundamental

frequency under some, albeit not all, conditions" (emphases added)); *Fantasy Sports Props., Inc. v. Sportsline.com, Inc.*, 287 F.3d 1108, 1119 (treating the claim as drawn to software with the "ability" to award a particular type of bonus points and finding a need for further factfinding regarding evidence of such bonus point awarding being performed without modification).[10] Relatedly, we have rejected finding infringement based on an accused product being "merely *capable* of being *modified* in a manner that infringes." *Fantasy Sports*, 287 F.3d at 1117–18 (emphases added) (citing *High Tech Med. Instrumentation, Inc. v. New Image Indus., Inc.*, 49 F.3d 1551, 1555–56 (Fed. Cir. 1995); and then citing *Telemac Cellular Corp. v. Topp Telecom, Inc.*, 247 F.3d 1316, 1330 (Fed. Cir. 2001); and discussing *Intel Corp. v. ITC*, 946 F.2d 821 (Fed. Cir. 1991)).

While we have noted the principle that "apparatus claims cover what a device *is*, not what a device *does*," *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1468 (Fed. Cir. 1990), as a useful reminder that the focus of apparatus claims is the structure and not the operation or use, with computer- or software-based

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[10] The appellant cites *Silicon Graphics* for the proposition that direct infringement does not require the performance of all elements in the apparatus claims. Appellant's Br. 63. In *Silicon Graphics*, we noted that, in addition to actual use of a product, infringement of an apparatus claim occurs when the invention is made or sold in the United States. That is what we were referring to when we said "even absent its use (or performance)," an apparatus claim directed to a computer with functional terms is nonetheless infringed. *Silicon Graphics, Inc. v. ATI Techs., Inc.*, 607 F.3d 784, 794 (Fed. Cir. 2010). Summary judgment was improper because there was a possible factual dispute as to whether the accused products, once run, could rasterize and store the data as functionally claimed. *See id.* at 795.

inventions, apparatus claims routinely depend on functional claiming to describe the apparatus. It is the functional terms that distinguish a general purpose computer, "which can be programmed to perform very different tasks in very different ways" from a special purpose computer that is programmed to perform the particular function. *Aristocrat Techs. Australia Pty Ltd. v. Int'l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008). Therefore, what the device *does* (and how it does it) is highly relevant to understanding what the device *is*, in the computer/software context. Because we require claim limitations to have some teeth and meaning, proof of reasonable capability of performing claimed functions requires, at least as a general matter, proof that an accused product—when put into operation—in fact executes all of the claimed functions at least some of the time or at least once in the claim-required environment.

For the '439 claims, the receiving section in limitation [d] and the data obtaining section in limitation [e] require receiving and handling a data signal from the base station that is modulated and encoded using parameters that were decided by the user device. INVT has failed to show that under the LTE standard, a user device ever receives and handles such a data signal, i.e., infringement based on the claim being essential to the standard, as discussed next in Subsection 1. Nor has INVT shown that the accused products receive such a data signal, i.e., infringement based on comparing the claims to the actual accused products, as discussed subsequently in Subsection 2. Those failures mean that infringement has not been shown.

1

Infringement can be proven based on an accused product's use of an industry standard if the asserted claim is standard essential. *See Fujitsu Ltd. v. Netgear Inc.*, 620 F.3d 1321, 1326–29 (Fed. Cir. 2010); *Godo Kaisha IP Bridge 1 v. TCL Commcn's Tech. Holdings Ltd.*, 967 F.3d

1380, 1383–84 (Fed. Cir. 2020).

Claims are standard essential if "the reach of the claims includes any device that practices the standard." *Fujitsu*, 620 F.3d at 1327. In other words, "all implementations of a standard infringe the claim" and the "patent covers every possible implementation of a standard." *Id.* 1327–28. In *Fujitsu*, this court explained that while "claims should be compared to the accused product to determine infringement," "if an accused product operates in accordance with a standard, then comparing the claims to that standard is the same as comparing the claims to the accused product." *Id.* at 1327. Therefore, once a claim is found to be standard essential, that is sufficient to find infringement for any standard-compliant device. *Id.* at 1328.

Sometimes, "an industry standard does not provide the level of specificity required to establish that practicing that standard would always result in infringement. Or . . . the relevant section of the standard is optional, and standards compliance alone would not establish" infringement. *Id.* at 1327–28. In such instances, the patent owner cannot establish infringement simply by arguing that the product practices the standard but "must compare the claims to the accused products or, if appropriate, prove that the accused products implement any relevant optional sections of the standard." *Id.* at 1328.

According to INVT, the '439 claims are standard essential because, under the LTE standard, all LTE-compliant devices must be capable of receiving, demodulating, and decoding data using any of the available modulation and coding parameters in LTE, including parameters originally decided by the LTE-compliant user device. *See* Appellant's Br. 62–63, 66–67. But because INVT failed to provide any evidence showing that a base station in fact ever sends the user device a data signal that is modulated and encoded using parameters that the user device decided, INVT has failed to prove the required capability.

INVT only provides two record citations for the contention that an LTE-compliant user device is necessarily capable of demodulating and decoding data using parameters it originally sends to the base station. The first citation is to the testimony of its expert, Dr. Vojcic.[11] *See* Appellant's Br. 63 (citing J.A. 10827 (827:8–13)); *see also id.* at 60, 66. This testimony merely states that an LTE user device is capable of receiving, and then demodulating and decoding using, the parameters it sent to the base station because those parameters are parameters found in the LTE standard. Without any evidence as to whether the base station operating under the LTE standard ever selects the same parameters chosen by the user device, there is no evidence that a standard-compliant user device ever receives data

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[11] Q. Okay. So do [user devices] and LTE have to be able to handle the case where the scheduler does assign resources based on measurements reported by the [user device]?

A. [User device] would have to, absolutely, be able to receive -- to receive, using modulation and coding parameters that were decided by the user device, but in some cases it might also -- it should be able to receive other modulation and coding parameters.

Q. Do [user devices] under LTE basically have to be able to receive and obtain data under any of the available modulation and coding parameters of LTE?

A. They should -- yes, they must be capable of receiving any.

Q. And are all the accused products, based on your analysis, capable of receiving demodulating and decoding using the parameters decided by the [user device]?

A. Yes, Counsel.

J.A. 10826–27 (826:23–827:18).

modulated and encoded with the claimed parameters.[12]

The second citation is to the testimony of respondents' expert, Dr. Acampora. *See* Appellant's Br. 63 (citing J.A. 11918–19 (1918:1–1919:14)); *see also FID*, at *60, *66–67. Contrary to INVT's characterization, this evidence does not show Dr. Acampora agreeing that the LTE standard contemplates that all LTE-compliant devices must be able to demodulate and decode using any of the available modulation and coding parameters of LTE, including the parameters originally decided by the device (i.e., the CQI parameters).

Preceding the portion of his testimony cited by INVT, Dr. Acampora testified that an LTE user device does *not* have to be able to demodulate and decode using the parameters shown in the CQI table, the table of the 16 combinations of parameters the user device can choose and transmit to the base station. J.A. 11915 (1915:2–6). It is true Dr. Acampora agreed that an LTE device must be able

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[12] Testimony by Dr. Vojcic additionally cited by INVT's counsel during the hearing is unhelpful. Oral Arg. 13:49–14:46 (citing J.A. 10881; 10878; 10820); 15:25–16:10. Dr. Vojcic vaguely testified that for the base station, it "would be typical or it would try whenever it could to accomplish that [i.e., sending the very CQI values back to the mobile] because that would optimize system capacity . . . ." J.A. 10881–82 (881:13–882:3); *see also* J.A. 10878 (878:5–9) ("the base station will tend to use this reported CQI because that would maximize its capacity and throughput and so on"); J.A. 10820 (820:11–22) (identifying the CQI table). And, ultimately, Dr. Vojcic rested on the idea that "who makes the ultimate decision is not really relevant for the infringement of the claim, because the [user device] must be capable of receiving what it decided when base station decides the same, and that's -- that's my explanation." J.A. 10881–82 (881:13–882:3).

to demodulate QPSK, 16QAM, and 64QAM—in other words, the user device must be able to handle the modulation parameters listed in the CQI table. J.A. 11915 (1915:7–19).[13] But, Dr. Acampora disagreed that the user device must be able to handle the ***coding*** parameters shown in the CQI table. J.A. 11915–17 (1915:20–1917:23). Dr. Acampora supported his conclusion with a detailed explanation of how the coding parameter chosen by the base station is calculated based on several things, including the MCS parameter, the TBS table, and the resource block allocation (both the MCS parameter and the resource block allocation decided by the base station and then sent to the user device), J.A. 11916 (1916:2–14), and, importantly, that he is unaware of such calculation ever resulting in a coding parameter that matches a coding parameter in the CQI table, J.A. 11919 (1919:12–13); *see also* J.A. 11877–85.

In response, INVT's counsel posed a hypothetical, which Dr. Acampora ultimately agreed with. This hypothetical included ***as an assumption*** that there is a MCS index that the base station can choose and send to the user device that could result in a coding parameter that is listed in the CQI table.[14] Not fighting the hypothetical, Dr.

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[13] QPSK, 16AM, and 64AM are listed in the MCS table, the table for the parameters the base station sends to the user device. See supra footnote 5 (referring to ETSI documentation on parameter Qm in the LTE standard); J.A. 13157–58 (MCS table).

[14] Q. I heard you the first time. My question was still a little different.

I'm asking you ***if*** an LTE-compliant device receives data modulated QPSK with a coding rate of 78, will it be able to demodulate and decode that data?

A. That's different than the question you asked earlier.

So ***if*** the [user device] concludes that the base station -- and I'll put a little finer point on your question -- ***if***

Acampora agreed that *if there is* an MCS value, a corresponding TBS value, and resource block allocation that could ultimately result in a coding parameter that matches one listed in the CQI table (based on the appropriate calculations), the user device would be required to be able to decode using a CQI parameter. *See* J.A. 11917–19 (1917:24–1919:14). In other words: *If the LTE standard provides for the user device to receive the same parameters the user device had decided*, the user device that complies with the

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the [user device] does the calculation I described, concludes that the code rate selected by the base station is 78 divided by 102.4, ***if*** that's one of the possible outcomes of the computation, then the [user device] must be able to demodulate using the indicated modulation index and that code rate.

Q. Right. You're still talking about the base station a lot, but I assume the answer is true for any of these coding rates.

If this modulation in this table and the associated coding rate is what the base station says to use, all [user devices], all LTE-compliant [user devices] and all the accused products have to be able to handle that and demodulate and decode using those parameters, right?

A. ***If*** the base station had chosen one of those, based upon how much data it has to send, transfer block size, resource block assignment so forth and so on, if the base station determines the TBS and the modulation rate, then ***if*** that combination -- which also includes how many resource blocks are being assigned -- *happens to correspond with*, say, to row 3, QPSK and 1093 divided by 102.4, ***if*** *that happens*, then the [user device] must be capable of demodulating using the corresponding modulation index and the code rate, yes.

If that should ever happen. I don't know if it ever does happen.

Q. I'll take that as a yes, Dr. Acampora. . . .

J.A. 11917–19 (1917:24–1919:14) (emphases added).

LTE standard must be capable of receiving the parameters it decided. Like the testimony of Dr. Vojcic, Dr. Acampora's testimony does not show that the base station, operating under the LTE standard, ever selects the same parameters chosen by the user device, and that a standard-compliant user device ever receives data modulated and encoded with the claimed parameters.

The ALJ's FID findings confirm there is no factual support for INVT's position that LTE user devices necessarily have the ability to receive the claimed data signal modulated and encoded *with the parameters originally decided by the user device*. *See FID*, at *58–61 (citing J.A. 11881–84; J.A. 13157–63) (analyzing infringement based on interpreting the claims to require actual operation). Although the ALJ did not decide the question of capability of an LTE user device—because the ALJ construed the claims to require actual operation—the ALJ's findings are nonetheless consistent with Dr. Acampora's point. INVT has not shown that the LTE standard includes the possibility for a combination of MCS, TBS, and resource block allocation values from a base station that results in a user device using a CQI coding parameter. *See id.* For that reason, INVT has failed to show that an LTE standard-compliant user device is capable of meeting the claimed functional language when that device is put into operation under the standard, and that the claims are essential to the LTE standard.[15]

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[15] We need not address a potential additional issue that may arise in the context of standards and patented computer-implemented inventions—must accused devices operating under a standard perform the claimed functions all of the time or just some of the time to support an infringement finding, where the claim is drawn to capability. *See FID*, at *61 (ALJ stating that "mere capability of a claimed feature is *ipso facto* not tantamount to the requirement that the claimed feature must be mandatory"). In

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Because the ALJ found the claims were not essential to the LTE standard (which we agree with), the ALJ stated that INVT must prove that the "actual operation" of the accused products meets every claim limitation. We construe the claims to be directed to capability and, thus, to be more precise, INVT was required to prove infringement in the ordinary manner, which involves "compar[ing] the claims to the accused products." *Fujitsu*, 620 F.3d at 1328. The same rationale detailed above regarding the requirement for reasonable capability again applies. An accused device cannot meet the required capabilities of the '439 claims without evidence or agreement that the accused device performs, without modification, the recited functions at least once when it is in operation. We see no reversible error in the ALJ's finding that INVT failed to prove that the accused products actually practice limitation [e], Appellee's Br. 14, 16, for reasons discussed by the ALJ's FID, *FID*, at *69–70.

The ALJ credited the intervenors' expert's testimony that without the benefit of reviewing source code governing the operation of the base station's communication with an accused device, it was not possible to determine whether the DCI transmitted to the user device was "informed in any way by a CQI value that was sent earlier" from the accused user device. *Id.* at *70. It was, therefore, not possible to know whether the base station decides to use the "very parameters" included in the CQI without reviewing base station source code. *Id.* The ALJ relied on this significant evidentiary gap about whether and how the base station was influenced by the CQI code to find that INVT failed to prove by a preponderance of the evidence that the

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this case, INVT failed to prove that the accused products ever perform the requirements of claim limitations [d] and [e].

accused products practice limitation [e]. This evidentiary gap mirrors and reinforces our earlier observation that there is nothing to support INVT's contention that the accused products are reasonably capable of receiving a data signal from the base station that is modulated and encoded using the parameters that are originally decided by the user device, and demodulating and decoding using the same parameters. Accordingly, we affirm the ALJ's finding of noninfringement as supported by substantial evidence.

D

Because limitation [e] is not met due to INVT's aforementioned failure of evidence, we need not address INVT's other infringement arguments regarding "per subband group basis" in limitations [d] and [e] and the "pattern storage section" in limitation [f].

In addition, because the parties agree that the domestic industry findings fall with the noninfringement findings, Appellant's Reply Br. 35, we affirm the Commission on finding no domestic industry.

Lastly, we note that *Chenery* does not preclude our affirmance of the Commission's decision although we do so on a different claim construction (drawn to capability) than that underlying the Commission's decision. *See SEC v. Chenery Corp.*, 332 U.S. 194, 204 (1947). We make no factual findings or decisions on any element of discretion that is the factfinding agency's to make. Relying on Dr. Acampora's testimony quoted earlier, *see supra* Section C.1, the ALJ found that "it does not appear to be likely, must [sic] less required, for the base station to choose the 'very parameters' initially decided by the UE." *FID*, at *61. The ALJ erred in construing claim limitations as requiring more than capability for infringement, a legal question. The ALJ's factual findings for noninfringement, however, are equally applicable under the correct claim construction because, as a matter of law, reasonable capability cannot be proven in light of the total absence of evidence put on by

INVT. Therefore, our affirmance is not "on a basis containing any element of discretion—including discretion to find facts and interpret statutory ambiguities—that is not the basis the agency used," that would improperly "remove the discretionary judgment from the agency to the court." *Koyo Seiko Co. v. United States*, 95 F.3d 1094, 1101 (Fed. Cir. 1996) (quoting *ICC v. Brotherhood of Locomotive Engineers*, 482 U.S. 270, 283 (1987)); *see also Mayfield v. Nicholson*, 444 F.3d 1328, 1336 (Fed. Cir. 2006) (noting the possibility of a court "conclud[ing] that there was no violation of the *Chenery* doctrine on the ground that 'it is clear . . . the agency would have reached the same ultimate result under the court's legal theory." (quoting *Grabis v. OPM*, 424 F.3d 1265, 1270 (Fed. Cir. 2005); and citing *Koyo Seiko Co.*, 95 F.3d at 1100–01))). We have not "scour[ed] the record to find some alternative basis to reach the same result." *Borovsky v. Holder*, 612 F.3d 917, 921 (7th Cir. 2010).

CONCLUSION

For the foregoing reasons, we affirm the Commission's determination of no violation of section 337 and a lack of domestic industry as to the '439 patent because INVT has not shown that the relevant LTE devices infringe. With respect to the expired '590 patent, we vacate the Commission's determination and remand with instructions to dismiss the relevant portion of the complaint.

AFFIRMED IN PART, VACATED IN PART WITH REMAND

COSTS

Costs against Appellant.