

# United States Court of Appeals for the Federal Circuit

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INVT SPE LLC,  
*Appellant*

v.

INTERNATIONAL TRADE COMMISSION,  
*Appellee*

HTC AMERICA, INC., HTC CORPORATION,  
*Intervenors*

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2020-1903

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

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Decided: August 31, 2022

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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.

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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

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