

**PUBLIC VERSION**

**In the Matter of**

**CERTAIN WIRELESS DEVICES WITH 3G  
CAPABILITIES AND COMPONENTS  
THEREOF**

**Investigation No. 337-TA-800**

**COMMISSION OPINION**

**I. INTRODUCTION**

On June 28, 2013, the presiding administrative law judge (“ALJ”) (Judge Shaw) issued his final initial determination (“ID”) in this investigation.<sup>1</sup> The ALJ found no violation of section 337 of the Tariff Act of 1930, 19 U.S.C. § 1337, as amended, by respondents Huawei Technologies Co., Ltd. of Shenzhen, China; Huawei Device USA of Plano, Texas (“Huawei Device”); FutureWei Technologies, Inc. d/b/a Huawei, Technologies (USA) of Plano, Texas (together “Huawei”); Nokia Corporation of Espoo, Finland; Nokia Inc. of White Plains, New York (together “Nokia”); ZTE Corporation of Shenzhen, China; and ZTE (USA) Inc. of Richardson, Texas (together “ZTE”) (collectively, “Adjudicated Respondents”) in connection with claims 1, 2, 3, and 5 of U.S. Patent No. 7,706,830 (“the ’830 patent”); claims 1, 2, 4, and 6-8 of U.S. Patent No. 8,009,636 (“the ’636 patent”); claims 6, 13, 20, 26, and 29 of U.S. Patent No. 7,502,406 (“the ’406 patent”); claims 2-4, 7-11, 14, 22-24, and 27 of U.S. Patent No. 7,706,332 (“the ’332 patent”); claims 1-7 of U.S. Patent No. 7,970,127 (“the ’127 patent”); claims 16-19 of U.S. Patent No. 7,536,013 (“the ’013 patent”); or claims 1-18 of U.S. Patent No. 7,616,970 (“the ’970 patent”). On September 4, 2013, the Commission determined to review the

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<sup>1</sup> The ID was served on July 1, 2013.

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final ID in its entirety and requested briefing on a single issue concerning domestic industry. 78  
*Fed. Reg.* 55294 (Sept. 10, 2013).

Upon review of the ID, the Commission has determined to affirm the ALJ's finding of no violation of section 337 as to the Adjudicated Respondents, *i.e.*, Huawei, Nokia, and ZTE. Specifically, with respect to the Power Ramp-Up patents (the '830 and '636 patents), the Commission (1) affirms the ALJ's findings that the accused products do not satisfy the "successively sends transmissions" limitation as construed to mean "transmits to the base station, one after the other, codes that are shorter than a regular length code" to the extent that the "successively sends transmissions" refer to the short codes and (2) for the '636 patent vacates the ALJ's findings regarding the "subsequent transmission" limitation. With respect to the Power Control Patents (the '406 and '332 patents), the Commission modifies the ALJ's construction of the claim term "power control bit" to mean "single-bit power control information transmitted at an APC data rate equivalent to the APC update rate" and construes the limitation to encompass only "single-bit power control information." The Commission adopts the ALJ's findings that the '127, '013, and '970 patents are invalid in view of prior art. The Commission supplements and modifies the ID as discussed below.

The Commission notes that this investigation is still pending with respect to certain respondents. Thus, except for non-infringement of Adjudicated Respondents' products, all issues pertaining to the Power Ramp-Up patents (the '406 and '332 patents) and Power Control patents (the '830 and '636 patents) including domestic industry continue to remain under review.

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### II. BACKGROUND

#### A. Procedural History

The Commission instituted this investigation on August 31, 2011, based on a complaint filed by complainants InterDigital Communications, LLC of King of Prussia, Pennsylvania;<sup>2</sup> InterDigital Technology Corporation of Wilmington, Delaware; and IPR Licensing, Inc. of Wilmington, Delaware (collectively, “InterDigital”). 76 *Fed. Reg.* 54252 (Aug. 31, 2011). The complaint alleged violations of section 337 of the Tariff Act of 1930 (19 U.S.C. § 1337) in the importation into the United States, the sale for importation, and the sale within the United States after importation of certain wireless devices with 3G capabilities and components thereof that infringe one or more of claims 1-15 of U.S. Patent No. 7,349,540 (“the ’540 patent”); claims 1, 2, 6-9, 13, 15-16, 20-22, 26, 28-30, 34-36, and 40 of the ’406 patent; claims 1-19 of the ’013 patent; claims 1-18 of the ’970 patent; claims 1-27 of the ’332 patent; claims 1-3, 5-8, 10, 16-18, 20-23, and 25 of the ’830 patent; and claims 1-14 of the ’127 patent. *Id.* The notice of investigation named the following respondents: Huawei (except Huawei Device), Nokia, and ZTE. *Id.*

The Office of Unfair Import Investigations (“OUII”) was also named as a party to this investigation. However, pursuant to the Supplement to the Strategic Human Capital Plan 2009-2013, issued by the Commission on January 18, 2012, OUII provided notice that its participation

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<sup>2</sup> InterDigital Communications, LLC subsequently moved for leave to amend the Complaint and Notice of Investigation to reflect the fact that it converted from a Pennsylvania limited liability company to a Delaware corporation, and changed its name to InterDigital Communications, Inc. The ALJ issued an ID granting the motion and the Commission determined not to review. *See* Order No. 91 (Jan. 17, 2013); Notice of Commission Determination Not to Review an Initial Determination Granting Complainants’ Motion for Leave to Amend the Complaint and Notice of Investigation (Feb. 4, 2013).

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in this investigation “will be limited to issues relating to U.S. Patent Nos. 7,349,540, 7,536,013, and 7,970,127, as well as issues relating to Respondents’ patent misuse and/or FRAND defenses.” *See* Commission Investigative Staff’s Notice of Partial Participation (Jan 18, 2012).

On December 5, 2011, the ALJ issued an ID, granting a motion by InterDigital to amend the complaint and notice of investigation (1) to add allegations of infringement of claims 1-4, 6-9, and 29-31 of the ’636 patent and (2) to name LG Electronics, Inc.; LG Electronics U.S.A., Inc.; and LG Electronics Mobilecomm U.S.A., Inc. (collectively, “LG”) as respondents. *See* Order No. 5 (Dec. 5, 2011). The Commission determined not to review. *See* Notice of Commission Determination Not to Review an Initial Determination Granting Complainants’ Motion for Leave to Amend the Complaint and Notice of Investigation (Dec. 21, 2011); 76 *Fed. Reg.* 81527 (Dec. 28, 2011).

On April 11, 2012, the ALJ issued an ID, granting a motion by InterDigital to amend the complaint and notice of investigation to add Huawei Device as a respondent. *See* Order No. 19 (Apr. 11, 2012). The Commission determined not to review. *See* Notice of Commission Determination Not to Review an Initial Determination Granting Complainants’ Motion for Leave to Amend the Complaint and Notice of Investigation (May 1, 2012); 77 *Fed. Reg.* 26788 (May 7, 2012).

On June 4, 2012, the ALJ granted a motion by LG under 19 C.F.R § 210.21(a)(2) to terminate the investigation as to LG based on an arbitration agreement. *See* Order No. 30 (June 4, 2012). The Commission determined not to review. *See* Notice of Commission Determination Not to Review an Initial Determination Terminating Certain Respondents From the Investigation



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(July 6, 2012). InterDigital appealed LG's termination from the investigation, and the Federal Circuit reversed the Commission's determination. *InterDigital Commc'ns, LLC v Int'l Trade Comm'n*, 718 F.3d 1336 (Fed. Cir. 2013). LG subsequently filed a combined petition for panel rehearing and rehearing en banc. On October 3, 2013, the Court denied the petition. *InterDigital Commc'ns, LLC v. Int'l Trade Comm'n*, No. 12-1628 (Fed. Cir. Oct. 3, 2013). The mandate issued on October 10, 2013, returning jurisdiction to the Commission. This investigation is still pending as to LG.

On July 24, 2012, the ALJ granted a motion by InterDigital to terminate the investigation in part as to claims 1-15 of the '013 patent; claims 8-14 of the '127 patent; all claims of the '540 patent; claims 1, 2, 9, 16, 28, 30, 34-36, and 40 of the '406 patent; claims 5, 6, 12, 13, 15-20, 25, and 26 of the '332 patent; and claims 16-18, 20-23, and 25 of the '830 patent. *See* Order No. 38 (July 24, 2012). The Commission determined not to review. *See* Notice of Commission Determination Not to Review an Initial Determination Terminating Certain Claims From the Investigation (Aug. 9, 2012).

On January 3, 2013, the ALJ granted a motion by InterDigital to terminate the investigation in part as to claims 7, 8, 15, 21, and 22 of the '406 patent; claims 1 and 21 of the '332 patent; and claims 6-8 and 10 of the '830 patent. *See* Order No. 87 (Jan. 3, 2013). The Commission determined not to review. *See* Notice of Commission Determination Not to Review an Initial Determination Terminating Certain Claims From the Investigation (Jan. 23, 2013).

The ALJ held an evidentiary hearing from February 12, 2013 through February 22, 2013, and thereafter received post-hearing briefing from the parties.

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On June 28, 2013, the ALJ issued his final ID, finding no violation of section 337 by the Adjudicated Respondents. Specifically, the ALJ found that the Commission has subject matter jurisdiction, *in rem* jurisdiction over the accused products, and *in personam* jurisdiction over the respondents. ID at 15. The ALJ also found that the importation requirement of section 337 (19 U.S.C. § 1337(a)(1)(B)) has been satisfied. *Id.* at 16. The ALJ, however, found that the Adjudicated Respondents' accused products do not infringe asserted claims 1-3 and 5 of the '830 patent; asserted claims 1, 2, 4, 6, 7, and 8 of the '636 patent; asserted claims 6, 13, 20, 26, and 29 of the '406 patent; asserted claims 2-4, 7-11, 14, 22-24, and 27 of the '332 patent; asserted claims 1-7 of the '127 patent; asserted claims 16-19 of the '013 patent; or asserted claims 10-18 of the '970 patent. *See* ID at 59-69, 141-168, and 240-257.

The ALJ concluded that the Adjudicated Respondents' accused products satisfy each limitation of claims 1-9 of the '970 patent but found that all the asserted claims, claims 1-18, of the '970 patent are invalid in view of the prior art. *See id.* at 315-339, 345-381. He also found that asserted claims 1-7 of the '127 patent and asserted claims 16-19 of the '013 patent are invalid in view of the prior art. *See id.* at 260-286. The ALJ found that the Adjudicated Respondents failed to establish by clear and convincing evidence that the asserted claims of the '830, '636, '406 or '332 patents were invalid in light of the cited prior art references. *See id.* at 74-94, 191-208. The ALJ also found that the Adjudicated Respondents failed to prove that they hold licenses under the asserted patents and failed to prevail on their equitable/FRAND defenses.

The ALJ further found that InterDigital established the existence of a domestic industry

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that practices the asserted patents under 19 U.S.C. § 1337(a)(2). *See* ID at 20, 31, 45, and 58.

The ALJ issued his recommended determination on remedy and bonding on July 10, 2013.

On July 15, 2013, InterDigital filed a petition for review of the ID, challenging a number of the ALJ's findings. *See* Complainant InterDigital's Petition for Review of the Final Initial Determination ("InterDigital Pet."). Specifically, InterDigital sought review of the ALJ's finding that the accused products do not infringe the asserted claims of the '830, '636, '406, and '332 patents. *Id.* InterDigital also challenged the ALJ's finding that the '970 patent is invalid in view of the cited prior art. *Id.* Also on July 15, 2013, the Commission investigative attorney and the Adjudicated Respondents filed separate petitions for review challenging the ALJ's finding that InterDigital established the presence of a domestic industry that practices the asserted patents. *See* Petition of the Office of Unfair Import Investigations for Review of the Initial Determination on Violation of Section 337; *See* Respondents' Petition for Review on Domestic Industry and Contingent Petition for Review of Other Issues. Respondents also filed a contingent petition for review. *See id.*

On July 23, 2013, the parties filed responses to the petitions for review. *See* Respondents' Response to InterDigital's Petition for Review of the Initial Determination on Violation ("Resp. Rep."); Respondents' Response to Office of Unfair Import Investigations' Petition for Review of the Initial Determination on Violation of Section 337; Complainant InterDigital's Response to the Respondents' and the Staff's Petitions for Review of the Final Initial Determination; Response of the Office of Unfair Import Investigations to the Private Parties' Petition for Review of the Initial Determination on Violation of Section 337.

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On September 4, 2013, the Commission determined to review the final ID in its entirety and requested briefing on a single issue concerning domestic industry. 78 *Fed. Reg.* 55294 (Sept. 10, 2013).

On September 27, 2013, the parties filed written submissions on the issue under review. *See* Complainant InterDigital's Response to Notice of Commission Determination to Review, Dated September 4, 2013; Response of the Office of Unfair Import Investigations to the Commission's Question; Respondents' Brief Addressing Domestic Industry Issues Raised in Commission's Decision of September 4, 2013. On October 21, 2013, the parties filed reply submissions.<sup>3</sup> *See* Complainant InterDigital's Reply Regarding the Notice of Commission Determination to Review, Dated September 4, 2013; Reply of the Office of Unfair Import Investigations to the parties' Responses to the Commission's Question; Respondents' Reply Brief Addressing Domestic Industry Issues Raised in Commission's Notice of September 4, 2013.

### **B. Patents and Technology at Issue**

The technology at issue in this investigation generally relates to wireless communications devices with Third Generation ("3G") cellular capabilities, and components thereof. ID at 7 (citing CX-1310C (Prucnal WS) at Q58). 3G describes a family of technologies that fulfills the International Mobile Telecommunications-2000 specifications ("IMT-2000") defined by the International Telecommunication Union ("ITU"). *Id.* Two of the most widely adopted 3G systems are based on code division multiple access ("CDMA") technology, *i.e.*, Wideband

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<sup>3</sup> The delay in filing responses was due to the government shutdown.

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CDMA (“WCDMA”) developed by the Third Generation Partnership Project (“3GPP”) and CDMA2000 developed by the Third Generation Partnership Project 2 (“3GPP2”). *Id.*

The ’830 patent entitled “Method and Subscriber Unit for Performing an Access Procedure” issued on April 27, 2010. The patent names Fatih M. Ozluturk and Gary R. Lomp as the inventors. ’830 patent (JX-6). The patent describes a way in which a subscriber unit gains access to a cellular CDMA system. *Id.* at Abstract. InterDigital owns the patent and has asserted independent claim 1 and dependent claims 2, 3, and 5 in this investigation.

The ’636 patent entitled “Method and Apparatus for Performing an Access Procedure” issued on August 30, 2011. ’636 patent (JX-7). The patent names Fatih Ozluturk and Gary R. Lomp as the inventors. The patent describes a way in which a subscriber unit gains access to a cellular CDMA system. *Id.* at Abstract. InterDigital owns the ’636 patent and has asserted independent claim 1 and dependent claims 2 and 4-8 in this investigation. The ’636 patent and the ’830 patent are related to the same technology, and share a common specification. The patents are collectively referred to as the “Power Ramp-Up” patents.

The ’406 patent, entitled “Automatic Power Control System for a Code Division Multiple Access (CDMA) Communications System” issued on March 10, 2009. ’406 patent (JX-1). The patent names Gary Lomp, Fatih Ozluturk, and John Kowalski as the inventors. The patent describes automatic power control for a CDMA system. *Id.* at Abstract. InterDigital owns the patent and has asserted independent claim 29 and dependent claims 6, 13, 20, and 26, which depend respectively from independent claims 1, 7, 15, and 21, and dependent claim 22 in this investigation.

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The '332 patent entitled "Method and Subscriber Unit for Performing Power Control" issued on April 27, 2010. '332 patent (JX-2). The patent names Fatih Ozluturk and Gary Lomp as the inventors. The patent describes a way in which subscriber units and base stations communicate to control the power level of transmissions from the base station to a subscriber unit within a cellular CDMA system. *Id.* at Abstract. InterDigital owns the '332 patent and has asserted independent claim 8 with its dependent claims 9, 10, 11, and 14, as well as dependent claims 2, 3, 4, 7, 22-24, and 27 in this investigation. These claims depend from non-asserted independent claims 1 and 21. The '332 patent and the '406 patent are related, and the two patents are collectively referred to as the "Power Control" patents.

The '127 patent, entitled "User Equipment Identification Specific Scrambling" issued on June 28, 2011. '127 patent (JX-4). The patent names Stephen G. Dick, Nader Bolourchi, and Sung-Hyuk Shin as the inventors. The patent describes aspects of the High Speed Downlink Packet Access (HSDPA) used in 3G WCDMA systems. *Id.* at Abstract. InterDigital owns that patent and has asserted independent claim 1 and dependent claims 2-7 in this investigation.

The '013 patent entitled "User Equipment Identification Specific Scrambling" issued on May 19, 2009. '013 patent (JX-3). The patent names Stephen G. Dick, Nader Bolourchi, and Sung-Hyuk Shin as the inventors. The patent describes aspects of the High Speed Downlink Packet Access (HSDPA) used in 3G WCDMA systems. *Id.* at Abstract. InterDigital owns the '013 patent and has asserted independent claim 16 and dependent claims 17-19 in this investigation. The '013 patent is related to the '127 patent and the two patents are referred to as the "UE ID" patents.

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The '970 patent entitled "Dual Mode Unit for Short Range, High Rate and Long Range, Lower Rate Data Communications" issued on November 10, 2009. '970 patent (JX-5). The patent names Thomas E. Gorsuch as the inventor. The patent describes short-range, higher speed and long-range, lower speed wireless communications. *Id.* at Abstract. The '970 patent is referred to as the "Dual Mode Subscriber" patent. InterDigital owns the patent and has asserted independent claims 1 and 10, and dependent claims 2-9 and 11-18 in this investigation.<sup>4</sup>

### C. Products at Issue

InterDigital has accused about 150 devices of infringement in this investigation. ID at 7. Each of the accused products is designed to operate with either the WCDMA standard, the CDMA2000 standard, or both standards. *Id.* The accused products can be grouped into three categories according to the baseband processor used in the device: the "Qualcomm accused products" use baseband processors developed by Qualcomm, the "Nokia/TI accused products" use baseband processors developed by Nokia and manufactured by Texas Instruments, and the [ ] *Id.* For a complete list of accused products, see ID at 7-15.

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<sup>4</sup> As noted above, the ALJ found that the '970, '013, and '127 patents are invalid in view of the prior art. InterDigital petitioned for review of the ALJ's findings with respect to the '970 patent but did not petition for review of the findings regarding the '013 patent or '127 patent. By not petitioning for review of the findings pertaining to the '013 and '127 patents, InterDigital has waived its right to challenge those findings. *Allied Corp. v. U. S. Int'l Trade Comm'n*, 850 F.2d 1573, 1580 (Fed. Cir. 1988). With respect to the '970 patent, the Commission finds InterDigital's petition unpersuasive and adopts the ALJ's findings.

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III. DISCUSSION OF ISSUES UNDER REVIEW

A. The Power Ramp-Up Patents ('830 & '636 Patents)

InterDigital has asserted independent claim 1 and dependent claims 2, 3, and 5 of the '830 patent in this investigation. Claim 1 of the '830 patent recites:

1. A wireless code division multiple access (CDMA) subscriber unit comprising:

a transmitter configured such that, when the subscriber unit is first accessing a CDMA network and wants to establish communications with a base station associated with the network over a communication channel to be indicated by the base station, the transmitter *successively sends transmissions* prior to the subscriber unit receiving from the base station an indication that at least one of the successively sent transmissions has been detected by the base station;

wherein each of the *successively sent transmissions* is produced using a sequence of chips, wherein the sequence of chips is not used to increase bandwidth;

the transmitter further configured such that the transmitter sends to the base station a message indicating to the base station that the subscriber unit wants to establish the communications with the base station over the communication channel to be indicated by the base station, the message being sent only subsequent to the subscriber unit receiving the indication;

wherein at least two of the *successively sent transmissions* are produced using different sequences of chips;

wherein each of the *successively sent transmissions* is shorter than the message; and

wherein each of the *successively sent transmissions* and the message are produced using portions of a same sequence of chips, wherein the same sequence of chips is not used to increase bandwidth.

'830 patent, col. 10, l. 54 – col. 11, l. 16 (claim 1) (emphasis added).

InterDigital also asserted independent claim 1 and dependent claims 2, 4, and 6-8 of



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the '636 patent in this investigation. Claim 1 of the '636 patent recites:

1. A wireless code division multiple access (CDMA) subscriber unit comprising:

a transmitter configured such that, when the subscriber unit is first accessing a CDMA network, the transmitter *successively sends transmissions* wherein each of the transmissions are derived from a first length of a plurality of chips until the subscriber unit receives from a base station associated with the network an indication that at least one of the transmissions has been detected by the base station; and

the transmitter further configured such that, subsequent to the subscriber unit receiving the indication, the transmitter sends a *subsequent transmission* derived from a second length of the plurality of chips, wherein the first length is less than the second length.

'636 patent, col. 10, ll. 48 – 64 (claim 1) (emphasis added).

### 1. Construction of Disputed Claim Terms

#### a. Applicable Law on Claim Construction

Claim construction begins with the plain language of the claim. Claims should be given their ordinary and customary meaning as understood by a person of ordinary skill in the art, viewing the claim terms in the context of the entire patent. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (en banc).

In some instances, claim terms do not have particular meaning in a field of art, and claim construction involves little more than the application of the widely accepted meaning of commonly understood words. *Phillips*, 415 F.3d at 1314. “In such circumstances, general purpose dictionaries may be helpful.” *Id.* In many cases, however, claim terms have a specialized meaning, and it is necessary to determine what a person of skill in the art would have understood the disputed claim language to mean. *Id.* “Because the meaning of a claim term as

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understood by persons of skill in the art is often not immediately apparent, and because patentees frequently use terms idiosyncratically, the court looks to ‘those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean.’” *Id.* (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004)). The public sources identified in *Phillips* include “the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.” *Id.*

In cases in which the meaning of a claim term is uncertain, the specification usually is the best guide to the meaning of the term. *Id.* at 1315. As a general rule, the particular examples or embodiments discussed in the specification are not to be read into the claims as limitations. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (*en banc*), *aff’d*, 517 U.S. 370 (1996). The specification is, however, always highly relevant to the claim construction analysis, and is usually dispositive. *Phillips*, 415 F.3d at 1315 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). Moreover, “[t]he construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” *Id.* at 1316.

Claims are not necessarily, and are not usually, limited in scope to the preferred embodiment. *RF Delaware, Inc. v. Pacific Keystone Techs., Inc.*, 326 F.3d 1255, 1263 (Fed. Cir. 2003); *Decisioning.com, Inc. v. Federated Dep’t Stores, Inc.*, 527 F.3d 1300, 1314 (Fed. Cir. 2008) (“[The] description of a preferred embodiment, in the absence of a clear intention to limit

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claim scope, is an insufficient basis on which to narrow the claims.”). Nevertheless, claim constructions that exclude the preferred embodiment are “rarely, if ever, correct and require highly persuasive evidentiary support.” *Vitronics*, 90 F.3d at 1583. Such a conclusion can be mandated in rare instances by clear intrinsic evidence, such as unambiguous claim language or a clear disclaimer by the patentees during patent prosecution. *Elektta Instrument S.A. v. O.U.R. Sci. Int’l, Inc.*, 214 F.3d 1302, 1308 (Fed. Cir. 2000); *Rheox, Inc. v. Entact, Inc.*, 276 F.3d 1319 (Fed. Cir. 2002).

If the intrinsic evidence does not establish the meaning of a claim, then extrinsic evidence may be considered. Extrinsic evidence consists of all evidence external to the patent and the prosecution history, and includes inventor testimony, expert testimony, and learned treatises. *Phillips*, 415 F.3d at 1317. Inventor testimony can be useful to shed light on the relevant art. In evaluating expert testimony, a court should discount any expert testimony that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history. *Id.* at 1318. Extrinsic evidence may be considered if a court deems it helpful in determining the true meaning of language used in the patent claims. *Id.*

### **b. Construction of the Claim Term “Successively Sends Transmissions”**

#### **i. The ID**

The claim term “successively sends transmissions” appears in the asserted claims of both the ’830 and ’636 patents. *See* ’830 patent (JX-6) at col. 10, l. 54 – col. 11, l. 16; ’636 patent (JX-7) at col. 10, ll. 49-63. The ALJ construed the claim term to mean “transmits to the base station, one after the other, codes that are shorter than a regular length code,” adopting the

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construction proposed by the Adjudicated Respondents. ID at 22-25. In construing the claim term, the ALJ pointed to the specification and noted that it describes “transmissions” from the subscriber unit to the base station as follows:

As the base station **14** transmits the pilot code **40** (step 100), the base station **14** searches (step 101) for an “access code” **42** transmitted by a subscriber unit **16**. The access code **42** is a known spreading code transmitted from a subscriber unit **16** to the base station **14** during initiation of communications and power ramp-up.

’830 patent, col. 6, ll. 14-20. The ALJ further referenced the specification’s description of a preferred embodiment:

The preferred embodiment of the present invention utilizes ‘short codes’ and a two-stage communication link establishment procedure to achieve fast power ramp-up without large power overshoots. The spreading code transmitted by the subscriber unit 16 is much shorter than the rest of the spreading codes (hence the term short code), so that the number of phases is limited and the base station 14 can quickly search through the code. The short code used for this purpose carries no data.

*Id.* at col. 7, lns. 36-44. The ALJ concluded that “[t]hese passages from the ’830 specification make clear that the claimed ‘transmissions’ from the subscriber unit to the base station comprise codes” and that at “no point does the specification indicate that the claimed transmissions are generalized ‘RF emissions,’ as proposed by InterDigital.” ID at 24 (citing Compls. Br. at 38-39).

The ALJ further found that the patents “disclose that the codes successively transmitted during the random access process (*i.e.*, the short codes) are neither modulated with data, nor used to modulate data.” ID at 24-25 (citing RX-3526C (Lanning WS) at Q69, Q92-95, Q130-132; CX-1309C (Jackson WS) at Q625; Jackson Tr. 119, 177, 178; Haas Tr. 1822, 1823-1826; RX-3999C (Lanning RWS) at Q132-134, Q141-143; *see also InterDigital Commc’ns, LLC v. Int’l*

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*Trade Comm'n*, 690 F.3d 1318, 1326 (Fed. Cir. 2012) (“As noted, the specification describes various codes, such as pilot codes and short codes, as ‘spreading codes’ even though they carry no data and are not intended to do so.”); *id.* at 1326 (finding that experts confirmed that the short codes and the access codes described in the specification do not spread, or modulate, data)). That is, the ALJ found that the “codes” themselves are what are successively transmitted, not codes modulated with data.

The ALJ discounted InterDigital’s argument that “Respondents’ expert Mr. Lanning defines the term ‘code’ as used in Respondents’ construction as a specific type of code, specifically one that is “not modulated by data,”” stating that the phrase “not modulated by data” does not appear in any of Adjudicated Respondents’ proposed constructions. ID at 25. The ALJ observed that “Mr. Lanning does not distinguish codes that can be modulated by data from those that cannot be modulated by data.” *Id.* Rather, “Mr. Lanning testified that a code modulated by data is no longer a code, *i.e.*, the transmission of a code modulated by data is not the transmission of a code.” *Id.* (citing RX-3999C (Lanning RWS) at Q152).

### ii. InterDigital’s Petition

InterDigital filed a petition for review, challenging the ALJ’s claim construction and arguing that the ALJ improperly restricts the plain meaning of the word “transmission.” InterDigital Pet. at 11. According to InterDigital, “transmission” means “RF emissions” or “signals,” not “codes shorter than a regular length code,” as construed by the ALJ. *Id.* Specifically, InterDigital contends that nothing in the intrinsic evidence suggests that the patentees intended to limit the ordinary meaning of “transmission” and accuses the ALJ of

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violating the basic rule of claim construction by permitting a preferred embodiment to restrict the ordinary meaning of the claim term. *Id.* at 17-18 (citing ID at 23-24).

InterDigital further argues that the intrinsic evidence supports its construction and points to the original application from which the patents derive. *Id.* at 19. That application included claims reciting “transmitting a periodic signal” and according to InterDigital shows that the specification contemplates “transmitting ‘signals,’ which requires a broader construction of the claim term ‘transmissions’ than the ALJ’s construction of ‘codes that are shorter than a regular length code.’” *Id.* InterDigital also argues that the ALJ observed incorrectly that under its proposed construction the claim “term ‘transmissions’ can be generalized ‘RF emissions.’” *Id.* at 21 (emphasis omitted). InterDigital asserts that the claim itself, particularly the surrounding language, make clear that the RF emissions are specific and not general. *Id.* (citing ’830 patent, claim 1).

### iii. Adjudicated Respondents’ Response

In response, the Adjudicated Respondents argue that the ALJ’s construction finds support in the intrinsic evidence, expert testimony, and the Federal Circuit’s opinion in a related investigation, *InterDigital Commc’ns, LLC v. Int’l Trade Comm’n*, 690 F.3d 1318, 1326 (Fed. Cir. 2012) (“*InterDigital I*”). Resp. Rep. at 5. Adjudicated Respondents point out that the Federal Circuit found, consistent with InterDigital’s arguments, that “the specification makes clear [that the initiation codes] are not used to spread signals.” *Id.* at 7 (citing *InterDigital I*, 690 F.3d at 1325; Haas Tr. 1825:17-1826:14; Jackson Tr. 178:15-21).

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### iv. Analysis

The Commission finds InterDigital's arguments unpersuasive and adopts the ALJ's construction of the claim term "successively sends transmissions" to mean "transmits to the base station, one after the other, codes that are shorter than a regular length code." This construction is supported by both the intrinsic and extrinsic evidence of the patents. ID at 22-25.

InterDigital argues that the ALJ's construction is incorrect because it improperly restricts the plain meaning of the word "transmissions," which according to InterDigital means "RF emissions" or signals. InterDigital Pet. at 11. While "transmissions" may mean "RF emissions" (Lanning Tr. at 1080:3-17; CX-1309C (Jackson WS) at 694, 696-97) the claim limitation in dispute recites "successively sends transmissions" not merely "transmissions," and the Federal Circuit has explained that claims should be given their ordinary and customary meaning as understood by a person of ordinary skill in the art, viewing the claim terms in the context of the entire patent. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (*en banc*). In the context of the '830 and '636 patents, "successively sends transmissions" refers to transmitting short codes to the base station. The "summary of the invention" for both the '830 and '636 patents states that

The present invention comprises a novel method of controlling transmission power during the establishment of a channel in a CDMA communication system by utilizing the transmission of a short code from a subscriber unit to a base station during initial power ramp-up. The short code is a sequence for detection by the base station which has a much shorter period than a conventional spreading code. The ramp-up starts from a power level that is guaranteed to be lower than the required power level for detection by the base station. The subscriber unit quickly increases transmission power while repeatedly transmitting the short code

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until the signal is detected by the base station.

'830 patent, col. 3, ll. 17-29; '636 patent, col. 3, ll. 16-28. In other words, the patent teaches that the "successively sends transmissions" refers to "repeatedly transmitting the short code."

Consistent with the summary of the invention, the specification describes a preferred embodiment where

[w]hen a communication link is desired, the subscriber unit **16** starts transmitting a short code at the minimum power level . . . and continuously increases the transmission power level while retransmitting the short code until it receives an acknowledgement from the base station **14** that the short code has been detected by the base station.

'830 patent, col. 7, ll. 60-65. As the ALJ found, the disclosures of the ramp-up patents "make clear that the claimed 'transmissions' from the subscriber unit to the base station comprise codes," in particular short codes, and at "no point do[] the specification[s] indicate that the claimed transmissions are generalized 'RF emissions,' as proposed by InterDigital." ID at 24.

In addition, the language of the claims provides further support. Claim 1 of the '830 patent describes "a transmitter configured such that, when the subscriber unit is first accessing a CDMA network and wants to establish communications with a base station . . . the transmitter successively sends transmissions prior to the subscriber unit receiving from the base station an indication that at least one of the successively sent transmissions has been detected by the base station," and that "each of the successively sent transmissions is shorter than the message." '830 patent, col.10, ll. 56-64; col. 11, ll. 11-12. That is, the claim itself establishes that the "successively sends transmissions" limitation refers to transmitting short codes.

Moreover, the extrinsic evidence also supports the ALJ's construction of "successively



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sends transmissions” to mean “transmits to the base station, one after the other, codes that are shorter than a regular length code.” Indeed, InterDigital’s own expert admitted that the “successively sent transmissions” of claim 1 refers to the short codes. Jackson Tr. 176:25-177:5 (Q. All right. Now, the successively sent transmissions of claim 1, those are the short codes described in the 830 patent, correct? A. Yes, the repeated transmissions of the short code are the successively sent transmissions.).

The ALJ’s construction finds support in both the intrinsic and extrinsic evidence of the patent. Accordingly, the Commission adopts the construction and declines InterDigital’s invitation to change it.

**2. Whether the Accused Products Infringe the Asserted Claims of the Power Ramp-Up Patents ('830 & '636 Patents)**

**a. Applicable Law on Infringement**

Direct infringement of a patent under 35 U.S.C. § 271(a) consists of making, using, offering to sell, or selling a patented invention without consent of the patent owner or importing a patented invention into the United States without consent of the patent owner. Section 337 prohibits “the importation into the United States, the sale for importation, or the sale within the United States after importation . . . of articles that infringe a valid and enforceable United States patent . . . .” 19 U.S.C. § 1337(a)(1)(B).

A determination of patent infringement encompasses a two-step analysis. *Advanced Cardiovascular Sys., Inc. v. Scimed Life Sys., Inc.*, 261 F.3d 1329, 1336 (Fed. Cir. 2001). First, the court determines the scope and meaning of the patent claims asserted, and then the properly construed claims are compared to the allegedly infringing device. *Id.* Each patent claim element

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or limitation is considered material and essential to an infringement determination. *See London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991). “Literal infringement of a claim exists when each of the claim limitations reads on, or in other words is found in, the accused device.” *Allen Eng. Corp. v. Bartell Indus.*, 299 F.3d 1336, 1345 (Fed. Cir. 2002). To prove direct infringement, the plaintiff must establish by a preponderance of the evidence that one or more claims of the patent read on the accused device either literally or under the doctrine of equivalents. *Scimed*, 261 F.3d at 1336.

In a section 337 investigation, the complainant bears the burden of proving infringement of the asserted patent claims by a preponderance of the evidence. *Certain Flooring Products*, Inv. No. 337-TA-443, Commission Notice of Final Determination of No Violation of Section 337, 2002 WL 448690 at 59, (March 22, 2002); *Enercon GmbH v. Int’l Trade Comm’n*, 151 F.3d 1376 (Fed. Cir. 1998).

### **b. Whether the Accused Products Satisfy the “Successively Sends Transmissions” Limitation**

#### **i. The ID**

The ALJ noted that each asserted claim of the Power Ramp-Up patents recites the “successively sends transmissions” limitation, construed to mean “transmits to the base station, one after the other, codes that are shorter than a regular length code.” ID at 53. Under that construction, the ALJ found that the accused WCDMA Products do not satisfy the limitation and consequently, found no infringement. Specifically, the ALJ observed that for all the WCDMA accused products, InterDigital identifies the PRACH (Physical Random Access Channel) preambles as the claimed “successively sent transmissions” and found that PRACH Preamble is

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not the transmission of a code. *Id.* (citing RX-3999C (Lanning RWS) at Q310-311).

The ALJ explained that, “as set forth in the 3GPP WCDMA standard, the PRACH preambles are composed of a scrambling code that scrambles a repeated signature” and that each “repeated signature comprises data, indicating at least the Access Service Class for that particular handset.” *Id.* (citing RX-3999C (Lanning RWS) at Q310, Q312-317; RX-3964 (3GPP TS 25.331) at §§ 10.3.6.52-10.3.6.55; *Certain 3G Mobile Handsets and Components Thereof*, Inv. No. 337-TA-613, USITC Pub. No. 4145, Initial Determination at 92 (“[T]he administrative law judge finds that the PRACH preamble is modulated by data as the signal as modulated by the scrambling code uniquely identifies the cell.”). Because the PRACH preamble is modulated by data, the ALJ found that it did not meet the claim limitation, stating:

Inasmuch as the adopted construction of “successively sends transmissions” requires that the transmissions comprise codes, and inasmuch as the PRACH preamble comprises a repeated data signature scrambled by a code, it is determined that the WCDMA Accused Products do not satisfy this claim limitation under the adopted construction because the PRACH preamble is not a code.

ID at 53-54.

**ii. InterDigital’s Petition**

As noted above, InterDigital challenges the ALJ’s construction of the claim term “successively sends transmissions,” and invites the Commission to reject the ALJ’s construction in favor of its proposed construction. InterDigital also argues that even under the ALJ’s construction, the accused WCDMA products infringe. InterDigital Pet. at 14. Specifically, InterDigital contends that the ALJ’s non-infringement finding depends on his view that a code

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modulated by data is outside the scope of the asserted claims. *Id.* InterDigital disagrees and points to the Federal Circuit’s decision in *InterDigital I*. InterDigital explains that the patents at issue in that appeal “share a common specification with the ’830 and ’636 patents” and that the Federal Circuit found that a “code” is simply “a sequence of bits” or a “sequence of chips.” *Id.* at 15. InterDigital asserts that the Federal Circuit’s ruling, which is binding on the Commission, does not suggest that “short codes cannot be modulated by data” but instead ruled that the intrinsic evidence lacks a restrictive definition or disclaimer for “code.” *Id.* (citing *InterDigital I*, 690 F.3d at 1326). Thus, InterDigital states that “[w]hen the Federal Circuit’s controlling construction of the word ‘code’ is applied to the ALJ’s construction of the disputed claim term, the PRACH preambles in the Accused WCDMA Products are ‘successively sent transmissions.’” *Id.* at 16.

### iii. Adjudicated Respondents’ Response

Adjudicated Respondents contend that the ALJ correctly relied on evidence that the transmission of a code modulated by data is not the transmission of a code, and because the accused products [ ]  
Resp. Rep. at 2-3. (citing RX-3999C (Lanning RWS) at Q.152).

Adjudicated Respondents further argue that the Federal Circuit’s opinion in *InterDigital I* is not to the contrary. Adjudicated Respondents explain that in *InterDigital I* the Federal Circuit rejected a construction of the claim term “code” that limited the term to spreading codes but that the Court did not conclude as a factual matter that a code that has been modulated with data is still a code. *Id.* at 5 (citing *InterDigital I*, 690 F.3d at 1326). Adjudicated Respondents further

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point to the Federal Circuit’s statement in *InterDigital I*, agreeing with InterDigital, that “[t]he specification makes clear [that the initiation codes] are not used to spread data signal.” *Id.* at 7 (citing *InterDigital*, 690 F.3d at 1325; Haas Tr. at 1825:17-1826:14; Jackson Tr. at 178:15-21. Adjudicated Respondents also point to the Federal Circuit’s reasoning that “the specification describes various codes, such as pilot codes and short codes, as ‘spreading codes even though they carry no data and are not intended to do so. If a code carries no data, *i.e.*, it is not modulated with a data signal, there is no signal whose bandwidth is increased or intended to be increased.” *Id.* (citing *InterDigital I*, 690 F.3d at 1326). Adjudicated Respondents note that in its brief to the Federal Circuit in *InterDigital I*, InterDigital “emphasized several times that the short codes and access codes do not modulate data.” *Id.* at 10. Adjudicated Respondents add that testimony in this investigation supports the ALJ’s finding that the short codes do not modulate data. *Id.* at 8 (citing Jackson Tr. at 176:25-178:24; 178:15-21; Haas Tr. at 1822:11-1825:6).

### iv. Analysis

In our view, the ALJ’s finding that the accused products do not satisfy the “successively sends transmissions” limitation as construed to mean “transmits to the base station, one after the other, codes that are shorter than a regular length code” is correct. This construction recognizes that the “successively sends transmissions” limitation refers to the transmission of short codes, and the parties do not dispute that the short codes do not modulate data and are not intended to do so. The record evidence, however, demonstrates that the [ ]. Thus, in our view, the ALJ’s non-infringement finding is correct.

However, as InterDigital notes, in reaching his non-infringement determination, the ALJ

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relied on his understanding that the transmission of a code modulated by data is not the transmission of a code. *See* ID at 24-25 (relying on RX-3999C (Lanning RWS) at Q152). Specifically, the ALJ stated that under the adopted construction of “‘successively sends’ transmissions the WCDMA Accused Products do not infringe this limitation because [ ]” ID at 53 (citing RX-3999C (Lanning RWS) at Q310-311). In our view, the ALJ’s distinguishing between transmission of codes modulated by data and transmission of codes not modulated by data, and referring only to the latter as “codes” is unnecessary and confusing.

As noted above, we agree with the ALJ’s claim construction, which does not include the phrase “not modulated by data.” We further agree with the ALJ’s finding that the patents “disclose that the codes successively transmitted during the random access process (*i.e.*, the short codes) are neither modulated with data, nor used to modulate data.” ID at 24-25 (citing RX-3526C (Lanning WS) at Q69, Q92-95, Q130-132; CX-1309C (Jackson WS) at Q625; Jackson Tr. 119, 177, 178; Haas Tr. 1822, 1823-1826; RX-3999C (Lanning RWS) at Q132-134, Q141-143; *see also InterDigital Commc’ns, LLC v. Int’l Trade Comm’n*, 690 F.3d 1318, 1326 (Fed. Cir. 2012) (“As noted, the specification describes various codes, such as pilot codes and short codes, as ‘spreading codes’ even though they carry no data and are not intended to do so.”); *id.* at 1326 (finding that experts confirmed that the short codes and the access codes described in the specification do not spread, or modulate, data)).

The ALJ concluded that “[i]nasmuch as the adopted construction of ‘successively sends transmissions’ requires that the transmissions comprise codes, and inasmuch as [

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] it is determined that the WCDMA Accused Products do not satisfy this claim limitation under the adopted construction because the PRACH preamble is not a code.” ID at 53-54. We agree with the ALJ to the extent “code” refers to “short code,” but not with the ALJ’s conclusion that codes that modulate data are not actually codes. The Ramp-Up Patents disclose various “codes,” and do not teach that codes that modulate data are not codes. For example, the ’830 patent states that “[e]ach subscriber unit’s baseband data signal is multiplied by a code sequence, called the ‘spreading code,’ which has a much higher rate than the data” and that “[t]his coding results in a much wider transmission spectrum than the spectrum of the baseband data signal . . . .” ’830 patent, col. 2, ll. 5-11. In other words, the specification discloses spreading codes that modulate data and refers to them as “codes.” Indeed, in *InterDigital I*, the Federal Circuit reversed the Commission’s restriction of “spreading codes” to only codes that modulate data, finding that the shared specifications of the Power Ramp-Up patents also disclose spreading codes that do not modulate data such as the short codes and pilot codes. *InterDigital I*, 690 F.3d at 1326. Thus, in our view, stating that codes that modulate data are not codes creates confusion. Importantly, such a finding is unnecessary to establish non-infringement in this investigation.

As discussed above with respect to claim construction, the Power Ramp-Up patents, their common specification, and expert testimony make clear that the “successively sends transmissions” limitation refers to transmissions of short codes. No credible dispute exists that the short codes do not modulate data. For example, the Federal Circuit referencing the common specification of the Power Ramp-Up Patents noted that “the specification describes various codes,

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such as pilot codes and short codes, as ‘spreading codes’ even though they carry no data and are not intended to do so.” *InterDigital I*, 690 F.3d at 1326; 830 Patent, col. 7, ll. 39-44.

InterDigital’s expert confirmed that “successively sends transmissions” limitation refers to transmissions of short codes and that short codes do not modulate data:

Q. All right. Now the successively sent transmissions of claim 1, those are the short codes described in the 830 patent, correct?

A. Yes, the repeated transmissions of the short code are the successively sent transmissions.

Q. And in the power ramp-up patents, the short code is not applied to a data signal, correct?

A. Correct.

Jackson Tr. at 176:25-177:9. In addition, there is no dispute that in the Adjudicated Respondents’ accused products, [

] RX-3999C (Lanning

RWS) at Q310, Q312-317; RX-3964 (3GPP TS 25.331) at §§ 10.3.6.52-10.3.6.55; ID at 53-54.

Thus, the ALJ’s finding that the accused products do not meet the “successively sends transmissions” limitation is correct. The Commission therefore affirms the ALJ’s findings with the clarification provided above.

**b. Whether the Accused Products Satisfy the “Subsequent Transmissions” Limitation**

Given the Commission’s findings that the Adjudicated Respondents’ products do not meet the “successively sends transmissions” limitation recited in the asserted claims of both the ’830 and ’636 patents, the Commission need not reach whether those products satisfy the



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“subsequent transmissions” limitation of the ’636 patent. The Commission thus vacates the ALJ’s findings with respect to the “subsequent transmissions” limitation. *See Beloit Corp. v. Valmet Oy*, 742 F.2d 1421, 1423 (Fed. Cir. 1984) (“The Commission . . . is at perfect liberty to reach a ‘no violation’ determination on a single dispositive issue. That approach may often save the Commission, the parties, and this court substantial unnecessary effort.”).

### B. The Power Control Patents (’406 & ’332 Patents)

InterDigital has asserted the following claims of the ’406 patent in this investigation: independent claim 29; claim 6, which depends from independent claim 1; claim 13, which depends from independent claim 7; claim 20, which depends from independent claim 15; and claims 22 and 26, which depend from independent claim 21. Claim 29 recites:

**29.** A method for controlling transmission power levels of a code division multiple access (CDMA) subscriber unit, the method comprising:

receiving by the subscriber unit a *power control bit* on a downlink control channel, the *power control bit* indicating either an increase or decrease in transmission power level;

transmitting a plurality of channels by the subscriber unit, the plurality of channels including a traffic channel and a reverse control channel;

in response to the received power control bit, adjusting a transmission power level of both the traffic channel and the reverse control channel,

separately adjusting the transmission power level of the traffic channel and the reverse control channel; and

transmitting the traffic channel and the reverse control channel at their respective adjusted transmit power levels.

’406 patent, col. 17, ll. 5-22 (claim 29) (emphasis added).

InterDigital has asserted the following claims of the ’332 patent in this investigation:

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Independent claim 8 together with its dependent claims 9, 10, 11, and 14; claims 2, 3, 4, and 7, which depend from independent claim 1; and claims 22, 23, 24, and 27, which depend from independent claim 21. Claim 8 recites:

**8.** A code division multiple access subscriber unit, comprising:

an antenna configured to receive a first radio frequency signal; and

a circuit, operatively coupled to the antenna, configured to generate *power control bits* in response to the first radio frequency signal, wherein the circuit is further configured to establish an in-phase (I) pre-spread channel and a quadrature (Q) pre-spread channel, such that the power control bits are included on only one of the I pre-spread channel or the Q pre-spread channel;

wherein a second radio frequency signal output by the code division multiple access subscriber unit is derived at least in part from the I and Q pre-spread channels.

'332 patent, col. 101, ll. 37 – 50 (claim 8) (emphasis added).

### **1. Construction of the Claim Term “Power Control Bit”**

#### **a. The ID**

The ALJ adopted the Adjudicated Respondents' proposed construction and construed the claim term “power control bit” to mean “single-bit power control information transmitted at an APC data rate equivalent to the APC<sup>[5]</sup> update rate.” ID at 101. In construing the limitation, the ALJ observed that neither the specification of the '406 patent nor the specification of the '332 patent contain the specific term “power control bit.” *Id.* The ALJ, however, found that the specifications “describe the way in which the claimed invention conveys power control, or APC,

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<sup>5</sup> The 406 patent refers to both adaptive power control and automatic power control as APC. See '406 patent, col. 4, l. 32; col. 5, l. 50.

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information,” pointing to the following disclosures:

The APC signal is transmitted as one bit signals on the APC channel. The one-bit signal represents a command to increase (signal is logic-high) or decrease (signal is logic-low) the associated transmit power. In the described embodiment, the 64 kbps APC data stream is not encoded or interleaved. ’406 patent, col. 6, ll. 47-51.

APC information is always conveyed as a single bit of information, and the APC Data Rate is equivalent to the APC update rate. The APC update rate is 64 kb/s. ’406 patent, col. 9, ll. 46-48; ’332 patent, col. 67, ll. 43-45.

The APC bits are transmitted as one bit up or down signals on the APC channel. ’332 patent, col. 64, ll. 11-13.

In addition, the ALJ found that the flow chart depicted in Figure 4 of the ’406 patent indicates that “RCS<sup>[6]</sup> transmits the APC bit to SU<sup>[7]</sup> in the forward APC channel,” “SU modem receives the single APC bit,” and “SU increases or decreases its transmit power according to the APC bit received.” ID at 102 (citing ’406 patent, Fig. 4). Similarly, the ALJ found that Figure 27 of the ’332 patent teaches that “SU modem hard limits the combined error signal to form a single APC bit,” “SU transmits the APC bit to RCS in the reverse APC channel,” and “RCS modem receives the single APC bit.” *Id.* (citing ’332 patent, Fig. 27).

The ALJ found further support for his construction from the language of the claims. *Id.* He noted that claim 1 of the ’406 patent, from which asserted claim 6 depends, requires that the claimed invention adjust the transmission power of the mobile device “in response to *the* received power control bit” and that claim 7 of the ’406 patent, from which asserted claim 13

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<sup>6</sup> “RCS” stands for “radio carrier station.” ’406 patent, col. 3, ll. 48-51.

<sup>7</sup> “SU” stands for “subscriber unit.” ’406 patent, col. 3, ll. 46-47.

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depends, claims a method in which a subscriber unit receives “a series of power control bits on a down link channel, each power control bit indicating either an increase or decrease in transmission power level.” *Id.* (citing ’406 patent, col. 14, l. 58 – col. 15, l. 8; col. 15, ll. 28-45).

The ALJ rejected InterDigital’s proposal to construe the claim limitation to mean “binary information relating to power control,” finding that InterDigital’s proposed construction seeks to construe the term “bit” to include any type of binary information, even when that information is not a “bit.” ID at 103.

**b. InterDigital’s Petition**

InterDigital challenges the ALJ’s construction of the claim term, arguing that the plain and ordinary meaning of the claim term “power control bit” is “binary information relating to power control.” InterDigital Pet. at 28. According to InterDigital, experts for both sides agreed that a bit “is simply a representation of a piece of information that has two states,” meaning information that is “binary.” *Id.* (citing Tr. at 1204:22-25, CX-1310C at ¶93). InterDigital also argues that the ’332 patent claims do not limit the type of binary information that makes up a power control bit and that the ’406 patent simply requires that the power control indicates either an increase or decrease in transmission power level. *Id.* at 28-29 (citing ’406 patent, col. 15, ll. 32-34; col 16, ll. 38-40; CX-1310C at ¶93).

InterDigital points to the dependent claims for further support and asserts that because some of them require that “the power control bit has a value of +1 or -1,” the claimed invention “must be broad enough to include implementations for which the power control bit can have a value of +1 or -1, 0 or 1, and so on.” *Id.* at 29.

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InterDigital explains that the specification uses the phrase “bit,” “single APC bit,” and “one bit signals” and that use of the modifiers “single” and “one” “‘strongly implies’ that the stand-alone and unmodified claim term ‘bit’ is not limited to a single (or one) bit, but instead encompass many bits as long as those bits ultimately represent only two binary states.” *Id.* at 30. According to InterDigital, the ALJ’s reliance on the specification’s statement that “APC information is always conveyed as a single bit of information” is misplaced because the statement does not use the claim term “power control bit” and does not state that “the present invention” or “all embodiments” always use a single bit of information to convey APC information. *Id.* at 35.

InterDigital accuses the ALJ of erroneously limiting the claim term to disclosures in the specification. *Id.* Specifically, InterDigital contends that the ALJ did not “explain his rationale for imposing a limitation on the entire invention that the APC data rate be equal to the APC update rate,” and that the ALJ imported this limitation from a preferred embodiment. *Id.* at 32. InterDigital asserts that this was a mistake because allegedly the specification describes embodiments in which the APC data rate is not equivalent to the APC update rate. *Id.* at 33-34 (citing Tr. at 322:18-23; 332 Patent, Fig. 29B).

### **c. Adjudicated Respondents’ Response**

Adjudicated Respondents argue that both the intrinsic and extrinsic evidence support the ALJ’s claim construction. Resp. Rep. at 17. According to Adjudicated Respondents, the patents describe “transmit[ing] single-bit power control commands, or ‘power control bits,’ with each one-bit command indicating either an increase or a decrease in the transmission power level” and

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that “[b]y designing their systems to update the power level once for each power control bit received, the inventors maximized the APC update rate (e.g., update per second), making it equivalent to the APC data rate (e.g., bits per second).” *Id.* at 18. Consistent with that objective, Adjudicated Respondents contend that the patentees defined “the way that is ‘always’ used to transmit APC information using power control bits”: “APC information is always conveyed as a single bit of information, and the APC data rate is equivalent to the APC update rate.” *Id.* (citing 406 Patent, col. 9, ll. 45-52; 332 Patent, col. 67, ll. 43-45). Adjudicated Respondents assert that the “always” statement “clearly and unmistakably informs one of ordinary skill in the art that the invention requires that power control commands always consist of a single bit, and that the power level is updated once per bit received (*i.e.*, the APC data rate is equivalent to the APC update rate).” *Id.* at 19 (citing RX-3529C (Williams Stmt.) at QQ. 20, 129-30). Adjudicated Respondents argue that the inventors disavowed multi-bit power control commands, which necessarily include more than one bit per power control command and require an APC data rate higher than the APC update rate. *Id.*

Adjudicated Respondents dismiss InterDigital’s contention that the “always” statement does not relate to the claimed “power control bit,” arguing that “[t]he ‘always’ statement begins with the acronym ‘APC,’ which undisputedly refers to adaptive/automatic power control.” *Id.* at 22 (citing ’406 patent, col. 2, ll. 29-30; col. 4, l. 23; col. 5, l. 50; ’332 patent, col. 3, ll. 26-27). Adjudicated Respondents add that the “always” statement “explains that the APC (power control) information is always conveyed as single-bit information, which is precisely the purpose of the claimed ‘power control bit.’” *Id.* at 22-23.

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Adjudicated Respondents further state that InterDigital's argument that the "ALJ did not explain why the APC data rate must be equivalent to the APC update rate . . . ignores the relevant portion of both the ID and the patent specifications." *Id.* at 28. According to Adjudicated Respondents "[t]he ALJ's entire construction comes directly from the inventors' unified, clear, and unambiguous statement about how power control information is 'always' conveyed." *Id.* at 28-29. Adjudicated Respondents assert that the "always" modifies the entire sentence: "APC information is always conveyed as a single bit of information, and the APC data rate is equivalent to the APC update rate" and that the two clauses are "inherently and logically linked." *Id.* at 29. Specifically, Adjudicated Respondents argue that the first clause's disclosure that "each power control command or request is conveyed as a single bit of data" "necessarily means that the APC data rate (e.g., bits per second) at which power control information is sent will be equivalent to the APC update rate (e.g., updates per second) at which the power level is updated," and that second clause merely makes this equivalency explicit. *Id.* at 29.

### **d. Analysis**

In our view, the ALJ correctly construed the claim limitation "power control bit" to mean "single-bit power control information." ID at 101. However, by also requiring that the "power control bit" "transmit[] at an APC data rate equivalent to the APC update rate," the ALJ limited the construction in a manner not plainly warranted by the specification. *See* ID at 101. Thus, we modify the construction by striking "transmitted at an APC data rate equivalent to the APC update rate" from the construction.

As the ALJ noted, neither the specification of the '406 patent nor the specification of

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the '332 patent contains the specific term “power control bit.” *Id.* However, the specifications of both the '406 and '332 patents describe the manner in which the claimed invention conveys power control (APC) information. Specifically, the specifications of both the '406 and '332 patents teach that

APC information is *always* conveyed as a single bit of information, and the APC Data Rate is equivalent to the APC update rate. The APC update rate is 64 kb/s.

'406 patent, col. 9, ll. 46-48; '332 patent, col. 67, ll. 43-45 (emphasis added). The specification of the '406 patent explains that

The APC signal is transmitted as one bit signals on the APC channel. The one-bit signal represents a command to increase (signal is logic-high) or decrease (signal is logic-low) the associated transmit power. In the described embodiment, the 64 kbps APC data stream is not encoded or interleaved.

'406 patent, col. 6, ll. 47-51. The specification of the '332 patent also explains that

The APC bits are transmitted as one bit up or down signals on the APC channel.

'332 patent, col. 64, ll. 11-13. In other words, the specifications make clear that the APC is conveyed as a single-bit signal. Specifically, by disclosing that “APC information is *always* conveyed as a single bit of information,” the patentees acted as their own lexicographers and defined the precise scope of the power control bit. *See* '406 patent, col. 9, ll. 46-48; '332 patent, col. 67, ll. 43-45 (emphasis added); *Astrazeneca AB v. Mutual Pharm.*, 384 F.3d 1333, 1338-39 (Fed. Cir. 2004). Consequently, we agree with the ALJ that the claimed “power control bit” is conveyed as a single bit.

InterDigital argues that a bit “is simply a representation of a piece of information that has



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two states,” meaning “binary” and that the asserted claims do not limit the type of binary information that makes up a power control bit. InterDigital Pet. at 28-29. InterDigital’s argument is not persuasive. The claims recite “power control bit,” a phrase that does not appear in the specifications. The only “power control” described in the specifications, however, is the APC (adaptive or automatic power control), and the specifications state that the “APC is *always* conveyed as a single bit of information.” A bit being a representation of a piece of information that has two states has no bearing on the fact that the patentees acted as their own lexicographers and defined the scope of the power control bit. In short, the patentees specifically defined the scope of the power control bit, and their express definition must govern.

However, we find persuasive InterDigital’s assertion that the ALJ did not “explain his rationale for imposing a limitation on the entire invention that the APC data rate be equal to the APC update rate.” InterDigital Pet. at 32. Unlike the specific requirement that the APC information is always conveyed as a single bit of information, which is emphasized in other portions of the patents (*see, e.g.*, ’406 patent, col. 9, ll. 46-48; col. 6, ll. 47-51; Fig. 4 ’332 patent, col. 67, ll. 43-45; Fig 27), APC data rate being equal to the APC update rate is not emphasized in the specifications, and the placement of the comma suggests that the word “always” does not modify both clauses. It may be that the two clauses are “inherently and logically linked” as Adjudicated Respondents argue (Resp. Rep. at 29). However, the Federal Circuit has cautioned against limiting claim scope to disclosures in the specification absent a clear indication. *See Toshiba Corp. v. Imation Corp.*, 681 F.3d 1358, 1369 (Fed. Cir. 2012). Accordingly, the Commission strikes that second clause from the construction.

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**2. Whether the Accused Products Infringe the Power Control Patents ('406 & '332 Patents)**

**a. Brief Summary of the Issue and Parties' Arguments**

InterDigital notes the ALJ's finding that the accused products infringe the asserted claims of the '406 and '332 patents except for the "power control bit" limitation. InterDigital Pet. at 37. InterDigital argues that the accused products infringe the asserted claims if the Commission adopts the single-bit portion of the ALJ's construction but rejects the data rate portion. *Id.* at 38. InterDigital explains that the ALJ found that WCDMA products do not satisfy the "power control bit" limitation because [

] and that this finding would be of no consequence if the Commission rejects the "data rate" portion of the construction. *Id.* at 38. Specifically, InterDigital points to the Commission's finding that the WCDMA products [

] *Id.* (citing ID at 116-16, 119; CX-0232 (3GPP TS 25.211) at §§ 3.2, 5.3.2.)

Similarly, InterDigital argues that the accused CDMA2000 products infringe because the ALJ found that those products [

]. *Id.* at 39 (citing ID at 120-21, 125).

**b. Analysis**

InterDigital's argument is not persuasive. The ALJ's non-infringement conclusion depends on his findings that "all the accused products [

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]” ID at 126-27 (citing RX-3994C (Williams RWS) at Q7-18, Q21-27, Q189, Q197, Q199-216, Q400-440, Q528; Goldberg Tr. 249-251; Prucnal Tr. 318-319, 320; RX-3994C (Williams RWS) at Q52-63). The ALJ further found that “a power control command in WCDMA-compliant devices always consists of at least 2 bits.” *Id.* (citing Prucnal Tr. 318-319; RX-3994C (Williams RWS) at Q11-18; *see* RX-3531 (3GPP TS 25.211) at Fig. 13). The ALJ observed that experts for both sides, Dr. Goldberg and Dr. Prucnal, agreed that all of the accused WCDMA products [ ]

*Id.* (citing Goldberg Tr. 249-51; Prucnal Tr. 320). Consequently, the handset [

] *Id.* The ALJ also noted that the TPC Bit Pattern transmitted by WCDMA-compliant handsets to the base station also includes two bits. *See* CX-1310C (Prucnal WS) at Q189; Prucnal Tr. 319. With respect to the CDMA2000-compliant devices, the ALJ found that

CDMA2000 standard provides that the power control instruction is always transmitted as a set of at least 384 chips. *See* CX-0017 (3GPP2 C.S0002) § 2.1.3.1.10.1. In fact, the CDMA2000 specification requires that more than one bit of power control information is sent to or received from the mobile station to indicate an increase or decrease in power. The CDMA2000 standard provides that “[t]he duration and power level of power control bits” is greater than one symbol, where each symbol consists of at least one bit of information. *See* Prucnal Tr. 320; RX-3994C (Williams RWS) at Q24-25; CX-0017 (3GPP2 C.S0002) § 3.1.3.1.10. Therefore, none of the CDMA2000 accused devices receives or generates single-bit power control information. *See* RX-3994C (Williams RWS) at Q210-213, Q216.

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The record evidence supports the ALJ's findings that the Adjudicated Respondents' products do not infringe the modified construction of "power control bit" to mean "single-bit power control information." Simply put, modifying the ALJ's construction of "power control bit" to mean "single-bit power control information" does not alter his infringement findings discussed above because those findings rest on the understanding that the "power control bit" must be a single bit.

### IV. CONCLUSION

Upon review of the ID, the Commission affirms the ALJ's finding of no violation of section 337 as to the Adjudicated Respondents, *i.e.*, Huawei, Nokia, and ZTE. Specifically, with respect to the Power Ramp-Up patents (the '830 and '636 patents), the Commission (1) affirms the ALJ's findings that the accused products do not satisfy the "successively sends transmissions" limitation as construed to mean "transmits to the base station, one after the other, codes that are shorter than a regular length code" to the extent that the "successively sends transmissions" refer to the short codes and (2) for the '636 patent, vacates the ALJ's findings regarding the "subsequent transmission" limitation. With respect to the Power Control Patents (the '406 and '332 patents), the Commission modifies the ALJ's construction of the claim term "power control bit," construes the limitation to encompass only "single-bit power control information," and affirms the findings that the accused products do not satisfy those limitations. The Commission adopts the ALJ's findings that the '127, '013, and '970 patents are invalid in view of prior art.

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By order of the Commission.


A handwritten signature in black ink, appearing to read 'Lisa R. Barton'.

Lisa R. Barton  
Acting Secretary to the Commission

Issued: February 19, 2014

PUBLIC CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached **COMMISSION OPINION** has been served by hand upon the Commission Investigative Attorney, Brian Koo, Esq., and the following parties as indicated on **February 19, 2014**.



Lisa R. Barton, Acting Secretary  
U.S. International Trade Commission  
500 E Street, SW, Room 112  
Washington, DC 20436

On Behalf of Complainants InterDigital Communications,  
Inc., InterDigital Technology Corporation, IPR Licensing,  
Inc. and InterDigital Holdings, Inc.:

Maximilian A. Grant, Esq.  
**LATHAM & WATKINS LLP**  
555 Eleventh Street, NW, Suite 1000  
Washington, DC 20004

( ) Via Hand Delivery  
( ☒ ) Via Express Delivery  
( ) Via First Class Mail  
( ) Other: \_\_\_\_\_

On Behalf of Respondents Huawei Technologies Co., Ltd.,  
Huawei Device USA, Inc., and FutureWei Technologies, Inc.:

Sturgis M. Sobin, Esq.  
**COVINGTON & BURLING LLP**  
1201 Pennsylvania Avenue, NW  
Washington, DC 20004-2401

( ) Via Hand Delivery  
( ☒ ) Via Express Delivery  
( ) Via First Class Mail  
( ) Other: \_\_\_\_\_

On Behalf of Respondents ZTE Corporation and ZTE (USA)  
Inc.:

Jay H. Reiziss, Esq.  
**BRINKS GILSON & LIONE**  
1775 Pennsylvania Ave., Suite 900  
Washington, DC 20006-2219

( ) Via Hand Delivery  
( ☒ ) Via Express Delivery  
( ) Via First Class Mail  
( ) Other: \_\_\_\_\_

On Behalf of Respondents Nokia Corporation and Nokia Inc.:

Jamie D. Underwood, Esq.  
**ALSTON & BIRD LLP**  
950 F Street, NW  
Washington, DC 20004

( ☒ ) Via Hand Delivery  
( ☒ ) Via Express Delivery  
( ) Via First Class Mail  
( ) Other: \_\_\_\_\_